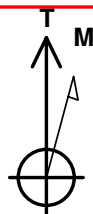




Well Name: Huron 5N
Surface Location: Huron 5N64W22
North American Datum 1983
US State Plane 1983, Colorado Northern Zone
Ground Elevation: 4598.0
WELL @ 4621.0usft (Original Well Elev)
Northing 1382264.40 Easting 3270740.87 Latitude 40° 22' 43.122 N Longitude 104° 31' 41.460 W Slot

SECTION DETAILS

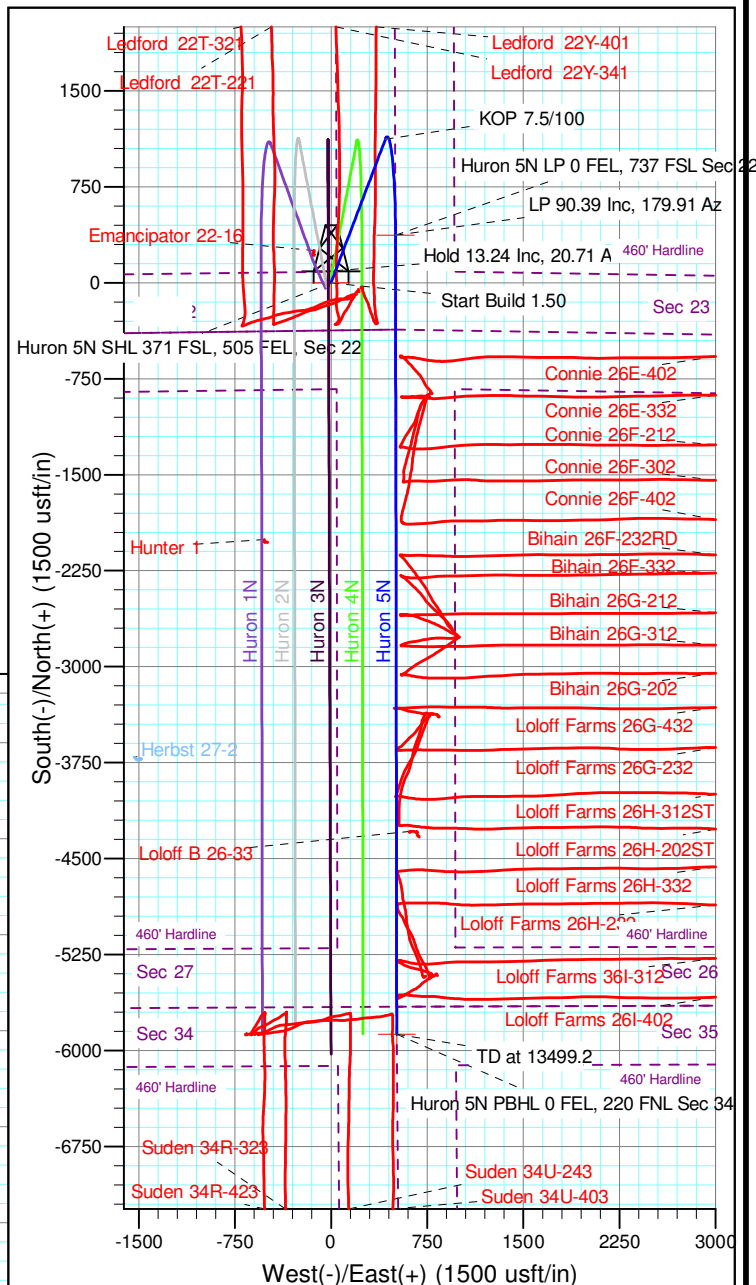
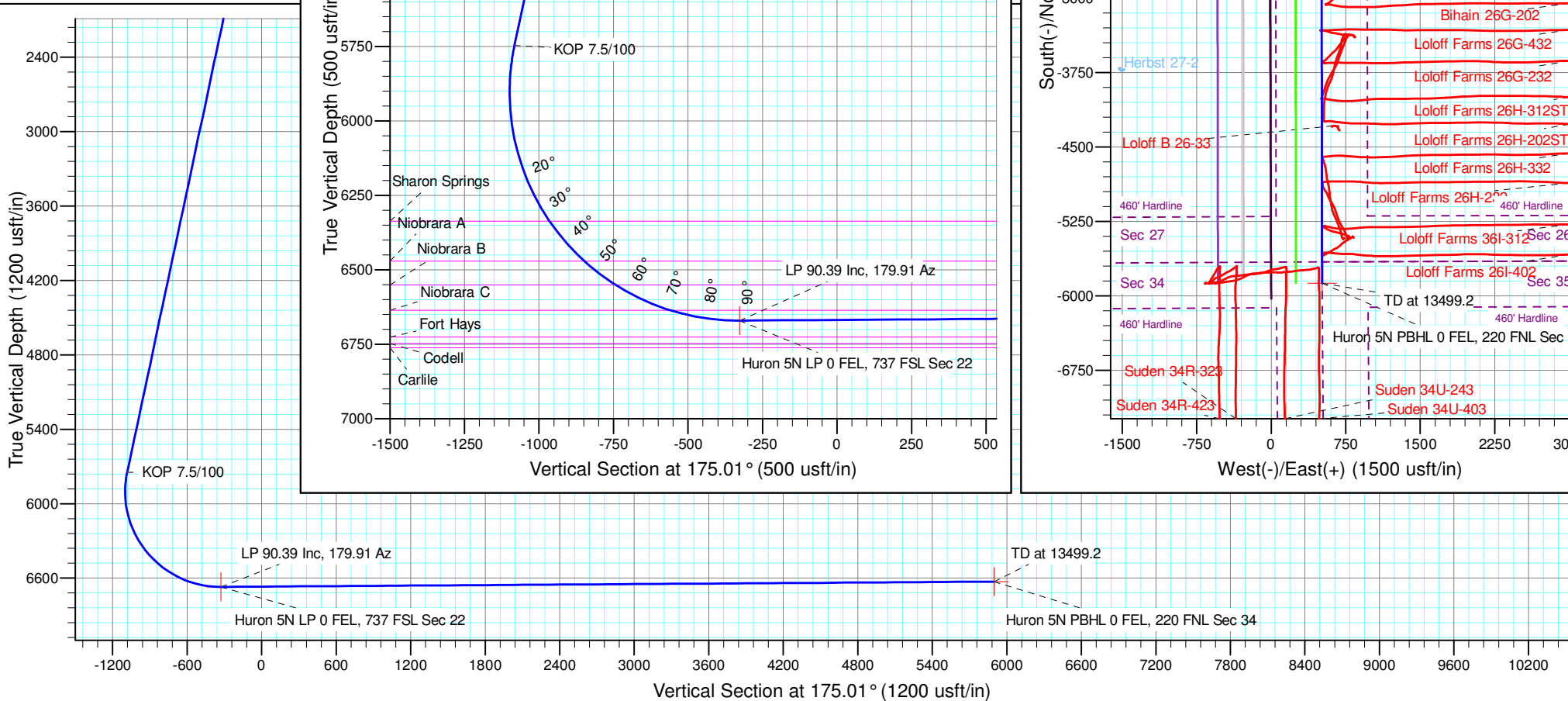
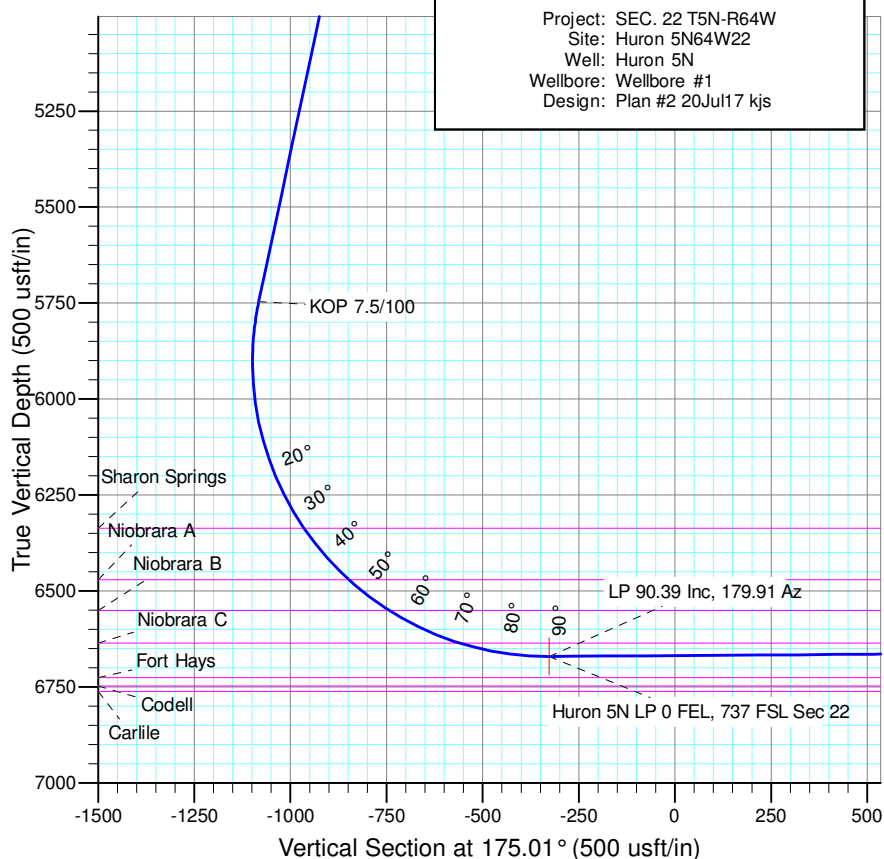
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1082.7	13.24	20.71	1074.9	95.0	35.9	1.50	20.71	-91.5	
4	5882.2	13.24	20.71	5746.8	1123.3	424.6	0.00	0.00	-1082.0	
5	7252.2	90.39	179.91	6671.0	372.0	503.5	7.50	158.65	-326.7	Huron 5N LP 0 FEL, 737 FSL Sec 22
6	13499.2	90.39	179.91	6628.6	-5874.9	513.4	0.00	0.00	5897.2	



Azimuths to True North
Magnetic North: 8.08°

Magnetic Field
Strength: 52408.9nT
Dip Angle: 66.87°
Date: 06/13/2017
Model: IGRF2015

Project: SEC. 22 T5N-R64W
Site: Huron 5N64W22
Well: Huron 5N
Wellbore: Wellbore #1
Design: Plan #2 20Jul17 kjs



PDC Energy Inc. DJ Basin

SEC. 22 T5N-R64W

Huron 5N64W22

Huron 5N

Wellbore #1

Plan #2 20Jul17 kjs

Anticollision Report

20 July, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Huron 5N
Project:	SEC. 22 T5N-R64W	TVD Reference:	WELL @ 4621.0usft (Original Well Elev)
Reference Site:	Huron 5N64W22	MD Reference:	WELL @ 4621.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Huron 5N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #2 20Jul17 kjs	Offset TVD Reference:	Offset Datum

Reference	Plan #2 20Jul17 kjs		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,682.5 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	07/20/17		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,499.2	Plan #2 20Jul17 kjs (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Well Sec. 26-T5N-R64W						
Bihain 26F-232RD - Wellbore #1 - Wellbore #1	9,758.5	6,471.6	390.1	325.8	6.061	CC, ES
Bihain 26F-232RD - Wellbore #1 - Wellbore #1	9,800.0	6,471.8	392.3	327.3	6.032	SF
Bihain 26F-332 - Wellbore #1 - Wellbore #1	9,927.1	6,504.0	350.6	281.4	5.067	CC, ES, SF
Bihain 26G-202 - Wellbore #1 - Wellbore #1	10,711.8	6,503.0	296.1	215.0	3.649	CC, ES, SF
Bihain 26G-212 - Wellbore #1 - Wellbore #1	10,220.0	6,475.8	353.5	281.8	4.930	CC, ES, SF
Bihain 26G-312 - Wellbore #1 - Wellbore #1	10,469.7	6,505.0	299.1	221.8	3.868	CC, ES
Bihain 26G-312 - Wellbore #1 - Wellbore #1	10,500.0	6,505.0	300.6	222.8	3.861	SF
Connie 26E-332 - Wellbore #1 - Wellbore #1	8,529.1	6,462.5	352.4	306.7	7.707	CC, ES
Connie 26E-332 - Wellbore #1 - Wellbore #1	8,600.0	6,464.1	359.5	312.6	7.675	SF
Connie 26E-402 - Wellbore #1 - Wellbore #1	8,226.1	6,526.0	284.9	241.1	6.503	CC, ES, SF
Connie 26F-212 - Wellbore #1 - Wellbore #1	8,922.7	6,432.0	404.0	353.3	7.971	CC, ES
Connie 26F-212 - Wellbore #1 - Wellbore #1	9,000.0	6,432.0	411.3	359.5	7.939	SF
Connie 26F-302 - Wellbore #1 - Wellbore #1	9,177.7	6,492.0	374.4	315.2	6.316	CC, ES
Connie 26F-302 - Wellbore #1 - Wellbore #1	9,200.0	6,492.0	375.1	315.5	6.290	SF
Connie 26F-402 - Wellbore #1 - Wellbore #1	9,506.9	6,588.0	308.1	241.1	4.600	CC, ES, SF
Loloff B 26-33 - Wellbore #1 - Wellbore #1	11,913.6	6,655.1	105.9	-21.9	0.828	Level 1, CC, ES, SF
Loloff Farms 26G-232 - Wellbore #1 - Wellbore #1	11,279.2	6,468.0	390.5	301.0	4.365	CC, ES
Loloff Farms 26G-232 - Wellbore #1 - Wellbore #1	11,300.0	6,468.0	391.0	301.2	4.354	SF
Loloff Farms 26G-432 - Wellbore #1 - Wellbore #1	10,942.9	6,538.3	244.1	157.4	2.816	CC, ES, SF
Loloff Farms 26H-202ST - Wellbore #1 - Wellbore #1	11,883.1	6,578.8	298.6	187.5	2.687	CC, ES
Loloff Farms 26H-202ST - Wellbore #1 - Wellbore #1	11,900.0	6,579.4	299.1	187.6	2.681	SF
Loloff Farms 26H-232 - Wellbore #1 - Wellbore #1	12,473.8	6,619.0	273.1	155.5	2.321	CC, ES, SF
Loloff Farms 26H-312ST - Wellbore #1 - Wellbore #1	11,663.6	6,518.7	380.5	280.8	3.817	CC, ES
Loloff Farms 26H-312ST - Wellbore #1 - Wellbore #1	11,700.0	6,518.2	382.2	282.0	3.814	SF
Loloff Farms 26H-332 - Wellbore #1 - Wellbore #1	12,216.5	6,618.0	314.7	203.2	2.822	CC, ES, SF
Loloff Farms 26I-402 - Wellbore #1 - Wellbore #1	13,203.3	6,557.3	333.6	208.3	2.662	CC, ES, SF
Loloff Farms 36I-312 - Wellbore #1 - Wellbore #1	12,951.8	6,568.0	286.8	164.7	2.348	CC, ES, SF
Existing Wells Sec 34 T5N R64W						
Gamewell 34-1 - Wellbore #1 - Wellbore #1						Out of range
Suden 34R-323 - Wellbore #1 - Wellbore #1	13,499.2	6,660.0	888.3	725.0	5.440	CC, ES, SF
Suden 34R-423 - Wellbore #1 - Wellbore #1	13,499.2	6,693.5	1,038.7	874.5	6.326	CC, ES, SF
Suden 34U-243 - Wellbore #1 - Wellbore #1	13,499.2	6,648.7	433.6	284.7	2.912	CC, ES, SF
Suden 34U-403 - Wellbore #1 - Wellbore #1	13,499.2	6,762.2	128.1	43.0	1.505	CC, ES, SF

Anticollision Report

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Huron 5N
Project:	SEC. 22 T5N-R64W	TVD Reference:	WELL @ 4621.0usft (Original Well Elev)
Reference Site:	Huron 5N64W22	MD Reference:	WELL @ 4621.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Huron 5N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #2 20Jul17 kjs	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec. 22-T5N-R64W						
Emancipator 22-15 - Wellbore #1 - Wellbore #1	0.0	0.0	1,551.4			
Emancipator 22-15 - Wellbore #1 - Wellbore #1	100.0	76.4	1,551.4	1,551.2	8,172.062	ES
Emancipator 22-15 - Wellbore #1 - Wellbore #1	3,000.0	2,916.5	1,679.7	1,658.3	78.678	SF
Emancipator 22-16 - Wellbore #1 - Wellbore #1	1,355.3	1,316.2	199.6	191.3	23.964	CC
Emancipator 22-16 - Wellbore #1 - Wellbore #1	1,400.0	1,359.0	200.0	191.3	23.028	ES
Emancipator 22-16 - Wellbore #1 - Wellbore #1	7,371.1	6,650.0	634.4	592.7	15.208	SF
Ledford 22T-221 - Wellbore #1 - Wellbore #1	226.3	203.4	218.6	217.7	243.709	CC
Ledford 22T-221 - Wellbore #1 - Wellbore #1	400.0	377.2	218.9	217.1	120.525	ES
Ledford 22T-221 - Wellbore #1 - Wellbore #1	6,500.0	7,604.0	956.3	898.1	16.441	SF
Ledford 22T-321 - Wellbore #1 - Wellbore #1	300.9	279.0	211.2	210.0	176.983	CC
Ledford 22T-321 - Wellbore #1 - Wellbore #1	600.0	581.8	211.9	209.0	73.206	ES
Ledford 22T-321 - Wellbore #1 - Wellbore #1	6,400.0	7,789.1	1,241.0	1,179.9	20.300	SF
Ledford 22Y-341 - Wellbore #1 - Wellbore #1	774.8	766.7	222.9	218.9	54.702	CC
Ledford 22Y-341 - Wellbore #1 - Wellbore #1	800.0	791.3	223.0	218.8	52.683	ES
Ledford 22Y-341 - Wellbore #1 - Wellbore #1	6,800.0	7,478.0	445.0	392.1	8.416	SF
Ledford 22Y-401 - Wellbore #1 - Wellbore #1	7,444.0	6,887.2	169.2	126.0	3.918	CC, ES, SF
Existing Wells Sec. 27 T5N R64W						
Hunter 1 - Wellbore #1 - Wellbore #1						Out of range
Herbst 27-2 - Wellbore #1 - Wellbore #1						Out of range
Herbst 27-6 - Wellbore #1 - Wellbore #1						Out of range
Huron 5N64W22						
Huron 1N - Wellbore #1 - Plan #2 20Jul17 kjs	200.0	200.0	60.0	59.2	78.669	CC, ES
Huron 1N - Wellbore #1 - Plan #2 20Jul17 kjs	13,499.2	13,455.1	1,048.3	754.4	3.567	SF
Huron 2N - Wellbore #1 - Plan #2 20Jul17 kjs	200.0	200.0	45.0	44.2	59.001	CC
Huron 2N - Wellbore #1 - Plan #2 20Jul17 kjs	300.0	300.7	45.5	44.1	34.504	ES
Huron 2N - Wellbore #1 - Plan #2 20Jul17 kjs	13,499.2	13,345.2	796.5	504.3	2.726	SF
Huron 3N - Wellbore #1 - Plan #2 20Jul17 kjs	200.0	200.0	30.0	29.2	39.334	CC
Huron 3N - Wellbore #1 - Plan #2 20Jul17 kjs	300.0	300.6	30.3	28.9	22.981	ES
Huron 3N - Wellbore #1 - Plan #2 20Jul17 kjs	13,499.2	13,465.7	513.8	219.0	1.743	SF
Huron 4N - Wellbore #1 - Plan #2 20Jul17 kjs	200.0	200.0	15.0	14.2	19.667	CC
Huron 4N - Wellbore #1 - Plan #2 20Jul17 kjs	13,499.2	13,385.2	271.1	-15.8	0.945	Level 1, ES, SF

Offset Design		Existing Well Sec. 26-T5N-R64W - Bihain 26F-232RD - Wellbore #1 - Wellbore #1										Offset Site Error:	0.0 usft
Survey Program:		168-MWD										Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Reference Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
8,200.0	6,664.6	6,463.8	6,342.3	32.5	21.4	-40.97	-2,131.8	763.4	1,606.6	1,565.0	41.58	38.642	
8,300.0	6,663.9	6,464.3	6,342.6	34.1	21.4	-41.04	-2,131.8	763.7	1,509.8	1,467.0	42.80	35.279	
8,400.0	6,663.2	6,464.8	6,343.0	35.8	21.4	-41.11	-2,131.8	764.1	1,413.4	1,369.4	44.06	32.076	
8,500.0	6,662.5	6,465.3	6,343.3	37.6	21.4	-41.18	-2,131.8	764.4	1,317.6	1,272.2	45.38	29.035	
8,600.0	6,661.8	6,465.8	6,343.6	39.4	21.4	-41.25	-2,131.8	764.8	1,222.4	1,175.7	46.74	26.157	
8,700.0	6,661.2	6,466.3	6,344.0	41.2	21.4	-41.32	-2,131.8	765.1	1,128.1	1,080.0	48.13	23.441	
8,800.0	6,660.5	6,466.8	6,344.3	43.1	21.4	-41.40	-2,131.8	765.5	1,034.9	985.3	49.55	20.885	
8,900.0	6,659.8	6,467.3	6,344.6	45.1	21.4	-41.47	-2,131.8	765.9	943.0	892.0	51.00	18.489	
9,000.0	6,659.1	6,467.7	6,345.0	47.1	21.4	-41.54	-2,131.9	766.2	853.0	800.5	52.48	16.252	
9,100.0	6,658.5	6,468.2	6,345.3	49.1	21.4	-41.62	-2,131.9	766.6	765.4	711.4	53.99	14.178	
9,200.0	6,657.8	6,468.8	6,345.6	51.1	21.4	-41.69	-2,131.9	767.0	681.3	625.8	55.51	12.273	
9,300.0	6,657.1	6,469.3	6,346.0	53.2	21.4	-41.76	-2,131.9	767.4	602.1	545.0	57.06	10.551	

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