

PROPOSED LOCAL COORDINATES:

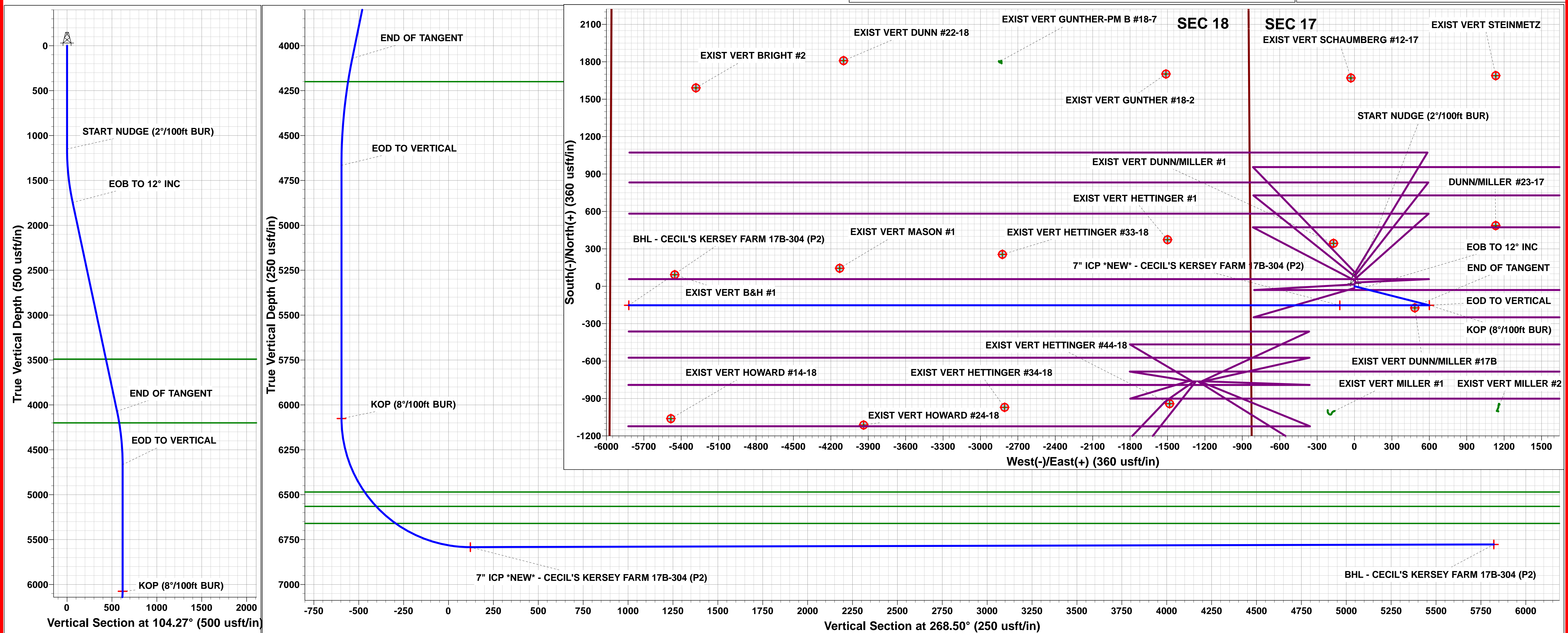
SHL: 1635ft FSL & 834ft FWL of Sec 17

7" ICP *NEW*: 1483.3ft FSL & 714.5ft FWL of Sec 17

BHL: 1510ft FSL & 150ft FWL of Sec 18

Azimuths to True North
Magnetic North: 8.30°

Magnetic Field
Strength: 52614.5nT
Dip Angle: 66.93°
Date: 06/09/2015
Model: IGRF2015



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well CECIL'S KERSEY FARM 17B-304
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4636.0usft (Original Well Elev)
Reference Site:	NW SW SEC. 17 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4636.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	CECIL'S KERSEY FARM 17B-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #2	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 98.4usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 us	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	16/09/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,965.6	PROPOSAL #2 (ORIGINAL WELLBORE)	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						
NW SW SEC. 17 T5N R64W 6th P.M.						
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	1,150.0	1,150.0	15.0	10.1	3.052	CC
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	1,200.0	1,200.0	15.1	9.9	2.938	ES
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	6,889.7	7,518.3	122.5	76.0	2.636	SF
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	1,150.0	1,150.0	30.0	25.1	6.104	CC
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	12,966.2	12,879.1	221.2	-110.4	0.667	Level 1, ES, SF
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	1,037.5	1,037.5	15.0	10.6	3.402	CC
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	1,082.7	1,082.6	15.1	10.5	3.271	ES
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	7,134.2	7,378.7	96.5	51.8	2.160	SF
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	1,150.0	1,150.0	90.0	85.1	18.311	CC
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	1,200.0	1,200.0	90.1	84.9	17.553	ES
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	12,966.2	12,915.0	987.6	641.1	2.850	SF
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,150.0	1,150.0	75.0	70.1	15.259	CC
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,200.0	1,200.0	75.1	69.9	14.630	ES
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,400.0	1,398.8	77.7	71.8	13.009	SF
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,150.0	1,150.0	45.0	40.1	9.155	CC
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,200.0	1,200.0	45.1	39.9	8.784	ES
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,400.0	1,399.7	47.9	41.9	8.016	SF
CECIL'S KERSEY FARM 17K-334 - ORIGINAL WELLBC	1,150.0	1,150.0	60.0	55.1	12.207	CC
CECIL'S KERSEY FARM 17K-334 - ORIGINAL WELLBC	1,200.0	1,200.0	60.1	54.9	11.707	ES
CECIL'S KERSEY FARM 17K-334 - ORIGINAL WELLBC	12,966.2	12,975.1	734.8	387.5	2.115	SF
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	1,150.0	1,150.0	105.0	100.1	21.363	CC, ES
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	8,464.5	6,650.0	1,293.4	1,224.2	18.700	SF
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	1,037.1	1,037.1	120.0	115.6	27.227	CC
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	1,082.7	1,081.5	120.2	115.6	26.072	ES
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	12,966.2	13,080.8	1,229.8	884.3	3.560	SF
EXIST VERT B&H #1 - Wellbore #1 - Design #1	12,597.6	6,779.0	245.1	-54.6	0.818	Level 1, CC
EXIST VERT B&H #1 - Wellbore #1 - Design #1	12,600.0	6,779.0	245.1	-54.6	0.818	Level 1, ES, SF
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	12,427.3	6,779.4	1,743.5	1,448.6	5.912	CC
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	12,500.0	6,779.2	1,745.0	1,448.0	5.877	ES
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	12,700.0	6,778.7	1,764.7	1,462.1	5.833	SF
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	11,243.6	6,779.5	1,961.8	1,699.9	7.489	CC
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	11,300.0	6,779.4	1,962.6	1,699.1	7.448	ES
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	11,614.1	6,778.5	1,996.5	1,724.3	7.334	SF
EXIST VERT DUNN/MILLER #1 - Wellbore #1 - Design #	1,150.0	1,147.0	383.2	358.0	15.239	CC
EXIST VERT DUNN/MILLER #1 - Wellbore #1 - Design #	7,313.7	6,788.9	497.0	337.9	3.125	ES, SF
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Desig	6,551.0	6,457.5	20.3	-126.4	0.139	Level 1, CC, ES, SF
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Des	6,136.5	6,063.8	831.7	695.7	6.116	CC

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

Anticollision Report



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Site Error:	0.0 usft	North Reference:	True
Reference Well:	CECIL'S KERSEY FARM 17B-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #2	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						
NW SW SEC. 17 T5N R64W 6th P.M.						
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Des	6,150.0	6,077.3	831.8	692.9	5.989	ES
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Des	6,200.8	6,128.0	833.6	693.9	5.966	SF
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	8,657.6	6,782.3	1,854.8	1,663.7	9.707	CC
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	8,700.0	6,782.2	1,855.3	1,663.1	9.652	ES
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	9,153.5	6,781.0	1,920.0	1,715.6	9.394	SF
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - We	9,976.0	6,750.0	1,939.9	1,847.3	20.942	CC
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - We	10,039.3	6,750.0	1,941.0	1,846.6	20.565	ES
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - We	11,100.0	6,750.0	2,242.0	2,118.3	18.116	SF
EXIST VERT H&S #1 - Wellbore #1 - Design #1	6,136.5	6,067.8	2,100.4	1,961.7	15.147	CC, ES, SF
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	8,645.1	6,786.3	526.2	335.4	2.758	CC
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	8,661.4	6,786.3	526.4	335.2	2.753	ES
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	8,700.0	6,786.2	529.0	336.8	2.752	SF
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Desig	9,969.6	6,776.9	408.2	181.6	1.801	CC, ES
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Desig	10,000.0	6,776.8	409.4	181.9	1.800	SF
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Desig	9,951.6	6,781.9	818.0	591.8	3.616	CC, ES
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Desig	10,039.3	6,781.7	822.7	594.1	3.599	SF
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Desig	8,628.5	6,781.4	789.0	598.7	4.146	CC
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Desig	8,661.4	6,781.3	789.7	598.5	4.131	ES
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Desig	8,700.0	6,781.2	792.2	600.0	4.122	SF
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	6,136.5	6,065.8	2,635.3	2,498.9	19.330	CC
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	6,150.0	6,079.3	2,635.4	2,496.7	19.011	ES
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	6,250.0	6,178.8	2,641.6	2,501.8	18.889	SF
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	6,136.5	6,065.8	3,701.7	3,564.4	26.952	CC
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	6,150.0	6,079.3	3,701.8	3,564.2	26.891	ES
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	6,200.8	6,130.0	3,704.2	3,565.9	26.780	SF
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Wellb	4,683.2	4,583.9	2,104.0	2,091.5	168.797	CC
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Wellb	4,726.5	4,625.9	2,104.3	2,087.6	126.000	ES
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Wellb	12,965.6	6,637.4	8,357.3	8,182.8	47.904	SF
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	12,628.4	6,776.9	908.7	608.2	3.024	CC, ES
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	12,700.0	6,776.7	911.5	609.0	3.013	SF
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	11,082.5	6,782.9	960.0	702.5	3.728	CC
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	11,100.0	6,782.9	960.1	702.1	3.722	ES
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	11,200.0	6,782.6	967.1	706.4	3.709	SF
EXIST VERT MASON #1 - Wellbore #1 - Design #1	11,274.5	6,779.4	296.9	34.1	1.130	Level 2, CC, ES, SF
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	7,360.2	6,783.3	841.8	816.4	33.127	CC
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	7,381.9	6,783.1	842.0	816.2	32.631	ES
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	8,100.0	6,778.4	1,120.6	1,078.4	26.559	SF
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	4,646.1	4,559.3	998.0	983.7	69.772	CC, ES
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	12,965.6	6,700.0	7,023.9	6,848.8	40.122	SF
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - De	1,150.0	1,142.0	1,670.6	1,645.5	66.572	CC
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - De	1,377.9	1,369.7	1,673.0	1,642.9	55.525	ES
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - De	7,677.1	6,782.9	1,891.1	1,724.7	11.363	SF
EXIST VERT SOLIS #43-17 - Wellbore #1 - Design #1	6,136.5	6,077.8	3,209.0	3,070.1	23.103	CC, ES, SF
EXIST VERT SOLIS #44-17 - Wellbore #1 - Wellbore #1	4,636.7	4,469.8	3,427.0	3,414.8	280.507	CC
EXIST VERT SOLIS #44-17 - Wellbore #1 - Wellbore #1	4,726.5	4,538.7	3,428.7	3,411.9	203.781	ES
EXIST VERT SOLIS #44-17 - Wellbore #1 - Wellbore #1	12,965.6	6,532.0	9,849.9	9,687.6	60.720	SF
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	6,136.5	6,068.8	1,917.1	1,781.9	14.176	CC
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	6,200.0	6,132.2	1,917.9	1,777.3	13.640	ES
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	6,450.0	6,372.4	1,937.0	1,792.6	13.421	SF

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

Anticollision Report



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Reference Well:	CECIL'S KERSEY FARM 17B-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #2	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						
SE SE SEC. 18 T5N R64W 6th P.M.						
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	6,650.0	8,572.9	315.7	240.3	4.188	SF
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	6,692.9	8,543.5	313.5	238.7	4.192	ES
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	6,702.2	8,536.8	313.4	238.8	4.201	CC
GILLHAM 18X-104 - ORIGINAL WELLBORE - PROPOS	12,966.2	11,863.8	274.2	23.5	1.094	Level 2, CC, ES, SF
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	6,650.0	8,661.8	760.8	685.8	10.150	SF
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	6,800.0	8,551.2	749.3	676.5	10.296	ES
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	6,863.4	8,498.6	748.5	676.7	10.435	CC
GILLHAM 18X-234 - ORIGINAL WELLBORE - PROPOS	12,966.2	11,948.6	642.1	324.1	2.019	CC, ES, SF
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	6,850.0	8,599.5	538.8	467.3	7.535	SF
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	7,000.0	8,465.3	531.8	462.3	7.644	ES
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	7,077.6	8,391.2	531.4	462.8	7.756	CC
GILLHAM 18X-334 - ORIGINAL WELLBORE - PROPOS	12,966.2	12,037.5	420.1	100.5	1.314	Level 3, CC, ES, SF
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	6,800.0	8,586.5	1,272.8	1,201.0	17.732	ES
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	6,863.5	8,533.7	1,272.3	1,201.5	17.983	CC
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	9,350.4	6,513.1	1,437.3	1,350.2	16.519	SF
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	12,966.2	12,007.3	1,172.3	852.7	3.668	CC, ES, SF
GILLHAM 18Y-312 - ORIGINAL WELLBORE - PROPOS	6,950.0	8,528.0	1,065.2	995.9	15.364	ES
GILLHAM 18Y-312 - ORIGINAL WELLBORE - PROPOS	8,237.8	7,249.4	1,064.3	999.1	16.334	CC
GILLHAM 18Y-312 - ORIGINAL WELLBORE - PROPOS	9,200.0	6,600.0	1,173.8	1,090.4	14.086	SF
GILLHAM 18Y-314 - ORIGINAL WELLBORE - PROPOS	12,966.2	12,059.8	970.2	650.3	3.033	CC, ES, SF

Offset Design

Survey Program: 0-MWD

NW SW SEC. 17 T5N R64W 6th P.M. - CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBORE - P

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference				Offset		Semi Major Axis			Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	5.33	14.9	1.4	15.0				
98.4	98.4	98.4	98.4	0.1	0.1	5.33	14.9	1.4	15.0	14.8	0.19	78.037	
100.0	100.0	100.0	100.0	0.1	0.1	5.33	14.9	1.4	15.0	14.8	0.20	76.716	
196.8	196.8	196.8	196.8	0.3	0.3	5.33	14.9	1.4	15.0	14.4	0.63	23.777	
200.0	200.0	200.0	200.0	0.3	0.3	5.33	14.9	1.4	15.0	14.4	0.65	23.255	
295.3	295.3	295.3	295.3	0.5	0.5	5.33	14.9	1.4	15.0	13.9	1.07	13.976	
300.0	300.0	300.0	300.0	0.5	0.5	5.33	14.9	1.4	15.0	13.9	1.09	13.705	
393.7	393.7	393.7	393.7	0.8	0.8	5.33	14.9	1.4	15.0	13.5	1.52	9.897	
400.0	400.0	400.0	400.0	0.8	0.8	5.33	14.9	1.4	15.0	13.5	1.54	9.715	
492.1	492.1	492.1	492.1	1.0	1.0	5.33	14.9	1.4	15.0	13.0	1.96	7.661	
500.0	500.0	500.0	500.0	1.0	1.0	5.33	14.9	1.4	15.0	13.0	1.99	7.525	
590.5	590.5	590.5	590.5	1.2	1.2	5.33	14.9	1.4	15.0	12.6	2.40	6.249	
600.0	600.0	600.0	600.0	1.2	1.2	5.33	14.9	1.4	15.0	12.6	2.44	6.140	
689.0	689.0	689.0	689.0	1.4	1.4	5.33	14.9	1.4	15.0	12.2	2.84	5.276	
700.0	700.0	700.0	700.0	1.4	1.4	5.33	14.9	1.4	15.0	12.1	2.89	5.186	
787.4	787.4	787.4	787.4	1.6	1.6	5.33	14.9	1.4	15.0	11.7	3.29	4.566	
800.0	800.0	800.0	800.0	1.7	1.7	5.33	14.9	1.4	15.0	11.7	3.34	4.488	
885.8	885.8	885.8	885.8	1.9	1.9	5.33	14.9	1.4	15.0	11.3	3.73	4.024	
900.0	900.0	900.0	900.0	1.9	1.9	5.33	14.9	1.4	15.0	11.2	3.79	3.956	
984.2	984.2	984.2	984.2	2.1	2.1	5.33	14.9	1.4	15.0	10.8	4.17	3.597	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	5.33	14.9	1.4	15.0	10.8	4.24	3.537	
1,082.7	1,082.7	1,082.7	1,082.7	2.3	2.3	5.33	14.9	1.4	15.0	10.4	4.61	3.252	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	5.33	14.9	1.4	15.0	10.3	4.69	3.198	

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