

PDC ENERGY

**WELD COUNTY, COLORADO
NW SW SEC. 17 T5N R64W 6th P.M.
CECIL'S KERSEY FARM 17K-334**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Report

16 September, 2015



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well CECIL'S KERSEY FARM 17K-334
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 17K-334	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	12,974.5	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
NW SW SEC. 17 T5N R64W 6th P.M.						
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	1,237.6	1,237.6	45.0	39.7	8.476	CC
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	1,300.0	1,299.9	45.1	39.5	8.074	ES
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	1,476.4	1,475.4	47.3	40.9	7.460	SF
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	1,450.0	1,450.0	30.0	23.7	4.790	CC
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	1,476.4	1,476.4	30.1	23.7	4.715	ES
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	12,975.1	12,877.3	529.6	185.5	1.539	SF
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	1,037.2	1,037.2	75.0	70.6	17.014	CC
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	1,082.7	1,082.4	75.1	70.5	16.298	ES
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	1,377.9	1,373.5	83.6	77.7	14.242	SF
CECIL'S KERSEY FARM 17B-304 - ORIGINAL WELLBC	1,137.5	1,137.5	60.0	55.1	12.349	CC
CECIL'S KERSEY FARM 17B-304 - ORIGINAL WELLBC	1,200.0	1,199.8	60.1	54.9	11.708	ES
CECIL'S KERSEY FARM 17B-304 - ORIGINAL WELLBC	12,975.1	12,962.6	734.8	387.5	2.116	SF
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	1,237.4	1,237.4	30.0	24.7	5.652	CC
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	12,975.1	12,915.0	259.9	-75.7	0.775	Level 1, ES, SF
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,337.6	1,337.6	15.0	9.2	2.605	CC
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,377.9	1,377.9	15.1	9.1	2.539	ES
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,400.0	1,399.9	15.2	9.2	2.525	SF
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,450.0	1,450.0	15.0	8.7	2.395	CC
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,476.4	1,476.4	15.1	8.7	2.365	ES
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,500.0	1,500.0	15.3	8.8	2.362	SF
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	1,137.3	1,137.3	45.0	40.1	9.263	CC
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	1,181.1	1,180.8	45.1	40.1	8.927	ES
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	7,700.0	6,991.1	380.4	329.4	7.467	SF
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	1,037.1	1,037.1	60.0	55.6	13.614	CC
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	1,082.7	1,082.1	60.2	55.6	13.051	ES
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	12,975.1	13,080.8	502.2	164.6	1.487	Level 3, SF
EXIST VERT B&H #1 - Wellbore #1 - Design #1	12,610.0	6,779.0	489.7	190.7	1.638	CC, ES, SF
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	12,439.8	6,779.4	1,008.6	714.3	3.427	CC, ES
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	12,500.0	6,779.2	1,010.4	714.4	3.414	SF
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	11,256.0	6,779.5	1,227.0	965.7	4.695	CC
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	11,300.0	6,779.4	1,227.8	965.2	4.676	ES
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	11,417.3	6,779.1	1,237.6	971.7	4.655	SF
EXIST VERT DUNN/MILLER #1 - Wellbore #1 - Design #1	7,326.2	6,788.9	237.9	79.2	1.499	Level 3, CC, ES, SF
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Desig	2,726.9	2,697.8	491.2	430.3	8.055	CC
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Desig	3,000.0	2,964.9	494.5	427.1	7.332	ES
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Desig	6,692.9	6,555.2	759.6	610.7	5.101	SF
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Des	6,154.1	6,063.8	546.0	407.7	3.947	CC

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

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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 17K-334	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	6,200.0	6,109.6	547.4	407.4	3.910	ES, SF
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	8,670.0	6,782.3	1,120.0	929.4	5.879	CC
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	8,700.0	6,782.2	1,120.4	929.1	5.856	ES
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	8,858.2	6,781.8	1,135.7	940.1	5.808	SF
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - We	9,988.5	6,750.0	1,205.2	1,113.2	13.090	CC
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - We	10,039.3	6,750.0	1,206.3	1,112.8	12.905	ES
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - We	10,433.0	6,750.0	1,284.6	1,180.3	12.311	SF
EXIST VERT H&S #1 - Wellbore #1 - Design #1	6,154.1	6,067.8	2,113.2	1,974.8	15.276	CC
EXIST VERT H&S #1 - Wellbore #1 - Design #1	6,200.0	6,113.6	2,114.6	1,974.5	15.092	ES
EXIST VERT H&S #1 - Wellbore #1 - Design #1	6,200.8	6,114.4	2,114.7	1,974.5	15.092	SF
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	8,657.5	6,786.4	208.7	18.5	1.097	Level 2, CC
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	8,661.4	6,786.3	208.7	18.4	1.097	Level 2, ES, SF
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Desig	9,982.0	6,776.9	326.6	100.5	1.445	Level 3, CC, ES
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Desig	10,000.0	6,776.8	327.1	100.5	1.444	Level 3, SF
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Desig	9,964.0	6,781.9	1,552.9	1,327.2	6.883	CC
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Desig	10,000.0	6,781.8	1,553.3	1,326.7	6.854	ES
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Desig	10,236.2	6,781.2	1,576.5	1,343.4	6.763	SF
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Desig	8,640.9	6,781.4	1,523.8	1,334.1	8.031	CC
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Desig	8,700.0	6,781.2	1,525.0	1,333.7	7.972	ES
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Desig	8,956.7	6,780.6	1,556.2	1,358.1	7.854	SF
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	6,154.1	6,065.8	2,183.0	2,041.8	15.450	CC, ES, SF
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	6,154.1	6,065.8	3,394.3	3,253.5	24.104	CC, ES, SF
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Wellb	5,499.9	5,383.5	2,555.7	2,535.4	125.667	CC
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Wellb	5,600.0	5,483.0	2,555.9	2,535.3	124.056	ES
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Wellb	12,974.5	6,629.2	8,474.9	8,300.3	48.532	SF
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	12,640.9	6,776.9	1,643.5	1,343.6	5.480	CC
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	12,696.8	6,776.7	1,644.4	1,343.0	5.455	ES
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	12,893.7	6,776.2	1,662.8	1,355.9	5.417	SF
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	11,094.9	6,782.9	1,694.8	1,437.9	6.597	CC
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	11,122.0	6,782.9	1,695.0	1,437.3	6.578	ES
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	11,400.0	6,782.1	1,722.0	1,456.7	6.489	SF
EXIST VERT MASON #1 - Wellbore #1 - Design #1	11,286.9	6,779.4	437.9	175.7	1.670	CC
EXIST VERT MASON #1 - Wellbore #1 - Design #1	11,300.0	6,779.4	438.1	175.5	1.668	ES, SF
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	0.0	0.0	1,072.6			
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	1,457.2	1,456.4	1,075.8	1,071.9	276.312	ES
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	11,000.0	6,755.6	3,955.1	3,835.2	32.990	SF
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	2,564.9	2,537.8	1,518.1	1,510.7	205.147	CC
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	2,700.0	2,669.3	1,518.4	1,510.4	190.895	ES
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	12,974.5	6,700.0	7,146.7	6,971.8	40.875	SF
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - De	7,186.6	6,778.0	1,088.2	931.8	6.959	CC
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - De	7,200.0	6,779.6	1,088.3	931.7	6.950	ES
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - De	7,300.0	6,783.9	1,094.1	935.9	6.915	SF
EXIST VERT SOLIS #43-17 - Wellbore #1 - Design #1	6,154.1	6,077.8	3,212.0	3,073.1	23.134	CC, ES
EXIST VERT SOLIS #43-17 - Wellbore #1 - Design #1	6,200.8	6,124.4	3,213.5	3,073.7	22.983	SF
EXIST VERT SOLIS #44-17 - Wellbore #1 - Wellbore #1	5,772.5	5,658.1	3,647.5	3,627.9	185.566	CC, ES
EXIST VERT SOLIS #44-17 - Wellbore #1 - Wellbore #1	12,974.5	6,523.9	9,917.3	9,745.6	57.782	SF
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	6,154.1	6,068.8	1,230.5	1,089.9	8.749	CC, ES, SF

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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 17K-334	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	6,450.0	8,685.1	1,071.1	991.7	13.490	SF
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	6,692.9	8,550.5	1,048.5	973.3	13.942	ES
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	6,720.0	8,531.5	1,048.3	973.7	14.047	CC
GILLHAM 18X-104 - ORIGINAL WELLBORE - PROPOS	12,975.1	11,860.3	961.3	648.0	3.069	CC, ES, SF
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	6,791.3	8,566.8	1,484.2	1,410.8	20.222	ES
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	6,881.3	8,493.1	1,483.3	1,411.7	20.710	CC
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	9,700.0	6,400.0	1,761.8	1,668.0	18.789	SF
GILLHAM 18X-234 - ORIGINAL WELLBORE - PROPOS	12,975.1	11,945.1	1,374.9	1,056.3	4.316	CC, ES, SF
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	6,950.0	8,522.3	1,267.2	1,196.5	17.938	ES
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	8,251.8	7,231.4	1,266.2	1,200.9	19.408	CC
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	9,300.0	6,550.0	1,385.6	1,300.8	16.343	SF
GILLHAM 18X-334 - ORIGINAL WELLBORE - PROPOS	12,975.1	12,034.1	1,154.9	836.0	3.622	CC, ES, SF
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	1,432.6	1,434.6	1,518.7	1,512.5	245.323	CC
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	1,450.0	1,450.0	1,518.7	1,512.5	242.443	ES
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	10,300.0	6,350.0	2,504.6	2,392.6	22.367	SF
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	1,452.4	1,455.7	1,506.1	1,499.8	239.781	CC
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	1,476.4	1,486.5	1,506.1	1,499.7	235.483	ES
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	12,975.1	12,003.9	1,906.3	1,587.2	5.974	SF
GILLHAM 18Y-312 - ORIGINAL WELLBORE - PROPOS	1,335.8	1,337.8	1,531.2	1,525.4	266.057	CC
GILLHAM 18Y-312 - ORIGINAL WELLBORE - PROPOS	1,377.9	1,369.5	1,531.3	1,525.4	258.796	ES
GILLHAM 18Y-312 - ORIGINAL WELLBORE - PROPOS	10,137.8	6,400.0	2,227.5	2,120.1	20.739	SF
GILLHAM 18Y-314 - ORIGINAL WELLBORE - PROPOS	1,774.6	1,947.4	1,487.0	1,479.0	185.217	CC
GILLHAM 18Y-314 - ORIGINAL WELLBORE - PROPOS	12,975.1	12,056.3	1,705.0	1,385.9	5.343	ES, SF

Offset Design NW SW SEC. 17 T5N R64W 6th P.M. - CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBORE - P												Offset Site Error:	0.0 usft
Survey Program: 0-MWDD												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-174.67	-44.8	-4.2	45.0				
98.4	98.4	98.4	98.4	0.1	0.1	-174.67	-44.8	-4.2	45.0	44.8	0.19	234.110	
100.0	100.0	100.0	100.0	0.1	0.1	-174.67	-44.8	-4.2	45.0	44.8	0.20	230.148	
196.8	196.8	196.8	196.8	0.3	0.3	-174.67	-44.8	-4.2	45.0	44.4	0.63	71.332	
200.0	200.0	200.0	200.0	0.3	0.3	-174.67	-44.8	-4.2	45.0	44.4	0.65	69.766	
295.3	295.3	295.3	295.3	0.5	0.5	-174.67	-44.8	-4.2	45.0	43.9	1.07	41.928	
300.0	300.0	300.0	300.0	0.5	0.5	-174.67	-44.8	-4.2	45.0	43.9	1.09	41.115	
393.7	393.7	393.7	393.7	0.8	0.8	-174.67	-44.8	-4.2	45.0	43.5	1.52	29.690	
400.0	400.0	400.0	400.0	0.8	0.8	-174.67	-44.8	-4.2	45.0	43.5	1.54	29.145	
492.1	492.1	492.1	492.1	1.0	1.0	-174.67	-44.8	-4.2	45.0	43.0	1.96	22.982	
500.0	500.0	500.0	500.0	1.0	1.0	-174.67	-44.8	-4.2	45.0	43.0	1.99	22.574	
590.5	590.5	590.5	590.5	1.2	1.2	-174.67	-44.8	-4.2	45.0	42.6	2.40	18.746	
600.0	600.0	600.0	600.0	1.2	1.2	-174.67	-44.8	-4.2	45.0	42.6	2.44	18.420	
689.0	689.0	689.0	689.0	1.4	1.4	-174.67	-44.8	-4.2	45.0	42.2	2.84	15.829	
700.0	700.0	700.0	700.0	1.4	1.4	-174.67	-44.8	-4.2	45.0	42.1	2.89	15.558	
787.4	787.4	787.4	787.4	1.6	1.6	-174.67	-44.8	-4.2	45.0	41.7	3.29	13.697	
800.0	800.0	800.0	800.0	1.7	1.7	-174.67	-44.8	-4.2	45.0	41.7	3.34	13.465	
885.8	885.8	885.8	885.8	1.9	1.9	-174.67	-44.8	-4.2	45.0	41.3	3.73	12.072	
900.0	900.0	900.0	900.0	1.9	1.9	-174.67	-44.8	-4.2	45.0	41.2	3.79	11.869	
984.2	984.2	984.2	984.2	2.1	2.1	-174.67	-44.8	-4.2	45.0	40.8	4.17	10.791	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-174.67	-44.8	-4.2	45.0	40.8	4.24	10.611	

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