PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stroh 13K-443**

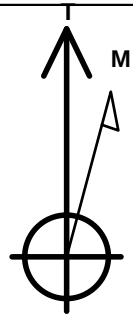
Surface Location: Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4805.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1356828.00	3183228.13	40.311030	-104.842970	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2353'FSL & 1586' FWL, Sec.13	1.0	0.0	0.0	Point
BHL 500' FSL & 897' FWL, Sec.24	7309.0	-7114.9	-674.4	Point



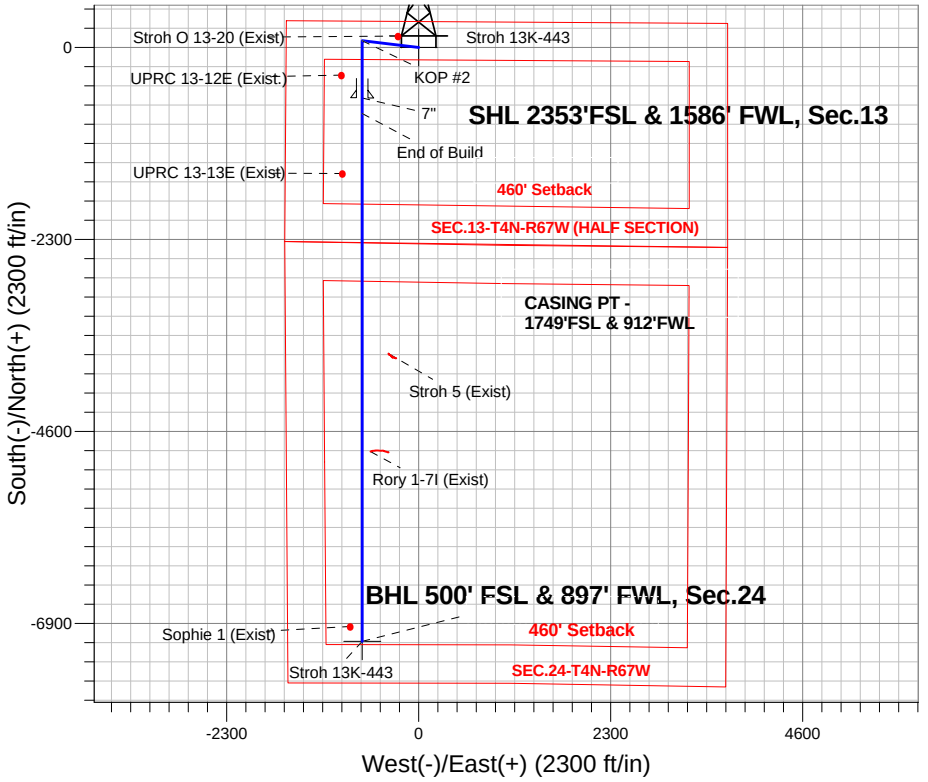
Azimuths to True North
Magnetic North: 8.53°

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

Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-443
Plan #2 (4-9-14)
10:27, April 10 2014

ANNOTATIONS

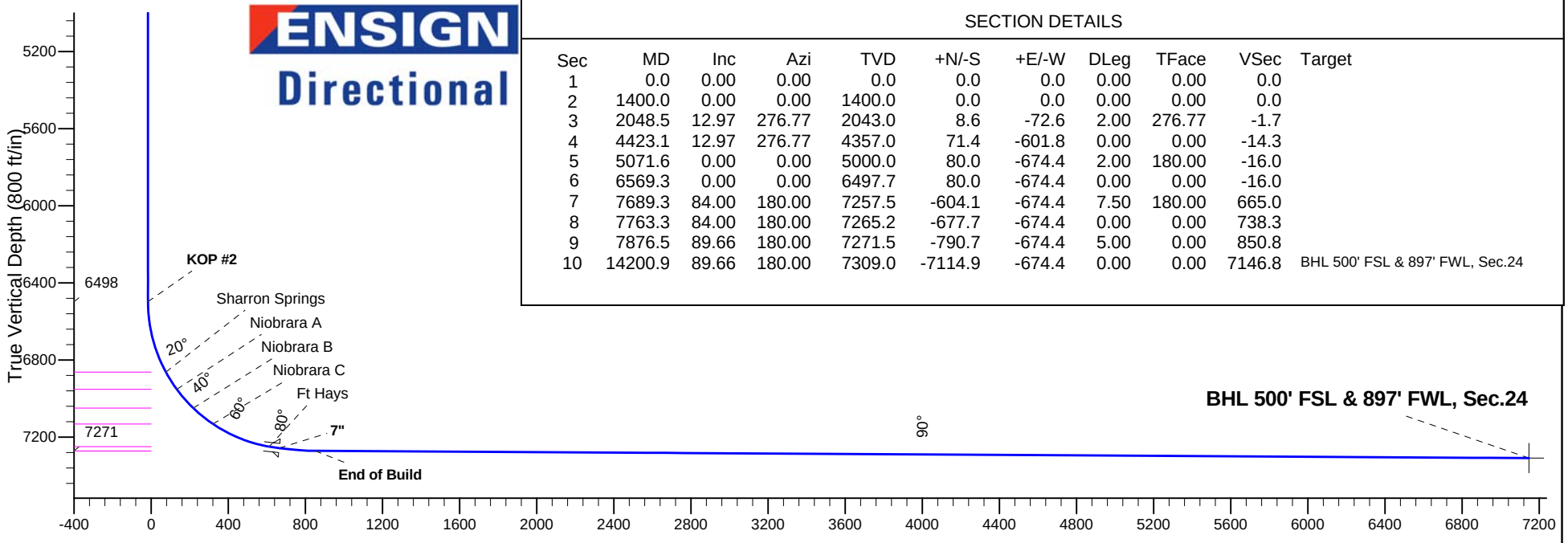
TVD	MD	Annotation
1400.0	1400.0	KOP #1
6497.7	6569.3	KOP #2
7271.5	7876.5	End of Build



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	2048.5	12.97	276.77	2043.0	8.6	-72.6	2.00	276.77	-1.7	
4	4423.1	12.97	276.77	4357.0	71.4	-601.8	0.00	0.00	-14.3	
5	5071.6	0.00	0.00	5000.0	80.0	-674.4	2.00	180.00	-16.0	
6	6569.3	0.00	0.00	6497.7	80.0	-674.4	0.00	0.00	-16.0	
7	7689.3	84.00	180.00	7257.5	-604.1	-674.4	7.50	180.00	665.0	
8	7763.3	84.00	180.00	7265.2	-677.7	-674.4	0.00	0.00	738.3	
9	7876.5	89.66	180.00	7271.5	-790.7	-674.4	5.00	0.00	850.8	
10	14200.9	89.66	180.00	7309.0	-7114.9	-674.4	0.00	0.00	7146.8	BHL 500' FSL & 897' FWL, Sec.24



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-443

Wellbore #1

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

Standard Planning Report

10 April, 2014

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

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

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

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

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

Well Stroh 13K-443

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,356,828.00 ft	**Latitude:**	40.311030
	+E/-W	61.4 ft	**Easting:**	3,183,228.13 ft	**Longitude:**	-104.842970
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,805.0 ft

Wellbore Wellbore #1

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

Design Plan #2 (4-9-14)

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	185.41

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	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,048.5	12.97	276.77	2,043.0	8.6	-72.6	2.00	2.00	0.00	276.77	
4,423.1	12.97	276.77	4,357.0	71.4	-601.8	0.00	0.00	0.00	0.00	
5,071.6	0.00	0.00	5,000.0	80.0	-674.4	2.00	-2.00	0.00	180.00	
6,569.3	0.00	0.00	6,497.7	80.0	-674.4	0.00	0.00	0.00	0.00	
7,689.3	84.00	180.00	7,257.5	-604.1	-674.4	7.50	7.50	0.00	180.00	
7,763.3	84.00	180.00	7,265.2	-677.7	-674.4	0.00	0.00	0.00	0.00	
7,876.5	89.66	180.00	7,271.5	-790.7	-674.4	5.00	5.00	0.00	0.00	
14,200.9	89.66	180.00	7,309.0	-7,114.9	-674.4	0.00	0.00	0.00	0.00	BHL 500' FSL & 89'

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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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-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 2353'FSL & 1586' 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
KOP #1									
1,500.0	2.00	276.77	1,500.0	0.2	-1.7	0.0	2.00	2.00	0.00
1,600.0	4.00	276.77	1,599.8	0.8	-6.9	-0.2	2.00	2.00	0.00
1,700.0	6.00	276.77	1,699.5	1.8	-15.6	-0.4	2.00	2.00	0.00
1,800.0	8.00	276.77	1,798.7	3.3	-27.7	-0.7	2.00	2.00	0.00
1,900.0	10.00	276.77	1,897.5	5.1	-43.2	-1.0	2.00	2.00	0.00
2,000.0	12.00	276.77	1,995.6	7.4	-62.2	-1.5	2.00	2.00	0.00
2,048.5	12.97	276.77	2,043.0	8.6	-72.6	-1.7	2.00	2.00	0.00
2,100.0	12.97	276.77	2,093.2	10.0	-84.1	-2.0	0.00	0.00	0.00
2,200.0	12.97	276.77	2,190.6	12.6	-106.3	-2.5	0.00	0.00	0.00
2,300.0	12.97	276.77	2,288.1	15.3	-128.6	-3.1	0.00	0.00	0.00
2,400.0	12.97	276.77	2,385.5	17.9	-150.9	-3.6	0.00	0.00	0.00
2,500.0	12.97	276.77	2,483.0	20.5	-173.2	-4.1	0.00	0.00	0.00
2,600.0	12.97	276.77	2,580.4	23.2	-195.5	-4.6	0.00	0.00	0.00
2,700.0	12.97	276.77	2,677.9	25.8	-217.8	-5.2	0.00	0.00	0.00
2,800.0	12.97	276.77	2,775.3	28.5	-240.1	-5.7	0.00	0.00	0.00
2,900.0	12.97	276.77	2,872.8	31.1	-262.4	-6.2	0.00	0.00	0.00
3,000.0	12.97	276.77	2,970.2	33.8	-284.6	-6.8	0.00	0.00	0.00
3,100.0	12.97	276.77	3,067.7	36.4	-306.9	-7.3	0.00	0.00	0.00
3,200.0	12.97	276.77	3,165.1	39.1	-329.2	-7.8	0.00	0.00	0.00
3,300.0	12.97	276.77	3,262.5	41.7	-351.5	-8.3	0.00	0.00	0.00
3,400.0	12.97	276.77	3,360.0	44.3	-373.8	-8.9	0.00	0.00	0.00
3,500.0	12.97	276.77	3,457.4	47.0	-396.1	-9.4	0.00	0.00	0.00
3,600.0	12.97	276.77	3,554.9	49.6	-418.4	-9.9	0.00	0.00	0.00
3,700.0	12.97	276.77	3,652.3	52.3	-440.7	-10.5	0.00	0.00	0.00
3,800.0	12.97	276.77	3,749.8	54.9	-462.9	-11.0	0.00	0.00	0.00
3,900.0	12.97	276.77	3,847.2	57.6	-485.2	-11.5	0.00	0.00	0.00
4,000.0	12.97	276.77	3,944.7	60.2	-507.5	-12.0	0.00	0.00	0.00
4,100.0	12.97	276.77	4,042.1	62.8	-529.8	-12.6	0.00	0.00	0.00
4,200.0	12.97	276.77	4,139.6	65.5	-552.1	-13.1	0.00	0.00	0.00
4,300.0	12.97	276.77	4,237.0	68.1	-574.4	-13.6	0.00	0.00	0.00
4,400.0	12.97	276.77	4,334.5	70.8	-596.7	-14.2	0.00	0.00	0.00
4,423.1	12.97	276.77	4,357.0	71.4	-601.8	-14.3	0.00	0.00	0.00
4,500.0	11.43	276.77	4,432.2	73.3	-618.0	-14.7	2.00	-2.00	0.00
4,600.0	9.43	276.77	4,530.5	75.4	-635.9	-15.1	2.00	-2.00	0.00
4,700.0	7.43	276.77	4,629.4	77.2	-650.5	-15.4	2.00	-2.00	0.00

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Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13K-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,800.0	5.43	276.77	4,728.8	78.5	-661.6	-15.7	2.00	-2.00	0.00
4,900.0	3.43	276.77	4,828.5	79.4	-669.3	-15.9	2.00	-2.00	0.00
5,000.0	1.43	276.77	4,928.4	79.9	-673.5	-16.0	2.00	-2.00	0.00
5,071.6	0.00	0.00	5,000.0	80.0	-674.4	-16.0	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,028.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,128.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,228.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,328.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,428.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,528.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,628.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,728.4	80.0	-674.4	-16.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,828.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,928.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,028.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,128.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,228.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,328.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,428.4	80.0	-674.4	-16.0	0.00	0.00	0.00
6,569.3	0.00	0.00	6,497.7	80.0	-674.4	-16.0	0.00	0.00	0.00
KOP #2									
6,600.0	2.30	180.00	6,528.4	79.4	-674.4	-15.4	7.49	7.49	0.00
6,700.0	9.80	180.00	6,627.7	68.9	-674.4	-4.9	7.50	7.50	0.00
6,800.0	17.30	180.00	6,724.9	45.4	-674.4	18.4	7.50	7.50	0.00
6,900.0	24.80	180.00	6,818.1	9.6	-674.4	54.1	7.50	7.50	0.00
6,950.2	28.55	180.00	6,863.0	-13.0	-674.4	76.6	7.47	7.47	0.00
Sharron Springs									
7,000.0	32.30	180.00	6,905.9	-38.2	-674.4	101.7	7.53	7.53	0.00
7,055.9	36.49	180.00	6,952.0	-69.7	-674.4	133.1	7.50	7.50	0.00
Niobrara A									
7,100.0	39.80	180.00	6,986.7	-97.0	-674.4	160.2	7.50	7.50	0.00
7,186.6	46.30	180.00	7,050.0	-156.1	-674.4	219.1	7.50	7.50	0.00
Niobrara B									
7,200.0	47.30	180.00	7,059.1	-165.9	-674.4	228.8	7.50	7.50	0.00
7,300.0	54.80	180.00	7,122.0	-243.6	-674.4	306.1	7.50	7.50	0.00
7,317.7	56.13	180.00	7,132.0	-258.2	-674.4	320.6	7.50	7.50	0.00
Niobrara C									
7,400.0	62.30	180.00	7,174.1	-328.8	-674.4	391.0	7.50	7.50	0.00
7,500.0	69.80	180.00	7,214.7	-420.1	-674.4	481.9	7.50	7.50	0.00
7,600.0	77.30	180.00	7,243.0	-516.0	-674.4	577.3	7.50	7.50	0.00
7,635.7	79.98	180.00	7,250.0	-551.0	-674.4	612.1	7.50	7.50	0.00
Ft Hays									
7,689.3	84.00	180.00	7,257.5	-604.0	-674.4	665.0	7.50	7.50	0.00
7"									
7,700.0	84.00	180.00	7,258.6	-614.7	-674.4	675.6	0.03	0.03	0.00
7,763.3	84.00	180.00	7,265.2	-677.7	-674.4	738.3	0.00	0.00	0.00
7,800.0	85.83	180.00	7,268.5	-714.2	-674.4	774.6	5.00	5.00	0.00
7,876.5	89.66	180.00	7,271.5	-790.6	-674.4	850.7	5.00	5.00	0.00
End of Build									
7,900.0	89.66	180.00	7,271.6	-814.1	-674.4	874.1	0.01	0.01	0.00
7,965.7	89.66	180.00	7,272.0	-879.8	-674.4	939.5	0.00	0.00	0.00
Codell									

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Well:	Stroh 13K-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,000.0	89.66	180.00	7,272.2	-914.1	-674.4	973.7	0.00	0.00	0.00
8,100.0	89.66	180.00	7,272.8	-1,014.1	-674.4	1,073.2	0.00	0.00	0.00
8,200.0	89.66	180.00	7,273.4	-1,114.1	-674.4	1,172.8	0.00	0.00	0.00
8,300.0	89.66	180.00	7,274.0	-1,214.1	-674.4	1,272.3	0.00	0.00	0.00
8,400.0	89.66	180.00	7,274.6	-1,314.1	-674.4	1,371.9	0.00	0.00	0.00
8,500.0	89.66	180.00	7,275.2	-1,414.1	-674.4	1,471.4	0.00	0.00	0.00
8,600.0	89.66	180.00	7,275.8	-1,514.1	-674.4	1,571.0	0.00	0.00	0.00
8,700.0	89.66	180.00	7,276.4	-1,614.1	-674.4	1,670.5	0.00	0.00	0.00
8,800.0	89.66	180.00	7,277.0	-1,714.1	-674.4	1,770.1	0.00	0.00	0.00
8,900.0	89.66	180.00	7,277.5	-1,814.1	-674.4	1,869.6	0.00	0.00	0.00
9,000.0	89.66	180.00	7,278.1	-1,914.1	-674.4	1,969.2	0.00	0.00	0.00
9,100.0	89.66	180.00	7,278.7	-2,014.1	-674.4	2,068.7	0.00	0.00	0.00
9,200.0	89.66	180.00	7,279.3	-2,114.1	-674.4	2,168.3	0.00	0.00	0.00
9,300.0	89.66	180.00	7,279.9	-2,214.1	-674.4	2,267.9	0.00	0.00	0.00
9,400.0	89.66	180.00	7,280.5	-2,314.1	-674.4	2,367.4	0.00	0.00	0.00
9,500.0	89.66	180.00	7,281.1	-2,414.1	-674.4	2,467.0	0.00	0.00	0.00
9,600.0	89.66	180.00	7,281.7	-2,514.1	-674.4	2,566.5	0.00	0.00	0.00
9,700.0	89.66	180.00	7,282.3	-2,614.1	-674.4	2,666.1	0.00	0.00	0.00
9,800.0	89.66	180.00	7,282.9	-2,714.1	-674.4	2,765.6	0.00	0.00	0.00
9,900.0	89.66	180.00	7,283.5	-2,814.1	-674.4	2,865.2	0.00	0.00	0.00
10,000.0	89.66	180.00	7,284.1	-2,914.1	-674.4	2,964.7	0.00	0.00	0.00
10,100.0	89.66	180.00	7,284.7	-3,014.1	-674.4	3,064.3	0.00	0.00	0.00
10,200.0	89.66	180.00	7,285.3	-3,114.1	-674.4	3,163.8	0.00	0.00	0.00
10,300.0	89.66	180.00	7,285.9	-3,214.1	-674.4	3,263.4	0.00	0.00	0.00
10,400.0	89.66	180.00	7,286.4	-3,314.1	-674.4	3,362.9	0.00	0.00	0.00
10,500.0	89.66	180.00	7,287.0	-3,414.1	-674.4	3,462.5	0.00	0.00	0.00
10,600.0	89.66	180.00	7,287.6	-3,514.1	-674.4	3,562.0	0.00	0.00	0.00
10,700.0	89.66	180.00	7,288.2	-3,614.1	-674.4	3,661.6	0.00	0.00	0.00
10,800.0	89.66	180.00	7,288.8	-3,714.1	-674.4	3,761.1	0.00	0.00	0.00
10,900.0	89.66	180.00	7,289.4	-3,814.1	-674.4	3,860.7	0.00	0.00	0.00
11,000.0	89.66	180.00	7,290.0	-3,914.1	-674.4	3,960.2	0.00	0.00	0.00
11,100.0	89.66	180.00	7,290.6	-4,014.1	-674.4	4,059.8	0.00	0.00	0.00
11,200.0	89.66	180.00	7,291.2	-4,114.1	-674.4	4,159.3	0.00	0.00	0.00
11,300.0	89.66	180.00	7,291.8	-4,214.1	-674.4	4,258.9	0.00	0.00	0.00
11,400.0	89.66	180.00	7,292.4	-4,314.1	-674.4	4,358.4	0.00	0.00	0.00
11,500.0	89.66	180.00	7,293.0	-4,414.1	-674.4	4,458.0	0.00	0.00	0.00
11,600.0	89.66	180.00	7,293.6	-4,514.1	-674.4	4,557.5	0.00	0.00	0.00
11,700.0	89.66	180.00	7,294.2	-4,614.1	-674.4	4,657.1	0.00	0.00	0.00
11,800.0	89.66	180.00	7,294.8	-4,714.0	-674.4	4,756.7	0.00	0.00	0.00
11,900.0	89.66	180.00	7,295.3	-4,814.0	-674.4	4,856.2	0.00	0.00	0.00
12,000.0	89.66	180.00	7,295.9	-4,914.0	-674.4	4,955.8	0.00	0.00	0.00
12,100.0	89.66	180.00	7,296.5	-5,014.0	-674.4	5,055.3	0.00	0.00	0.00
12,200.0	89.66	180.00	7,297.1	-5,114.0	-674.4	5,154.9	0.00	0.00	0.00
12,300.0	89.66	180.00	7,297.7	-5,214.0	-674.4	5,254.4	0.00	0.00	0.00
12,400.0	89.66	180.00	7,298.3	-5,314.0	-674.4	5,354.0	0.00	0.00	0.00
12,500.0	89.66	180.00	7,298.9	-5,414.0	-674.4	5,453.5	0.00	0.00	0.00
12,600.0	89.66	180.00	7,299.5	-5,514.0	-674.4	5,553.1	0.00	0.00	0.00
12,700.0	89.66	180.00	7,300.1	-5,614.0	-674.4	5,652.6	0.00	0.00	0.00
12,800.0	89.66	180.00	7,300.7	-5,714.0	-674.4	5,752.2	0.00	0.00	0.00
12,900.0	89.66	180.00	7,301.3	-5,814.0	-674.4	5,851.7	0.00	0.00	0.00
13,000.0	89.66	180.00	7,301.9	-5,914.0	-674.4	5,951.3	0.00	0.00	0.00
13,100.0	89.66	180.00	7,302.5	-6,014.0	-674.4	6,050.8	0.00	0.00	0.00
13,200.0	89.66	180.00	7,303.1	-6,114.0	-674.4	6,150.4	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,300.0	89.66	180.00	7,303.7	-6,214.0	-674.4	6,249.9	0.00	0.00	0.00
13,400.0	89.66	180.00	7,304.2	-6,314.0	-674.4	6,349.5	0.00	0.00	0.00
13,500.0	89.66	180.00	7,304.8	-6,414.0	-674.4	6,449.0	0.00	0.00	0.00
13,600.0	89.66	180.00	7,305.4	-6,514.0	-674.4	6,548.6	0.00	0.00	0.00
13,700.0	89.66	180.00	7,306.0	-6,614.0	-674.4	6,648.1	0.00	0.00	0.00
13,800.0	89.66	180.00	7,306.6	-6,714.0	-674.4	6,747.7	0.00	0.00	0.00
13,900.0	89.66	180.00	7,307.2	-6,814.0	-674.4	6,847.2	0.00	0.00	0.00
14,000.0	89.66	180.00	7,307.8	-6,914.0	-674.4	6,946.8	0.00	0.00	0.00
14,100.0	89.66	180.00	7,308.4	-7,014.0	-674.4	7,046.3	0.00	0.00	0.00
14,200.0	89.66	180.00	7,309.0	-7,114.0	-674.4	7,145.9	0.00	0.00	0.00
14,200.9	89.66	180.00	7,309.0	-7,114.9	-674.4	7,146.8	0.00	0.00	0.00
BHL 500' FSL & 897' FWL, Sec.24									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,689.3	7,257.5	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,950.2	6,863.0	Sharron Springs		0.00	
7,055.9	6,952.0	Niobrara A		0.00	
7,186.6	7,050.0	Niobrara B		0.00	
7,317.7	7,132.0	Niobrara C		0.00	
7,635.7	7,250.0	Ft Hays		0.00	
7,965.7	7,272.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,400.0	1,400.0	0.0	0.0	KOP #1
6,569.3	6,497.7	80.0	-674.4	KOP #2
7,876.5	7,271.5	-790.6	-674.4	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-443

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

Anticollision Report

10 April, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #2 (4-9-14)

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

Survey Tool Program **Date** 4/9/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,200.9	Plan #2 (4-9-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells - Sec.13-T4N-R67W						
Rory 1-7I (Exist) - Wellbore #1 - Wellbore #1	11,926.2	7,206.8	100.7	-12.2	0.892	Level 1, CC, ES, SF
Sophie 1 (Exist) - Wellbore #1 - Wellbore #1	14,022.4	7,219.9	145.8	-132.8	0.523	Level 1, CC, ES, SF
Stroh 5 (Exist) - Wellbore #1 - Wellbore #1	10,753.3	7,270.8	311.7	222.5	3.494	CC, ES, SF
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	2,884.4	2,846.6	104.8	39.8	1.613	CC
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	2,900.0	2,861.8	104.9	39.5	1.605	ES
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	3,000.0	2,959.2	108.0	40.4	1.599	SF
UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1	7,403.0	7,171.5	251.5	91.0	1.567	CC, ES, SF
UPRC 13-13E (Exist) - Wellbore #1 - Wellbore #1	8,597.7	7,291.8	240.4	61.4	1.343	Level 3, CC
UPRC 13-13E (Exist) - Wellbore #1 - Wellbore #1	8,600.0	7,291.8	240.4	61.4	1.343	Level 3, ES, SF
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W						
Stroh 13G-323 - Wellbore #1 - Plan #2 (4-9-14)	400.0	400.0	30.7	29.1	19.498	CC, ES
Stroh 13G-323 - Wellbore #1 - Plan #2 (4-9-14)	14,200.9	14,217.5	434.6	170.7	1.647	SF
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	166.3	167.3	61.4	60.8	116.826	CC
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	200.0	200.0	61.4	60.7	91.004	ES
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	14,200.9	14,478.4	822.3	546.2	2.978	SF
Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)	1,400.0	1,400.0	27.9	21.8	4.596	CC, ES
Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)	14,200.9	14,171.1	581.9	325.7	2.272	SF
Stroh 13K-423 - Wellbore #1 - Plan #2 (4-9-14)	1,400.0	1,400.0	58.6	52.5	9.651	CC, ES
Stroh 13K-423 - Wellbore #1 - Plan #2 (4-9-14)	14,200.9	14,349.2	845.7	570.1	3.068	SF
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	1,200.0	1,199.0	89.2	84.1	17.271	CC, ES
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	1,400.0	1,393.1	95.5	89.4	15.819	SF

Offset Design Existing Wells - Sec.13-T4N-R67W - Rory 1-7I (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,000.0	7,290.0	7,199.6	7,195.7	77.5	18.6	-86.71	-4,840.2	-573.6	931.6	836.5	95.09	9.797	
11,100.0	7,290.6	7,200.4	7,196.5	79.4	18.6	-87.16	-4,840.2	-573.6	832.3	735.2	97.03	8.578	
11,200.0	7,291.2	7,201.1	7,197.3	81.3	18.6	-87.60	-4,840.2	-573.7	733.1	634.1	98.96	7.408	
11,300.0	7,291.8	7,201.9	7,198.1	83.1	18.6	-88.04	-4,840.2	-573.7	634.2	533.3	100.89	6.286	
11,400.0	7,292.4	7,202.7	7,198.8	85.0	18.6	-88.49	-4,840.2	-573.7	535.7	432.9	102.81	5.211	
11,500.0	7,293.0	7,203.5	7,199.6	86.9	18.6	-88.93	-4,840.2	-573.7	437.9	333.2	104.73	4.181	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Rory 1-7I (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,600.0	7,293.6	7,204.2	7,200.4	88.8	18.6	-89.37	-4,840.2	-573.7	341.4	234.7	106.65	3.201	
11,700.0	7,294.2	7,205.0	7,201.2	90.6	18.6	-89.81	-4,840.2	-573.7	247.6	139.0	108.57	2.280	
11,800.0	7,294.8	7,205.8	7,201.9	92.5	18.6	-90.25	-4,840.2	-573.7	161.4	50.9	110.48	1.461	Level 3
11,900.0	7,295.3	7,206.6	7,202.7	94.4	18.6	-90.70	-4,840.2	-573.7	104.0	-8.4	112.38	0.926	Level 1
11,926.2	7,295.5	7,206.8	7,202.9	94.9	18.6	-90.81	-4,840.2	-573.7	100.7	-12.2	112.88	0.892	Level 1, CC, ES, SF
12,000.0	7,295.9	7,207.4	7,203.5	96.3	18.6	-91.14	-4,840.2	-573.7	124.8	10.6	114.29	1.092	Level 2
12,100.0	7,296.5	7,208.1	7,204.3	98.2	18.6	-91.58	-4,840.2	-573.8	200.9	84.7	116.18	1.729	
12,200.0	7,297.1	7,208.9	7,205.1	100.0	18.6	-92.02	-4,840.2	-573.8	291.7	173.7	118.07	2.471	
12,300.0	7,297.7	7,209.7	7,205.8	101.9	18.6	-92.47	-4,840.2	-573.8	387.1	267.2	119.95	3.227	
12,400.0	7,298.3	7,210.5	7,206.6	103.8	18.6	-92.91	-4,840.2	-573.8	484.4	362.6	121.83	3.976	
12,500.0	7,298.9	7,211.2	7,207.4	105.7	18.6	-93.35	-4,840.2	-573.8	582.6	458.9	123.70	4.709	
12,600.0	7,299.5	7,212.0	7,208.2	107.6	18.6	-93.79	-4,840.2	-573.8	681.3	555.7	125.57	5.426	
12,700.0	7,300.1	7,212.8	7,208.9	109.5	18.6	-94.23	-4,840.2	-573.8	780.3	652.9	127.42	6.124	
12,800.0	7,300.7	7,213.6	7,209.7	111.4	18.6	-94.67	-4,840.2	-573.8	879.6	750.3	129.27	6.804	
12,900.0	7,301.3	7,214.4	7,210.5	113.3	18.7	-95.11	-4,840.2	-573.8	979.0	847.9	131.11	7.467	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7310-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,100.0	7,302.5	7,214.5	7,214.5	117.0	144.3	87.85	-6,936.4	-820.2	933.8	673.0	260.77	3.581	
13,200.0	7,303.1	7,215.1	7,215.1	118.9	144.3	88.08	-6,936.4	-820.2	835.2	572.5	262.71	3.179	
13,300.0	7,303.7	7,215.7	7,215.7	120.8	144.3	88.32	-6,936.4	-820.2	736.9	472.3	264.65	2.784	
13,400.0	7,304.2	7,216.2	7,216.2	122.7	144.3	88.55	-6,936.4	-820.2	639.2	372.6	266.58	2.398	
13,500.0	7,304.8	7,216.8	7,216.8	124.6	144.3	88.78	-6,936.4	-820.2	542.3	273.8	268.51	2.020	
13,600.0	7,305.4	7,217.4	7,217.4	126.5	144.3	89.01	-6,936.4	-820.2	446.8	176.4	270.44	1.652	
13,700.0	7,306.0	7,218.0	7,218.0	128.4	144.4	89.25	-6,936.4	-820.2	353.8	81.4	272.36	1.299	Level 3
13,800.0	7,306.6	7,218.6	7,218.6	130.3	144.4	89.48	-6,936.4	-820.2	265.9	-8.4	274.28	0.969	Level 1
13,900.0	7,307.2	7,219.2	7,219.2	132.2	144.4	89.71	-6,936.4	-820.2	190.3	-85.9	276.20	0.689	Level 1
14,000.0	7,307.8	7,219.8	7,219.8	134.1	144.4	89.95	-6,936.4	-820.2	147.5	-130.6	278.11	0.530	Level 1
14,022.4	7,307.9	7,219.9	7,219.9	134.6	144.4	90.00	-6,936.4	-820.2	145.8	-132.8	278.54	0.523	Level 1, CC, ES, SF
14,100.0	7,308.4	7,220.4	7,220.4	136.0	144.4	90.18	-6,936.4	-820.2	165.2	-114.9	280.02	0.590	Level 1
14,200.0	7,309.0	7,221.0	7,221.0	137.9	144.4	90.41	-6,936.4	-820.2	229.8	-52.1	281.93	0.815	Level 1
14,200.9	7,309.0	7,221.0	7,221.0	137.9	144.4	90.42	-6,936.4	-820.2	230.5	-51.5	281.95	0.817	Level 1

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh 5 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,900.0	7,283.5	7,274.0	7,272.7	57.3	17.0	-90.40	-3,667.3	-362.7	908.4	835.0	73.36	12.383	
10,000.0	7,284.1	7,273.6	7,272.3	59.1	17.0	-90.33	-3,667.3	-362.7	815.2	740.0	75.20	10.840	
10,100.0	7,284.7	7,273.2	7,272.0	60.9	17.0	-90.26	-3,667.3	-362.7	723.8	646.8	77.05	9.394	
10,200.0	7,285.3	7,272.9	7,271.6	62.8	17.0	-90.19	-3,667.3	-362.7	635.0	556.1	78.90	8.049	
10,300.0	7,285.9	7,272.5	7,271.2	64.6	17.0	-90.12	-3,667.3	-362.7	550.1	469.3	80.75	6.812	
10,400.0	7,286.4	7,272.1	7,270.8	66.4	17.0	-90.05	-3,667.3	-362.7	471.1	388.5	82.61	5.703	
10,500.0	7,287.0	7,271.7	7,270.4	68.3	17.0	-89.98	-3,667.3	-362.7	401.6	317.1	84.47	4.754	
10,600.0	7,287.6	7,271.3	7,270.1	70.1	17.0	-89.91	-3,667.3	-362.7	347.3	261.0	86.33	4.023	
10,700.0	7,288.2	7,271.0	7,269.7	72.0	17.0	-89.84	-3,667.3	-362.7	316.2	228.0	88.20	3.585	
10,753.3	7,288.5	7,270.8	7,269.5	73.0	17.0	-89.81	-3,667.3	-362.7	311.7	222.5	89.19	3.494	CC, ES, SF
10,800.0	7,288.8	7,270.6	7,269.3	73.8	17.0	-89.77	-3,667.4	-362.7	315.1	225.1	90.07	3.499	
10,900.0	7,289.4	7,270.2	7,268.9	75.7	17.0	-89.70	-3,667.4	-362.7	344.5	252.5	91.94	3.747	
11,000.0	7,290.0	7,269.8	7,268.6	77.5	17.0	-89.63	-3,667.4	-362.7	397.5	303.7	93.81	4.237	
11,100.0	7,290.6	7,269.5	7,268.2	79.4	17.0	-89.57	-3,667.4	-362.7	466.2	370.5	95.68	4.872	
11,200.0	7,291.2	7,269.1	7,267.8	81.3	17.0	-89.50	-3,667.4	-362.7	544.7	447.1	97.56	5.583	
11,300.0	7,291.8	7,268.7	7,267.4	83.1	17.0	-89.43	-3,667.4	-362.7	629.3	529.9	99.44	6.329	
11,400.0	7,292.4	7,268.3	7,267.0	85.0	17.0	-89.36	-3,667.4	-362.7	717.9	616.6	101.32	7.085	
11,500.0	7,293.0	7,267.9	7,266.7	86.9	17.0	-89.29	-3,667.4	-362.8	809.1	705.9	103.20	7.840	
11,600.0	7,293.6	7,267.6	7,266.3	88.8	17.0	-89.22	-3,667.4	-362.8	902.3	797.2	105.08	8.586	
11,700.0	7,294.2	7,267.2	7,265.9	90.6	17.0	-89.15	-3,667.4	-362.8	996.7	889.7	106.97	9.318	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7438-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-61.33	134.8	-246.5	281.2				
100.0	100.0	89.0	89.0	0.1	1.8	-61.33	134.8	-246.5	281.0	279.1	1.89	148.465	
200.0	200.0	189.0	189.0	0.3	3.8	-61.33	134.8	-246.5	281.0	276.9	4.12	68.243	
300.0	300.0	289.0	289.0	0.6	5.8	-61.33	134.8	-246.5	281.0	274.6	6.34	44.304	
400.0	400.0	389.0	389.0	0.8	7.8	-61.33	134.8	-246.5	281.0	272.4	8.57	32.799	
500.0	500.0	489.0	489.0	1.0	9.8	-61.33	134.8	-246.5	281.0	270.2	10.79	26.037	
600.0	600.0	589.0	589.0	1.2	11.8	-61.33	134.8	-246.5	281.0	268.0	13.02	21.587	
700.0	700.0	689.0	689.0	1.5	13.8	-61.33	134.8	-246.5	281.0	265.7	15.24	18.436	
800.0	800.0	789.0	789.0	1.7	15.8	-61.33	134.8	-246.5	281.0	263.5	17.47	16.087	
900.0	900.0	889.0	889.0	1.9	17.8	-61.33	134.8	-246.5	281.0	261.3	19.69	14.270	
1,000.0	1,000.0	989.0	989.0	2.1	19.8	-61.33	134.8	-246.5	281.0	259.1	21.92	12.821	
1,100.0	1,100.0	1,089.0	1,089.0	2.4	21.8	-61.33	134.8	-246.5	281.0	256.8	24.14	11.640	
1,200.0	1,200.0	1,189.0	1,189.0	2.6	23.8	-61.33	134.8	-246.5	281.0	254.6	26.36	10.657	
1,300.0	1,300.0	1,289.0	1,289.0	2.8	25.8	-61.33	134.8	-246.5	281.0	252.4	28.59	9.828	
1,400.0	1,400.0	1,389.0	1,389.0	3.0	27.8	-61.33	134.8	-246.5	281.0	250.2	30.81	9.118	
1,500.0	1,500.0	1,489.0	1,489.0	3.2	29.8	22.05	134.8	-246.5	279.4	246.4	33.01	8.463	
1,600.0	1,599.8	1,588.8	1,588.8	3.5	31.8	22.50	134.8	-246.5	274.5	239.4	35.16	7.809	
1,700.0	1,699.5	1,688.5	1,688.5	3.7	33.8	23.28	134.8	-246.5	266.5	229.2	37.26	7.152	
1,800.0	1,798.7	1,787.7	1,787.7	3.9	35.8	24.45	134.8	-246.5	255.3	216.0	39.32	6.494	
1,900.0	1,897.5	1,886.5	1,886.5	4.2	37.7	26.11	134.8	-246.5	241.1	199.8	41.33	5.835	
2,000.0	1,995.6	1,984.6	1,984.6	4.5	39.7	28.41	134.8	-246.5	224.1	180.8	43.31	5.174	
2,100.0	2,093.2	2,082.2	2,082.2	4.8	41.6	31.42	134.8	-246.5	204.9	159.5	45.43	4.510	
2,200.0	2,190.6	2,179.6	2,179.6	5.2	43.6	35.00	134.8	-246.5	186.0	138.3	47.71	3.898	
2,300.0	2,288.1	2,277.1	2,277.1	5.6	45.5	39.35	134.8	-246.5	167.9	117.9	50.05	3.355	
2,400.0	2,385.5	2,374.5	2,374.5	6.0	47.5	44.69	134.8	-246.5	151.0	98.6	52.47	2.878	
2,500.0	2,483.0	2,472.0	2,472.0	6.4	49.4	51.27	134.8	-246.5	135.8	80.8	54.98	2.469	
2,600.0	2,580.4	2,569.4	2,569.4	6.8	51.4	59.31	134.8	-246.5	122.7	65.1	57.59	2.131	
2,700.0	2,677.9	2,666.9	2,666.9	7.2	53.3	68.95	134.8	-246.5	112.7	52.4	60.25	1.870	
2,800.0	2,775.3	2,764.3	2,764.3	7.7	55.3	80.01	134.8	-246.5	106.5	43.6	62.88	1.694	
2,884.4	2,857.6	2,846.6	2,846.6	8.0	56.9	90.00	134.8	-246.5	104.8	39.8	64.97	1.613	CC
2,900.0	2,872.8	2,861.8	2,861.8	8.1	57.2	91.86	134.8	-246.5	104.9	39.5	65.34	1.605	ES
3,000.0	2,970.2	2,959.2	2,959.2	8.6	59.2	103.56	134.8	-246.5	108.0	40.4	67.54	1.599	SF
3,100.0	3,067.7	3,056.7	3,056.7	9.0	61.1	114.22	134.8	-246.5	115.4	45.9	69.53	1.660	
3,200.0	3,165.1	3,154.1	3,154.1	9.5	63.1	123.36	134.8	-246.5	126.5	55.1	71.38	1.772	
3,300.0	3,262.5	3,251.5	3,251.5	9.9	65.0	130.93	134.8	-246.5	140.3	67.1	73.20	1.917	
3,400.0	3,360.0	3,349.0	3,349.0	10.4	67.0	137.09	134.8	-246.5	156.1	81.1	75.03	2.081	
3,500.0	3,457.4	3,446.4	3,446.4	10.9	68.9	142.10	134.8	-246.5	173.4	96.5	76.91	2.255	
3,600.0	3,554.9	3,543.9	3,543.9	11.3	70.9	146.19	134.8	-246.5	191.8	112.9	78.84	2.433	
3,700.0	3,652.3	3,641.3	3,641.3	11.8	72.8	149.56	134.8	-246.5	210.9	130.1	80.80	2.611	
3,800.0	3,749.8	3,738.8	3,738.8	12.3	74.8	152.37	134.8	-246.5	230.7	147.9	82.80	2.786	
3,900.0	3,847.2	3,836.2	3,836.2	12.8	76.7	154.74	134.8	-246.5	250.9	166.1	84.83	2.958	
4,000.0	3,944.7	3,933.7	3,933.7	13.2	78.7	156.75	134.8	-246.5	271.4	184.6	86.88	3.124	
4,100.0	4,042.1	4,031.1	4,031.1	13.7	80.6	158.48	134.8	-246.5	292.3	203.3	88.94	3.286	
4,200.0	4,139.6	4,128.6	4,128.6	14.2	82.6	159.98	134.8	-246.5	313.3	222.3	91.03	3.442	
4,300.0	4,237.0	4,226.0	4,226.0	14.7	84.5	161.30	134.8	-246.5	334.6	241.4	93.12	3.593	
4,400.0	4,334.5	4,323.5	4,323.5	15.2	86.5	162.45	134.8	-246.5	355.9	260.7	95.23	3.738	
4,500.0	4,432.2	4,421.2	4,421.2	15.6	88.4	163.52	134.8	-246.5	376.5	278.7	97.80	3.849	
4,600.0	4,530.5	4,519.5	4,519.5	15.9	90.4	164.37	134.8	-246.5	393.9	293.5	100.45	3.921	
4,700.0	4,629.4	4,618.4	4,618.4	16.2	92.4	164.99	134.8	-246.5	408.1	305.0	103.02	3.961	
4,800.0	4,728.8	4,717.8	4,717.8	16.4	94.4	165.45	134.8	-246.5	418.9	313.4	105.51	3.970	
4,900.0	4,828.5	4,817.5	4,817.5	16.6	96.3	165.74	134.8	-246.5	426.4	318.5	107.89	3.952	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 7438-UNKNOWN

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,928.4	4,917.4	4,917.4	16.8	98.3	165.90	134.8	-246.5	430.5	320.3	110.16	3.908	
5,100.0	5,028.4	5,017.4	5,017.4	16.9	100.3	82.70	134.8	-246.5	431.4	319.0	112.33	3.840	
5,200.0	5,128.4	5,117.4	5,117.4	17.0	102.3	82.70	134.8	-246.5	431.4	316.8	114.52	3.767	
5,300.0	5,228.4	5,217.4	5,217.4	17.2	104.3	82.70	134.8	-246.5	431.4	314.6	116.71	3.696	
5,400.0	5,328.4	5,317.4	5,317.4	17.3	106.3	82.70	134.8	-246.5	431.4	312.5	118.91	3.628	
5,500.0	5,428.4	5,417.4	5,417.4	17.5	108.3	82.70	134.8	-246.5	431.4	310.3	121.10	3.562	
5,600.0	5,528.4	5,517.4	5,517.4	17.6	110.3	82.70	134.8	-246.5	431.4	308.1	123.29	3.499	
5,700.0	5,628.4	5,617.4	5,617.4	17.8	112.3	82.70	134.8	-246.5	431.4	305.9	125.49	3.437	
5,800.0	5,728.4	5,717.4	5,717.4	17.9	114.3	82.70	134.8	-246.5	431.4	303.7	127.68	3.378	
5,900.0	5,828.4	5,817.4	5,817.4	18.1	116.3	82.70	134.8	-246.5	431.4	301.5	129.88	3.321	
6,000.0	5,928.4	5,917.4	5,917.4	18.2	118.3	82.70	134.8	-246.5	431.4	299.3	132.08	3.266	
6,100.0	6,028.4	6,017.4	6,017.4	18.4	120.3	82.70	134.8	-246.5	431.4	297.1	134.28	3.212	
6,200.0	6,128.4	6,117.4	6,117.4	18.6	122.3	82.70	134.8	-246.5	431.4	294.9	136.48	3.161	
6,300.0	6,228.4	6,217.4	6,217.4	18.7	124.3	82.70	134.8	-246.5	431.4	292.7	138.68	3.111	
6,400.0	6,328.4	6,317.4	6,317.4	18.9	126.3	82.70	134.8	-246.5	431.4	290.5	140.88	3.062	
6,500.0	6,428.4	6,417.4	6,417.4	19.0	128.3	82.70	134.8	-246.5	431.4	288.3	143.08	3.015	
6,546.5	6,474.9	6,463.9	6,463.9	19.1	129.3	-97.35	134.8	-246.5	431.4	287.3	144.11	2.994	
6,600.0	6,528.4	6,517.4	6,517.4	19.2	130.3	-97.37	134.8	-246.5	431.4	286.2	145.28	2.970	
6,700.0	6,627.7	6,616.7	6,616.7	19.3	132.3	-98.64	134.8	-246.5	432.9	285.5	147.44	2.936	
6,800.0	6,724.9	6,713.9	6,713.9	19.4	134.3	-101.28	134.8	-246.5	437.1	287.7	149.41	2.925	
6,900.0	6,818.1	6,807.1	6,807.1	19.5	136.1	-104.88	134.8	-246.5	445.8	294.9	150.90	2.954	
7,000.0	6,905.9	6,894.9	6,894.9	19.7	137.9	-108.87	134.8	-246.5	461.5	310.0	151.51	3.046	
7,100.0	6,986.7	6,975.7	6,975.7	19.8	139.5	-112.60	134.8	-246.5	486.6	335.7	150.95	3.224	
7,200.0	7,059.1	7,048.1	7,048.1	20.0	141.0	-115.48	134.8	-246.5	522.9	373.5	149.45	3.499	
7,300.0	7,122.0	7,111.0	7,111.0	20.3	142.2	-117.01	134.8	-246.5	571.2	423.3	147.87	3.863	
7,400.0	7,174.1	7,163.1	7,163.1	20.6	143.3	-116.73	134.8	-246.5	630.9	483.3	147.59	4.275	
7,500.0	7,214.7	7,203.7	7,203.7	21.1	144.1	-114.13	134.8	-246.5	700.7	550.7	150.06	4.670	
7,600.0	7,243.0	7,232.0	7,232.0	21.8	144.6	-108.49	134.8	-246.5	778.8	622.9	155.90	4.996	
7,700.0	7,258.6	7,247.6	7,247.6	22.6	145.0	-100.38	134.8	-246.5	863.0	700.5	162.49	5.311	
7,800.0	7,268.5	7,257.5	7,257.5	23.6	145.1	-98.21	134.8	-246.5	950.7	785.9	164.81	5.769	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7427-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-109.70	-331.5	-925.9	983.5				
100.0	100.0	96.0	96.0	0.1	1.9	-109.70	-331.5	-925.9	983.5	981.4	2.03	483.855	
200.0	200.0	196.0	196.0	0.3	3.9	-109.70	-331.5	-925.9	983.5	979.2	4.26	231.007	
300.0	300.0	296.0	296.0	0.6	5.9	-109.70	-331.5	-925.9	983.5	977.0	6.48	151.721	
400.0	400.0	396.0	396.0	0.8	7.9	-109.70	-331.5	-925.9	983.5	974.8	8.71	112.954	
500.0	500.0	496.0	496.0	1.0	9.9	-109.70	-331.5	-925.9	983.5	972.5	10.93	89.966	
600.0	600.0	596.0	596.0	1.2	11.9	-109.70	-331.5	-925.9	983.5	970.3	13.16	74.753	
700.0	700.0	696.0	696.0	1.5	13.9	-109.70	-331.5	-925.9	983.5	968.1	15.38	63.940	
800.0	800.0	796.0	796.0	1.7	15.9	-109.70	-331.5	-925.9	983.5	965.9	17.61	55.860	
900.0	900.0	896.0	896.0	1.9	17.9	-109.70	-331.5	-925.9	983.5	963.6	19.83	49.594	
1,000.0	1,000.0	996.0	996.0	2.1	19.9	-109.70	-331.5	-925.9	983.5	961.4	22.06	44.591	
1,100.0	1,100.0	1,096.0	1,096.0	2.4	21.9	-109.70	-331.5	-925.9	983.5	959.2	24.28	40.505	
1,200.0	1,200.0	1,196.0	1,196.0	2.6	23.9	-109.70	-331.5	-925.9	983.5	957.0	26.50	37.105	
1,300.0	1,300.0	1,296.0	1,296.0	2.8	25.9	-109.70	-331.5	-925.9	983.5	954.7	28.73	34.232	
1,400.0	1,400.0	1,396.0	1,396.0	3.0	27.9	-109.70	-331.5	-925.9	983.5	952.5	30.95	31.772	
1,500.0	1,500.0	1,496.0	1,496.0	3.2	29.9	-26.52	-331.5	-925.9	981.9	948.8	33.15	29.620	
1,600.0	1,599.8	1,595.8	1,595.8	3.5	31.9	-26.70	-331.5	-925.9	977.2	941.9	35.30	27.684	
1,700.0	1,699.5	1,695.5	1,695.5	3.7	33.9	-27.00	-331.5	-925.9	969.5	932.0	37.41	25.917	
1,800.0	1,798.7	1,794.7	1,794.7	3.9	35.9	-27.43	-331.5	-925.9	958.6	919.1	39.47	24.288	
1,900.0	1,897.5	1,893.5	1,893.5	4.2	37.9	-28.00	-331.5	-925.9	944.7	903.2	41.48	22.775	
2,000.0	1,995.6	1,991.6	1,991.6	4.5	39.8	-28.72	-331.5	-925.9	927.9	884.4	43.44	21.359	
2,100.0	2,093.2	2,089.2	2,089.2	4.8	41.8	-29.47	-331.5	-925.9	908.5	863.0	45.50	19.967	
2,200.0	2,190.6	2,186.6	2,186.6	5.2	43.7	-30.18	-331.5	-925.9	888.9	841.2	47.69	18.640	
2,300.0	2,288.1	2,284.1	2,284.1	5.6	45.7	-30.92	-331.5	-925.9	869.4	819.5	49.89	17.426	
2,400.0	2,385.5	2,381.5	2,381.5	6.0	47.6	-31.69	-331.5	-925.9	850.1	798.0	52.11	16.314	
2,500.0	2,483.0	2,479.0	2,479.0	6.4	49.6	-32.50	-331.5	-925.9	831.0	776.6	54.34	15.291	
2,600.0	2,580.4	2,576.4	2,576.4	6.8	51.5	-33.34	-331.5	-925.9	812.0	755.4	56.59	14.349	
2,700.0	2,677.9	2,673.9	2,673.9	7.2	53.5	-34.23	-331.5	-925.9	793.2	734.3	58.85	13.479	
2,800.0	2,775.3	2,771.3	2,771.3	7.7	55.4	-35.15	-331.5	-925.9	774.6	713.5	61.12	12.673	
2,900.0	2,872.8	2,868.8	2,868.8	8.1	57.4	-36.12	-331.5	-925.9	756.2	692.8	63.41	11.926	
3,000.0	2,970.2	2,966.2	2,966.2	8.6	59.3	-37.14	-331.5	-925.9	738.0	672.3	65.71	11.231	
3,100.0	3,067.7	3,063.7	3,063.7	9.0	61.3	-38.21	-331.5	-925.9	720.1	652.0	68.03	10.585	
3,200.0	3,165.1	3,161.1	3,161.1	9.5	63.2	-39.33	-331.5	-925.9	702.4	632.0	70.36	9.983	
3,300.0	3,262.5	3,258.5	3,258.5	9.9	65.2	-40.51	-331.5	-925.9	685.0	612.3	72.71	9.421	
3,400.0	3,360.0	3,356.0	3,356.0	10.4	67.1	-41.74	-331.5	-925.9	667.9	592.8	75.08	8.896	
3,500.0	3,457.4	3,453.4	3,453.4	10.9	69.1	-43.04	-331.5	-925.9	651.1	573.7	77.47	8.405	
3,600.0	3,554.9	3,550.9	3,550.9	11.3	71.0	-44.41	-331.5	-925.9	634.7	554.8	79.88	7.946	
3,700.0	3,652.3	3,648.3	3,648.3	11.8	73.0	-45.84	-331.5	-925.9	618.7	536.4	82.30	7.517	
3,800.0	3,749.8	3,745.8	3,745.8	12.3	74.9	-47.35	-331.5	-925.9	603.0	518.3	84.75	7.116	
3,900.0	3,847.2	3,843.2	3,843.2	12.8	76.9	-48.94	-331.5	-925.9	587.9	500.6	87.22	6.740	
4,000.0	3,944.7	3,940.7	3,940.7	13.2	78.8	-50.61	-331.5	-925.9	573.1	483.4	89.70	6.389	
4,100.0	4,042.1	4,038.1	4,038.1	13.7	80.8	-52.35	-331.5	-925.9	558.9	466.7	92.21	6.061	
4,200.0	4,139.6	4,135.6	4,135.6	14.2	82.7	-54.19	-331.5	-925.9	545.3	450.6	94.75	5.755	
4,300.0	4,237.0	4,233.0	4,233.0	14.7	84.7	-56.12	-331.5	-925.9	532.2	435.0	97.30	5.470	
4,400.0	4,334.5	4,330.5	4,330.5	15.2	86.6	-58.13	-331.5	-925.9	519.8	420.0	99.87	5.205	
4,500.0	4,432.2	4,428.2	4,428.2	15.6	88.6	-60.00	-331.5	-925.9	508.6	406.1	102.52	4.961	
4,600.0	4,530.5	4,526.5	4,526.5	15.9	90.5	-61.62	-331.5	-925.9	499.7	394.6	105.06	4.756	
4,700.0	4,629.4	4,625.4	4,625.4	16.2	92.5	-62.98	-331.5	-925.9	492.8	385.3	107.52	4.584	
4,800.0	4,728.8	4,724.8	4,724.8	16.4	94.5	-64.06	-331.5	-925.9	487.8	377.9	109.89	4.439	
4,900.0	4,828.5	4,824.5	4,824.5	16.6	96.5	-64.82	-331.5	-925.9	484.4	372.3	112.18	4.318	
5,000.0	4,928.4	4,924.4	4,924.4	16.8	98.5	-65.24	-331.5	-925.9	482.7	368.3	114.40	4.219	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7427-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,028.4	5,024.4	5,024.4	16.9	100.5	-148.57	-331.5	-925.9	482.3	365.7	116.54	4.138	
5,178.9	5,107.2	5,103.2	5,103.2	17.0	102.1	-148.57	-331.5	-925.9	482.3	364.0	118.23	4.079	
5,200.0	5,128.4	5,124.4	5,124.4	17.0	102.5	-148.57	-331.5	-925.9	482.3	363.6	118.69	4.063	
5,278.9	5,207.2	5,203.2	5,203.2	17.2	104.1	-148.57	-331.5	-925.9	482.3	361.9	120.38	4.006	
5,300.0	5,228.4	5,224.4	5,224.4	17.2	104.5	-148.57	-331.5	-925.9	482.3	361.4	120.84	3.991	
5,378.9	5,307.2	5,303.2	5,303.2	17.3	106.1	-148.57	-331.5	-925.9	482.3	359.7	122.53	3.936	
5,400.0	5,328.4	5,324.4	5,324.4	17.3	106.5	-148.57	-331.5	-925.9	482.3	359.3	122.99	3.921	
5,478.9	5,407.2	5,403.2	5,403.2	17.4	108.1	-148.57	-331.5	-925.9	482.3	357.6	124.69	3.868	
5,500.0	5,428.4	5,424.4	5,424.4	17.5	108.5	-148.57	-331.5	-925.9	482.3	357.1	125.14	3.854	
5,578.9	5,507.2	5,503.2	5,503.2	17.6	110.1	-148.57	-331.5	-925.9	482.3	355.4	126.84	3.802	
5,600.0	5,528.4	5,524.4	5,524.4	17.6	110.5	-148.57	-331.5	-925.9	482.3	355.0	127.30	3.789	
5,678.9	5,607.2	5,603.2	5,603.2	17.7	112.1	-148.57	-331.5	-925.9	482.3	353.3	129.00	3.739	
5,700.0	5,628.4	5,624.4	5,624.4	17.8	112.5	-148.57	-331.5	-925.9	482.3	352.8	129.45	3.726	
5,778.9	5,707.2	5,703.2	5,703.2	17.9	114.1	-148.57	-331.5	-925.9	482.3	351.1	131.15	3.677	
5,800.0	5,728.4	5,724.4	5,724.4	17.9	114.5	-148.57	-331.5	-925.9	482.3	350.7	131.61	3.664	
5,878.9	5,807.2	5,803.2	5,803.2	18.1	116.1	-148.57	-331.5	-925.9	482.3	349.0	133.31	3.618	
5,900.0	5,828.4	5,824.4	5,824.4	18.1	116.5	-148.57	-331.5	-925.9	482.3	348.5	133.77	3.605	
5,978.9	5,907.2	5,903.2	5,903.2	18.2	118.1	-148.57	-331.5	-925.9	482.3	346.8	135.47	3.560	
6,000.0	5,928.4	5,924.4	5,924.4	18.2	118.5	-148.57	-331.5	-925.9	482.3	346.4	135.93	3.548	
6,078.9	6,007.2	6,003.2	6,003.2	18.4	120.1	-148.57	-331.5	-925.9	482.3	344.6	137.63	3.504	
6,100.0	6,028.4	6,024.4	6,024.4	18.4	120.5	-148.57	-331.5	-925.9	482.3	344.2	138.09	3.492	
6,178.9	6,107.2	6,103.2	6,103.2	18.5	122.1	-148.57	-331.5	-925.9	482.3	342.5	139.80	3.450	
6,200.0	6,128.4	6,124.4	6,124.4	18.6	122.5	-148.57	-331.5	-925.9	482.3	342.0	140.25	3.439	
6,278.9	6,207.2	6,203.2	6,203.2	18.7	124.1	-148.57	-331.5	-925.9	482.3	340.3	141.96	3.397	
6,300.0	6,228.4	6,224.4	6,224.4	18.7	124.5	-148.57	-331.5	-925.9	482.3	339.9	142.42	3.386	
6,378.9	6,307.2	6,303.2	6,303.2	18.8	126.1	-148.57	-331.5	-925.9	482.3	338.2	144.13	3.346	
6,400.0	6,328.4	6,324.4	6,324.4	18.9	126.5	-148.57	-331.5	-925.9	482.3	337.7	144.58	3.336	
6,478.9	6,407.2	6,403.2	6,403.2	19.0	128.1	-148.57	-331.5	-925.9	482.3	336.0	146.29	3.297	
6,500.0	6,428.4	6,424.4	6,424.4	19.0	128.5	-148.57	-331.5	-925.9	482.3	335.5	146.75	3.286	
6,600.0	6,528.4	6,524.4	6,524.4	19.2	130.5	31.49	-331.5	-925.9	481.8	332.9	148.83	3.237	
6,700.0	6,627.7	6,623.7	6,623.7	19.3	132.5	32.52	-331.5	-925.9	472.8	323.4	149.43	3.164	
6,800.0	6,724.9	6,720.9	6,720.9	19.4	134.4	34.95	-331.5	-925.9	453.2	304.9	148.27	3.056	
6,900.0	6,818.1	6,814.1	6,814.1	19.5	136.3	39.09	-331.5	-925.9	423.8	277.7	146.09	2.901	
7,000.0	6,905.9	6,901.9	6,901.9	19.7	138.0	45.41	-331.5	-925.9	386.4	242.0	144.40	2.676	
7,100.0	6,986.7	6,982.7	6,982.7	19.8	139.7	54.39	-331.5	-925.9	343.9	198.5	145.41	2.365	
7,200.0	7,059.1	7,055.1	7,055.1	20.0	141.1	65.93	-331.5	-925.9	301.2	150.8	150.36	2.003	
7,300.0	7,122.0	7,118.0	7,118.0	20.3	142.4	78.61	-331.5	-925.9	266.4	109.7	156.78	1.699	
7,400.0	7,174.1	7,170.1	7,170.1	20.6	143.4	89.72	-331.5	-925.9	251.5	91.1	160.43	1.568	
7,403.0	7,175.5	7,171.5	7,171.5	20.6	143.4	90.00	-331.5	-925.9	251.5	91.0	160.49	1.567	CC, ES, SF
7,500.0	7,214.7	7,210.7	7,210.7	21.1	144.2	96.94	-331.5	-925.9	266.7	105.7	160.98	1.657	
7,600.0	7,243.0	7,239.0	7,239.0	21.8	144.8	99.16	-331.5	-925.9	311.9	150.4	161.49	1.932	
7,700.0	7,258.6	7,254.6	7,254.6	22.6	145.1	96.71	-331.5	-925.9	378.8	215.1	163.70	2.314	
7,800.0	7,268.5	7,264.5	7,264.5	23.6	145.3	96.31	-331.5	-925.9	457.9	292.7	165.20	2.772	
7,900.0	7,271.6	7,267.6	7,267.6	24.7	145.4	90.65	-331.5	-925.9	544.2	376.5	167.69	3.246	
8,000.0	7,272.2	7,268.2	7,268.2	26.0	145.4	90.79	-331.5	-925.9	634.6	465.5	169.07	3.753	
8,100.0	7,272.8	7,268.8	7,268.8	27.3	145.4	90.92	-331.5	-925.9	727.5	557.0	170.52	4.266	
8,200.0	7,273.4	7,269.4	7,269.4	28.7	145.4	91.06	-331.5	-925.9	822.0	650.0	172.04	4.778	
8,300.0	7,274.0	7,270.0	7,270.0	30.1	145.4	91.19	-331.5	-925.9	917.8	744.2	173.60	5.287	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7461-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,700.0	7,258.6	7,274.6	7,274.6	22.6	145.5	68.69	-1,511.9	-914.8	928.8	773.8	155.01	5.992	
7,800.0	7,268.5	7,284.5	7,284.5	23.6	145.7	76.44	-1,511.9	-914.8	833.1	670.5	162.65	5.122	
7,900.0	7,271.6	7,287.6	7,287.6	24.7	145.8	89.01	-1,511.9	-914.8	738.0	569.9	168.13	4.389	
8,000.0	7,272.2	7,288.2	7,288.2	26.0	145.8	89.15	-1,511.9	-914.8	644.3	474.7	169.53	3.800	
8,100.0	7,272.8	7,288.8	7,288.8	27.3	145.8	89.30	-1,511.9	-914.8	552.8	381.8	170.99	3.233	
8,200.0	7,273.4	7,289.4	7,289.4	28.7	145.8	89.44	-1,511.9	-914.8	464.8	292.2	172.52	2.694	
8,300.0	7,274.0	7,290.0	7,290.0	30.1	145.8	89.58	-1,511.9	-914.8	382.7	208.6	174.09	2.198	
8,400.0	7,274.6	7,290.6	7,290.6	31.6	145.8	89.72	-1,511.9	-914.8	311.3	135.6	175.70	1.772	
8,500.0	7,275.2	7,291.2	7,291.2	33.2	145.8	89.86	-1,511.9	-914.8	259.5	82.2	177.35	1.463	Level 3
8,597.7	7,275.8	7,291.8	7,291.8	34.7	145.8	90.00	-1,511.9	-914.8	240.4	61.4	178.98	1.343	Level 3, CC
8,600.0	7,275.8	7,291.8	7,291.8	34.8	145.8	90.00	-1,511.9	-914.8	240.4	61.4	179.02	1.343	Level 3, ES, SF
8,700.0	7,276.4	7,292.4	7,292.4	36.4	145.8	90.14	-1,511.9	-914.8	261.3	80.5	180.72	1.446	Level 3
8,800.0	7,277.0	7,293.0	7,293.0	38.0	145.9	90.29	-1,511.9	-914.8	314.2	131.7	182.44	1.722	
8,900.0	7,277.5	7,293.5	7,293.5	39.7	145.9	90.43	-1,511.9	-914.8	386.2	202.0	184.18	2.097	
9,000.0	7,278.1	7,294.1	7,294.1	41.4	145.9	90.57	-1,511.9	-914.8	468.6	282.7	185.94	2.520	
9,100.0	7,278.7	7,294.7	7,294.7	43.1	145.9	90.71	-1,511.9	-914.8	556.8	369.1	187.71	2.966	
9,200.0	7,279.3	7,295.3	7,295.3	44.8	145.9	90.85	-1,511.9	-914.8	648.5	459.0	189.49	3.422	
9,300.0	7,279.9	7,295.9	7,295.9	46.6	145.9	90.99	-1,511.9	-914.8	742.3	551.0	191.28	3.880	
9,400.0	7,280.5	7,296.5	7,296.5	48.4	145.9	91.13	-1,511.9	-914.8	837.5	644.4	193.08	4.337	
9,500.0	7,281.1	7,297.1	7,297.1	50.1	145.9	91.28	-1,511.9	-914.8	933.7	738.8	194.89	4.791	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-30.7	30.7	30.5	0.22	136.487	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-30.7	30.7	30.0	0.67	45.496	
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	0.0	-30.7	30.7	29.6	1.12	27.297	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-30.7	30.7	29.1	1.57	19.498	CC, ES
500.0	500.0	498.9	498.9	1.0	1.0	-89.52	0.3	-32.4	32.4	30.4	2.01	16.104	
600.0	600.0	597.6	597.4	1.2	1.2	-88.38	1.1	-37.4	37.5	35.1	2.45	15.308	
700.0	700.0	695.8	695.3	1.5	1.4	-87.04	2.4	-45.8	46.1	43.1	2.91	15.829	
800.0	800.0	793.3	792.1	1.7	1.7	-85.83	4.2	-57.3	58.0	54.6	3.40	17.075	
900.0	900.0	889.9	887.5	1.9	2.0	-84.86	6.5	-72.0	73.3	69.4	3.92	18.701	
1,000.0	1,000.0	985.7	981.6	2.1	2.4	-84.12	9.2	-89.6	91.9	87.5	4.48	20.500	
1,100.0	1,100.0	1,083.7	1,077.6	2.4	2.7	-83.58	12.3	-109.0	111.9	106.8	5.09	21.980	
1,200.0	1,200.0	1,181.7	1,173.6	2.6	3.1	-83.20	15.3	-128.3	131.9	126.2	5.71	23.091	
1,300.0	1,300.0	1,279.6	1,269.6	2.8	3.5	-82.92	18.3	-147.7	151.9	145.6	6.34	23.947	
1,400.0	1,400.0	1,377.6	1,365.6	3.0	4.0	-82.71	21.4	-167.1	171.9	164.9	6.98	24.624	
1,500.0	1,500.0	1,475.9	1,461.9	3.2	4.4	0.69	24.4	-186.5	190.2	183.6	6.56	28.977	
1,600.0	1,599.8	1,574.8	1,558.8	3.5	4.8	0.85	27.5	-206.1	205.1	198.0	7.01	29.243	
1,700.0	1,699.5	1,674.1	1,656.1	3.7	5.2	1.00	30.6	-225.7	216.4	209.0	7.46	29.004	
1,800.0	1,798.7	1,773.8	1,753.8	3.9	5.7	1.15	33.6	-245.4	224.4	216.5	7.91	28.350	
1,900.0	1,897.5	1,873.7	1,851.7	4.2	6.1	1.31	36.7	-265.2	228.8	220.4	8.37	27.350	
2,000.0	1,995.6	1,973.7	1,949.7	4.5	6.5	1.49	39.8	-284.9	229.8	220.9	8.82	26.059	
2,100.0	2,093.2	2,073.7	2,047.6	4.8	7.0	1.70	42.9	-304.7	227.7	218.4	9.29	24.516	
2,200.0	2,190.6	2,173.6	2,145.5	5.2	7.4	1.90	46.0	-324.4	225.2	215.4	9.78	23.025	
2,300.0	2,288.1	2,273.6	2,243.5	5.6	7.9	2.12	49.1	-344.2	222.7	212.4	10.28	21.666	
2,400.0	2,385.5	2,373.6	2,341.4	6.0	8.3	2.34	52.2	-364.0	220.3	209.5	10.78	20.424	
2,500.0	2,483.0	2,473.5	2,439.4	6.4	8.8	2.56	55.3	-383.7	217.8	206.5	11.29	19.286	
2,600.0	2,580.4	2,573.5	2,537.3	6.8	9.2	2.79	58.4	-403.5	215.3	203.5	11.80	18.240	
2,700.0	2,677.9	2,673.5	2,635.3	7.2	9.6	3.02	61.5	-423.3	212.9	200.5	12.32	17.277	
2,800.0	2,775.3	2,773.4	2,733.2	7.7	10.1	3.26	64.6	-443.0	210.4	197.6	12.84	16.387	
2,900.0	2,872.8	2,873.4	2,831.2	8.1	10.5	3.50	67.7	-462.8	207.9	194.6	13.36	15.563	
3,000.0	2,970.2	2,973.4	2,929.1	8.6	11.0	3.75	70.8	-482.5	205.5	191.6	13.89	14.798	
3,100.0	3,067.7	3,073.3	3,027.0	9.0	11.4	4.01	73.9	-502.3	203.0	188.6	14.41	14.086	
3,200.0	3,165.1	3,173.3	3,125.0	9.5	11.9	4.27	77.0	-522.1	200.6	185.6	14.94	13.423	
3,300.0	3,262.5	3,273.3	3,222.9	9.9	12.3	4.54	80.1	-541.8	198.2	182.7	15.48	12.803	
3,400.0	3,360.0	3,373.2	3,320.9	10.4	12.8	4.82	83.2	-561.6	195.7	179.7	16.01	12.222	
3,500.0	3,457.4	3,473.2	3,418.8	10.9	13.2	5.10	86.3	-581.4	193.3	176.7	16.55	11.678	
3,600.0	3,554.9	3,573.2	3,516.8	11.3	13.7	5.39	89.4	-601.1	190.9	173.8	17.09	11.166	
3,700.0	3,652.3	3,673.1	3,614.7	11.8	14.1	5.69	92.5	-620.9	188.4	170.8	17.64	10.684	
3,800.0	3,749.8	3,773.1	3,712.7	12.3	14.6	5.99	95.5	-640.6	186.0	167.8	18.18	10.230	
3,900.0	3,847.2	3,873.1	3,810.6	12.8	15.0	6.31	98.6	-660.4	183.6	164.9	18.73	9.801	
4,000.0	3,944.7	3,973.0	3,908.5	13.2	15.4	6.63	101.7	-680.2	181.2	161.9	19.29	9.396	
4,100.0	4,042.1	4,073.0	4,006.5	13.7	15.9	6.96	104.8	-699.9	178.8	159.0	19.84	9.011	
4,200.0	4,139.6	4,173.0	4,104.4	14.2	16.3	7.30	107.9	-719.7	176.4	156.0	20.40	8.647	
4,300.0	4,237.0	4,272.9	4,202.4	14.7	16.8	7.64	111.0	-739.4	174.0	153.1	20.97	8.301	
4,400.0	4,334.5	4,372.9	4,300.3	15.2	17.2	8.00	114.1	-759.2	171.7	150.1	21.53	7.971	
4,493.5	4,425.9	4,466.4	4,391.9	15.6	17.7	8.29	117.0	-777.7	170.6	148.5	22.07	7.731	
4,500.0	4,432.2	4,472.9	4,398.3	15.6	17.7	8.32	117.2	-779.0	170.3	148.2	22.10	7.705	
4,600.0	4,530.5	4,572.8	4,496.2	15.9	18.1	8.48	120.3	-798.7	172.3	149.7	22.61	7.620	
4,700.0	4,629.4	4,672.7	4,594.1	16.2	18.6	8.47	123.4	-818.5	177.8	154.7	23.08	7.704	
4,800.0	4,728.8	4,772.3	4,691.6	16.4	19.0	8.32	126.5	-838.2	186.7	163.2	23.49	7.946	
4,900.0	4,828.5	4,871.5	4,788.9	16.6	19.5	8.05	129.6	-857.8	199.0	175.2	23.86	8.340	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,928.4	4,970.2	4,885.6	16.8	19.9	7.70	132.6	-877.3	214.8	190.6	24.19	8.879	
5,100.0	5,028.4	5,068.4	4,981.8	16.9	20.3	-75.94	135.7	-896.7	233.9	209.3	24.52	9.537	
5,200.0	5,128.4	5,166.4	5,077.8	17.0	20.8	-76.35	138.7	-916.1	253.8	228.8	24.94	10.175	
5,300.0	5,228.4	5,264.4	5,173.8	17.2	21.2	-76.70	141.7	-935.4	273.7	248.4	25.37	10.789	
5,400.0	5,328.4	5,362.3	5,269.7	17.3	21.7	-77.00	144.8	-954.8	293.7	267.9	25.81	11.381	
5,500.0	5,428.4	5,460.3	5,365.7	17.5	22.1	-77.26	147.8	-974.2	313.7	287.4	26.24	11.952	
5,600.0	5,528.4	5,558.3	5,461.7	17.6	22.5	-77.49	150.8	-993.5	333.6	306.9	26.69	12.502	
5,700.0	5,628.4	5,656.3	5,557.7	17.8	23.0	-77.69	153.9	-1,012.9	353.6	326.5	27.13	13.034	
5,800.0	5,728.4	5,758.4	5,657.8	17.9	23.4	-77.88	157.0	-1,032.9	373.4	345.8	27.58	13.541	
5,900.0	5,828.4	5,872.0	5,769.8	18.1	23.8	-78.04	160.0	-1,052.0	390.4	362.4	28.01	13.937	
6,000.0	5,928.4	5,987.1	5,883.9	18.2	24.1	-78.16	162.3	-1,066.8	403.4	375.0	28.43	14.191	
6,100.0	6,028.4	6,103.2	5,999.6	18.4	24.3	-78.23	163.9	-1,077.1	412.4	383.6	28.83	14.303	
6,200.0	6,128.4	6,220.0	6,116.2	18.6	24.5	-78.27	164.8	-1,082.9	417.4	388.1	29.23	14.278	
6,300.0	6,228.4	6,332.2	6,228.4	18.7	24.6	-78.28	165.0	-1,084.1	418.4	388.8	29.62	14.126	
6,400.0	6,328.4	6,432.2	6,328.4	18.9	24.7	-78.28	165.0	-1,084.1	418.4	388.4	30.00	13.948	
6,500.0	6,428.4	6,536.0	6,432.2	19.0	24.8	-78.38	164.2	-1,084.1	418.3	387.9	30.38	13.768	
6,600.0	6,528.4	6,646.9	6,542.2	19.2	24.9	100.01	151.2	-1,084.1	416.2	385.5	30.68	13.566	
6,700.0	6,627.7	6,755.0	6,646.5	19.3	25.0	97.91	123.4	-1,084.1	413.7	382.8	30.90	13.388	
6,800.0	6,724.9	6,860.5	6,743.6	19.4	25.1	95.68	82.3	-1,084.1	411.8	380.6	31.18	13.207	
6,900.0	6,818.1	6,963.5	6,832.0	19.5	25.1	93.35	29.6	-1,084.1	410.4	378.9	31.52	13.020	
7,000.0	6,905.9	7,064.1	6,910.8	19.7	25.2	90.99	-32.9	-1,084.1	409.7	377.8	31.96	12.822	
7,042.1	6,940.9	7,105.8	6,940.9	19.7	25.2	90.00	-61.7	-1,084.1	409.7	377.5	32.18	12.730	
7,100.0	6,986.7	7,162.4	6,979.2	19.8	25.3	88.64	-103.4	-1,084.1	409.8	377.3	32.51	12.604	
7,200.0	7,059.1	7,258.7	7,036.9	20.0	25.4	86.34	-180.4	-1,084.1	410.5	377.3	33.24	12.352	
7,300.0	7,122.0	7,353.1	7,083.6	20.3	25.6	84.12	-262.4	-1,084.1	411.9	377.7	34.17	12.055	
7,400.0	7,174.1	7,445.8	7,119.3	20.6	25.9	82.03	-347.9	-1,084.1	413.8	378.4	35.38	11.696	
7,500.0	7,214.7	7,537.0	7,144.1	21.1	26.3	80.09	-435.6	-1,084.1	416.0	379.1	36.90	11.273	
7,600.0	7,243.0	7,626.9	7,158.1	21.8	26.8	78.33	-524.3	-1,084.1	418.5	379.7	38.77	10.792	
7,700.0	7,258.6	7,717.4	7,161.7	22.6	27.4	76.77	-614.7	-1,084.1	421.0	380.0	40.98	10.273	
7,800.0	7,268.5	7,816.9	7,161.8	23.6	28.1	75.44	-714.2	-1,084.1	423.3	380.0	43.30	9.776	
7,900.0	7,271.6	7,916.8	7,161.8	24.7	29.1	75.00	-814.2	-1,084.1	424.1	378.1	46.04	9.213	
8,000.0	7,272.2	8,016.8	7,161.8	26.0	30.1	74.92	-914.2	-1,084.1	424.3	375.6	48.70	8.713	
8,100.0	7,272.8	8,116.8	7,161.9	27.3	31.2	74.85	-1,014.2	-1,084.1	424.4	372.9	51.49	8.243	
8,200.0	7,273.4	8,216.8	7,161.9	28.7	32.4	74.78	-1,114.2	-1,084.1	424.6	370.2	54.39	7.806	
8,300.0	7,274.0	8,316.8	7,161.9	30.1	33.7	74.70	-1,214.1	-1,084.1	424.7	367.3	57.39	7.401	
8,400.0	7,274.6	8,416.8	7,162.0	31.6	35.0	74.63	-1,314.1	-1,084.1	424.9	364.4	60.46	7.027	
8,500.0	7,275.2	8,516.8	7,162.0	33.2	36.4	74.56	-1,414.1	-1,084.1	425.0	361.4	63.60	6.683	
8,600.0	7,275.8	8,616.8	7,162.0	34.8	37.9	74.49	-1,514.1	-1,084.1	425.2	358.4	66.80	6.365	
8,700.0	7,276.4	8,716.8	7,162.1	36.4	39.4	74.41	-1,614.1	-1,084.1	425.3	355.3	70.04	6.072	
8,800.0	7,277.0	8,816.8	7,162.1	38.0	40.9	74.34	-1,714.1	-1,084.1	425.5	352.1	73.33	5.802	
8,900.0	7,277.5	8,916.8	7,162.1	39.7	42.5	74.27	-1,814.1	-1,084.1	425.6	349.0	76.65	5.553	
9,000.0	7,278.1	9,016.8	7,162.2	41.4	44.1	74.20	-1,914.1	-1,084.1	425.8	345.8	80.00	5.322	
9,100.0	7,278.7	9,116.8	7,162.2	43.1	45.7	74.12	-2,014.1	-1,084.1	425.9	342.5	83.39	5.108	
9,200.0	7,279.3	9,216.8	7,162.3	44.8	47.4	74.05	-2,114.1	-1,084.1	426.1	339.3	86.79	4.909	
9,300.0	7,279.9	9,316.8	7,162.3	46.6	49.0	73.98	-2,214.1	-1,084.1	426.2	336.0	90.22	4.724	
9,400.0	7,280.5	9,416.8	7,162.3	48.4	50.7	73.91	-2,314.1	-1,084.1	426.4	332.7	93.66	4.552	
9,500.0	7,281.1	9,516.8	7,162.4	50.1	52.4	73.84	-2,414.1	-1,084.1	426.5	329.4	97.12	4.392	
9,600.0	7,281.7	9,616.8	7,162.4	51.9	54.2	73.76	-2,514.1	-1,084.1	426.7	326.1	100.60	4.242	
9,700.0	7,282.3	9,716.8	7,162.4	53.7	55.9	73.69	-2,614.1	-1,084.1	426.9	322.8	104.08	4.101	
9,800.0	7,282.9	9,816.8	7,162.5	55.5	57.6	73.62	-2,714.1	-1,084.1	427.0	319.4	107.58	3.969	
9,900.0	7,283.5	9,916.8	7,162.5	57.3	59.4	73.55	-2,814.1	-1,084.1	427.2	316.1	111.09	3.845	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,284.1	10,016.8	7,162.5	59.1	61.2	73.48	-2,914.1	-1,084.1	427.3	312.7	114.60	3.729	
10,100.0	7,284.7	10,116.8	7,162.6	60.9	62.9	73.40	-3,014.1	-1,084.1	427.5	309.4	118.12	3.619	
10,200.0	7,285.3	10,216.8	7,162.6	62.8	64.7	73.33	-3,114.1	-1,084.1	427.6	306.0	121.65	3.515	
10,300.0	7,285.9	10,316.8	7,162.6	64.6	66.5	73.26	-3,214.1	-1,084.1	427.8	302.6	125.19	3.417	
10,400.0	7,286.4	10,416.8	7,162.7	66.4	68.3	73.19	-3,314.1	-1,084.1	428.0	299.2	128.73	3.325	
10,500.0	7,287.0	10,516.8	7,162.7	68.3	70.1	73.12	-3,414.1	-1,084.1	428.1	295.9	132.27	3.237	
10,600.0	7,287.6	10,616.8	7,162.7	70.1	71.9	73.05	-3,514.1	-1,084.1	428.3	292.5	135.82	3.153	
10,700.0	7,288.2	10,716.8	7,162.8	72.0	73.7	72.98	-3,614.1	-1,084.1	428.5	289.1	139.38	3.074	
10,800.0	7,288.8	10,816.8	7,162.8	73.8	75.6	72.90	-3,714.1	-1,084.1	428.6	285.7	142.93	2.999	
10,900.0	7,289.4	10,916.8	7,162.8	75.7	77.4	72.83	-3,814.1	-1,084.1	428.8	282.3	146.49	2.927	
11,000.0	7,290.0	11,016.8	7,162.9	77.5	79.2	72.76	-3,914.1	-1,084.1	428.9	278.9	150.05	2.859	
11,100.0	7,290.6	11,116.8	7,162.9	79.4	81.1	72.69	-4,014.1	-1,084.1	429.1	275.5	153.61	2.794	
11,200.0	7,291.2	11,216.8	7,163.0	81.3	82.9	72.62	-4,114.1	-1,084.1	429.3	272.1	157.17	2.731	
11,300.0	7,291.8	11,316.8	7,163.0	83.1	84.7	72.55	-4,214.1	-1,084.1	429.4	268.7	160.74	2.672	
11,400.0	7,292.4	11,416.8	7,163.0	85.0	86.6	72.48	-4,314.1	-1,084.1	429.6	265.3	164.30	2.615	
11,500.0	7,293.0	11,516.8	7,163.1	86.9	88.4	72.41	-4,414.1	-1,084.1	429.8	261.9	167.87	2.560	
11,600.0	7,293.6	11,616.8	7,163.1	88.8	90.3	72.33	-4,514.1	-1,084.1	430.0	258.5	171.44	2.508	
11,700.0	7,294.2	11,716.8	7,163.1	90.6	92.1	72.26	-4,614.1	-1,084.1	430.1	255.1	175.00	2.458	
11,800.0	7,294.8	11,816.8	7,163.2	92.5	94.0	72.19	-4,714.1	-1,084.1	430.3	251.7	178.57	2.410	
11,900.0	7,295.3	11,916.8	7,163.2	94.4	95.9	72.12	-4,814.1	-1,084.1	430.5	248.3	182.14	2.363	
12,000.0	7,295.9	12,016.8	7,163.2	96.3	97.7	72.05	-4,914.1	-1,084.1	430.6	244.9	185.70	2.319	
12,100.0	7,296.5	12,116.8	7,163.3	98.2	99.6	71.98	-5,014.1	-1,084.1	430.8	241.5	189.27	2.276	
12,200.0	7,297.1	12,216.8	7,163.3	100.0	101.5	71.91	-5,114.1	-1,084.1	431.0	238.1	192.84	2.235	
12,300.0	7,297.7	12,316.8	7,163.3	101.9	103.3	71.84	-5,214.1	-1,084.1	431.2	234.8	196.40	2.195	
12,400.0	7,298.3	12,416.8	7,163.4	103.8	105.2	71.77	-5,314.1	-1,084.1	431.3	231.4	199.97	2.157	
12,500.0	7,298.9	12,516.8	7,163.4	105.7	107.1	71.70	-5,414.1	-1,084.1	431.5	228.0	203.53	2.120	
12,600.0	7,299.5	12,616.8	7,163.4	107.6	108.9	71.63	-5,514.1	-1,084.1	431.7	224.6	207.09	2.084	
12,700.0	7,300.1	12,716.8	7,163.5	109.5	110.8	71.56	-5,614.1	-1,084.1	431.9	221.2	210.65	2.050	
12,800.0	7,300.7	12,816.8	7,163.5	111.4	112.7	71.49	-5,714.1	-1,084.1	432.0	217.8	214.21	2.017	
12,900.0	7,301.3	12,916.8	7,163.5	113.3	114.6	71.42	-5,814.1	-1,084.1	432.2	214.4	217.77	1.985	
13,000.0	7,301.9	13,016.8	7,163.6	115.2	116.4	71.35	-5,914.1	-1,084.1	432.4	211.1	221.33	1.954	
13,100.0	7,302.5	13,116.8	7,163.6	117.0	118.3	71.28	-6,014.1	-1,084.1	432.6	207.7	224.89	1.923	
13,200.0	7,303.1	13,216.8	7,163.7	118.9	120.2	71.21	-6,114.1	-1,084.1	432.7	204.3	228.44	1.894	
13,300.0	7,303.7	13,316.8	7,163.7	120.8	122.1	71.14	-6,214.1	-1,084.1	432.9	200.9	232.00	1.866	
13,400.0	7,304.2	13,416.8	7,163.7	122.7	124.0	71.07	-6,314.1	-1,084.1	433.1	197.6	235.55	1.839	
13,500.0	7,304.8	13,516.8	7,163.8	124.6	125.9	71.00	-6,414.1	-1,084.1	433.3	194.2	239.10	1.812	
13,600.0	7,305.4	13,616.8	7,163.8	126.5	127.8	70.93	-6,514.1	-1,084.1	433.5	190.8	242.65	1.786	
13,700.0	7,306.0	13,716.8	7,163.8	128.4	129.6	70.86	-6,614.1	-1,084.1	433.7	187.5	246.19	1.761	
13,800.0	7,306.6	13,816.8	7,163.9	130.3	131.5	70.79	-6,714.1	-1,084.1	433.8	184.1	249.74	1.737	
13,900.0	7,307.2	13,916.7	7,163.9	132.2	133.4	70.72	-6,814.1	-1,084.1	434.0	180.7	253.28	1.714	
14,000.0	7,307.8	14,016.7	7,163.9	134.1	135.3	70.65	-6,914.1	-1,084.1	434.2	177.4	256.82	1.691	
14,100.0	7,308.4	14,116.7	7,164.0	136.0	137.2	70.58	-7,014.1	-1,084.1	434.4	174.0	260.36	1.668	
14,200.0	7,309.0	14,216.7	7,164.0	137.9	139.1	70.51	-7,114.1	-1,084.1	434.6	170.7	263.90	1.647	
14,200.9	7,309.0	14,217.5	7,164.0	137.9	139.1	70.51	-7,114.9	-1,084.1	434.6	170.7	263.92	1.647	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-61.4	61.4	61.4	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-61.4	61.4	61.1	0.23	270.272	
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-61.4	61.4	60.8	0.53	116.826	CC
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-61.4	61.4	60.7	0.67	91.004	ES
300.0	300.0	298.9	298.9	0.6	0.6	-89.74	0.3	-63.0	63.1	62.0	1.11	56.645	
400.0	400.0	396.5	396.4	0.8	0.8	-89.05	1.1	-68.0	68.2	66.6	1.56	43.735	
500.0	500.0	493.7	493.2	1.0	1.0	-88.11	2.5	-76.2	76.6	74.6	2.03	37.793	
600.0	600.0	590.3	589.1	1.2	1.3	-87.10	4.4	-87.5	88.4	85.9	2.53	34.989	
700.0	700.0	685.9	683.6	1.5	1.6	-86.14	6.9	-101.9	103.6	100.5	3.07	33.786	
800.0	800.0	780.5	776.5	1.7	2.0	-85.30	9.8	-119.1	122.0	118.4	3.65	33.451	
900.0	900.0	873.8	867.6	1.9	2.4	-84.59	13.2	-139.1	143.7	139.4	4.28	33.605	
1,000.0	1,000.0	965.9	956.8	2.1	2.8	-83.99	17.0	-161.7	168.5	163.5	4.94	34.079	
1,100.0	1,100.0	1,062.3	1,049.8	2.4	3.3	-83.51	21.3	-186.7	194.7	189.1	5.68	34.313	
1,200.0	1,200.0	1,158.8	1,142.9	2.6	3.8	-83.13	25.5	-211.7	221.0	214.6	6.42	34.447	
1,300.0	1,300.0	1,255.3	1,236.0	2.8	4.4	-82.84	29.7	-236.7	247.3	240.1	7.16	34.520	
1,400.0	1,400.0	1,351.8	1,329.1	3.0	4.9	-82.60	34.0	-261.8	273.6	265.7	7.92	34.558	
1,500.0	1,500.0	1,448.7	1,422.6	3.2	5.4	0.82	38.2	-286.9	298.2	291.4	6.73	44.324	
1,600.0	1,599.8	1,546.4	1,516.9	3.5	6.0	1.00	42.5	-312.2	319.4	312.2	7.20	44.366	
1,700.0	1,699.5	1,644.8	1,611.8	3.7	6.5	1.16	46.9	-337.8	337.2	329.5	7.68	43.928	
1,800.0	1,798.7	1,743.8	1,707.3	3.9	7.1	1.32	51.2	-363.4	351.5	343.3	8.16	43.102	
1,900.0	1,897.5	1,843.2	1,803.2	4.2	7.6	1.48	55.6	-389.2	362.4	353.8	8.64	41.958	
2,000.0	1,995.6	1,942.9	1,899.4	4.5	8.2	1.65	60.0	-415.1	369.8	360.7	9.12	40.550	
2,100.0	2,093.2	2,042.8	1,995.7	4.8	8.8	1.83	64.4	-441.0	374.2	364.6	9.62	38.900	
2,200.0	2,190.6	2,142.7	2,092.1	5.2	9.3	2.01	68.7	-466.9	378.2	368.0	10.14	37.298	
2,300.0	2,288.1	2,242.6	2,188.5	5.6	9.9	2.19	73.1	-492.8	382.2	371.5	10.66	35.835	
2,400.0	2,385.5	2,342.5	2,284.9	6.0	10.5	2.36	77.5	-518.7	386.2	375.0	11.19	34.495	
2,500.0	2,483.0	2,442.4	2,381.3	6.4	11.0	2.53	81.9	-544.6	390.2	378.4	11.73	33.265	
2,600.0	2,580.4	2,542.3	2,477.7	6.8	11.6	2.69	86.3	-570.5	394.2	381.9	12.27	32.133	
2,700.0	2,677.9	2,642.2	2,574.1	7.2	12.1	2.86	90.7	-596.4	398.2	385.4	12.81	31.089	
2,800.0	2,775.3	2,742.2	2,670.5	7.7	12.7	3.01	95.1	-622.3	402.2	388.8	13.35	30.122	
2,900.0	2,872.8	2,842.1	2,766.9	8.1	13.3	3.17	99.5	-648.2	406.2	392.3	13.90	29.227	
3,000.0	2,970.2	2,942.0	2,863.3	8.6	13.8	3.32	103.9	-674.2	410.2	395.8	14.45	28.394	
3,100.0	3,067.7	3,041.9	2,959.7	9.0	14.4	3.47	108.3	-700.1	414.2	399.2	15.00	27.618	
3,200.0	3,165.1	3,141.8	3,056.1	9.5	15.0	3.62	112.7	-726.0	418.3	402.7	15.55	26.894	
3,300.0	3,262.5	3,241.7	3,152.5	9.9	15.5	3.76	117.1	-751.9	422.3	406.2	16.11	26.217	
3,400.0	3,360.0	3,341.6	3,248.9	10.4	16.1	3.90	121.5	-777.8	426.3	409.6	16.66	25.583	
3,500.0	3,457.4	3,441.5	3,345.3	10.9	16.7	4.04	125.8	-803.7	430.3	413.1	17.22	24.987	
3,600.0	3,554.9	3,541.5	3,441.7	11.3	17.2	4.18	130.2	-829.6	434.4	416.6	17.78	24.427	
3,700.0	3,652.3	3,641.4	3,538.1	11.8	17.8	4.31	134.6	-855.5	438.4	420.1	18.34	23.899	
3,800.0	3,749.8	3,741.3	3,634.5	12.3	18.4	4.44	139.0	-881.4	442.4	423.5	18.91	23.401	
3,900.0	3,847.2	3,841.2	3,730.9	12.8	18.9	4.57	143.4	-907.4	446.5	427.0	19.47	22.930	
4,000.0	3,944.7	3,941.1	3,827.3	13.2	19.5	4.69	147.8	-933.3	450.5	430.5	20.04	22.485	
4,100.0	4,042.1	4,041.0	3,923.7	13.7	20.1	4.82	152.2	-959.2	454.6	434.0	20.60	22.063	
4,200.0	4,139.6	4,140.9	4,020.0	14.2	20.6	4.94	156.6	-985.1	458.6	437.4	21.17	21.662	
4,300.0	4,237.0	4,240.9	4,116.4	14.7	21.2	5.06	161.0	-1,011.0	462.6	440.9	21.74	21.282	
4,400.0	4,334.5	4,340.8	4,212.8	15.2	21.7	5.18	165.4	-1,036.9	466.7	444.4	22.31	20.920	
4,500.0	4,432.2	4,440.6	4,309.2	15.6	22.3	5.29	169.8	-1,062.8	471.8	448.9	22.87	20.633	
4,600.0	4,530.5	4,540.3	4,405.3	15.9	22.9	5.37	174.1	-1,088.6	480.2	456.9	23.36	20.554	
4,700.0	4,629.4	4,639.6	4,501.1	16.2	23.4	5.41	178.5	-1,114.4	492.1	468.3	23.82	20.656	
4,800.0	4,728.8	4,738.4	4,596.4	16.4	24.0	5.43	182.9	-1,140.0	507.5	483.2	24.25	20.931	
4,900.0	4,828.5	4,836.6	4,691.2	16.6	24.6	5.41	187.2	-1,165.5	526.3	501.6	24.63	21.371	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,928.4	4,934.1	4,785.3	16.8	25.1	5.37	191.5	-1,190.8	548.4	523.5	24.96	21.970	
5,100.0	5,028.4	5,030.8	4,878.6	16.9	25.7	-77.94	195.7	-1,215.9	573.8	548.5	25.31	22.676	
5,200.0	5,128.4	5,127.3	4,971.6	17.0	26.2	-78.04	200.0	-1,240.9	600.1	574.4	25.77	23.289	
5,300.0	5,228.4	5,223.7	5,064.7	17.2	26.7	-78.14	204.2	-1,265.9	626.4	600.2	26.23	23.880	
5,400.0	5,328.4	5,320.2	5,157.8	17.3	27.3	-78.23	208.4	-1,290.9	652.7	626.0	26.70	24.449	
5,500.0	5,428.4	5,416.7	5,250.9	17.5	27.8	-78.32	212.7	-1,315.9	679.0	651.8	27.16	24.997	
5,600.0	5,528.4	5,513.2	5,344.0	17.6	28.4	-78.39	216.9	-1,341.0	705.3	677.6	27.63	25.525	
5,700.0	5,628.4	5,609.7	5,437.0	17.8	28.9	-78.46	221.2	-1,366.0	731.6	703.5	28.10	26.035	
5,800.0	5,728.4	5,706.1	5,530.1	17.9	29.5	-78.53	225.4	-1,391.0	757.9	729.3	28.57	26.526	
5,900.0	5,828.4	5,832.5	5,652.6	18.1	30.1	-78.61	230.6	-1,421.8	782.6	753.5	29.08	26.908	
6,000.0	5,928.4	5,967.9	5,785.1	18.2	30.5	-78.67	235.2	-1,448.9	802.9	773.3	29.58	27.146	
6,100.0	6,028.4	6,105.6	5,921.2	18.4	30.9	-78.71	238.8	-1,470.0	818.5	788.5	30.06	27.233	
6,200.0	6,128.4	6,245.2	6,059.9	18.6	31.2	-78.74	241.3	-1,484.9	829.3	798.8	30.51	27.182	
6,300.0	6,228.4	6,385.9	6,200.3	18.7	31.4	-78.76	242.7	-1,493.1	835.2	804.3	30.94	26.993	
6,400.0	6,328.4	6,514.9	6,329.4	18.9	31.6	-78.76	243.0	-1,494.8	836.5	805.1	31.35	26.685	
6,500.0	6,428.4	6,614.9	6,429.4	19.0	31.7	-78.76	243.0	-1,494.8	836.5	804.8	31.71	26.378	
6,600.0	6,528.4	6,723.3	6,537.7	19.2	31.8	101.22	242.0	-1,494.8	836.4	804.4	32.05	26.102	
6,700.0	6,627.7	6,850.1	6,663.2	19.3	31.8	101.02	225.0	-1,494.8	835.9	803.6	32.27	25.907	
6,800.0	6,724.9	6,975.7	6,783.1	19.4	31.9	100.57	188.0	-1,494.8	834.7	802.2	32.48	25.702	
6,900.0	6,818.1	7,099.4	6,893.7	19.5	31.9	99.90	132.9	-1,494.8	833.0	800.3	32.72	25.460	
7,000.0	6,905.9	7,220.5	6,991.9	19.7	31.9	99.03	62.3	-1,494.9	830.9	797.9	33.06	25.134	
7,100.0	6,986.7	7,338.6	7,075.8	19.8	31.9	97.99	-20.6	-1,494.9	828.7	795.1	33.56	24.693	
7,200.0	7,059.1	7,453.4	7,144.2	20.0	32.0	96.80	-112.6	-1,494.9	826.5	792.2	34.28	24.113	
7,300.0	7,122.0	7,564.7	7,196.7	20.3	32.1	95.51	-210.8	-1,494.9	824.4	789.2	35.27	23.373	
7,400.0	7,174.1	7,672.7	7,233.4	20.6	32.3	94.14	-312.2	-1,494.9	822.7	786.1	36.57	22.496	
7,500.0	7,214.7	7,777.4	7,255.0	21.1	32.5	92.71	-414.6	-1,494.9	821.4	783.3	38.19	21.512	
7,600.0	7,243.0	7,877.1	7,265.9	21.8	32.9	91.53	-513.6	-1,494.9	820.8	780.7	40.06	20.487	
7,700.0	7,258.6	7,978.1	7,272.1	22.6	33.3	90.87	-614.4	-1,494.9	820.6	778.4	42.23	19.433	
7,800.0	7,268.5	8,077.8	7,272.2	23.6	33.9	90.19	-714.1	-1,494.9	820.5	775.9	44.63	18.384	
7,829.0	7,270.3	8,106.7	7,272.1	23.9	34.1	90.06	-743.1	-1,494.9	820.5	775.1	45.36	18.088	
7,900.0	7,271.6	8,177.7	7,272.0	24.7	34.5	89.96	-814.1	-1,494.9	820.5	773.3	47.18	17.389	
8,000.0	7,272.2	8,277.7	7,271.8	26.0	35.3	89.90	-914.1	-1,494.9	820.5	770.6	49.89	16.448	
8,100.0	7,272.8	8,377.7	7,271.6	27.3	36.2	89.85	-1,014.1	-1,494.9	820.5	767.8	52.73	15.561	
8,200.0	7,273.4	8,477.7	7,271.5	28.7	37.2	89.80	-1,114.1	-1,494.9	820.5	764.8	55.69	14.733	
8,300.0	7,274.0	8,577.7	7,271.3	30.1	38.2	89.74	-1,214.1	-1,494.9	820.5	761.8	58.76	13.965	
8,400.0	7,274.6	8,677.7	7,271.1	31.6	39.3	89.69	-1,314.1	-1,494.9	820.5	758.6	61.91	13.254	
8,500.0	7,275.2	8,777.7	7,270.9	33.2	40.6	89.64	-1,414.1	-1,494.9	820.6	755.4	65.14	12.597	
8,600.0	7,275.8	8,877.7	7,270.8	34.8	41.8	89.58	-1,514.0	-1,494.9	820.6	752.1	68.43	11.992	
8,700.0	7,276.4	8,977.7	7,270.6	36.4	43.2	89.53	-1,614.0	-1,494.9	820.6	748.8	71.77	11.433	
8,800.0	7,277.0	9,077.7	7,270.4	38.0	44.5	89.47	-1,714.0	-1,495.0	820.6	745.4	75.17	10.917	
8,900.0	7,277.5	9,177.7	7,270.3	39.7	46.0	89.42	-1,814.0	-1,495.0	820.6	742.0	78.60	10.440	
9,000.0	7,278.1	9,277.7	7,270.1	41.4	47.4	89.37	-1,914.0	-1,495.0	820.6	738.5	82.07	9.999	
9,100.0	7,278.7	9,377.7	7,269.9	43.1	48.9	89.31	-2,014.0	-1,495.0	820.6	735.1	85.57	9.590	
9,200.0	7,279.3	9,477.7	7,269.7	44.8	50.5	89.26	-2,114.0	-1,495.0	820.6	731.5	89.10	9.210	
9,300.0	7,279.9	9,577.7	7,269.6	46.6	52.0	89.21	-2,214.0	-1,495.0	820.7	728.0	92.66	8.857	
9,400.0	7,280.5	9,677.7	7,269.4	48.4	53.6	89.15	-2,314.0	-1,495.0	820.7	724.4	96.24	8.528	
9,500.0	7,281.1	9,777.7	7,269.2	50.1	55.3	89.10	-2,414.0	-1,495.0	820.7	720.9	99.83	8.221	
9,600.0	7,281.7	9,877.7	7,269.0	51.9	56.9	89.05	-2,514.0	-1,495.0	820.7	717.3	103.45	7.934	
9,700.0	7,282.3	9,977.7	7,268.9	53.7	58.5	88.99	-2,614.0	-1,495.0	820.7	713.7	107.08	7.665	
9,800.0	7,282.9	10,077.7	7,268.7	55.5	60.2	88.94	-2,714.0	-1,495.0	820.7	710.0	110.72	7.413	
9,900.0	7,283.5	10,177.7	7,268.5	57.3	61.9	88.89	-2,814.0	-1,495.0	820.8	706.4	114.38	7.176	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,284.1	10,277.7	7,268.3	59.1	63.6	88.83	-2,914.0	-1,495.0	820.8	702.7	118.05	6.953	
10,100.0	7,284.7	10,377.7	7,268.2	60.9	65.3	88.78	-3,014.0	-1,495.0	820.8	699.1	121.73	6.743	
10,200.0	7,285.3	10,477.7	7,268.0	62.8	67.0	88.72	-3,114.0	-1,495.0	820.8	695.4	125.41	6.545	
10,300.0	7,285.9	10,577.7	7,267.8	64.6	68.8	88.67	-3,214.0	-1,495.0	820.9	691.7	129.11	6.358	
10,400.0	7,286.4	10,677.6	7,267.6	66.4	70.5	88.62	-3,314.0	-1,495.0	820.9	688.1	132.82	6.181	
10,500.0	7,287.0	10,777.6	7,267.5	68.3	72.3	88.56	-3,414.0	-1,495.0	820.9	684.4	136.53	6.013	
10,600.0	7,287.6	10,877.6	7,267.3	70.1	74.1	88.51	-3,514.0	-1,495.1	820.9	680.7	140.25	5.853	
10,700.0	7,288.2	10,977.6	7,267.1	72.0	75.8	88.46	-3,614.0	-1,495.1	821.0	677.0	143.97	5.702	
10,800.0	7,288.8	11,077.6	7,266.9	73.8	77.6	88.40	-3,714.0	-1,495.1	821.0	673.3	147.71	5.558	
10,900.0	7,289.4	11,177.6	7,266.8	75.7	79.4	88.35	-3,814.0	-1,495.1	821.0	669.6	151.44	5.421	
11,000.0	7,290.0	11,277.6	7,266.6	77.5	81.2	88.30	-3,914.0	-1,495.1	821.0	665.9	155.18	5.291	
11,100.0	7,290.6	11,377.6	7,266.4	79.4	83.0	88.24	-4,014.0	-1,495.1	821.1	662.1	158.93	5.166	
11,200.0	7,291.2	11,477.6	7,266.2	81.3	84.8	88.19	-4,114.0	-1,495.1	821.1	658.4	162.68	5.047	
11,300.0	7,291.8	11,577.6	7,266.1	83.1	86.6	88.14	-4,214.0	-1,495.1	821.1	654.7	166.43	4.934	
11,400.0	7,292.4	11,677.6	7,265.9	85.0	88.4	88.08	-4,314.0	-1,495.1	821.2	651.0	170.19	4.825	
11,500.0	7,293.0	11,777.6	7,265.7	86.9	90.2	88.03	-4,414.0	-1,495.1	821.2	647.2	173.95	4.721	
11,600.0	7,293.6	11,877.6	7,265.5	88.8	92.1	87.97	-4,514.0	-1,495.1	821.2	643.5	177.71	4.621	
11,700.0	7,294.2	11,977.6	7,265.4	90.6	93.9	87.92	-4,614.0	-1,495.1	821.3	639.8	181.48	4.525	
11,800.0	7,294.8	12,077.6	7,265.2	92.5	95.7	87.87	-4,713.9	-1,495.1	821.3	636.0	185.25	4.434	
11,900.0	7,295.3	12,177.6	7,265.0	94.4	97.5	87.81	-4,813.9	-1,495.1	821.3	632.3	189.02	4.345	
12,000.0	7,295.9	12,277.6	7,264.8	96.3	99.4	87.76	-4,913.9	-1,495.1	821.4	628.6	192.79	4.260	
12,100.0	7,296.5	12,377.6	7,264.7	98.2	101.2	87.71	-5,013.9	-1,495.1	821.4	624.8	196.56	4.179	
12,200.0	7,297.1	12,477.6	7,264.5	100.0	103.1	87.65	-5,113.9	-1,495.1	821.4	621.1	200.34	4.100	
12,300.0	7,297.7	12,577.6	7,264.3	101.9	104.9	87.60	-5,213.9	-1,495.1	821.5	617.3	204.12	4.024	
12,400.0	7,298.3	12,677.6	7,264.1	103.8	106.8	87.55	-5,313.9	-1,495.2	821.5	613.6	207.90	3.951	
12,500.0	7,298.9	12,777.6	7,264.0	105.7	108.6	87.49	-5,413.9	-1,495.2	821.5	609.9	211.68	3.881	
12,600.0	7,299.5	12,877.6	7,263.8	107.6	110.5	87.44	-5,513.9	-1,495.2	821.6	606.1	215.47	3.813	
12,700.0	7,300.1	12,977.6	7,263.6	109.5	112.3	87.39	-5,613.9	-1,495.2	821.6	602.4	219.25	3.747	
12,800.0	7,300.7	13,077.6	7,263.4	111.4	114.2	87.33	-5,713.9	-1,495.2	821.7	598.6	223.04	3.684	
12,900.0	7,301.3	13,177.6	7,263.3	113.3	116.0	87.28	-5,813.9	-1,495.2	821.7	594.9	226.83	3.623	
13,000.0	7,301.9	13,277.6	7,263.1	115.2	117.9	87.23	-5,913.9	-1,495.2	821.7	591.1	230.61	3.563	
13,100.0	7,302.5	13,377.6	7,262.9	117.0	119.8	87.17	-6,013.9	-1,495.2	821.8	587.4	234.40	3.506	
13,200.0	7,303.1	13,477.6	7,262.7	118.9	121.6	87.12	-6,113.9	-1,495.2	821.8	583.6	238.19	3.450	
13,300.0	7,303.7	13,577.6	7,262.6	120.8	123.5	87.07	-6,213.9	-1,495.2	821.9	579.9	241.98	3.396	
13,400.0	7,304.2	13,677.6	7,262.4	122.7	125.4	87.01	-6,313.9	-1,495.2	821.9	576.2	245.78	3.344	
13,500.0	7,304.8	13,777.6	7,262.2	124.6	127.2	86.96	-6,413.9	-1,495.2	822.0	572.4	249.57	3.294	
13,600.0	7,305.4	13,877.6	7,262.0	126.5	129.1	86.90	-6,513.9	-1,495.2	822.0	568.7	253.36	3.244	
13,700.0	7,306.0	13,977.6	7,261.9	128.4	131.0	86.85	-6,613.9	-1,495.2	822.1	564.9	257.15	3.197	
13,800.0	7,306.6	14,077.5	7,261.7	130.3	132.9	86.80	-6,713.9	-1,495.2	822.1	561.2	260.95	3.150	
13,900.0	7,307.2	14,177.5	7,261.5	132.2	134.7	86.74	-6,813.9	-1,495.2	822.2	557.4	264.74	3.106	
14,000.0	7,307.8	14,277.5	7,261.4	134.1	136.6	86.69	-6,913.9	-1,495.2	822.2	553.7	268.54	3.062	
14,100.0	7,308.4	14,377.5	7,261.2	136.0	138.5	86.64	-7,013.9	-1,495.2	822.3	549.9	272.33	3.019	
14,200.0	7,309.0	14,477.5	7,261.0	137.9	140.4	86.58	-7,113.9	-1,495.3	822.3	546.2	276.13	2.978	
14,200.9	7,309.0	14,478.4	7,261.0	137.9	140.4	86.58	-7,114.7	-1,495.3	822.3	546.2	276.16	2.978	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	27.9	27.9				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	27.9	27.9	27.7	0.22	124.079	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	27.9	27.9	27.2	0.67	41.360	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	27.9	27.9	26.8	1.12	24.816	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	27.9	27.9	26.3	1.57	17.726	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	27.9	27.9	25.9	2.02	13.787	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	27.9	27.9	25.4	2.47	11.280	
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	27.9	27.9	25.0	2.92	9.545	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	27.9	27.9	24.5	3.37	8.272	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	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	89.99	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	89.99	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	89.99	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	89.99	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	89.99	0.0	27.9	27.9	21.8	6.07	4.596	CC, ES
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.3	173.62	0.0	27.9	29.6	23.1	6.50	4.555	
1,600.0	1,599.8	1,599.8	1,599.8	3.5	3.5	174.57	0.0	27.9	34.8	27.9	6.92	5.032	
1,700.0	1,699.5	1,700.3	1,700.3	3.7	3.7	173.72	1.5	26.9	42.5	35.2	7.33	5.799	
1,800.0	1,798.7	1,800.7	1,800.5	3.9	3.9	170.30	5.9	24.1	51.8	44.1	7.74	6.700	
1,900.0	1,897.5	1,900.9	1,900.3	4.2	4.2	165.75	13.2	19.3	63.1	54.9	8.15	7.744	
2,000.0	1,995.6	2,000.8	1,999.5	4.5	4.4	160.91	23.5	12.6	76.6	68.0	8.57	8.935	
2,100.0	2,093.2	2,099.8	2,097.3	4.8	4.7	156.52	36.0	4.4	92.3	83.3	9.05	10.199	
2,200.0	2,190.6	2,198.3	2,194.6	5.2	4.9	153.39	48.8	-3.9	108.7	99.1	9.59	11.339	
2,300.0	2,288.1	2,296.8	2,291.9	5.6	5.2	151.08	61.6	-12.3	125.3	115.2	10.15	12.351	
2,400.0	2,385.5	2,395.3	2,389.2	6.0	5.5	149.31	74.4	-20.6	142.1	131.4	10.73	13.243	
2,500.0	2,483.0	2,493.8	2,486.5	6.4	5.8	147.91	87.3	-28.9	159.0	147.7	11.33	14.029	
2,600.0	2,580.4	2,592.3	2,583.9	6.8	6.1	146.79	100.1	-37.3	175.9	164.0	11.95	14.722	
2,700.0	2,677.9	2,690.8	2,681.2	7.2	6.4	145.86	112.9	-45.6	192.9	180.4	12.58	15.335	
2,800.0	2,775.3	2,789.3	2,778.5	7.7	6.7	145.08	125.7	-54.0	210.0	196.8	13.23	15.878	
2,900.0	2,872.8	2,887.8	2,875.8	8.1	7.0	144.42	138.5	-62.3	227.1	213.2	13.88	16.361	
3,000.0	2,970.2	2,986.3	2,973.1	8.6	7.3	143.85	151.3	-70.6	244.2	229.6	14.54	16.792	
3,100.0	3,067.7	3,084.8	3,070.4	9.0	7.7	143.36	164.1	-79.0	261.3	246.1	15.21	17.178	
3,200.0	3,165.1	3,183.3	3,167.7	9.5	8.0	142.92	176.9	-87.3	278.4	262.5	15.89	17.525	
3,300.0	3,262.5	3,281.8	3,265.0	9.9	8.3	142.54	189.7	-95.7	295.6	279.0	16.57	17.839	
3,400.0	3,360.0	3,380.3	3,362.3	10.4	8.7	142.20	202.5	-104.0	312.7	295.5	17.26	18.122	
3,500.0	3,457.4	3,478.8	3,459.6	10.9	9.0	141.89	215.3	-112.3	329.9	312.0	17.95	18.380	
3,600.0	3,554.9	3,577.3	3,556.9	11.3	9.3	141.62	228.1	-120.7	347.1	328.5	18.65	18.616	
3,700.0	3,652.3	3,675.3	3,654.0	11.8	9.6	141.64	239.4	-128.0	364.4	345.1	19.25	18.928	
3,800.0	3,749.8	3,773.2	3,751.4	12.3	9.8	142.18	247.9	-133.6	381.8	362.0	19.79	19.288	
3,900.0	3,847.2	3,870.7	3,848.6	12.8	10.0	143.15	253.6	-137.3	399.4	379.1	20.27	19.699	
4,000.0	3,944.7	3,967.5	3,945.4	13.2	10.2	144.49	256.6	-139.2	417.4	396.7	20.70	20.167	
4,100.0	4,042.1	4,064.3	4,042.1	13.7	10.4	146.11	257.0	-139.5	435.9	414.9	21.07	20.686	
4,200.0	4,139.6	4,161.7	4,139.6	14.2	10.5	147.67	257.0	-139.5	454.9	433.4	21.46	21.197	
4,300.0	4,237.0	4,259.2	4,237.0	14.7	10.7	149.11	257.0	-139.5	474.1	452.3	21.85	21.697	
4,400.0	4,334.5	4,356.6	4,334.5	15.2	10.9	150.44	257.0	-139.5	493.6	471.4	22.25	22.188	
4,500.0	4,432.2	4,454.3	4,432.2	15.6	11.1	151.76	257.0	-139.5	512.5	489.9	22.66	22.613	
4,600.0	4,530.5	4,552.6	4,530.5	15.9	11.3	152.83	257.0	-139.5	528.6	505.5	23.06	22.925	
4,700.0	4,629.4	4,651.5	4,629.4	16.2	11.5	153.65	257.0	-139.5	541.7	518.3	23.44	23.110	
4,800.0	4,728.8	4,750.9	4,728.8	16.4	11.7	154.26	257.0	-139.5	551.8	528.0	23.81	23.174	
4,900.0	4,828.5	4,850.6	4,828.5	16.6	11.9	154.66	257.0	-139.5	558.8	534.6	24.17	23.123	
5,000.0	4,928.4	4,950.5	4,928.4	16.8	12.1	154.88	257.0	-139.5	562.6	538.1	24.50	22.961	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,028.4	5,050.5	5,028.4	16.9	12.3	71.69	257.0	-139.5	563.4	538.6	24.84	22.684	
5,200.0	5,128.4	5,150.5	5,128.4	17.0	12.5	71.69	257.0	-139.5	563.4	538.2	25.22	22.342	
5,300.0	5,228.4	5,250.5	5,228.4	17.2	12.7	71.69	257.0	-139.5	563.4	537.8	25.60	22.008	
5,400.0	5,328.4	5,350.5	5,328.4	17.3	12.9	71.69	257.0	-139.5	563.4	537.4	25.99	21.683	
5,500.0	5,428.4	5,450.5	5,428.4	17.5	13.1	71.69	257.0	-139.5	563.4	537.1	26.37	21.365	
5,600.0	5,528.4	5,550.5	5,528.4	17.6	13.3	71.69	257.0	-139.5	563.4	536.7	26.76	21.055	
5,700.0	5,628.4	5,650.5	5,628.4	17.8	13.5	71.69	257.0	-139.5	563.4	536.3	27.15	20.753	
5,800.0	5,728.4	5,750.5	5,728.4	17.9	13.7	71.69	257.0	-139.5	563.4	535.9	27.54	20.457	
5,900.0	5,828.4	5,850.5	5,828.4	18.1	13.9	71.69	257.0	-139.5	563.4	535.5	27.94	20.169	
6,000.0	5,928.4	5,950.5	5,928.4	18.2	14.1	71.69	257.0	-139.5	563.4	535.1	28.33	19.888	
6,100.0	6,028.4	6,050.5	6,028.4	18.4	14.3	71.69	257.0	-139.5	563.4	534.7	28.73	19.613	
6,200.0	6,128.4	6,150.5	6,128.4	18.6	14.5	71.69	257.0	-139.5	563.4	534.3	29.13	19.345	
6,300.0	6,228.4	6,250.5	6,228.4	18.7	14.7	71.69	257.0	-139.5	563.4	533.9	29.53	19.083	
6,400.0	6,328.4	6,350.5	6,328.4	18.9	14.9	71.69	257.0	-139.5	563.4	533.5	29.93	18.827	
6,500.0	6,428.4	6,469.8	6,447.6	19.0	15.1	72.11	252.6	-139.5	562.4	532.1	30.28	18.574	
6,600.0	6,528.4	6,597.3	6,572.3	19.2	15.2	-105.63	227.4	-139.5	556.7	526.3	30.40	18.315	
6,700.0	6,627.7	6,717.5	6,684.1	19.3	15.2	-102.92	183.7	-139.5	550.0	519.6	30.36	18.117	
6,800.0	6,724.9	6,831.0	6,781.6	19.4	15.2	-99.92	125.8	-139.5	543.9	513.6	30.27	17.967	
6,900.0	6,818.1	6,938.2	6,864.3	19.5	15.2	-96.72	57.6	-139.5	539.0	508.8	30.28	17.802	
7,000.0	6,905.9	7,039.7	6,932.3	19.7	15.3	-93.37	-17.6	-139.5	536.0	505.5	30.50	17.572	
7,099.0	6,985.9	7,135.1	6,985.9	19.8	15.4	-90.00	-96.4	-139.5	534.9	503.9	30.98	17.267	
7,100.0	6,986.7	7,136.1	6,986.4	19.8	15.4	-89.97	-97.2	-139.5	534.9	503.9	30.98	17.264	
7,200.0	7,059.1	7,227.9	7,027.7	20.0	15.9	-86.55	-179.2	-139.5	536.0	504.3	31.72	16.895	
7,300.0	7,122.0	7,316.0	7,057.0	20.3	16.4	-83.20	-262.2	-139.5	539.2	506.5	32.67	16.504	
7,400.0	7,174.1	7,400.0	7,075.3	20.6	17.1	-79.98	-344.1	-139.5	544.2	510.4	33.73	16.133	
7,500.0	7,214.7	7,482.5	7,083.9	21.1	17.9	-76.86	-426.2	-139.5	550.7	515.8	34.87	15.794	
7,600.0	7,243.0	7,572.3	7,084.6	21.8	18.8	-73.89	-515.9	-139.5	557.9	521.8	36.11	15.451	
7,700.0	7,258.6	7,670.9	7,084.5	22.6	20.0	-72.07	-614.6	-139.5	562.5	524.8	37.68	14.928	
7,800.0	7,268.5	7,770.4	7,084.5	23.6	21.2	-71.07	-714.1	-139.5	565.7	525.9	39.75	14.230	
7,900.0	7,271.6	7,870.4	7,084.4	24.7	22.6	-70.71	-814.0	-139.5	566.7	524.7	42.01	13.491	
8,000.0	7,272.2	7,970.4	7,084.3	26.0	24.0	-70.65	-914.0	-139.5	566.9	522.3	44.66	12.694	
8,100.0	7,272.8	8,070.4	7,084.3	27.3	25.5	-70.58	-1,014.0	-139.5	567.2	519.7	47.45	11.953	
8,200.0	7,273.4	8,170.4	7,084.2	28.7	27.1	-70.52	-1,114.0	-139.5	567.4	517.0	50.34	11.270	
8,300.0	7,274.0	8,270.4	7,084.1	30.1	28.7	-70.46	-1,214.0	-139.5	567.6	514.3	53.33	10.644	
8,400.0	7,274.6	8,370.4	7,084.0	31.6	30.3	-70.40	-1,314.0	-139.5	567.8	511.4	56.38	10.071	
8,500.0	7,275.2	8,470.4	7,084.0	33.2	32.0	-70.33	-1,414.0	-139.5	568.0	508.5	59.50	9.546	
8,600.0	7,275.8	8,570.4	7,083.9	34.8	33.7	-70.27	-1,514.0	-139.5	568.3	505.6	62.68	9.067	
8,700.0	7,276.4	8,670.4	7,083.8	36.4	35.4	-70.21	-1,614.0	-139.5	568.5	502.6	65.90	8.627	
8,800.0	7,277.0	8,770.4	7,083.8	38.0	37.1	-70.14	-1,714.0	-139.5	568.7	499.6	69.15	8.224	
8,900.0	7,277.5	8,870.3	7,083.7	39.7	38.9	-70.08	-1,814.0	-139.5	568.9	496.5	72.44	7.854	
9,000.0	7,278.1	8,970.3	7,083.6	41.4	40.6	-70.02	-1,914.0	-139.5	569.2	493.4	75.76	7.513	
9,100.0	7,278.7	9,070.3	7,083.6	43.1	42.4	-69.96	-2,014.0	-139.5	569.4	490.3	79.10	7.198	
9,200.0	7,279.3	9,170.3	7,083.5	44.8	44.2	-69.89	-2,114.0	-139.5	569.6	487.2	82.47	6.907	
9,300.0	7,279.9	9,270.3	7,083.4	46.6	46.0	-69.83	-2,214.0	-139.5	569.9	484.0	85.85	6.638	
9,400.0	7,280.5	9,370.3	7,083.4	48.4	47.8	-69.77	-2,314.0	-139.5	570.1	480.8	89.25	6.388	
9,500.0	7,281.1	9,470.3	7,083.3	50.1	49.6	-69.70	-2,414.0	-139.5	570.3	477.7	92.66	6.155	
9,600.0	7,281.7	9,570.3	7,083.2	51.9	51.5	-69.64	-2,513.9	-139.5	570.5	474.5	96.08	5.938	
9,700.0	7,282.3	9,670.3	7,083.1	53.7	53.3	-69.58	-2,613.9	-139.5	570.8	471.3	99.51	5.736	
9,800.0	7,282.9	9,770.3	7,083.1	55.5	55.1	-69.52	-2,713.9	-139.5	571.0	468.1	102.96	5.546	
9,900.0	7,283.5	9,870.3	7,083.0	57.3	57.0	-69.46	-2,813.9	-139.5	571.2	464.8	106.41	5.369	
10,000.0	7,284.1	9,970.3	7,082.9	59.1	58.8	-69.39	-2,913.9	-139.5	571.5	461.6	109.86	5.202	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,284.7	10,070.3	7,082.9	60.9	60.7	-69.33	-3,013.9	-139.5	571.7	458.4	113.33	5.045	
10,200.0	7,285.3	10,170.3	7,082.8	62.8	62.5	-69.27	-3,113.9	-139.5	571.9	455.1	116.80	4.897	
10,300.0	7,285.9	10,270.3	7,082.7	64.6	64.4	-69.21	-3,213.9	-139.5	572.2	451.9	120.27	4.757	
10,400.0	7,286.4	10,370.3	7,082.7	66.4	66.3	-69.14	-3,313.9	-139.5	572.4	448.7	123.75	4.626	
10,500.0	7,287.0	10,470.3	7,082.6	68.3	68.1	-69.08	-3,413.9	-139.5	572.7	445.4	127.23	4.501	
10,600.0	7,287.6	10,570.3	7,082.5	70.1	70.0	-69.02	-3,513.9	-139.5	572.9	442.2	130.71	4.383	
10,700.0	7,288.2	10,670.3	7,082.4	72.0	71.9	-68.96	-3,613.9	-139.5	573.1	438.9	134.20	4.271	
10,800.0	7,288.8	10,770.3	7,082.4	73.8	73.8	-68.90	-3,713.9	-139.5	573.4	435.7	137.69	4.164	
10,900.0	7,289.4	10,870.3	7,082.3	75.7	75.6	-68.83	-3,813.9	-139.5	573.6	432.4	141.18	4.063	
11,000.0	7,290.0	10,970.3	7,082.2	77.5	77.5	-68.77	-3,913.9	-139.5	573.8	429.2	144.67	3.967	
11,100.0	7,290.6	11,070.3	7,082.2	79.4	79.4	-68.71	-4,013.9	-139.5	574.1	425.9	148.16	3.875	
11,200.0	7,291.2	11,170.3	7,082.1	81.3	81.3	-68.65	-4,113.9	-139.5	574.3	422.7	151.66	3.787	
11,300.0	7,291.8	11,270.3	7,082.0	83.1	83.2	-68.59	-4,213.9	-139.5	574.6	419.4	155.15	3.703	
11,400.0	7,292.4	11,370.3	7,082.0	85.0	85.1	-68.53	-4,313.9	-139.5	574.8	416.2	158.65	3.623	
11,500.0	7,293.0	11,470.3	7,081.9	86.9	86.9	-68.47	-4,413.9	-139.5	575.1	412.9	162.14	3.547	
11,600.0	7,293.6	11,570.3	7,081.8	88.8	88.8	-68.40	-4,513.9	-139.5	575.3	409.7	165.63	3.473	
11,700.0	7,294.2	11,670.3	7,081.7	90.6	90.7	-68.34	-4,613.9	-139.5	575.5	406.4	169.13	3.403	
11,800.0	7,294.8	11,770.3	7,081.7	92.5	92.6	-68.28	-4,713.9	-139.5	575.8	403.2	172.62	3.335	
11,900.0	7,295.3	11,870.3	7,081.6	94.4	94.5	-68.22	-4,813.9	-139.5	576.0	399.9	176.12	3.271	
12,000.0	7,295.9	11,970.3	7,081.5	96.3	96.4	-68.16	-4,913.9	-139.5	576.3	396.7	179.61	3.208	
12,100.0	7,296.5	12,070.3	7,081.5	98.2	98.3	-68.10	-5,013.9	-139.5	576.5	393.4	183.10	3.149	
12,200.0	7,297.1	12,170.3	7,081.4	100.0	100.2	-68.04	-5,113.9	-139.5	576.8	390.2	186.60	3.091	
12,300.0	7,297.7	12,270.3	7,081.3	101.9	102.1	-67.98	-5,213.9	-139.5	577.0	386.9	190.09	3.036	
12,400.0	7,298.3	12,370.3	7,081.3	103.8	104.0	-67.91	-5,313.9	-139.5	577.3	383.7	193.58	2.982	
12,500.0	7,298.9	12,470.3	7,081.2	105.7	105.9	-67.85	-5,413.9	-139.5	577.5	380.5	197.06	2.931	
12,600.0	7,299.5	12,570.3	7,081.1	107.6	107.8	-67.79	-5,513.9	-139.5	577.8	377.2	200.55	2.881	
12,700.0	7,300.1	12,670.3	7,081.0	109.5	109.7	-67.73	-5,613.9	-139.5	578.0	374.0	204.04	2.833	
12,800.0	7,300.7	12,770.3	7,081.0	111.4	111.6	-67.67	-5,713.9	-139.5	578.3	370.7	207.52	2.787	
12,900.0	7,301.3	12,870.3	7,080.9	113.3	113.5	-67.61	-5,813.9	-139.5	578.5	367.5	211.01	2.742	
13,000.0	7,301.9	12,970.3	7,080.8	115.2	115.4	-67.55	-5,913.9	-139.5	578.8	364.3	214.49	2.698	
13,100.0	7,302.5	13,070.3	7,080.8	117.0	117.3	-67.49	-6,013.9	-139.5	579.0	361.1	217.97	2.657	
13,200.0	7,303.1	13,170.3	7,080.7	118.9	119.2	-67.43	-6,113.9	-139.5	579.3	357.8	221.45	2.616	
13,300.0	7,303.7	13,270.3	7,080.6	120.8	121.1	-67.37	-6,213.9	-139.5	579.5	354.6	224.92	2.577	
13,400.0	7,304.2	13,370.2	7,080.6	122.7	123.0	-67.31	-6,313.9	-139.5	579.8	351.4	228.40	2.539	
13,500.0	7,304.8	13,470.2	7,080.5	124.6	124.9	-67.25	-6,413.9	-139.5	580.1	348.2	231.87	2.502	
13,600.0	7,305.4	13,570.2	7,080.4	126.5	126.8	-67.19	-6,513.9	-139.5	580.3	345.0	235.34	2.466	
13,700.0	7,306.0	13,670.2	7,080.3	128.4	128.7	-67.13	-6,613.9	-139.5	580.6	341.8	238.81	2.431	
13,800.0	7,306.6	13,770.2	7,080.3	130.3	130.6	-67.07	-6,713.9	-139.5	580.8	338.5	242.28	2.397	
13,900.0	7,307.2	13,870.2	7,080.2	132.2	132.5	-67.01	-6,813.9	-139.5	581.1	335.3	245.74	2.365	
14,000.0	7,307.8	13,970.2	7,080.1	134.1	134.4	-66.94	-6,913.9	-139.5	581.3	332.1	249.20	2.333	
14,100.0	7,308.4	14,070.2	7,080.1	136.0	136.4	-66.88	-7,013.8	-139.5	581.6	328.9	252.67	2.302	
14,200.0	7,309.0	14,170.2	7,080.0	137.9	138.3	-66.82	-7,113.8	-139.5	581.9	325.7	256.12	2.272	
14,200.9	7,309.0	14,171.1	7,080.0	137.9	138.3	-66.82	-7,114.7	-139.5	581.9	325.7	256.15	2.272	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #2 (4-9-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	58.6	58.6				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	58.6	58.6	58.3	0.22	260.567	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	58.6	58.6	57.9	0.67	86.856	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	58.6	58.6	57.4	1.12	52.113	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	58.6	58.6	57.0	1.57	37.224	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	58.6	58.6	56.5	2.02	28.952	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	58.6	58.6	56.1	2.47	23.688	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	58.6	58.6	55.6	2.92	20.044	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	58.6	58.6	55.2	3.37	17.371	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	58.6	58.6	54.7	3.82	15.327	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	58.6	58.6	54.3	4.27	13.714	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.00	0.0	58.6	58.6	53.8	4.72	12.408	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.00	0.0	58.6	58.6	53.4	5.17	11.329	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.00	0.0	58.6	58.6	52.9	5.62	10.423	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.00	0.0	58.6	58.6	52.5	6.07	9.651	CC, ES
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.3	173.42	0.0	58.6	60.3	53.8	6.50	9.272	
1,600.0	1,599.8	1,599.8	1,599.8	3.5	3.5	173.94	0.0	58.6	65.5	58.6	6.92	9.463	
1,700.0	1,699.5	1,699.5	1,699.5	3.7	3.7	174.63	0.0	58.6	74.2	66.8	7.34	10.112	
1,800.0	1,798.7	1,798.7	1,798.7	3.9	3.9	175.37	0.0	58.6	86.3	78.6	7.74	11.148	
1,900.0	1,897.5	1,897.5	1,897.5	4.2	4.2	176.06	0.0	58.6	101.9	93.8	8.14	12.514	
2,000.0	1,995.6	1,995.6	1,995.6	4.5	4.4	176.66	0.0	58.6	121.0	112.4	8.54	14.167	
2,100.0	2,093.2	2,091.6	2,091.6	4.8	4.6	176.58	1.4	59.1	143.5	134.5	8.95	16.031	
2,200.0	2,190.6	2,186.9	2,186.7	5.2	4.8	175.50	5.6	61.0	167.5	158.1	9.39	17.844	
2,300.0	2,288.1	2,281.3	2,280.8	5.6	5.0	173.79	12.7	64.0	192.8	183.0	9.83	19.609	
2,400.0	2,385.5	2,374.6	2,373.6	6.0	5.2	171.73	22.5	68.2	219.5	209.2	10.29	21.338	
2,500.0	2,483.0	2,469.2	2,467.3	6.4	5.5	169.57	34.6	73.4	247.5	236.8	10.76	23.004	
2,600.0	2,580.4	2,564.8	2,561.9	6.8	5.7	167.79	47.0	78.7	275.9	264.6	11.25	24.528	
2,700.0	2,677.9	2,660.4	2,656.5	7.2	5.9	166.35	59.4	84.1	304.4	292.7	11.75	25.919	
2,800.0	2,775.3	2,756.0	2,751.1	7.7	6.2	165.15	71.7	89.4	333.2	320.9	12.26	27.184	
2,900.0	2,872.8	2,851.6	2,845.7	8.1	6.5	164.14	84.1	94.7	362.0	349.2	12.77	28.340	
3,000.0	2,970.2	2,947.1	2,940.4	8.6	6.7	163.28	96.5	100.0	390.9	377.6	13.30	29.395	
3,100.0	3,067.7	3,042.7	3,035.0	9.0	7.0	162.54	108.9	105.3	419.9	406.0	13.83	30.360	
3,200.0	3,165.1	3,138.3	3,129.6	9.5	7.3	161.90	121.3	110.7	448.9	434.5	14.37	31.244	
3,300.0	3,262.5	3,233.9	3,224.2	9.9	7.6	161.33	133.7	116.0	478.0	463.1	14.91	32.057	
3,400.0	3,360.0	3,329.4	3,318.8	10.4	7.8	160.83	146.1	121.3	507.1	491.6	15.46	32.804	
3,500.0	3,457.4	3,425.0	3,413.5	10.9	8.1	160.38	158.4	126.6	536.3	520.2	16.01	33.494	
3,600.0	3,554.9	3,520.6	3,508.1	11.3	8.4	159.98	170.8	131.9	565.4	548.9	16.57	34.132	
3,700.0	3,652.3	3,616.2	3,602.7	11.8	8.7	159.61	183.2	137.3	594.6	577.5	17.13	34.722	
3,800.0	3,749.8	3,711.7	3,697.3	12.3	9.0	159.28	195.6	142.6	623.9	606.2	17.69	35.270	
3,900.0	3,847.2	3,807.3	3,792.0	12.8	9.3	158.99	208.0	147.9	653.1	634.8	18.25	35.780	
4,000.0	3,944.7	3,902.9	3,886.6	13.2	9.6	158.71	220.4	153.2	682.3	663.5	18.82	36.255	
4,100.0	4,042.1	3,998.5	3,981.2	13.7	9.9	158.46	232.8	158.5	711.6	692.2	19.39	36.698	
4,200.0	4,139.6	4,109.1	4,091.0	14.2	10.2	158.30	245.6	164.1	740.1	720.1	19.96	37.069	
4,300.0	4,237.0	4,224.0	4,205.4	14.7	10.5	158.42	254.9	168.1	766.2	745.7	20.49	37.403	
4,400.0	4,334.5	4,340.2	4,321.4	15.2	10.7	158.80	260.0	170.2	790.0	769.0	20.98	37.662	
4,500.0	4,432.2	4,450.9	4,432.2	15.6	10.9	159.47	261.0	170.7	810.7	789.2	21.48	37.742	
4,600.0	4,530.5	4,549.3	4,530.5	15.9	11.1	160.03	261.0	170.7	827.7	805.7	21.95	37.708	
4,700.0	4,629.4	4,648.2	4,629.4	16.2	11.3	160.46	261.0	170.7	841.5	819.1	22.40	37.559	
4,800.0	4,728.8	4,747.6	4,728.8	16.4	11.4	160.79	261.0	170.7	852.1	829.2	22.83	37.317	
4,900.0	4,828.5	4,847.2	4,828.5	16.6	11.6	161.00	261.0	170.7	859.4	836.1	23.23	36.988	
5,000.0	4,928.4	4,947.2	4,928.4	16.8	11.8	161.12	261.0	170.7	863.4	839.8	23.61	36.576	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #2 (4-9-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,028.4	5,047.1	5,028.4	16.9	12.0	77.91	261.0	170.7	864.2	840.3	23.96	36.065	
5,200.0	5,128.4	5,147.1	5,128.4	17.0	12.2	77.91	261.0	170.7	864.2	839.9	24.36	35.483	
5,300.0	5,228.4	5,247.1	5,228.4	17.2	12.5	77.91	261.0	170.7	864.2	839.5	24.75	34.917	
5,400.0	5,328.4	5,347.1	5,328.4	17.3	12.7	77.91	261.0	170.7	864.2	839.1	25.15	34.366	
5,500.0	5,428.4	5,447.1	5,428.4	17.5	12.9	77.91	261.0	170.7	864.2	838.7	25.55	33.830	
5,600.0	5,528.4	5,547.1	5,528.4	17.6	13.1	77.91	261.0	170.7	864.2	838.3	25.95	33.308	
5,700.0	5,628.4	5,647.1	5,628.4	17.8	13.3	77.91	261.0	170.7	864.2	837.9	26.35	32.800	
5,800.0	5,728.4	5,747.1	5,728.4	17.9	13.5	77.91	261.0	170.7	864.2	837.5	26.75	32.306	
5,900.0	5,828.4	5,847.1	5,828.4	18.1	13.7	77.91	261.0	170.7	864.2	837.1	27.16	31.825	
6,000.0	5,928.4	5,947.1	5,928.4	18.2	13.9	77.91	261.0	170.7	864.2	836.7	27.56	31.356	
6,100.0	6,028.4	6,047.1	6,028.4	18.4	14.1	77.91	261.0	170.7	864.2	836.3	27.97	30.899	
6,200.0	6,128.4	6,147.1	6,128.4	18.6	14.3	77.91	261.0	170.7	864.2	835.9	28.38	30.454	
6,300.0	6,228.4	6,247.1	6,228.4	18.7	14.5	77.91	261.0	170.7	864.2	835.4	28.79	30.021	
6,400.0	6,328.4	6,347.1	6,328.4	18.9	14.7	77.91	261.0	170.7	864.2	835.0	29.20	29.598	
6,500.0	6,428.4	6,447.1	6,428.4	19.0	14.9	77.91	261.0	170.7	864.2	834.6	29.61	29.186	
6,532.1	6,460.5	6,479.2	6,460.5	19.1	15.0	-102.10	261.0	170.7	864.3	834.5	29.74	29.057	
6,600.0	6,528.4	6,550.3	6,531.6	19.2	15.1	-102.12	260.9	170.7	864.3	834.3	30.03	28.784	
6,700.0	6,627.7	6,681.6	6,662.0	19.3	15.3	-102.13	247.3	170.7	864.4	834.1	30.32	28.507	
6,800.0	6,724.9	6,812.3	6,787.6	19.4	15.4	-101.87	211.9	170.7	863.6	833.1	30.46	28.349	
6,900.0	6,818.1	6,941.5	6,904.1	19.5	15.4	-101.33	156.3	170.7	862.0	831.5	30.53	28.232	
7,000.0	6,905.9	7,068.1	7,007.6	19.7	15.4	-100.54	83.6	170.7	859.8	829.2	30.66	28.042	
7,100.0	6,986.7	7,191.5	7,095.5	19.8	15.5	-99.54	-2.8	170.7	857.2	826.3	30.98	27.667	
7,200.0	7,059.1	7,311.2	7,166.5	20.0	15.8	-98.36	-99.0	170.7	854.5	822.9	31.62	27.025	
7,300.0	7,122.0	7,427.0	7,220.0	20.3	16.4	-97.04	-201.4	170.7	851.8	819.1	32.64	26.098	
7,400.0	7,174.1	7,538.7	7,256.5	20.6	17.1	-95.62	-307.0	170.7	849.4	815.3	34.05	24.943	
7,500.0	7,214.7	7,646.5	7,276.7	21.1	18.1	-94.11	-412.8	170.7	847.4	811.6	35.82	23.655	
7,600.0	7,243.0	7,746.2	7,287.1	21.8	19.1	-92.98	-511.9	170.7	846.2	808.4	37.83	22.369	
7,700.0	7,258.6	7,849.0	7,291.9	22.6	20.3	-92.24	-614.6	170.7	845.7	805.6	40.12	21.081	
7,800.0	7,268.5	7,948.7	7,291.6	23.6	21.5	-91.57	-714.2	170.7	845.4	802.8	42.58	19.853	
7,900.0	7,271.6	8,048.6	7,291.4	24.7	22.9	-91.34	-814.2	170.7	845.3	800.1	45.23	18.689	
8,000.0	7,272.2	8,148.6	7,291.2	26.0	24.3	-91.28	-914.2	170.7	845.3	797.2	48.03	17.599	
8,100.0	7,272.8	8,248.6	7,290.9	27.3	25.8	-91.23	-1,014.2	170.7	845.3	794.3	50.97	16.585	
8,200.0	7,273.4	8,348.6	7,290.7	28.7	27.3	-91.17	-1,114.2	170.7	845.2	791.2	54.02	15.648	
8,300.0	7,274.0	8,448.6	7,290.4	30.1	28.9	-91.11	-1,214.2	170.7	845.2	788.1	57.16	14.786	
8,400.0	7,274.6	8,548.6	7,290.2	31.6	30.5	-91.06	-1,314.1	170.7	845.2	784.8	60.39	13.996	
8,500.0	7,275.2	8,648.6	7,289.9	33.2	32.2	-91.00	-1,414.1	170.7	845.2	781.5	63.68	13.272	
8,600.0	7,275.8	8,748.6	7,289.7	34.8	33.9	-90.94	-1,514.1	170.7	845.2	778.1	67.03	12.608	
8,700.0	7,276.4	8,848.6	7,289.4	36.4	35.6	-90.89	-1,614.1	170.7	845.2	774.7	70.44	11.999	
8,800.0	7,277.0	8,948.6	7,289.2	38.0	37.3	-90.83	-1,714.1	170.7	845.2	771.3	73.88	11.440	
8,900.0	7,277.5	9,048.5	7,289.0	39.7	39.0	-90.77	-1,814.1	170.7	845.1	767.8	77.36	10.925	
9,000.0	7,278.1	9,148.5	7,288.7	41.4	40.8	-90.72	-1,914.1	170.7	845.1	764.3	80.88	10.450	
9,100.0	7,278.7	9,248.5	7,288.5	43.1	42.6	-90.66	-2,014.1	170.7	845.1	760.7	84.42	10.011	
9,200.0	7,279.3	9,348.5	7,288.2	44.8	44.4	-90.60	-2,114.1	170.7	845.1	757.1	87.99	9.605	
9,300.0	7,279.9	9,448.5	7,288.0	46.6	46.2	-90.55	-2,214.1	170.7	845.1	753.5	91.58	9.229	
9,400.0	7,280.5	9,548.5	7,287.7	48.4	48.0	-90.49	-2,314.1	170.7	845.1	749.9	95.18	8.879	
9,500.0	7,281.1	9,648.5	7,287.5	50.1	49.8	-90.43	-2,414.1	170.7	845.1	746.3	98.81	8.553	
9,600.0	7,281.7	9,748.5	7,287.2	51.9	51.6	-90.38	-2,514.1	170.7	845.1	742.6	102.45	8.249	
9,700.0	7,282.3	9,848.5	7,287.0	53.7	53.4	-90.32	-2,614.1	170.7	845.1	739.0	106.11	7.964	
9,800.0	7,282.9	9,948.5	7,286.8	55.5	55.3	-90.26	-2,714.1	170.7	845.1	735.3	109.78	7.698	
9,900.0	7,283.5	10,048.5	7,286.5	57.3	57.1	-90.21	-2,814.1	170.7	845.1	731.6	113.45	7.449	
10,000.0	7,284.1	10,148.5	7,286.3	59.1	59.0	-90.15	-2,914.1	170.7	845.1	727.9	117.14	7.214	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #2 (4-9-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,284.7	10,248.5	7,286.0	60.9	60.8	-90.09	-3,014.1	170.7	845.1	724.2	120.84	6.993	
10,200.0	7,285.3	10,348.5	7,285.8	62.8	62.7	-90.04	-3,114.1	170.7	845.1	720.5	124.55	6.785	
10,261.7	7,285.6	10,410.3	7,285.6	63.9	63.8	-90.00	-3,175.8	170.7	845.1	718.2	126.84	6.662	
10,300.0	7,285.9	10,448.5	7,285.5	64.6	64.5	-89.98	-3,214.1	170.7	845.1	716.8	128.26	6.588	
10,400.0	7,286.4	10,548.5	7,285.3	66.4	66.4	-89.92	-3,314.1	170.7	845.1	713.1	131.99	6.403	
10,500.0	7,287.0	10,648.5	7,285.0	68.3	68.3	-89.86	-3,414.1	170.7	845.1	709.4	135.71	6.227	
10,600.0	7,287.6	10,748.5	7,284.8	70.1	70.1	-89.81	-3,514.1	170.7	845.1	705.6	139.45	6.060	
10,700.0	7,288.2	10,848.5	7,284.6	72.0	72.0	-89.75	-3,614.1	170.7	845.1	701.9	143.19	5.902	
10,800.0	7,288.8	10,948.5	7,284.3	73.8	73.9	-89.69	-3,714.1	170.7	845.1	698.1	146.93	5.751	
10,900.0	7,289.4	11,048.5	7,284.1	75.7	75.7	-89.64	-3,814.1	170.7	845.1	694.4	150.68	5.608	
11,000.0	7,290.0	11,148.5	7,283.8	77.5	77.6	-89.58	-3,914.0	170.7	845.1	690.7	154.43	5.472	
11,100.0	7,290.6	11,248.5	7,283.6	79.4	79.5	-89.52	-4,014.0	170.7	845.1	686.9	158.19	5.342	
11,200.0	7,291.2	11,348.5	7,283.3	81.3	81.4	-89.47	-4,114.0	170.7	845.1	683.2	161.95	5.218	
11,300.0	7,291.8	11,448.5	7,283.1	83.1	83.3	-89.41	-4,214.0	170.7	845.1	679.4	165.72	5.100	
11,400.0	7,292.4	11,548.5	7,282.8	85.0	85.2	-89.35	-4,314.0	170.7	845.1	675.6	169.48	4.986	
11,500.0	7,293.0	11,648.5	7,282.6	86.9	87.0	-89.30	-4,414.0	170.7	845.1	671.9	173.25	4.878	
11,600.0	7,293.6	11,748.5	7,282.4	88.8	88.9	-89.24	-4,514.0	170.7	845.1	668.1	177.03	4.774	
11,700.0	7,294.2	11,848.5	7,282.1	90.6	90.8	-89.18	-4,614.0	170.7	845.2	664.4	180.80	4.675	
11,800.0	7,294.8	11,948.4	7,281.9	92.5	92.7	-89.13	-4,714.0	170.7	845.2	660.6	184.58	4.579	
11,900.0	7,295.3	12,048.4	7,281.6	94.4	94.6	-89.07	-4,814.0	170.7	845.2	656.8	188.36	4.487	
12,000.0	7,295.9	12,148.4	7,281.4	96.3	96.5	-89.01	-4,914.0	170.7	845.2	653.1	192.14	4.399	
12,100.0	7,296.5	12,248.4	7,281.1	98.2	98.4	-88.96	-5,014.0	170.7	845.2	649.3	195.92	4.314	
12,200.0	7,297.1	12,348.4	7,280.9	100.0	100.3	-88.90	-5,114.0	170.7	845.2	645.5	199.71	4.232	
12,300.0	7,297.7	12,448.4	7,280.6	101.9	102.2	-88.84	-5,214.0	170.7	845.2	641.7	203.49	4.154	
12,400.0	7,298.3	12,548.4	7,280.4	103.8	104.1	-88.79	-5,314.0	170.7	845.3	638.0	207.28	4.078	
12,500.0	7,298.9	12,648.4	7,280.2	105.7	106.0	-88.73	-5,414.0	170.7	845.3	634.2	211.07	4.005	
12,600.0	7,299.5	12,748.4	7,279.9	107.6	107.9	-88.67	-5,514.0	170.7	845.3	630.4	214.86	3.934	
12,700.0	7,300.1	12,848.4	7,279.7	109.5	109.8	-88.62	-5,614.0	170.7	845.3	626.7	218.65	3.866	
12,800.0	7,300.7	12,948.4	7,279.4	111.4	111.7	-88.56	-5,714.0	170.7	845.3	622.9	222.45	3.800	
12,900.0	7,301.3	13,048.4	7,279.2	113.3	113.6	-88.50	-5,814.0	170.7	845.4	619.1	226.24	3.737	
13,000.0	7,301.9	13,148.4	7,278.9	115.2	115.5	-88.45	-5,914.0	170.7	845.4	615.3	230.03	3.675	
13,100.0	7,302.5	13,248.4	7,278.7	117.0	117.4	-88.39	-6,014.0	170.7	845.4	611.6	233.83	3.615	
13,200.0	7,303.1	13,348.4	7,278.4	118.9	119.3	-88.33	-6,114.0	170.7	845.4	607.8	237.63	3.558	
13,300.0	7,303.7	13,448.4	7,278.2	120.8	121.2	-88.27	-6,214.0	170.7	845.4	604.0	241.42	3.502	
13,400.0	7,304.2	13,548.4	7,278.0	122.7	123.1	-88.22	-6,314.0	170.7	845.5	600.3	245.22	3.448	
13,500.0	7,304.8	13,648.4	7,277.7	124.6	125.0	-88.16	-6,414.0	170.7	845.5	596.5	249.02	3.395	
13,600.0	7,305.4	13,748.4	7,277.5	126.5	126.9	-88.10	-6,513.9	170.7	845.5	592.7	252.82	3.344	
13,700.0	7,306.0	13,848.4	7,277.2	128.4	128.8	-88.05	-6,613.9	170.7	845.6	588.9	256.62	3.295	
13,800.0	7,306.6	13,948.4	7,277.0	130.3	130.7	-87.99	-6,713.9	170.7	845.6	585.2	260.42	3.247	
13,900.0	7,307.2	14,048.4	7,276.7	132.2	132.6	-87.93	-6,813.9	170.7	845.6	581.4	264.22	3.200	
14,000.0	7,307.8	14,148.4	7,276.5	134.1	134.5	-87.88	-6,913.9	170.7	845.6	577.6	268.02	3.155	
14,100.0	7,308.4	14,248.4	7,276.2	136.0	136.4	-87.82	-7,013.9	170.7	845.7	573.9	271.82	3.111	
14,200.0	7,309.0	14,348.4	7,276.0	137.9	138.3	-87.76	-7,113.9	170.7	845.7	570.1	275.62	3.068	
14,200.9	7,309.0	14,349.2	7,276.0	137.9	138.4	-87.76	-7,114.8	170.7	845.7	570.1	275.66	3.068	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

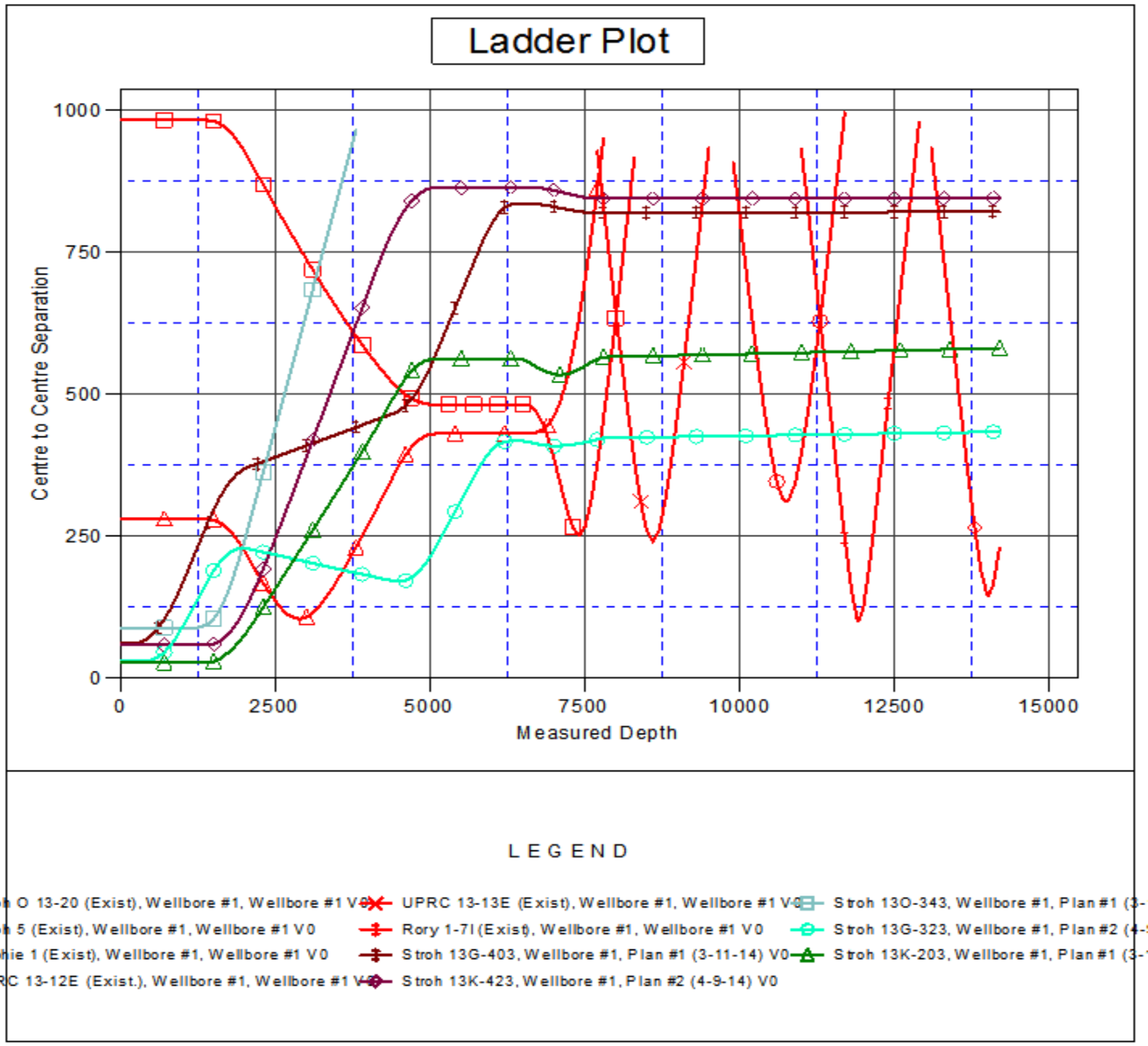
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	89.2	89.2				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	89.2	89.2	89.0	0.22	399.046	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	89.2	89.2	88.6	0.67	132.794	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	89.2	89.2	88.1	1.12	79.570	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	89.2	89.2	87.7	1.57	56.803	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	89.2	89.2	87.2	2.02	44.166	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	89.2	89.2	86.8	2.47	36.129	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	89.2	89.2	86.3	2.92	30.566	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	89.2	89.2	85.9	3.37	26.488	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	0.0	89.2	89.2	85.4	3.82	23.370	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	0.0	89.2	89.2	85.0	4.27	20.909	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	90.00	0.0	89.2	89.2	84.5	4.72	18.916	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	90.00	0.0	89.2	89.2	84.1	5.17	17.271	CC, ES
1,300.0	1,300.0	1,296.2	1,296.2	2.8	2.8	89.61	0.6	90.7	90.8	85.2	5.60	16.202	
1,400.0	1,400.0	1,393.1	1,393.0	3.0	3.0	88.49	2.5	95.3	95.5	89.4	6.04	15.819	SF
1,500.0	1,500.0	1,489.5	1,489.0	3.2	3.2	170.23	5.6	102.7	105.1	98.6	6.45	16.285	
1,600.0	1,599.8	1,584.6	1,583.4	3.5	3.4	168.78	9.9	113.0	121.3	114.4	6.86	17.681	
1,700.0	1,699.5	1,677.8	1,675.6	3.7	3.7	167.54	15.3	125.9	144.0	136.7	7.27	19.820	
1,800.0	1,798.7	1,768.7	1,764.9	3.9	4.0	166.56	21.6	141.2	173.0	165.3	7.67	22.567	
1,900.0	1,897.5	1,862.4	1,856.8	4.2	4.3	165.86	28.8	158.4	206.8	198.8	8.06	25.648	
2,000.0	1,995.6	1,955.3	1,947.9	4.5	4.6	165.51	35.9	175.5	243.8	235.4	8.45	28.850	
2,100.0	2,093.2	2,047.1	2,037.8	4.8	4.9	165.45	42.9	192.3	283.6	274.7	8.86	31.996	
2,200.0	2,190.6	2,138.7	2,127.6	5.2	5.2	165.51	49.9	209.1	323.7	314.4	9.30	34.793	
2,300.0	2,288.1	2,230.3	2,217.4	5.6	5.6	165.56	56.9	225.9	363.8	354.0	9.75	37.305	
2,400.0	2,385.5	2,321.9	2,307.2	6.0	5.9	165.59	63.9	242.8	403.8	393.6	10.21	39.567	
2,500.0	2,483.0	2,413.6	2,396.9	6.4	6.3	165.62	70.9	259.6	443.9	433.3	10.67	41.609	
2,600.0	2,580.4	2,505.2	2,486.7	6.8	6.6	165.65	77.9	276.4	484.0	472.9	11.14	43.458	
2,700.0	2,677.9	2,596.8	2,576.5	7.2	7.0	165.67	84.9	293.2	524.1	512.5	11.61	45.138	
2,800.0	2,775.3	2,688.4	2,666.3	7.7	7.4	165.69	91.9	310.1	564.2	552.1	12.09	46.669	
2,900.0	2,872.8	2,780.0	2,756.1	8.1	7.8	165.70	98.9	326.9	604.3	591.7	12.57	48.068	
3,000.0	2,970.2	2,871.6	2,845.8	8.6	8.1	165.72	105.9	343.7	644.4	631.3	13.06	49.350	
3,100.0	3,067.7	2,963.2	2,935.6	9.0	8.5	165.73	112.9	360.5	684.5	670.9	13.55	50.529	
3,200.0	3,165.1	3,054.8	3,025.4	9.5	8.9	165.74	119.9	377.3	724.6	710.5	14.04	51.615	
3,300.0	3,262.5	3,146.4	3,115.2	9.9	9.3	165.75	126.9	394.2	764.7	750.1	14.53	52.619	
3,400.0	3,360.0	3,238.1	3,205.0	10.4	9.7	165.76	133.9	411.0	804.8	789.7	15.03	53.548	
3,500.0	3,457.4	3,329.7	3,294.8	10.9	10.1	165.77	140.9	427.8	844.8	829.3	15.53	54.410	
3,600.0	3,554.9	3,421.3	3,384.5	11.3	10.4	165.77	147.9	444.6	884.9	868.9	16.03	55.213	
3,700.0	3,652.3	3,512.9	3,474.3	11.8	10.8	165.78	154.9	461.5	925.0	908.5	16.53	55.960	
3,800.0	3,749.8	3,604.5	3,564.1	12.3	11.2	165.79	161.9	478.3	965.1	948.1	17.03	56.658	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4820.0ft (Original Well Elev) Coordinates are relative to: Stroh 13K-443
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.42°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4820.0ft (Original Well Elev) Coordinates are relative to: Stroh 13K-443
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.42°