PDC ENERGY

WELD COUNTY, COLORADO
NW NE SEC 30 T4N R67W 6th P.M.
OLSON 30R-223

ORIGINAL WELLBORE
PROPOSAL #2

Anticollision Report

26 February, 2016

total

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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** 26/02/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,860.2	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
NW NE SEC 30 T4N R67W 6th P.M.						
ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #	11,765.8	6,330.0	1,478.3	1,408.2	21.098	CC
ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #	11,800.0	6,330.0	1,478.7	1,408.0	20.937	ES
ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #	11,860.2	6,330.0	1,481.3	1,409.7	20.685	SF
EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1	7,800.0	7,090.8	165.9	144.0	7.558	SF
EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1	7,803.1	7,091.1	165.9	143.9	7.561	CC, ES
EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1	3,363.1	3,244.1	112.7	99.3	8.405	CC, ES
EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1	3,400.0	3,276.8	114.0	100.3	8.351	SF
EXIST VERT BROWN MCCARTY 30-43 - Wellbore #1 -	10,363.2	7,100.0	179.6	126.0	3.348	CC, ES, SF
EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - V	9,030.2	7,082.1	177.8	145.7	5.538	CC, ES
EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - V	9,055.1	7,082.0	179.5	147.1	5.530	SF
EXIST VERT MCCART 30-2 - Wellbore #1 - Wellbore #1	11,669.8	7,115.8	192.5	115.5	2.500	CC, ES, SF
EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1	1,550.0	1,551.0	1,223.1	1,189.7	36.652	CC
EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1	1,600.0	1,601.0	1,223.4	1,188.9	35.479	ES
EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1	7,800.0	7,132.4	2,594.8	2,432.8	16.019	SF
EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1	1,550.0	1,546.0	1,130.7	1,097.4	33.937	CC
EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1	1,600.0	1,596.0	1,131.2	1,096.7	32.855	ES
EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1	9,251.9	7,119.6	2,259.6	2,084.6	12.911	SF
EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1	10,122.1	7,115.0	2,241.0	2,051.6	11.833	CC
EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1	10,137.8	7,114.9	2,241.1	2,051.4	11.817	ES
EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1	10,600.0	7,111.5	2,291.4	2,093.6	11.586	SF
EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Well	98.4	68.7	1,233.8	1,233.7	10,000.000	CC
EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Well	393.7	361.7	1,234.6	1,233.5	1,145.544	ES
EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Well	10,334.6	7,085.5	1,797.1	1,743.6	33.603	SF
EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Well	10,397.3	7,081.3	1,115.0	1,060.4	20.402	CC
EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Well	10,433.0	7,081.1	1,115.6	1,060.3	20.177	ES
EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Well	10,800.0	7,079.1	1,185.5	1,123.6	19.158	SF
OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSA	1,550.0	1,551.0	90.1	83.5	13.468	CC
OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSA	1,574.8	1,575.8	90.2	83.4	13.264	ES
OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,655.0	1,480.5	1,321.7	9.324	SF
OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSA	1,550.0	1,551.0	75.1	68.4	11.216	CC
OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSA	1,574.8	1,575.8	75.2	68.4	11.049	ES
OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,747.1	1,227.4	1,068.5	7.725	SF
OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSA	1,436.7	1,437.7	104.9	98.8	16.968	CC
OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSA	1,500.0	1,500.0	105.1	98.6	16.248	ES
OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,849.6	1,748.9	1,590.5	11.041	SF
OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSA	1,550.0	1,550.0	30.1	23.4	4.504	CC
OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSA	1,574.8	1,574.8	30.2	23.4	4.445	ES

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

Anticollision Report

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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 Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
NW NE SEC 30 T4N R67W 6th P.M.						
OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,747.9	490.2	337.9	3.218	SF
OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSA	1,550.0	1,551.0	60.0	53.3	8.964	CC
OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSA	1,574.8	1,575.8	60.1	53.3	8.832	ES
OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,668.5	980.3	821.7	6.182	SF
OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSA	1,550.0	1,550.0	15.1	8.4	2.252	CC
OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSA	1,574.8	1,574.8	15.2	8.4	2.229	ES
OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,883.5	253.8	97.4	1.622	SF
OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSA	1,550.0	1,551.0	44.9	38.2	6.712	CC
OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSA	1,574.8	1,575.8	45.0	38.2	6.617	ES
OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSA	11,860.2	11,791.4	738.1	579.5	4.654	SF
OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSA	1,437.5	1,437.5	15.1	8.9	2.436	CC
OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSA	1,476.4	1,476.3	15.2	8.8	2.387	ES
OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSA	11,860.2	12,033.4	321.9	168.7	2.101	SF
PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore	7,200.0	8,918.8	432.9	365.3	6.404	SF
PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore	7,283.4	8,920.4	413.6	351.5	6.664	ES
PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore	7,303.9	8,920.9	412.8	352.2	6.810	CC

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #1

Survey Program: 100-GYD_CT

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.5	1.5	0.0	0.0	175.90	-3,761.1	269.8	3,770.7				
98.4	98.4	128.3	128.3	0.1	0.1	175.90	-3,760.4	269.3	3,770.2	3,770.0	0.16	N/A	
100.0	100.0	129.7	129.6	0.1	0.1	175.90	-3,760.4	269.3	3,770.2	3,770.0	0.16	N/A	
196.8	196.8	225.0	225.0	0.3	0.2	175.92	-3,759.9	268.3	3,769.6	3,769.0	0.53	7,072.289	
200.0	200.0	230.3	230.3	0.3	0.2	175.92	-3,759.9	268.3	3,769.6	3,769.0	0.55	6,914.570	
295.3	295.3	357.8	357.8	0.5	0.3	175.96	-3,758.3	265.6	3,768.2	3,767.4	0.87	4,329.370	
300.0	300.0	362.9	362.9	0.5	0.3	175.96	-3,758.3	265.5	3,768.1	3,767.3	0.88	4,258.246	
393.7	393.7	453.9	453.9	0.7	0.4	175.99	-3,756.9	263.2	3,766.6	3,765.4	1.16	3,251.725	
400.0	400.0	459.7	459.6	0.8	0.4	176.00	-3,756.9	263.0	3,766.5	3,765.3	1.18	3,202.397	
492.1	492.1	549.6	549.5	1.0	0.5	176.03	-3,755.7	260.7	3,765.1	3,763.7	1.44	2,620.286	
500.0	500.0	557.8	557.6	1.0	0.5	176.03	-3,755.6	260.5	3,765.0	3,763.6	1.46	2,580.133	
590.5	590.5	645.3	645.2	1.2	0.5	176.06	-3,754.4	258.6	3,763.7	3,761.9	1.71	2,200.139	
600.0	600.0	653.9	653.8	1.2	0.5	176.06	-3,754.3	258.4	3,763.5	3,761.8	1.74	2,167.379	
689.0	689.0	744.1	743.9	1.4	0.6	176.09	-3,753.2	256.5	3,762.3	3,760.3	1.98	1,897.214	
700.0	700.0	756.7	756.5	1.4	0.6	176.10	-3,753.0	256.2	3,762.2	3,760.1	2.01	1,867.770	
787.4	787.4	844.7	844.5	1.6	0.6	176.12	-3,751.8	254.3	3,760.8	3,758.5	2.25	1,668.330	
800.0	800.0	856.1	855.8	1.7	0.6	176.13	-3,751.6	254.0	3,760.6	3,758.3	2.29	1,643.594	
885.8	885.8	934.0	933.7	1.9	0.7	176.15	-3,750.7	252.3	3,759.5	3,756.9	2.52	1,493.064	
900.0	900.0	947.0	946.7	1.9	0.7	176.16	-3,750.5	252.0	3,759.3	3,756.7	2.56	1,470.867	
984.2	984.2	1,025.6	1,025.3	2.1	0.7	176.18	-3,749.8	250.4	3,758.3	3,755.6	2.78	1,351.314	
1,000.0	1,000.0	1,040.8	1,040.5	2.1	0.7	176.18	-3,749.6	250.1	3,758.2	3,755.3	2.82	1,331.036	
1,082.7	1,082.7	1,120.4	1,120.1	2.3	0.7	176.21	-3,748.9	248.5	3,757.3	3,754.3	3.04	1,234.042	
1,100.0	1,100.0	1,136.8	1,136.5	2.3	0.8	176.21	-3,748.8	248.2	3,757.2	3,754.1	3.09	1,215.603	
1,181.1	1,181.1	1,212.7	1,212.4	2.5	0.8	176.23	-3,748.2	247.2	3,756.4	3,753.1	3.31	1,136.317	
1,200.0	1,200.0	1,229.5	1,229.2	2.6	0.8	176.23	-3,748.1	247.0	3,756.3	3,752.9	3.36	1,119.503	
1,279.5	1,279.5	1,300.2	1,299.8	2.7	0.8	176.24	-3,747.7	246.0	3,755.8	3,752.2	3.56	1,053.898	
1,300.0	1,300.0	1,321.7	1,321.4	2.8	0.8	176.25	-3,747.6	245.7	3,755.7	3,752.1	3.62	1,037.826	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,377.9	1,377.9	1,403.8	1,403.5	3.0	0.9	176.27	-3,747.2	244.4	3,755.2	3,751.4	3.83	980.844	
1,400.0	1,400.0	1,428.2	1,427.9	3.0	0.9	176.27	-3,747.0	244.0	3,755.1	3,751.2	3.89	965.770	
1,476.4	1,476.4	1,509.3	1,509.0	3.2	0.9	176.29	-3,746.5	242.7	3,754.4	3,750.4	4.09	917.250	
1,500.0	1,500.0	1,528.8	1,528.4	3.2	0.9	176.30	-3,746.3	242.4	3,754.3	3,750.1	4.15	903.774	
1,550.0	1,550.0	1,569.9	1,569.5	3.3	0.9	176.31	-3,746.1	241.9	3,754.0	3,749.7	4.28	876.535	
1,573.3	1,573.3	1,589.1	1,588.7	3.4	0.9	118.09	-3,746.0	241.6	3,753.9	3,749.7	4.24	884.961	
1,574.8	1,574.8	1,590.3	1,589.9	3.4	0.9	118.09	-3,746.0	241.6	3,753.9	3,749.7	4.25	884.208	
1,600.0	1,600.0	1,615.0	1,614.7	3.5	1.0	118.10	-3,746.0	241.3	3,754.0	3,749.7	4.31	871.462	
1,673.2	1,673.2	1,697.2	1,696.8	3.6	1.0	118.14	-3,745.6	240.4	3,754.7	3,750.2	4.49	836.545	
1,700.0	1,699.9	1,724.4	1,724.1	3.7	1.0	118.15	-3,745.5	240.1	3,755.1	3,750.5	4.55	824.635	
1,771.6	1,771.4	1,796.5	1,796.1	3.8	1.0	118.20	-3,745.1	239.2	3,756.8	3,752.1	4.73	793.843	
1,800.0	1,799.7	1,820.9	1,820.5	3.9	1.0	118.21	-3,745.0	238.9	3,757.8	3,753.0	4.80	782.630	
1,870.1	1,869.4	1,879.5	1,879.1	4.0	1.1	118.25	-3,744.8	238.1	3,760.8	3,755.8	4.98	755.438	
1,900.0	1,899.1	1,905.4	1,905.0	4.1	1.1	118.26	-3,744.8	237.7	3,762.4	3,757.4	5.05	744.414	
1,968.5	1,967.0	1,974.0	1,973.6	4.3	1.1	118.33	-3,744.7	236.8	3,766.7	3,761.5	5.24	718.829	
2,000.0	1,998.2	2,005.6	2,005.2	4.4	1.1	118.35	-3,744.7	236.5	3,768.9	3,763.6	5.33	707.702	
2,066.9	2,064.1	2,072.7	2,072.3	4.5	1.1	118.42	-3,744.6	236.0	3,774.2	3,768.7	5.52	683.558	
2,100.0	2,096.6	2,106.2	2,105.8	4.6	1.1	118.46	-3,744.6	235.7	3,777.1	3,771.5	5.62	672.269	
2,165.3	2,160.6	2,175.8	2,175.4	4.8	1.2	118.54	-3,744.4	235.2	3,783.3	3,777.5	5.83	648.961	
2,200.0	2,194.4	2,211.7	2,211.3	4.9	1.2	118.59	-3,744.2	234.9	3,786.9	3,780.9	5.94	637.330	
2,263.8	2,256.4	2,274.4	2,274.0	5.2	1.2	118.67	-3,744.0	234.4	3,794.0	3,787.8	6.17	614.873	
2,300.0	2,291.5	2,300.0	2,299.6	5.3	1.2	118.68	-3,743.9	234.1	3,798.3	3,792.0	6.30	603.136	
2,362.2	2,351.4	2,354.0	2,353.6	5.5	1.2	118.74	-3,743.8	233.6	3,806.5	3,799.9	6.54	581.780	
2,400.0	2,387.6	2,382.1	2,381.7	5.7	1.2	118.75	-3,743.8	233.3	3,811.9	3,805.2	6.69	569.564	
2,460.6	2,445.4	2,436.7	2,436.3	6.0	1.3	118.82	-3,744.0	232.8	3,821.2	3,814.2	6.96	548.857	
2,500.0	2,482.7	2,476.4	2,476.0	6.2	1.3	118.88	-3,744.1	232.4	3,827.6	3,820.5	7.14	536.198	
2,559.0	2,538.3	2,535.8	2,535.4	6.5	1.3	118.97	-3,744.2	232.0	3,837.7	3,830.3	7.43	516.209	
2,600.0	2,576.6	2,576.9	2,576.5	6.7	1.3	119.03	-3,744.2	231.6	3,845.1	3,837.4	7.64	503.315	
2,657.5	2,630.1	2,625.9	2,625.5	7.0	1.3	119.09	-3,744.3	231.0	3,855.9	3,848.0	7.96	484.398	
2,700.0	2,669.4	2,657.9	2,657.4	7.3	1.3	119.10	-3,744.3	230.6	3,864.5	3,856.3	8.20	471.392	
2,755.9	2,720.6	2,700.0	2,699.6	7.6	1.4	119.12	-3,744.5	230.0	3,876.3	3,867.8	8.54	453.815	
2,776.7	2,739.5	2,724.3	2,723.8	7.8	1.4	119.18	-3,744.7	229.6	3,880.9	3,872.3	8.67	447.627	
2,800.0	2,760.8	2,752.5	2,752.1	7.9	1.4	119.34	-3,744.8	229.2	3,886.1	3,877.3	8.82	440.751	
2,854.3	2,810.2	2,814.9	2,814.4	8.3	1.4	119.69	-3,744.8	228.3	3,898.0	3,888.9	9.17	425.274	
2,900.0	2,851.7	2,859.4	2,859.0	8.7	1.4	119.94	-3,744.7	227.6	3,908.1	3,898.6	9.46	413.172	
2,952.7	2,899.7	2,913.5	2,913.1	9.1	1.4	120.25	-3,744.6	226.5	3,919.7	3,909.9	9.81	399.738	
3,000.0	2,942.7	2,971.2	2,970.7	9.4	1.4	120.58	-3,744.3	225.3	3,930.1	3,920.0	10.12	388.494	
3,051.2	2,989.3	3,033.6	3,033.1	9.8	1.5	120.92	-3,743.7	224.2	3,941.3	3,930.8	10.46	376.802	
3,100.0	3,033.7	3,093.2	3,092.7	10.2	1.5	121.25	-3,742.9	223.3	3,951.8	3,941.0	10.79	366.387	
3,149.6	3,078.8	3,138.1	3,137.6	10.5	1.5	121.50	-3,742.2	222.8	3,962.5	3,951.4	11.12	356.188	
3,200.0	3,124.6	3,181.9	3,181.3	10.9	1.5	121.73	-3,741.6	222.3	3,973.5	3,962.0	11.47	346.479	
3,248.0	3,168.3	3,218.6	3,218.1	11.3	1.5	121.93	-3,741.1	222.1	3,984.1	3,972.3	11.80	337.610	
3,300.0	3,215.6	3,254.3	3,253.8	11.7	1.5	122.11	-3,740.7	221.9	3,995.7	3,983.6	12.16	328.580	
3,346.4	3,257.9	3,286.2	3,285.7	12.1	1.5	122.28	-3,740.4	221.7	4,006.3	3,993.8	12.49	320.881	
3,400.0	3,306.6	3,319.8	3,319.3	12.5	1.6	122.46	-3,740.3	221.5	4,018.8	4,005.9	12.86	312.569	
3,444.9	3,347.4	3,346.4	3,345.9	12.9	1.6	122.59	-3,740.2	221.4	4,029.4	4,016.2	13.17	305.949	
3,500.0	3,397.6	3,379.0	3,378.5	13.3	1.6	122.76	-3,740.3	221.2	4,042.7	4,029.2	13.55	298.296	
3,543.3	3,436.9	3,400.0	3,399.5	13.7	1.6	122.87	-3,740.4	221.1	4,053.4	4,039.6	13.86	292.551	
3,600.0	3,488.5	3,445.1	3,444.5	14.1	1.6	123.11	-3,740.8	220.7	4,067.7	4,053.4	14.25	285.481	
3,641.7	3,526.5	3,474.1	3,473.6	14.5	1.6	123.26	-3,741.2	220.3	4,078.3	4,063.8	14.54	280.470	
3,700.0	3,579.5	3,520.7	3,520.2	15.0	1.6	123.50	-3,741.8	219.4	4,093.4	4,078.4	14.95	273.840	
3,740.1	3,616.0	3,560.1	3,559.6	15.3	1.6	123.71	-3,742.3	218.6	4,103.8	4,088.6	15.23	269.538	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,800.0	3,670.5	3,623.7	3,623.1	15.8	1.6	124.05	-3,743.0	216.9	4,119.4	4,103.8	15.63	263.480	
3,838.6	3,705.6	3,671.4	3,670.8	16.1	1.6	124.30	-3,743.3	215.5	4,129.4	4,113.5	15.90	259.781	
3,900.0	3,761.4	3,734.7	3,734.0	16.6	1.7	124.64	-3,743.6	213.6	4,145.2	4,128.9	16.31	254.096	
3,937.0	3,795.1	3,768.1	3,767.5	16.9	1.7	124.82	-3,743.7	212.6	4,154.8	4,138.2	16.57	250.784	
4,000.0	3,852.4	3,823.3	3,822.7	17.4	1.7	125.11	-3,744.0	210.9	4,171.2	4,154.2	17.00	245.384	
4,035.4	3,884.6	3,853.1	3,852.4	17.7	1.7	125.26	-3,744.1	210.0	4,180.5	4,163.2	17.24	242.457	
4,100.0	3,943.4	3,900.0	3,899.3	18.3	1.7	125.51	-3,744.3	208.4	4,197.5	4,179.8	17.69	237.329	
4,133.8	3,974.2	3,930.7	3,929.9	18.6	1.7	125.67	-3,744.5	207.4	4,206.6	4,188.6	17.92	234.764	
4,200.0	4,034.4	3,978.3	3,977.5	19.1	1.8	125.91	-3,744.9	205.8	4,224.5	4,206.1	18.37	229.924	
4,232.3	4,063.7	4,001.7	4,001.0	19.4	1.8	126.04	-3,745.1	205.0	4,233.3	4,214.7	18.60	227.654	
4,300.0	4,125.3	4,061.0	4,060.2	19.9	1.8	126.34	-3,745.8	202.8	4,252.0	4,232.9	19.06	223.137	
4,330.7	4,153.3	4,087.8	4,087.0	20.2	1.8	126.48	-3,746.0	201.8	4,260.5	4,241.2	19.26	221.166	
4,400.0	4,216.3	4,158.6	4,157.7	20.8	1.8	126.84	-3,746.7	199.0	4,279.8	4,260.1	19.73	216.961	
4,429.1	4,242.8	4,189.4	4,188.5	21.0	1.8	127.00	-3,747.0	197.8	4,287.9	4,268.0	19.92	215.265	
4,500.0	4,307.3	4,257.3	4,256.3	21.6	1.8	127.35	-3,747.4	194.8	4,307.6	4,287.2	20.39	211.264	
4,527.5	4,332.3	4,283.2	4,282.2	21.9	1.9	127.48	-3,747.5	193.7	4,315.3	4,294.7	20.57	209.761	
4,600.0	4,398.2	4,350.3	4,349.2	22.5	1.9	127.82	-3,747.9	190.8	4,335.6	4,314.6	21.05	205.945	
4,626.0	4,421.9	4,374.2	4,373.1	22.7	1.9	127.94	-3,748.0	189.8	4,342.9	4,321.7	21.22	204.622	
4,700.0	4,489.2	4,442.9	4,441.7	23.3	1.9	128.29	-3,748.3	186.8	4,363.9	4,342.2	21.71	200.991	
4,724.4	4,511.4	4,465.7	4,464.5	23.5	1.9	128.40	-3,748.4	185.8	4,370.8	4,348.9	21.87	199.835	
4,800.0	4,580.2	4,534.1	4,532.9	24.2	1.9	128.74	-3,748.7	182.9	4,392.3	4,370.0	22.37	196.366	
4,822.8	4,601.0	4,554.2	4,552.9	24.4	1.9	128.84	-3,748.7	182.1	4,398.9	4,376.3	22.52	195.350	
4,900.0	4,671.2	4,621.4	4,620.1	25.0	2.0	129.17	-3,749.0	179.2	4,421.1	4,398.0	23.02	192.032	
4,921.2	4,690.5	4,639.6	4,638.2	25.2	2.0	129.26	-3,749.1	178.4	4,427.2	4,404.0	23.16	191.145	
5,000.0	4,762.1	4,706.5	4,705.0	25.9	2.0	129.58	-3,749.4	175.5	4,450.1	4,426.5	23.67	187.969	
5,019.7	4,780.0	4,722.2	4,720.8	26.0	2.0	129.66	-3,749.5	174.9	4,455.9	4,432.1	23.80	187.195	
5,100.0	4,853.1	4,786.3	4,784.8	26.7	2.0	129.97	-3,749.9	172.1	4,479.6	4,455.3	24.33	184.143	
5,118.1	4,869.6	4,800.0	4,798.5	26.9	2.0	130.03	-3,750.0	171.5	4,485.0	4,460.5	24.44	183.474	
5,200.0	4,944.1	4,866.9	4,865.3	27.6	2.1	130.35	-3,750.5	168.5	4,509.5	4,484.5	24.97	180.563	
5,216.5	4,959.1	4,880.2	4,878.6	27.7	2.1	130.42	-3,750.6	167.8	4,514.5	4,489.4	25.08	179.994	
5,300.0	5,035.0	4,957.7	4,956.0	28.4	2.1	130.78	-3,751.3	164.2	4,539.8	4,514.2	25.61	177.255	
5,314.9	5,048.6	4,972.3	4,970.6	28.6	2.1	130.85	-3,751.4	163.5	4,544.3	4,518.6	25.71	176.783	
5,400.0	5,126.0	5,048.7	5,047.0	29.3	2.1	131.21	-3,752.0	160.1	4,570.2	4,544.0	26.24	174.144	
5,413.4	5,138.2	5,060.2	5,058.5	29.4	2.1	131.26	-3,752.1	159.6	4,574.3	4,548.0	26.33	173.738	
5,479.4	5,198.3	5,120.8	5,119.0	30.0	2.1	131.53	-3,752.7	157.4	4,594.6	4,567.8	26.74	171.794	
5,500.0	5,217.0	5,142.4	5,140.5	30.1	2.1	131.73	-3,752.9	156.6	4,600.8	4,574.0	26.83	171.513	
5,511.8	5,227.8	5,154.8	5,153.0	30.2	2.1	131.84	-3,753.0	156.2	4,604.4	4,577.5	26.86	171.420	
5,600.0	5,309.0	5,253.0	5,251.1	30.8	2.2	132.64	-3,753.8	153.0	4,629.9	4,602.8	27.12	170.719	
5,610.2	5,318.5	5,265.0	5,263.1	30.8	2.2	132.73	-3,753.9	152.6	4,632.7	4,605.6	27.15	170.658	
5,700.0	5,402.3	5,357.9	5,355.9	31.4	2.2	133.43	-3,754.3	150.1	4,656.5	4,629.1	27.38	170.039	
5,708.6	5,410.4	5,366.2	5,364.3	31.4	2.2	133.49	-3,754.3	149.9	4,658.7	4,631.3	27.41	169.993	
5,800.0	5,496.7	5,472.3	5,470.3	31.9	2.3	134.16	-3,754.6	147.3	4,680.7	4,653.1	27.61	169.513	
5,807.1	5,503.5	5,481.4	5,479.4	31.9	2.3	134.21	-3,754.6	147.1	4,682.3	4,654.7	27.63	169.490	
5,900.0	5,592.3	5,602.5	5,600.5	32.4	2.3	134.85	-3,754.3	144.8	4,702.0	4,674.2	27.80	169.129	
5,905.5	5,597.6	5,609.6	5,607.6	32.4	2.3	134.88	-3,754.2	144.7	4,703.1	4,675.3	27.81	169.117	
6,000.0	5,688.8	5,730.1	5,728.1	32.9	2.3	135.43	-3,753.1	142.7	4,720.4	4,692.4	27.96	168.807	
6,003.9	5,692.6	5,734.9	5,732.9	32.9	2.3	135.45	-3,753.0	142.6	4,721.0	4,693.0	27.97	168.799	
6,100.0	5,786.2	5,827.6	5,825.6	33.3	2.4	135.86	-3,751.6	140.9	4,735.8	4,707.7	28.11	168.488	
6,102.3	5,788.5	5,829.1	5,827.1	33.3	2.4	135.87	-3,751.6	140.8	4,736.2	4,708.1	28.11	168.482	
6,200.0	5,884.3	5,900.0	5,897.9	33.6	2.4	136.19	-3,751.0	139.7	4,749.4	4,721.2	28.24	168.199	
6,200.8	5,885.1	5,900.0	5,897.9	33.6	2.4	136.19	-3,751.0	139.7	4,749.5	4,721.3	28.24	168.197	
6,299.2	5,982.3	5,981.3	5,979.2	33.9	2.4	136.46	-3,750.8	138.8	4,760.9	4,732.5	28.34	167.989	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,300.0	5,983.1	5,982.0	5,979.9	33.9	2.4	136.47	-3,750.8	138.8	4,760.9	4,732.6	28.34	167.987	
6,397.6	6,079.9	6,069.5	6,067.4	34.1	2.4	136.69	-3,750.8	138.0	4,770.0	4,741.6	28.42	167.836	
6,400.0	6,082.3	6,071.6	6,069.5	34.1	2.4	136.70	-3,750.8	137.9	4,770.2	4,741.7	28.42	167.830	
6,496.0	6,177.9	6,156.9	6,154.8	34.3	2.5	136.86	-3,750.9	137.3	4,776.9	4,748.4	28.48	167.699	
6,500.0	6,181.9	6,160.4	6,158.3	34.3	2.5	136.86	-3,750.9	137.3	4,777.1	4,748.6	28.49	167.689	
6,594.5	6,276.2	6,266.7	6,264.7	34.5	2.5	136.97	-3,751.4	136.8	4,781.4	4,752.8	28.54	167.535	
6,600.0	6,281.7	6,274.1	6,272.1	34.5	2.5	136.98	-3,751.4	136.8	4,781.5	4,753.0	28.54	167.518	
6,692.9	6,374.6	6,330.0	6,327.9	34.6	2.5	137.02	-3,751.4	136.6	4,783.3	4,754.7	28.58	167.385	
6,706.1	6,387.8	6,330.0	6,327.9	34.6	2.5	-164.76	-3,751.4	136.6	4,783.4	4,754.9	28.58	167.360	
6,736.1	6,417.8	6,330.0	6,327.9	34.6	2.5	-164.76	-3,751.4	136.6	4,783.9	4,755.3	28.61	167.200	
6,750.0	6,431.7	6,330.0	6,327.9	34.6	2.5	15.23	-3,751.4	136.6	4,784.1	4,755.5	28.58	167.390	
6,791.3	6,473.0	6,330.0	6,327.9	34.6	2.5	15.25	-3,751.4	136.6	4,783.2	4,754.8	28.47	168.033	
6,800.0	6,481.6	6,330.0	6,327.9	34.6	2.5	15.26	-3,751.4	136.6	4,782.8	4,754.4	28.44	168.184	
6,850.0	6,531.2	6,330.0	6,327.9	34.6	2.5	15.35	-3,751.4	136.6	4,778.7	4,750.5	28.25	169.180	
6,889.7	6,570.3	6,330.0	6,327.9	34.6	2.5	15.46	-3,751.4	136.6	4,773.4	4,745.4	28.04	170.216	
6,900.0	6,580.3	6,330.0	6,327.9	34.6	2.5	15.50	-3,751.4	136.6	4,771.8	4,743.8	27.98	170.532	
6,950.0	6,628.5	6,330.0	6,327.9	34.6	2.5	15.71	-3,751.4	136.6	4,762.0	4,734.4	27.62	172.393	
6,988.2	6,664.7	6,330.0	6,327.9	34.5	2.5	15.92	-3,751.4	136.6	4,752.7	4,725.5	27.28	174.234	
7,000.0	6,675.8	6,330.0	6,327.9	34.5	2.5	15.99	-3,751.4	136.6	4,749.5	4,722.4	27.16	174.894	
7,050.0	6,721.8	6,330.0	6,327.9	34.4	2.5	16.35	-3,751.4	136.6	4,734.3	4,707.7	26.57	178.151	
7,086.6	6,754.5	6,330.0	6,327.9	34.3	2.5	16.66	-3,751.4	136.6	4,721.4	4,695.3	26.07	181.075	
7,100.0	6,766.2	6,330.0	6,327.9	34.2	2.5	16.79	-3,751.4	136.6	4,716.3	4,690.5	25.87	182.278	
7,150.0	6,809.0	6,330.0	6,327.9	34.1	2.5	17.32	-3,751.4	136.6	4,695.8	4,670.7	25.06	187.390	
7,185.0	6,837.9	6,330.0	6,327.9	34.0	2.5	17.75	-3,751.4	136.6	4,679.8	4,655.4	24.42	191.619	
7,200.0	6,849.9	6,330.0	6,327.9	33.9	2.5	17.95	-3,751.4	136.6	4,672.6	4,648.5	24.13	193.619	
7,250.0	6,888.7	6,330.0	6,327.9	33.8	2.5	18.70	-3,751.4	136.6	4,647.0	4,623.9	23.11	201.107	
7,283.4	6,913.4	6,330.0	6,327.9	33.6	2.5	19.28	-3,751.4	136.6	4,628.5	4,606.1	22.37	206.879	
7,300.0	6,925.2	6,330.0	6,327.9	33.6	2.5	19.59	-3,751.4	136.6	4,619.0	4,597.0	21.99	210.002	
7,350.0	6,959.2	6,330.0	6,327.9	33.4	2.5	20.64	-3,751.4	136.6	4,588.6	4,567.8	20.82	220.432	
7,381.9	6,979.6	6,330.0	6,327.9	33.3	2.5	21.41	-3,751.4	136.6	4,568.1	4,548.1	20.05	227.884	
7,400.0	6,990.6	6,330.0	6,327.9	33.2	2.5	21.89	-3,751.4	136.6	4,556.1	4,536.4	19.60	232.441	
7,450.0	7,019.2	6,330.0	6,327.9	33.0	2.5	23.37	-3,751.4	136.6	4,521.4	4,503.0	18.39	245.855	
7,480.3	7,035.1	6,330.0	6,327.9	32.8	2.5	24.40	-3,751.4	136.6	4,499.4	4,481.7	17.69	254.377	
7,500.0	7,044.9	6,330.0	6,327.9	32.8	2.5	25.14	-3,751.4	136.6	4,484.8	4,467.5	17.25	260.021	
7,550.0	7,067.5	6,330.0	6,327.9	32.6	2.5	27.26	-3,751.4	136.6	4,446.3	4,430.0	16.26	273.404	
7,578.7	7,079.1	6,330.0	6,327.9	32.4	2.5	28.68	-3,751.4	136.6	4,423.4	4,407.6	15.82	279.635	
7,600.0	7,086.9	6,330.0	6,327.9	32.3	2.5	29.84	-3,751.4	136.6	4,406.1	4,390.6	15.56	283.248	
7,650.0	7,103.1	6,330.0	6,327.9	32.1	2.5	33.00	-3,751.4	136.6	4,364.4	4,349.2	15.26	286.064	
7,677.1	7,110.5	6,330.0	6,327.9	32.0	2.5	35.01	-3,751.4	136.6	4,341.2	4,325.9	15.31	283.636	
7,700.0	7,116.0	6,330.0	6,327.9	32.0	2.5	36.90	-3,751.4	136.6	4,321.3	4,305.9	15.45	279.651	
7,750.0	7,125.4	6,330.0	6,327.9	31.8	2.5	41.75	-3,751.4	136.6	4,277.0	4,260.9	16.13	265.138	
7,775.6	7,128.9	6,330.0	6,327.9	31.7	2.5	44.69	-3,751.4	136.6	4,253.9	4,237.3	16.64	255.685	
7,800.0	7,131.4	6,330.0	6,327.9	31.6	2.5	47.82	-3,751.4	136.6	4,231.7	4,214.5	17.18	246.306	
7,850.0	7,133.9	6,330.0	6,327.9	31.5	2.5	55.39	-3,751.4	136.6	4,185.5	4,167.0	18.43	227.097	
7,866.5	7,134.0	6,330.0	6,327.9	31.4	2.5	58.25	-3,751.4	136.6	4,170.1	4,151.2	18.85	221.173	
7,874.0	7,133.9	6,330.0	6,327.9	31.4	2.5	58.25	-3,751.4	136.6	4,163.1	4,144.2	18.85	220.872	
7,900.0	7,133.7	6,330.0	6,327.9	31.4	2.5	58.25	-3,751.4	136.6	4,138.8	4,119.9	18.83	219.834	
7,972.4	7,133.2	6,330.0	6,327.9	31.2	2.5	58.25	-3,751.4	136.6	4,071.2	4,052.3	18.86	215.887	
8,000.0	7,133.0	6,330.0	6,327.9	31.2	2.5	58.25	-3,751.4	136.6	4,045.5	4,026.6	18.87	214.385	
8,070.8	7,132.4	6,330.0	6,327.9	31.1	2.5	58.25	-3,751.4	136.6	3,979.6	3,960.6	19.03	209.092	
8,100.0	7,132.2	6,330.0	6,327.9	31.1	2.5	58.25	-3,751.4	136.6	3,952.6	3,933.5	19.10	206.931	
8,169.3	7,131.7	6,330.0	6,327.9	31.1	2.5	58.25	-3,751.4	136.6	3,888.4	3,869.0	19.39	200.575	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,200.0	7,131.5	6,330.0	6,327.9	31.1	2.5	58.25	-3,751.4	136.6	3,860.0	3,840.5	19.51	197.842	
8,267.7	7,131.0	6,330.0	6,327.9	31.2	2.5	58.25	-3,751.4	136.6	3,797.6	3,777.7	19.90	190.831	
8,300.0	7,130.7	6,330.0	6,327.9	31.2	2.5	58.25	-3,751.4	136.6	3,767.9	3,747.8	20.09	187.591	
8,366.1	7,130.2	6,330.0	6,327.9	31.4	2.5	58.25	-3,751.4	136.6	3,707.1	3,686.6	20.56	180.272	
8,400.0	7,130.0	6,330.0	6,327.9	31.5	2.5	58.25	-3,751.4	136.6	3,676.1	3,655.3	20.81	176.662	
8,464.5	7,129.5	6,330.0	6,327.9	31.7	2.5	58.25	-3,751.4	136.6	3,617.1	3,595.7	21.36	169.340	
8,500.0	7,129.2	6,330.0	6,327.9	31.9	2.5	58.25	-3,751.4	136.6	3,584.7	3,563.1	21.66	165.488	
8,563.0	7,128.7	6,330.0	6,327.9	32.2	2.5	58.25	-3,751.4	136.6	3,527.5	3,505.2	22.27	158.393	
8,600.0	7,128.5	6,330.0	6,327.9	32.4	2.5	58.25	-3,751.4	136.6	3,493.9	3,471.3	22.63	154.412	
8,661.4	7,128.0	6,330.0	6,327.9	32.8	2.5	58.25	-3,751.4	136.6	3,438.4	3,415.1	23.28	147.699	
8,700.0	7,127.7	6,330.0	6,327.9	33.1	2.5	58.25	-3,751.4	136.6	3,403.5	3,379.9	23.69	143.681	
8,759.8	7,127.3	6,330.0	6,327.9	33.5	2.5	58.25	-3,751.4	136.6	3,349.8	3,325.4	24.37	137.440	
8,800.0	7,127.0	6,330.0	6,327.9	33.9	2.5	58.25	-3,751.4	136.6	3,313.8	3,288.9	24.83	133.455	
8,858.2	7,126.5	6,330.0	6,327.9	34.4	2.5	58.25	-3,751.4	136.6	3,261.7	3,236.2	25.54	127.727	
8,900.0	7,126.2	6,330.0	6,327.9	34.8	2.5	58.25	-3,751.4	136.6	3,224.6	3,198.5	26.04	123.825	
8,956.7	7,125.8	6,330.0	6,327.9	35.4	2.5	58.25	-3,751.4	136.6	3,174.3	3,147.5	26.76	118.616	
9,000.0	7,125.5	6,330.0	6,327.9	35.8	2.5	58.25	-3,751.4	136.6	3,136.0	3,108.7	27.31	114.831	
9,055.1	7,125.1	6,330.0	6,327.9	36.5	2.5	58.25	-3,751.4	136.6	3,087.5	3,059.5	28.04	110.125	
9,100.0	7,124.7	6,330.0	6,327.9	37.0	2.5	58.25	-3,751.4	136.6	3,048.2	3,019.6	28.63	106.478	
9,153.5	7,124.3	6,330.0	6,327.9	37.6	2.5	58.25	-3,751.4	136.6	3,001.5	2,972.1	29.36	102.246	
9,200.0	7,124.0	6,330.0	6,327.9	38.2	2.5	58.25	-3,751.4	136.6	2,961.1	2,931.2	29.99	98.749	
9,251.9	7,123.6	6,330.0	6,327.9	38.8	2.5	58.25	-3,751.4	136.6	2,916.2	2,885.5	30.71	94.955	
9,300.0	7,123.2	6,330.0	6,327.9	39.5	2.5	58.25	-3,751.4	136.6	2,874.9	2,843.5	31.38	91.614	
9,350.4	7,122.8	6,330.0	6,327.9	40.1	2.5	58.25	-3,751.4	136.6	2,831.8	2,799.7	32.10	88.221	
9,400.0	7,122.5	6,330.0	6,327.9	40.8	2.5	58.25	-3,751.4	136.6	2,789.6	2,756.8	32.81	85.035	
9,448.8	7,122.1	6,330.0	6,327.9	41.5	2.5	58.25	-3,751.4	136.6	2,748.4	2,714.9	33.51	82.006	
9,500.0	7,121.7	6,330.0	6,327.9	42.2	2.5	58.25	-3,751.4	136.6	2,705.3	2,671.1	34.26	78.974	
9,547.2	7,121.4	6,330.0	6,327.9	42.9	2.5	58.25	-3,751.4	136.6	2,665.9	2,631.0	34.95	76.273	
9,600.0	7,121.0	6,330.0	6,327.9	43.7	2.5	58.25	-3,751.4	136.6	2,622.2	2,586.4	35.73	73.390	
9,645.6	7,120.6	6,330.0	6,327.9	44.3	2.5	58.25	-3,751.4	136.6	2,584.6	2,548.2	36.41	70.984	
9,700.0	7,120.2	6,330.0	6,327.9	45.1	2.5	58.25	-3,751.4	136.6	2,540.2	2,503.0	37.22	68.246	
9,744.1	7,119.9	6,330.0	6,327.9	45.8	2.5	58.25	-3,751.4	136.6	2,504.5	2,466.6	37.89	66.104	
9,800.0	7,119.5	6,330.0	6,327.9	46.6	2.5	58.25	-3,751.4	136.6	2,459.6	2,420.8	38.73	63.505	
9,842.5	7,119.1	6,330.0	6,327.9	47.3	2.5	58.25	-3,751.4	136.6	2,425.7	2,386.4	39.38	61.600	
9,900.0	7,118.7	6,330.0	6,327.9	48.2	2.5	58.25	-3,751.4	136.6	2,380.4	2,340.1	40.25	59.134	
9,940.9	7,118.4	6,330.0	6,327.9	48.8	2.5	58.25	-3,751.4	136.6	2,348.5	2,307.6	40.88	57.442	
10,000.0	7,118.0	6,330.0	6,327.9	49.8	2.5	58.25	-3,751.4	136.6	2,302.9	2,261.1	41.79	55.104	
10,039.3	7,117.7	6,330.0	6,327.9	50.4	2.5	58.25	-3,751.4	136.6	2,272.8	2,230.4	42.40	53.603	
10,100.0	7,117.2	6,330.0	6,327.9	51.4	2.5	58.25	-3,751.4	136.6	2,227.1	2,183.8	43.34	51.387	
10,137.8	7,116.9	6,330.0	6,327.9	52.0	2.5	58.25	-3,751.4	136.6	2,199.0	2,155.1	43.93	50.058	
10,200.0	7,116.5	6,330.0	6,327.9	53.0	2.5	58.25	-3,751.4	136.6	2,153.3	2,108.4	44.90	47.960	
10,236.2	7,116.2	6,330.0	6,327.9	53.6	2.5	58.25	-3,751.4	136.6	2,127.2	2,081.7	45.47	46.785	
10,300.0	7,115.7	6,330.0	6,327.9	54.6	2.5	58.25	-3,751.4	136.6	2,081.8	2,035.3	46.47	44.802	
10,334.6	7,115.5	6,330.0	6,327.9	55.2	2.5	58.25	-3,751.4	136.6	2,057.5	2,010.5	47.01	43.766	
10,400.0	7,115.0	6,330.0	6,327.9	56.3	2.5	58.25	-3,751.4	136.6	2,012.6	1,964.6	48.04	41.893	
10,433.0	7,114.7	6,330.0	6,327.9	56.8	2.5	58.25	-3,751.4	136.6	1,990.3	1,941.8	48.57	40.982	
10,500.0	7,114.2	6,330.0	6,327.9	58.0	2.5	58.25	-3,751.4	136.6	1,946.1	1,896.5	49.62	39.217	
10,531.5	7,114.0	6,330.0	6,327.9	58.5	2.5	58.25	-3,751.4	136.6	1,925.8	1,875.7	50.13	38.420	
10,600.0	7,113.5	6,330.0	6,327.9	59.7	2.5	58.25	-3,751.4	136.6	1,882.6	1,831.4	51.21	36.760	
10,629.9	7,113.2	6,330.0	6,327.9	60.2	2.5	58.25	-3,751.4	136.6	1,864.3	1,812.6	51.69	36.065	
10,700.0	7,112.7	6,330.0	6,327.9	61.4	2.5	58.25	-3,751.4	136.6	1,822.4	1,769.6	52.81	34.509	
10,728.3	7,112.5	6,330.0	6,327.9	61.8	2.5	58.25	-3,751.4	136.6	1,806.0	1,752.7	53.26	33.906	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - ABDN VERT MCCARTY 30-3 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,800.0	7,112.0	6,330.0	6,327.9	63.1	2.5	58.25	-3,751.4	136.6	1,765.8	1,711.4	54.41	32.453	
10,826.7	7,111.8	6,330.0	6,327.9	63.5	2.5	58.25	-3,751.4	136.6	1,751.3	1,696.4	54.84	31.934	
10,900.0	7,111.2	6,330.0	6,327.9	64.8	2.5	58.25	-3,751.4	136.6	1,713.1	1,657.1	56.02	30.583	
10,925.2	7,111.0	6,330.0	6,327.9	65.2	2.5	58.25	-3,751.4	136.6	1,700.5	1,644.1	56.42	30.140	
11,000.0	7,110.5	6,330.0	6,327.9	66.5	2.5	58.25	-3,751.4	136.6	1,664.8	1,607.2	57.63	28.890	
11,023.6	7,110.3	6,330.0	6,327.9	66.9	2.5	58.25	-3,751.4	136.6	1,654.1	1,596.1	58.01	28.516	
11,100.0	7,109.7	6,330.0	6,327.9	68.3	2.5	58.25	-3,751.4	136.6	1,621.3	1,562.0	59.24	27.368	
11,122.0	7,109.5	6,330.0	6,327.9	68.7	2.5	58.25	-3,751.4	136.6	1,612.3	1,552.7	59.60	27.054	
11,200.0	7,109.0	6,330.0	6,327.9	70.0	2.5	58.25	-3,751.4	136.6	1,582.8	1,522.0	60.86	26.009	
11,220.4	7,108.8	6,330.0	6,327.9	70.4	2.5	58.25	-3,751.4	136.6	1,575.6	1,514.4	61.19	25.750	
11,300.0	7,108.2	6,330.0	6,327.9	71.8	2.5	58.25	-3,751.4	136.6	1,549.9	1,487.4	62.48	24.807	
11,318.9	7,108.1	6,330.0	6,327.9	72.1	2.5	58.25	-3,751.4	136.6	1,544.3	1,481.6	62.79	24.597	
11,400.0	7,107.5	6,330.0	6,327.9	73.6	2.5	58.25	-3,751.4	136.6	1,522.8	1,458.7	64.10	23.756	
11,417.3	7,107.3	6,330.0	6,327.9	73.9	2.5	58.25	-3,751.4	136.6	1,518.8	1,454.4	64.38	23.589	
11,500.0	7,106.7	6,330.0	6,327.9	75.3	2.5	58.25	-3,751.4	136.6	1,502.0	1,436.2	65.73	22.851	
11,515.7	7,106.6	6,330.0	6,327.9	75.6	2.5	58.25	-3,751.4	136.6	1,499.3	1,433.3	65.99	22.721	
11,600.0	7,106.0	6,330.0	6,327.9	77.1	2.5	58.25	-3,751.4	136.6	1,487.5	1,420.2	67.36	22.083	
11,614.1	7,105.9	6,330.0	6,327.9	77.4	2.5	58.25	-3,751.4	136.6	1,486.0	1,418.4	67.59	21.986	
11,700.0	7,105.2	6,330.0	6,327.9	78.9	2.5	58.25	-3,751.4	136.6	1,479.7	1,410.7	68.99	21.448	
11,712.6	7,105.1	6,330.0	6,327.9	79.2	2.5	58.25	-3,751.4	136.6	1,479.2	1,410.0	69.20	21.377	
11,765.8	7,104.7	6,330.0	6,327.9	80.1	2.5	58.25	-3,751.4	136.6	1,478.3	1,408.2	70.07	21.098	CC
11,800.0	7,104.5	6,330.0	6,327.9	80.7	2.5	58.25	-3,751.4	136.6	1,478.7	1,408.0	70.63	20.937	ES
11,811.0	7,104.4	6,330.0	6,327.9	80.9	2.5	58.25	-3,751.4	136.6	1,479.0	1,408.2	70.81	20.888	
11,860.2	7,104.0	6,330.0	6,327.9	81.8	2.5	58.25	-3,751.4	136.6	1,481.3	1,409.7	71.61	20.685	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	84.53	156.7	1,637.0	1,645.1				
98.4	98.4	55.7	55.7	0.1	0.0	84.53	156.7	1,637.0	1,644.5	1,644.4	0.12	N/A	
100.0	100.0	57.3	57.3	0.1	0.0	84.53	156.7	1,637.0	1,644.5	1,644.4	0.12	N/A	
170.7	170.7	126.7	126.7	0.2	0.1	84.53	156.7	1,637.0	1,644.4	1,644.1	0.30	5,411.192	
196.8	196.8	150.8	150.8	0.3	0.1	84.53	156.7	1,637.0	1,644.4	1,644.1	0.36	4,527.380	
200.0	200.0	153.7	153.7	0.3	0.1	84.53	156.7	1,637.0	1,644.5	1,644.1	0.37	4,440.141	
295.3	295.3	251.5	251.5	0.5	0.1	84.52	156.9	1,637.2	1,644.7	1,644.0	0.64	2,581.567	
300.0	300.0	256.9	256.9	0.5	0.1	84.52	157.0	1,637.2	1,644.7	1,644.0	0.65	2,518.185	
393.7	393.7	358.3	358.3	0.7	0.2	84.49	157.9	1,636.7	1,644.3	1,643.4	0.97	1,697.377	
400.0	400.0	364.9	364.9	0.8	0.2	84.49	157.9	1,636.7	1,644.3	1,643.3	0.99	1,661.164	
492.1	492.1	455.7	455.7	1.0	0.3	84.45	159.1	1,636.0	1,643.8	1,642.5	1.28	1,288.593	
500.0	500.0	463.2	463.2	1.0	0.3	84.44	159.2	1,636.0	1,643.7	1,642.4	1.30	1,265.434	
590.5	590.5	556.0	556.0	1.2	0.4	84.39	160.7	1,635.5	1,643.4	1,641.8	1.57	1,050.016	
600.0	600.0	566.2	566.2	1.2	0.4	84.38	160.8	1,635.4	1,643.3	1,641.7	1.59	1,031.774	
689.0	689.0	657.5	657.4	1.4	0.4	84.33	162.3	1,634.6	1,642.6	1,640.8	1.85	890.239	
700.0	700.0	668.5	668.4	1.4	0.5	84.32	162.5	1,634.5	1,642.6	1,640.7	1.88	875.590	
787.4	787.4	755.3	755.2	1.6	0.5	84.28	163.8	1,633.7	1,641.9	1,639.8	2.12	775.519	
800.0	800.0	767.7	767.7	1.7	0.5	84.27	164.0	1,633.6	1,641.8	1,639.7	2.15	763.024	
885.8	885.8	853.4	853.3	1.9	0.6	84.21	165.7	1,632.8	1,641.2	1,638.8	2.39	687.868	
900.0	900.0	867.6	867.5	1.9	0.6	84.20	166.0	1,632.7	1,641.1	1,638.7	2.42	676.884	
984.2	984.2	955.1	955.0	2.1	0.6	84.12	168.0	1,631.8	1,640.5	1,637.8	2.65	618.199	
1,000.0	1,000.0	971.8	971.7	2.1	0.6	84.10	168.5	1,631.6	1,640.3	1,637.6	2.70	608.330	
1,082.7	1,082.7	1,060.0	1,059.8	2.3	0.7	84.01	171.0	1,630.3	1,639.4	1,636.5	2.92	561.492	
1,100.0	1,100.0	1,078.5	1,078.3	2.3	0.7	83.99	171.5	1,630.0	1,639.2	1,636.2	2.97	552.587	
1,181.1	1,181.1	1,164.9	1,164.7	2.5	0.7	83.89	174.2	1,628.4	1,637.9	1,634.8	3.18	514.598	
1,200.0	1,200.0	1,185.0	1,184.8	2.6	0.7	83.87	174.8	1,628.0	1,637.6	1,634.4	3.23	506.486	
1,279.5	1,279.5	1,263.2	1,262.9	2.7	0.8	83.78	177.4	1,626.4	1,636.2	1,632.8	3.44	475.438	
1,300.0	1,300.0	1,283.0	1,282.7	2.8	0.8	83.75	178.0	1,626.0	1,635.9	1,632.4	3.49	468.076	
1,377.9	1,377.9	1,359.2	1,358.8	3.0	0.8	83.66	180.4	1,624.5	1,634.7	1,631.0	3.70	442.030	
1,400.0	1,400.0	1,380.8	1,380.4	3.0	0.8	83.64	181.2	1,624.1	1,634.3	1,630.6	3.76	435.179	
1,476.4	1,476.4	1,457.7	1,457.2	3.2	0.8	83.54	183.7	1,622.6	1,633.2	1,629.2	3.95	412.971	
1,500.0	1,500.0	1,481.7	1,481.2	3.2	0.8	83.51	184.6	1,622.2	1,632.8	1,628.8	4.02	406.544	
1,550.0	1,550.0	1,533.7	1,533.2	3.3	0.9	83.44	186.4	1,621.1	1,632.0	1,627.9	4.15	393.581	
1,574.8	1,574.8	1,559.9	1,559.4	3.4	0.9	25.20	187.2	1,620.6	1,631.5	1,627.3	4.18	390.282	
1,600.0	1,600.0	1,586.5	1,586.0	3.5	0.9	25.18	188.1	1,620.0	1,630.8	1,626.5	4.24	384.169	
1,673.2	1,673.2	1,662.5	1,661.9	3.6	0.9	25.15	190.4	1,618.3	1,627.3	1,622.9	4.43	367.412	
1,700.0	1,699.9	1,690.2	1,689.6	3.7	0.9	25.16	191.1	1,617.6	1,625.6	1,621.2	4.50	361.505	
1,771.6	1,771.4	1,761.0	1,760.3	3.8	1.0	25.21	192.9	1,615.9	1,620.0	1,615.3	4.68	346.235	
1,800.0	1,799.7	1,788.7	1,788.1	3.9	1.0	25.24	193.5	1,615.3	1,617.3	1,612.5	4.75	340.434	
1,870.1	1,869.4	1,855.9	1,855.2	4.0	1.0	25.34	195.1	1,613.8	1,609.6	1,604.7	4.93	326.513	
1,900.0	1,899.1	1,884.5	1,883.8	4.1	1.0	25.40	195.8	1,613.2	1,605.9	1,600.9	5.01	320.818	
1,968.5	1,967.0	1,950.8	1,950.1	4.3	1.0	25.56	197.3	1,611.9	1,596.5	1,591.3	5.18	307.967	
2,000.0	1,998.2	1,981.4	1,980.7	4.4	1.0	25.65	198.1	1,611.3	1,591.7	1,586.4	5.27	302.281	
2,066.9	2,064.1	2,046.5	2,045.7	4.5	1.1	25.86	199.7	1,610.0	1,580.4	1,575.0	5.44	290.274	
2,100.0	2,096.6	2,078.6	2,077.8	4.6	1.1	25.97	200.5	1,609.4	1,574.4	1,568.8	5.53	284.557	
2,165.3	2,160.6	2,142.8	2,141.9	4.8	1.1	26.24	202.1	1,608.2	1,561.4	1,555.7	5.71	273.220	
2,200.0	2,194.4	2,177.0	2,176.1	4.9	1.1	26.39	203.1	1,607.5	1,554.0	1,548.2	5.81	267.420	
2,263.8	2,256.4	2,240.3	2,239.4	5.2	1.2	26.71	204.8	1,606.3	1,539.5	1,533.5	6.00	256.606	
2,300.0	2,291.5	2,276.3	2,275.4	5.3	1.2	26.91	205.7	1,605.5	1,530.6	1,524.5	6.11	250.678	
2,362.2	2,351.4	2,337.4	2,336.4	5.5	1.2	27.29	207.3	1,604.2	1,514.4	1,508.1	6.30	240.311	
2,400.0	2,387.6	2,374.1	2,373.1	5.7	1.2	27.54	208.2	1,603.4	1,504.0	1,497.6	6.42	234.273	
2,460.6	2,445.4	2,433.3	2,432.3	6.0	1.2	27.98	209.7	1,602.1	1,486.5	1,479.8	6.62	224.469	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,500.0	2,482.7	2,471.9	2,470.9	6.2	1.2	28.30	210.6	1,601.2	1,474.5	1,467.7	6.76	218.107	
2,559.0	2,538.3	2,527.9	2,526.8	6.5	1.3	28.81	211.8	1,599.8	1,455.6	1,448.6	6.98	208.602	
2,600.0	2,576.6	2,565.5	2,564.4	6.7	1.3	29.18	212.6	1,598.9	1,441.9	1,434.8	7.13	202.204	
2,657.5	2,630.1	2,618.3	2,617.2	7.0	1.3	29.75	213.7	1,597.7	1,422.0	1,414.6	7.36	193.094	
2,700.0	2,669.4	2,657.5	2,656.4	7.3	1.3	30.20	214.5	1,596.8	1,406.7	1,399.2	7.54	186.549	
2,755.9	2,720.6	2,708.3	2,707.2	7.6	1.3	30.83	215.7	1,595.6	1,385.9	1,378.1	7.79	177.855	
2,776.7	2,739.5	2,726.5	2,725.3	7.8	1.3	31.07	216.1	1,595.1	1,377.9	1,370.0	7.89	174.710	
2,800.0	2,760.8	2,746.8	2,745.6	7.9	1.3	31.25	216.5	1,594.7	1,369.0	1,361.0	7.99	171.254	
2,854.3	2,810.2	2,794.2	2,793.0	8.3	1.4	31.68	217.4	1,593.7	1,348.2	1,339.9	8.25	163.400	
2,900.0	2,851.7	2,834.9	2,833.7	8.7	1.4	32.05	218.1	1,592.8	1,330.8	1,322.4	8.47	157.089	
2,952.7	2,899.7	2,882.1	2,880.9	9.1	1.4	32.51	218.9	1,591.9	1,310.9	1,302.1	8.74	150.012	
3,000.0	2,942.7	2,924.9	2,923.6	9.4	1.4	32.93	219.7	1,591.0	1,293.1	1,284.1	8.98	143.947	
3,051.2	2,989.3	2,971.6	2,970.3	9.8	1.4	33.40	220.4	1,590.1	1,273.8	1,264.6	9.26	137.578	
3,100.0	3,033.7	3,015.4	3,014.2	10.2	1.4	33.86	221.1	1,589.2	1,255.6	1,246.0	9.53	131.791	
3,149.6	3,078.8	3,058.8	3,057.5	10.5	1.5	34.34	221.6	1,588.4	1,237.1	1,227.3	9.81	126.134	
3,200.0	3,124.6	3,100.0	3,098.7	10.9	1.5	34.81	221.9	1,587.7	1,218.6	1,208.5	10.10	120.688	
3,248.0	3,168.3	3,143.3	3,142.0	11.3	1.5	35.32	222.2	1,587.0	1,201.0	1,190.6	10.38	115.654	
3,300.0	3,215.6	3,187.4	3,186.1	11.7	1.5	35.87	222.3	1,586.4	1,182.2	1,171.6	10.70	110.497	
3,346.4	3,257.9	3,227.7	3,226.4	12.1	1.5	36.38	222.3	1,585.9	1,165.7	1,154.7	10.99	106.056	
3,400.0	3,306.6	3,274.7	3,273.4	12.5	1.5	36.99	222.4	1,585.5	1,146.7	1,135.4	11.34	101.166	
3,444.9	3,347.4	3,314.7	3,313.4	12.9	1.5	37.53	222.5	1,585.1	1,131.0	1,119.4	11.63	97.222	
3,500.0	3,397.6	3,365.0	3,363.7	13.3	1.5	38.23	222.6	1,584.7	1,111.9	1,099.9	12.01	92.574	
3,543.3	3,436.9	3,404.6	3,403.2	13.7	1.6	38.79	222.7	1,584.3	1,096.9	1,084.6	12.32	89.069	
3,600.0	3,488.5	3,456.7	3,455.4	14.1	1.6	39.55	222.8	1,583.8	1,077.5	1,064.7	12.72	84.673	
3,641.7	3,526.5	3,495.1	3,493.7	14.5	1.6	40.13	222.8	1,583.4	1,063.2	1,050.2	13.03	81.570	
3,700.0	3,579.5	3,545.5	3,544.2	15.0	1.6	40.92	222.8	1,582.9	1,043.6	1,030.1	13.47	77.487	
3,740.1	3,616.0	3,580.0	3,578.7	15.3	1.6	41.48	222.7	1,582.7	1,030.3	1,016.5	13.77	74.799	
3,800.0	3,670.5	3,630.4	3,629.1	15.8	1.6	42.33	222.4	1,582.4	1,010.7	996.5	14.23	71.017	
3,838.6	3,705.6	3,662.4	3,661.1	16.1	1.6	42.89	222.2	1,582.3	998.4	983.9	14.53	68.701	
3,900.0	3,761.4	3,714.4	3,713.1	16.6	1.6	43.83	221.6	1,582.4	979.2	964.2	15.02	65.182	
3,937.0	3,795.1	3,747.4	3,746.0	16.9	1.6	44.44	221.2	1,582.5	967.9	952.6	15.33	63.145	
4,000.0	3,852.4	3,803.7	3,802.3	17.4	1.6	45.50	220.6	1,582.7	948.9	933.0	15.86	59.835	
4,035.4	3,884.6	3,836.8	3,835.5	17.7	1.6	46.15	220.3	1,582.8	938.4	922.2	16.17	58.034	
4,100.0	3,943.4	3,897.2	3,895.9	18.3	1.6	47.36	219.8	1,583.0	919.4	902.6	16.75	54.897	
4,133.8	3,974.2	3,928.6	3,927.3	18.6	1.6	48.00	219.5	1,583.0	909.6	892.5	17.06	53.320	
4,200.0	4,034.4	3,989.8	3,988.4	19.1	1.6	49.31	218.9	1,583.1	890.6	873.0	17.68	50.380	
4,232.3	4,063.7	4,019.5	4,018.1	19.4	1.6	49.96	218.6	1,583.0	881.6	863.6	17.99	49.010	
4,300.0	4,125.3	4,081.7	4,080.3	19.9	1.6	51.36	218.0	1,583.0	862.8	844.2	18.65	46.268	
4,330.7	4,153.3	4,109.7	4,108.3	20.2	1.6	52.01	217.7	1,582.9	854.5	835.6	18.95	45.084	
4,400.0	4,216.3	4,172.1	4,170.7	20.8	1.6	53.51	217.0	1,582.8	836.2	816.5	19.65	42.548	
4,429.1	4,242.8	4,198.3	4,196.9	21.0	1.6	54.16	216.7	1,582.7	828.7	808.7	19.95	41.533	
4,500.0	4,307.3	4,263.5	4,262.1	21.6	1.6	55.81	216.0	1,582.6	810.8	790.1	20.70	39.179	
4,527.5	4,332.3	4,288.8	4,287.5	21.9	1.6	56.47	215.7	1,582.5	804.1	783.1	20.99	38.308	
4,600.0	4,398.2	4,355.3	4,353.9	22.5	1.6	58.23	215.1	1,582.3	786.8	765.0	21.77	36.137	
4,626.0	4,421.9	4,379.1	4,377.7	22.7	1.6	58.88	214.9	1,582.2	780.8	758.7	22.06	35.399	
4,700.0	4,489.2	4,447.2	4,445.8	23.3	1.6	60.78	214.4	1,582.0	764.2	741.4	22.88	33.404	
4,724.4	4,511.4	4,469.6	4,468.3	23.5	1.6	61.42	214.3	1,581.9	758.9	735.8	23.15	32.781	
4,800.0	4,580.2	4,539.1	4,537.7	24.2	1.6	63.45	214.0	1,581.6	743.2	719.2	24.01	30.957	
4,822.8	4,601.0	4,560.0	4,558.6	24.4	1.6	64.07	213.9	1,581.5	738.6	714.4	24.27	30.437	
4,900.0	4,671.2	4,630.8	4,629.4	25.0	1.7	66.22	213.7	1,581.1	723.9	698.7	25.15	28.780	
4,921.2	4,690.5	4,650.2	4,648.8	25.2	1.7	66.83	213.7	1,581.0	720.0	694.6	25.40	28.350	
5,000.0	4,762.1	4,722.1	4,720.8	25.9	1.7	69.11	213.5	1,580.6	706.4	680.1	26.30	26.857	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,740.0	4,738.6	26.0	1.7	69.69	213.5	1,580.5	703.2	676.7	26.53	26.508	
5,100.0	4,853.1	4,812.8	4,811.4	26.7	1.7	72.10	213.3	1,580.1	691.0	663.6	27.45	25.178	
5,118.1	4,869.6	4,829.0	4,827.6	26.9	1.7	72.64	213.3	1,580.0	688.5	660.8	27.65	24.900	
5,200.0	4,944.1	4,902.4	4,901.0	27.6	1.7	75.15	213.0	1,579.5	678.0	649.4	28.57	23.734	
5,216.5	4,959.1	4,917.3	4,915.9	27.7	1.7	75.67	213.0	1,579.5	676.1	647.3	28.75	23.517	
5,300.0	5,035.0	4,992.6	4,991.3	28.4	1.7	78.32	212.7	1,579.1	667.5	637.8	29.66	22.506	
5,314.9	5,048.6	5,006.2	5,004.8	28.6	1.7	78.81	212.6	1,579.0	666.1	636.3	29.82	22.340	
5,400.0	5,126.0	5,084.0	5,082.6	29.3	1.8	81.60	212.4	1,578.7	659.5	628.8	30.71	21.472	
5,413.4	5,138.2	5,096.2	5,094.8	29.4	1.8	82.04	212.4	1,578.7	658.6	627.8	30.85	21.348	
5,479.4	5,198.3	5,157.1	5,155.7	30.0	1.8	84.26	212.2	1,578.4	654.9	623.4	31.52	20.778	
5,500.0	5,217.0	5,176.1	5,174.7	30.1	1.8	84.93	212.2	1,578.3	654.0	622.3	31.70	20.629	
5,511.8	5,227.8	5,187.1	5,185.7	30.2	1.8	85.31	212.2	1,578.2	653.5	621.7	31.79	20.555	
5,600.0	5,309.0	5,269.3	5,267.9	30.8	1.8	88.12	212.2	1,577.7	651.0	618.6	32.44	20.066	
5,610.2	5,318.5	5,278.8	5,277.5	30.8	1.8	88.44	212.2	1,577.6	650.8	618.3	32.51	20.019	
5,692.2	5,394.9	5,355.9	5,354.5	31.3	1.8	90.90	212.3	1,577.0	650.2	617.2	33.03	19.687	
5,700.0	5,402.3	5,363.2	5,361.9	31.4	1.8	91.13	212.3	1,576.9	650.2	617.1	33.07	19.659	
5,708.6	5,410.4	5,371.4	5,370.0	31.4	1.8	91.39	212.3	1,576.8	650.2	617.1	33.12	19.632	
5,800.0	5,496.7	5,458.1	5,456.7	31.9	1.9	93.96	212.3	1,575.9	651.1	617.5	33.59	19.382	
5,807.1	5,503.5	5,464.9	5,463.5	31.9	1.9	94.15	212.3	1,575.8	651.2	617.6	33.63	19.367	
5,900.0	5,592.3	5,553.3	5,551.9	32.4	1.9	96.57	212.3	1,574.4	653.3	619.3	34.01	19.208	
5,905.5	5,597.6	5,558.6	5,557.2	32.4	1.9	96.70	212.3	1,574.4	653.5	619.4	34.03	19.201	
6,000.0	5,688.8	5,648.0	5,646.6	32.9	1.9	98.91	212.0	1,572.8	656.5	622.1	34.34	19.117	
6,003.9	5,692.6	5,651.7	5,650.3	32.9	1.9	98.99	212.0	1,572.7	656.6	622.3	34.35	19.115	
6,100.0	5,786.2	5,742.6	5,741.2	33.3	2.0	100.97	211.4	1,571.2	660.4	625.8	34.59	19.092	
6,102.3	5,788.5	5,744.9	5,743.4	33.3	2.0	101.02	211.4	1,571.2	660.5	625.9	34.60	19.093	
6,200.0	5,884.3	5,838.9	5,837.5	33.6	2.0	102.76	210.6	1,569.8	664.8	630.0	34.78	19.116	
6,200.8	5,885.1	5,839.7	5,838.2	33.6	2.0	102.78	210.6	1,569.8	664.8	630.1	34.78	19.116	
6,299.2	5,982.3	5,936.7	5,935.2	33.9	2.0	104.26	209.8	1,568.7	669.0	634.1	34.91	19.161	
6,300.0	5,983.1	5,937.5	5,936.0	33.9	2.0	104.27	209.7	1,568.7	669.0	634.1	34.92	19.161	
6,397.6	6,079.9	6,035.4	6,033.9	34.1	2.0	105.43	209.1	1,567.8	672.6	637.5	35.02	19.206	
6,400.0	6,082.3	6,037.8	6,036.3	34.1	2.0	105.45	209.1	1,567.8	672.6	637.6	35.02	19.206	
6,496.0	6,177.9	6,135.1	6,133.6	34.3	2.0	106.27	208.8	1,567.2	675.1	640.0	35.11	19.230	
6,500.0	6,181.9	6,139.0	6,137.6	34.3	2.0	106.30	208.7	1,567.2	675.2	640.1	35.11	19.230	
6,594.5	6,276.2	6,233.7	6,232.2	34.5	2.1	106.81	208.6	1,566.6	676.7	641.6	35.19	19.232	
6,600.0	6,281.7	6,239.2	6,237.8	34.5	2.1	106.83	208.5	1,566.5	676.8	641.6	35.19	19.231	
6,692.9	6,374.6	6,332.2	6,330.8	34.6	2.1	107.05	208.4	1,565.9	677.3	642.1	35.26	19.209	
6,706.1	6,387.8	6,345.4	6,343.9	34.6	2.1	165.28	208.4	1,565.8	677.3	642.1	35.27	19.203	
6,729.9	6,411.6	6,369.0	6,367.6	34.6	2.1	165.30	208.3	1,565.6	677.3	642.1	35.29	19.192	
6,736.1	6,417.8	6,375.2	6,373.8	34.6	2.1	165.30	208.3	1,565.5	677.3	642.0	35.30	19.189	
6,750.0	6,431.7	6,389.1	6,387.6	34.6	2.1	-14.69	208.3	1,565.4	677.2	641.9	35.30	19.186	
6,791.3	6,473.0	6,430.0	6,428.5	34.6	2.1	-14.74	208.2	1,565.1	675.3	640.0	35.28	19.144	
6,800.0	6,481.6	6,438.6	6,437.1	34.6	2.1	-14.76	208.1	1,565.0	674.6	639.3	35.27	19.127	
6,850.0	6,531.2	6,487.7	6,486.2	34.6	2.1	-14.98	208.0	1,564.5	668.7	633.5	35.21	18.989	
6,889.7	6,570.3	6,526.2	6,524.7	34.6	2.2	-15.26	207.8	1,564.2	661.6	626.5	35.14	18.831	
6,900.0	6,580.3	6,536.1	6,534.6	34.6	2.2	-15.35	207.8	1,564.1	659.5	624.4	35.11	18.782	
6,950.0	6,628.5	6,583.7	6,582.2	34.6	2.2	-15.88	207.5	1,563.7	647.0	612.1	34.94	18.516	
6,988.2	6,664.7	6,619.8	6,618.3	34.5	2.2	-16.42	207.2	1,563.3	635.4	600.6	34.77	18.277	
7,000.0	6,675.8	6,631.0	6,629.5	34.5	2.2	-16.61	207.2	1,563.2	631.4	596.7	34.70	18.195	
7,050.0	6,721.8	6,677.3	6,675.8	34.4	2.2	-17.58	206.9	1,562.9	612.7	578.3	34.39	17.819	
7,086.6	6,754.5	6,710.4	6,708.9	34.3	2.2	-18.47	206.8	1,562.7	597.1	563.0	34.10	17.508	
7,100.0	6,766.2	6,722.4	6,720.9	34.2	2.2	-18.84	206.7	1,562.7	591.0	557.0	33.99	17.386	
7,150.0	6,809.0	6,765.9	6,764.4	34.1	2.2	-20.42	206.6	1,562.4	566.3	532.8	33.52	16.893	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,185.0	6,837.9	6,795.3	6,793.8	34.0	2.2	-21.78	206.5	1,562.2	547.4	514.3	33.15	16.512	
7,200.0	6,849.9	6,807.4	6,805.9	33.9	2.2	-22.42	206.5	1,562.2	539.0	506.0	32.99	16.338	
7,250.0	6,888.7	6,846.0	6,844.5	33.8	2.2	-24.91	206.4	1,561.9	509.1	476.7	32.39	15.718	
7,283.4	6,913.4	6,870.7	6,869.2	33.6	2.2	-26.92	206.3	1,561.7	487.9	455.9	31.96	15.264	
7,300.0	6,925.2	6,882.5	6,881.0	33.6	2.3	-28.03	206.2	1,561.6	477.0	445.3	31.74	15.027	
7,350.0	6,959.2	6,916.6	6,915.1	33.4	2.3	-31.97	206.1	1,561.3	442.9	411.9	31.05	14.266	
7,381.9	6,979.6	6,937.0	6,935.5	33.3	2.3	-34.99	206.0	1,561.1	420.3	389.7	30.58	13.746	
7,400.0	6,990.6	6,948.1	6,946.6	33.2	2.3	-36.90	206.0	1,561.0	407.2	376.9	30.30	13.440	
7,450.0	7,019.2	6,976.9	6,975.4	33.0	2.3	-42.98	205.9	1,560.7	370.2	340.7	29.46	12.567	
7,480.3	7,035.1	6,992.9	6,991.4	32.8	2.3	-47.26	205.8	1,560.6	347.3	318.5	28.88	12.028	
7,500.0	7,044.9	7,002.7	7,001.2	32.8	2.3	-50.28	205.7	1,560.5	332.4	304.0	28.47	11.677	
7,550.0	7,067.5	7,025.7	7,024.2	32.6	2.3	-58.61	205.6	1,560.3	294.7	267.4	27.27	10.807	
7,578.7	7,079.1	7,037.4	7,035.9	32.4	2.3	-63.64	205.6	1,560.2	273.3	246.9	26.48	10.323	
7,600.0	7,086.9	7,045.4	7,043.9	32.3	2.3	-67.38	205.6	1,560.1	257.9	232.1	25.86	9.974	
7,650.0	7,103.1	7,061.9	7,060.4	32.1	2.3	-75.72	205.5	1,559.9	223.8	199.4	24.41	9.169	
7,677.1	7,110.5	7,069.4	7,067.9	32.0	2.3	-79.74	205.5	1,559.8	207.1	183.4	23.70	8.741	
7,700.0	7,116.0	7,075.0	7,073.5	32.0	2.3	-82.73	205.5	1,559.7	194.7	171.5	23.17	8.400	
7,750.0	7,125.4	7,084.6	7,083.1	31.8	2.3	-87.79	205.4	1,559.6	174.1	151.7	22.36	7.786	
7,775.6	7,128.9	7,088.2	7,086.7	31.7	2.3	-89.51	205.4	1,559.6	168.1	146.0	22.11	7.605	
7,800.0	7,131.4	7,090.8	7,089.3	31.6	2.3	-90.57	205.4	1,559.6	165.9	144.0	21.95	7.558	SF
7,803.1	7,131.6	7,091.1	7,089.6	31.6	2.3	-90.67	205.4	1,559.6	165.9	143.9	21.94	7.561	CC, ES
7,850.0	7,133.9	7,093.5	7,092.0	31.5	2.3	-90.97	205.4	1,559.5	172.4	150.5	21.87	7.882	
7,866.5	7,134.0	7,093.6	7,092.1	31.4	2.3	-90.57	205.4	1,559.5	177.6	155.7	21.91	8.106	
7,874.0	7,133.9	7,093.6	7,092.1	31.4	2.3	-90.56	205.4	1,559.5	180.4	158.5	21.91	8.235	
7,900.0	7,133.7	7,093.5	7,092.0	31.4	2.3	-90.53	205.4	1,559.5	192.1	170.2	21.92	8.767	
7,972.4	7,133.2	7,093.2	7,091.7	31.2	2.3	-90.42	205.4	1,559.5	237.1	215.1	22.03	10.764	
8,000.0	7,133.0	7,093.1	7,091.6	31.2	2.3	-90.38	205.4	1,559.5	257.5	235.5	22.07	11.669	
8,070.8	7,132.4	7,092.8	7,091.3	31.1	2.3	-90.28	205.4	1,559.5	315.0	292.7	22.31	14.122	
8,100.0	7,132.2	7,092.6	7,091.1	31.1	2.3	-90.23	205.4	1,559.5	340.2	317.8	22.41	15.182	
8,169.3	7,131.7	7,092.3	7,090.8	31.1	2.3	-90.13	205.4	1,559.6	402.1	379.3	22.76	17.664	
8,200.0	7,131.5	7,092.2	7,090.7	31.1	2.3	-90.09	205.4	1,559.6	430.3	407.3	22.92	18.771	
8,267.7	7,131.0	7,091.9	7,090.4	31.2	2.3	-89.99	205.4	1,559.6	493.4	470.0	23.38	21.104	
8,300.0	7,130.7	7,091.8	7,090.3	31.2	2.3	-89.94	205.4	1,559.6	524.0	500.4	23.60	22.202	
8,366.1	7,130.2	7,091.5	7,090.0	31.4	2.3	-89.85	205.4	1,559.6	587.0	562.9	24.15	24.313	
8,400.0	7,130.0	7,091.4	7,089.9	31.5	2.3	-89.80	205.4	1,559.6	619.6	595.2	24.42	25.368	
8,464.5	7,129.5	7,091.1	7,089.6	31.7	2.3	-89.71	205.4	1,559.6	682.0	657.0	25.04	27.234	
8,500.0	7,129.2	7,091.0	7,089.5	31.9	2.3	-89.66	205.4	1,559.6	716.5	691.1	25.38	28.226	
8,563.0	7,128.7	7,090.7	7,089.2	32.2	2.3	-89.57	205.4	1,559.6	777.9	751.8	26.06	29.849	
8,600.0	7,128.5	7,090.5	7,089.0	32.4	2.3	-89.51	205.4	1,559.6	814.1	787.6	26.46	30.769	
8,661.4	7,128.0	7,090.3	7,088.8	32.8	2.3	-89.42	205.4	1,559.6	874.3	847.1	27.18	32.166	
8,700.0	7,127.7	7,090.1	7,088.6	33.1	2.3	-89.37	205.4	1,559.6	912.2	884.6	27.63	33.010	
8,759.8	7,127.3	7,089.9	7,088.4	33.5	2.3	-89.28	205.4	1,559.6	971.1	942.7	28.39	34.205	
8,800.0	7,127.0	7,089.7	7,088.2	33.9	2.3	-89.23	205.4	1,559.6	1,010.7	981.8	28.90	34.974	
8,858.2	7,126.5	7,089.5	7,088.0	34.4	2.3	-89.14	205.4	1,559.6	1,068.2	1,038.5	29.68	35.991	
8,900.0	7,126.2	7,089.3	7,087.8	34.8	2.3	-89.08	205.4	1,559.6	1,109.5	1,079.2	30.24	36.689	
8,956.7	7,125.8	7,089.1	7,087.6	35.4	2.3	-89.00	205.4	1,559.6	1,165.5	1,134.5	31.04	37.554	
9,000.0	7,125.5	7,088.9	7,087.4	35.8	2.3	-88.94	205.4	1,559.6	1,208.4	1,176.8	31.65	38.186	
9,055.1	7,125.1	7,088.7	7,087.2	36.5	2.3	-88.86	205.4	1,559.6	1,263.0	1,230.6	32.45	38.920	
9,100.0	7,124.7	7,088.5	7,087.0	37.0	2.3	-88.80	205.4	1,559.6	1,307.6	1,274.5	33.11	39.492	
9,153.5	7,124.3	7,088.3	7,086.8	37.6	2.3	-88.72	205.4	1,559.6	1,360.7	1,326.8	33.92	40.116	
9,200.0	7,124.0	7,088.1	7,086.6	38.2	2.3	-88.66	205.4	1,559.6	1,406.8	1,372.2	34.62	40.634	
9,251.9	7,123.6	7,087.8	7,086.3	38.8	2.3	-88.58	205.4	1,559.6	1,458.4	1,423.0	35.43	41.164	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.0	7,123.2	7,087.7	7,086.2	39.5	2.3	-88.51	205.4	1,559.6	1,506.2	1,470.0	36.18	41.634	
9,350.4	7,122.8	7,087.4	7,085.9	40.1	2.3	-88.44	205.4	1,559.6	1,556.2	1,519.3	36.98	42.086	
9,400.0	7,122.5	7,087.2	7,085.7	40.8	2.3	-88.37	205.4	1,559.6	1,605.6	1,567.8	37.77	42.513	
9,448.8	7,122.1	7,087.0	7,085.5	41.5	2.3	-88.30	205.4	1,559.6	1,654.1	1,615.6	38.56	42.898	
9,500.0	7,121.7	7,086.8	7,085.3	42.2	2.3	-88.23	205.4	1,559.6	1,705.1	1,665.7	39.39	43.287	
9,547.2	7,121.4	7,086.6	7,085.1	42.9	2.3	-88.17	205.4	1,559.6	1,752.1	1,711.9	40.17	43.617	
9,600.0	7,121.0	7,086.4	7,084.9	43.7	2.3	-88.09	205.4	1,559.6	1,804.6	1,763.6	41.04	43.971	
9,645.6	7,120.6	7,086.2	7,084.7	44.3	2.3	-88.03	205.4	1,559.6	1,850.1	1,808.3	41.81	44.254	
9,700.0	7,120.2	7,086.0	7,084.5	45.1	2.3	-87.95	205.4	1,559.6	1,904.2	1,861.5	42.72	44.578	
9,744.1	7,119.9	7,085.8	7,084.3	45.8	2.3	-87.89	205.4	1,559.6	1,948.1	1,904.7	43.46	44.821	
9,800.0	7,119.5	7,085.6	7,084.1	46.6	2.3	-87.81	205.4	1,559.6	2,003.9	1,959.5	44.41	45.118	
9,842.5	7,119.1	7,085.4	7,083.9	47.3	2.3	-87.75	205.4	1,559.6	2,046.2	2,001.1	45.14	45.328	
9,900.0	7,118.7	7,085.2	7,083.7	48.2	2.3	-87.67	205.4	1,559.6	2,103.5	2,057.4	46.13	45.601	
9,940.9	7,118.4	7,085.0	7,083.5	48.8	2.3	-87.62	205.4	1,559.6	2,144.3	2,097.5	46.84	45.781	
10,000.0	7,118.0	7,084.8	7,083.3	49.8	2.3	-87.53	205.4	1,559.6	2,203.2	2,155.4	47.86	46.033	
10,039.3	7,117.7	7,084.6	7,083.1	50.4	2.3	-87.48	205.4	1,559.6	2,242.5	2,193.9	48.55	46.190	
10,100.0	7,117.2	7,084.4	7,082.9	51.4	2.3	-87.39	205.4	1,559.6	2,303.0	2,253.4	49.61	46.422	
10,137.8	7,116.9	7,084.3	7,082.7	52.0	2.3	-87.34	205.4	1,559.6	2,340.7	2,290.4	50.27	46.558	
10,200.0	7,116.5	7,084.0	7,082.5	53.0	2.3	-87.26	205.4	1,559.6	2,402.7	2,351.4	51.37	46.773	
10,236.2	7,116.2	7,083.9	7,082.4	53.6	2.3	-87.21	205.4	1,559.6	2,438.8	2,386.8	52.01	46.891	
10,300.0	7,115.7	7,083.6	7,082.1	54.6	2.3	-87.12	205.4	1,559.7	2,502.5	2,449.4	53.14	47.091	
10,334.6	7,115.5	7,083.5	7,082.0	55.2	2.3	-87.07	205.4	1,559.7	2,537.0	2,483.3	53.76	47.193	
10,400.0	7,115.0	7,083.2	7,081.7	56.3	2.3	-86.98	205.4	1,559.7	2,602.3	2,547.4	54.92	47.380	
10,433.0	7,114.7	7,083.1	7,081.6	56.8	2.3	-86.93	205.4	1,559.7	2,635.3	2,579.8	55.52	47.468	
10,500.0	7,114.2	7,082.8	7,081.3	58.0	2.3	-86.84	205.4	1,559.7	2,702.1	2,645.4	56.72	47.643	
10,531.5	7,114.0	7,082.7	7,081.2	58.5	2.3	-86.80	205.4	1,559.7	2,733.5	2,676.2	57.28	47.720	
10,600.0	7,113.5	7,082.4	7,080.9	59.7	2.3	-86.71	205.4	1,559.7	2,801.9	2,743.4	58.52	47.883	
10,629.9	7,113.2	7,082.3	7,080.8	60.2	2.3	-86.66	205.4	1,559.7	2,831.8	2,772.7	59.06	47.950	
10,700.0	7,112.7	7,082.0	7,080.5	61.4	2.3	-86.57	205.4	1,559.7	2,901.7	2,841.4	60.32	48.103	
10,728.3	7,112.5	7,081.9	7,080.4	61.8	2.3	-86.53	205.4	1,559.7	2,930.0	2,869.2	60.84	48.161	
10,800.0	7,112.0	7,081.6	7,080.1	63.1	2.3	-86.43	205.4	1,559.7	3,001.6	2,939.4	62.14	48.305	
10,826.7	7,111.8	7,081.5	7,080.0	63.5	2.3	-86.40	205.4	1,559.7	3,028.3	2,965.7	62.62	48.356	
10,900.0	7,111.2	7,081.2	7,079.7	64.8	2.3	-86.30	205.4	1,559.7	3,101.4	3,037.5	63.96	48.491	
10,925.2	7,111.0	7,081.1	7,079.6	65.2	2.3	-86.26	205.4	1,559.7	3,126.6	3,062.1	64.42	48.536	
11,000.0	7,110.5	7,080.8	7,079.3	66.5	2.3	-86.16	205.4	1,559.7	3,201.3	3,135.5	65.78	48.663	
11,023.6	7,110.3	7,080.7	7,079.2	66.9	2.3	-86.13	205.4	1,559.7	3,224.9	3,158.6	66.22	48.702	
11,100.0	7,109.7	7,080.4	7,078.9	68.3	2.3	-86.02	205.4	1,559.7	3,301.2	3,233.5	67.61	48.823	
11,122.0	7,109.5	7,080.3	7,078.8	68.7	2.3	-85.99	205.4	1,559.7	3,323.2	3,255.1	68.02	48.856	
11,200.0	7,109.0	7,080.0	7,078.5	70.0	2.3	-85.89	205.4	1,559.7	3,401.0	3,331.6	69.45	48.971	
11,220.4	7,108.8	7,079.9	7,078.4	70.4	2.3	-85.86	205.4	1,559.7	3,421.5	3,351.6	69.83	48.999	
11,300.0	7,108.2	7,079.6	7,078.1	71.8	2.3	-85.75	205.4	1,559.7	3,500.9	3,429.6	71.29	49.108	
11,318.9	7,108.1	7,079.6	7,078.1	72.1	2.3	-85.73	205.4	1,559.7	3,519.8	3,448.1	71.64	49.133	
11,400.0	7,107.5	7,079.2	7,077.7	73.6	2.3	-85.62	205.4	1,559.7	3,600.8	3,527.7	73.13	49.237	
11,417.3	7,107.3	7,079.2	7,077.7	73.9	2.3	-85.60	205.4	1,559.7	3,618.1	3,544.6	73.45	49.258	
11,500.0	7,106.7	7,078.8	7,077.3	75.3	2.3	-85.49	205.4	1,559.7	3,700.7	3,625.7	74.98	49.357	
11,515.7	7,106.6	7,078.8	7,077.3	75.6	2.3	-85.47	205.4	1,559.7	3,716.4	3,641.1	75.27	49.375	
11,600.0	7,106.0	7,078.5	7,077.0	77.1	2.3	-85.35	205.4	1,559.7	3,800.6	3,723.8	76.83	49.469	
11,614.1	7,105.9	7,078.4	7,076.9	77.4	2.3	-85.33	205.4	1,559.7	3,814.7	3,737.7	77.09	49.484	
11,700.0	7,105.2	7,078.1	7,076.6	78.9	2.3	-85.22	205.4	1,559.7	3,900.5	3,821.8	78.68	49.575	
11,712.6	7,105.1	7,078.0	7,076.5	79.2	2.3	-85.20	205.4	1,559.7	3,913.1	3,834.2	78.91	49.587	
11,800.0	7,104.5	7,077.7	7,076.2	80.7	2.3	-85.09	205.4	1,559.7	4,000.4	3,919.9	80.53	49.674	
11,811.0	7,104.4	7,077.6	7,076.1	80.9	2.3	-85.07	205.5	1,559.7	4,011.4	3,930.7	80.74	49.684	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-2 - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 usft

Survey Program: 100-GYD_CT

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,860.2	7,104.0	7,077.4	7,075.9	81.8	2.3	-85.01	205.5	1,559.7	4,060.6	3,979.0	81.65	49.731	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	45.77	408.8	419.9	586.7				
98.4	98.4	76.7	76.7	0.1	0.0	45.79	408.3	419.7	585.5	585.4	0.13	4,617.951	
100.0	100.0	78.4	78.4	0.1	0.0	45.79	408.2	419.7	585.5	585.4	0.13	4,520.688	
196.8	196.8	179.0	178.9	0.3	0.2	45.86	406.5	419.0	583.9	583.4	0.49	1,194.471	
200.0	200.0	182.2	182.1	0.3	0.2	45.87	406.5	418.9	583.8	583.3	0.50	1,164.943	
295.3	295.3	281.5	281.5	0.5	0.3	45.95	404.3	417.9	581.7	580.9	0.82	711.397	
300.0	300.0	286.5	286.4	0.5	0.3	45.95	404.2	417.9	581.6	580.7	0.83	698.377	
393.7	393.7	383.4	383.3	0.7	0.4	46.08	401.3	416.7	578.8	577.7	1.12	518.646	
400.0	400.0	389.9	389.7	0.8	0.4	46.09	401.1	416.6	578.6	577.5	1.13	509.840	
492.1	492.1	481.3	481.2	1.0	0.4	46.24	397.9	415.6	575.6	574.2	1.40	411.159	
500.0	500.0	489.1	489.0	1.0	0.4	46.26	397.7	415.5	575.4	574.0	1.42	404.466	
590.5	590.5	579.9	579.7	1.2	0.5	46.44	394.4	414.7	572.6	570.9	1.68	341.314	
600.0	600.0	589.4	589.2	1.2	0.5	46.46	394.0	414.6	572.3	570.6	1.70	335.822	
689.0	689.0	677.8	677.5	1.4	0.5	46.64	390.8	413.8	569.5	567.5	1.95	292.040	
700.0	700.0	688.8	688.4	1.4	0.6	46.66	390.4	413.7	569.1	567.2	1.98	287.385	
787.4	787.4	774.8	774.5	1.6	0.6	46.84	387.4	413.1	566.5	564.3	2.22	255.349	
800.0	800.0	787.2	786.8	1.7	0.6	46.86	387.0	413.0	566.2	563.9	2.25	251.304	
885.8	885.8	872.5	872.1	1.9	0.6	47.01	384.3	412.3	563.8	561.4	2.49	226.871	
900.0	900.0	886.6	886.2	1.9	0.7	47.04	383.9	412.2	563.5	560.9	2.52	223.275	
984.2	984.2	970.3	969.8	2.1	0.7	47.18	381.3	411.5	561.2	558.5	2.75	204.052	
1,000.0	1,000.0	985.9	985.4	2.1	0.7	47.21	380.9	411.4	560.8	558.0	2.79	200.810	
1,082.7	1,082.7	1,068.5	1,068.0	2.3	0.7	47.35	378.4	410.8	558.7	555.7	3.01	185.337	
1,100.0	1,100.0	1,085.8	1,085.3	2.3	0.7	47.38	377.9	410.7	558.3	555.2	3.06	182.380	
1,181.1	1,181.1	1,166.3	1,165.7	2.5	0.8	47.51	375.6	410.1	556.2	552.9	3.28	169.731	
1,200.0	1,200.0	1,185.0	1,184.4	2.6	0.8	47.54	375.0	409.9	555.8	552.4	3.33	167.027	
1,279.5	1,279.5	1,262.2	1,261.6	2.7	0.8	47.65	373.1	409.3	554.0	550.5	3.54	156.608	
1,300.0	1,300.0	1,282.0	1,281.4	2.8	0.8	47.68	372.7	409.2	553.6	550.0	3.59	154.144	
1,377.9	1,377.9	1,359.0	1,358.4	3.0	0.9	47.75	371.2	408.7	552.2	548.4	3.80	145.468	
1,400.0	1,400.0	1,381.0	1,380.4	3.0	0.9	47.77	370.9	408.5	551.8	548.0	3.85	143.186	
1,476.4	1,476.4	1,457.5	1,456.9	3.2	0.9	47.80	369.7	407.8	550.5	546.5	4.05	135.827	
1,500.0	1,500.0	1,481.2	1,480.6	3.2	0.9	47.81	369.4	407.6	550.1	546.0	4.11	133.697	
1,550.0	1,550.0	1,531.4	1,530.7	3.3	0.9	47.82	368.8	407.0	549.3	545.0	4.24	129.434	
1,574.8	1,574.8	1,556.3	1,555.6	3.4	0.9	-10.40	368.5	406.6	548.7	544.4	4.31	127.281	
1,600.0	1,600.0	1,581.6	1,580.9	3.5	0.9	-10.42	368.2	406.2	547.9	543.6	4.38	125.185	
1,673.2	1,673.2	1,655.0	1,654.4	3.6	1.0	-10.52	367.6	405.0	544.4	539.8	4.57	119.255	
1,700.0	1,699.9	1,681.8	1,681.2	3.7	1.0	-10.57	367.4	404.4	542.7	538.0	4.63	117.104	
1,771.6	1,771.4	1,753.2	1,752.5	3.8	1.0	-10.78	367.2	402.8	536.7	531.9	4.82	111.374	
1,800.0	1,799.7	1,781.3	1,780.6	3.9	1.0	-10.89	367.2	402.2	533.9	529.0	4.89	109.135	
1,870.1	1,869.4	1,850.3	1,849.6	4.0	1.0	-11.20	367.2	400.4	525.8	520.8	5.08	103.607	
1,900.0	1,899.1	1,879.7	1,879.0	4.1	1.0	-11.35	367.3	399.7	521.9	516.7	5.15	101.305	
1,968.5	1,967.0	1,946.4	1,945.7	4.3	1.1	-11.72	367.4	398.1	511.8	506.5	5.33	96.014	
2,000.0	1,998.2	1,977.0	1,976.2	4.4	1.1	-11.90	367.4	397.4	506.7	501.3	5.41	93.633	
2,066.9	2,064.1	2,042.0	2,041.2	4.5	1.1	-12.33	367.5	396.1	494.9	489.3	5.59	88.532	
2,100.0	2,096.6	2,074.1	2,073.3	4.6	1.1	-12.56	367.6	395.6	488.5	482.8	5.68	86.064	
2,165.3	2,160.6	2,137.6	2,136.8	4.8	1.1	-13.05	367.6	394.6	474.9	469.0	5.85	81.119	
2,200.0	2,194.4	2,171.3	2,170.5	4.9	1.1	-13.35	367.6	394.0	467.1	461.2	5.95	78.548	
2,263.8	2,256.4	2,233.5	2,232.7	5.2	1.1	-13.98	367.7	392.9	451.8	445.7	6.13	73.718	
2,300.0	2,291.5	2,268.8	2,268.0	5.3	1.2	-14.37	367.7	392.3	442.5	436.2	6.23	71.032	
2,362.2	2,351.4	2,328.9	2,328.1	5.5	1.2	-15.11	367.6	391.4	425.5	419.0	6.41	66.329	
2,400.0	2,387.6	2,365.1	2,364.3	5.7	1.2	-15.62	367.5	390.7	414.5	408.0	6.53	63.510	
2,460.6	2,445.4	2,422.7	2,421.9	6.0	1.2	-16.53	367.3	389.7	396.0	389.3	6.72	58.958	
2,500.0	2,482.7	2,459.8	2,459.0	6.2	1.2	-17.21	367.2	389.1	383.4	376.6	6.84	56.027	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,515.2	2,514.3	6.5	1.2	-18.35	367.1	388.1	363.7	356.6	7.05	51.614	
2,600.0	2,576.6	2,553.4	2,552.6	6.7	1.2	-19.27	366.9	387.5	349.4	342.2	7.19	48.603	
2,657.5	2,630.1	2,606.7	2,605.8	7.0	1.3	-20.75	366.7	386.5	328.6	321.2	7.41	44.337	
2,700.0	2,669.4	2,645.6	2,644.8	7.3	1.3	-22.02	366.6	385.8	312.7	305.1	7.58	41.238	
2,755.9	2,720.6	2,696.5	2,695.6	7.6	1.3	-23.97	366.4	384.8	291.2	283.3	7.84	37.150	
2,776.7	2,739.5	2,715.6	2,714.7	7.8	1.3	-24.80	366.4	384.4	283.0	275.0	7.94	35.649	
2,800.0	2,760.8	2,737.1	2,736.2	7.9	1.3	-25.72	366.3	384.0	273.7	265.7	8.06	33.970	
2,854.3	2,810.2	2,787.0	2,786.1	8.3	1.3	-28.12	366.0	382.9	252.3	244.0	8.36	30.174	
2,900.0	2,851.7	2,828.3	2,827.4	8.7	1.3	-30.45	365.6	381.8	234.6	225.9	8.64	27.142	
2,952.7	2,899.7	2,875.7	2,874.8	9.1	1.4	-33.56	365.2	380.6	214.6	205.5	9.01	23.810	
3,000.0	2,942.7	2,918.3	2,917.3	9.4	1.4	-36.86	364.9	379.5	197.2	187.8	9.38	21.020	
3,051.2	2,989.3	2,964.4	2,963.4	9.8	1.4	-41.10	364.5	378.2	179.2	169.3	9.84	18.203	
3,100.0	3,033.7	3,008.4	3,007.4	10.2	1.4	-45.93	364.1	377.0	163.0	152.6	10.34	15.761	
3,149.6	3,078.8	3,053.0	3,052.0	10.5	1.4	-51.78	363.7	375.6	147.9	137.0	10.91	13.551	
3,200.0	3,124.6	3,098.3	3,097.3	10.9	1.4	-58.81	363.2	374.3	134.5	122.9	11.55	11.648	
3,248.0	3,168.3	3,141.4	3,140.4	11.3	1.4	-66.61	362.7	372.9	124.1	111.9	12.17	10.198	
3,300.0	3,215.6	3,187.9	3,186.9	11.7	1.5	-76.16	362.1	371.4	116.3	103.5	12.80	9.084	
3,346.4	3,257.9	3,229.3	3,228.2	12.1	1.5	-85.38	361.6	369.9	113.0	99.7	13.27	8.511	
3,363.1	3,273.0	3,244.1	3,243.0	12.2	1.5	-88.77	361.4	369.4	112.7	99.3	13.41	8.405	CC, ES
3,400.0	3,306.6	3,276.8	3,275.7	12.5	1.5	-96.24	361.0	368.1	114.0	100.3	13.65	8.351	SF
3,444.9	3,347.4	3,316.8	3,315.6	12.9	1.5	-105.05	360.5	366.3	118.8	104.9	13.81	8.600	
3,500.0	3,397.6	3,366.6	3,365.4	13.3	1.5	-114.98	359.8	364.3	128.7	114.9	13.83	9.305	
3,543.3	3,436.9	3,405.8	3,404.5	13.7	1.5	-121.80	359.1	362.9	139.0	125.3	13.77	10.099	
3,600.0	3,488.5	3,456.9	3,455.6	14.1	1.6	-129.36	358.2	361.2	155.1	141.4	13.62	11.381	
3,641.7	3,526.5	3,494.6	3,493.3	14.5	1.6	-134.05	357.5	360.1	168.2	154.7	13.52	12.448	
3,700.0	3,579.5	3,547.3	3,546.0	15.0	1.6	-139.54	356.6	358.7	188.1	174.7	13.39	14.050	
3,740.1	3,616.0	3,583.8	3,582.4	15.3	1.6	-142.70	356.1	357.8	202.4	189.1	13.32	15.197	
3,800.0	3,670.5	3,637.7	3,636.3	15.8	1.6	-146.65	355.4	356.6	224.6	211.3	13.27	16.932	
3,838.6	3,705.6	3,672.2	3,670.8	16.1	1.6	-148.81	354.9	355.8	239.4	226.1	13.26	18.058	
3,900.0	3,761.4	3,727.2	3,725.8	16.6	1.7	-151.77	354.2	354.5	263.4	250.2	13.27	19.849	
3,937.0	3,795.1	3,760.4	3,759.0	16.9	1.7	-153.31	353.7	353.7	278.2	264.9	13.30	20.916	
4,000.0	3,852.4	3,816.9	3,815.4	17.4	1.7	-155.60	353.0	352.3	303.7	290.4	13.38	22.708	
4,035.4	3,884.6	3,848.6	3,847.2	17.7	1.7	-156.73	352.6	351.5	318.3	304.8	13.43	23.697	
4,100.0	3,943.4	3,906.6	3,905.1	18.3	1.7	-158.55	351.8	350.1	345.0	331.4	13.55	25.463	
4,133.8	3,974.2	3,937.4	3,935.9	18.6	1.7	-159.41	351.5	349.3	359.1	345.5	13.62	26.367	
4,200.0	4,034.4	3,997.6	3,996.1	19.1	1.7	-160.90	350.8	348.0	386.7	372.9	13.77	28.083	
4,232.3	4,063.7	4,027.5	4,026.0	19.4	1.8	-161.57	350.5	347.3	400.2	386.3	13.85	28.896	
4,300.0	4,125.3	4,090.7	4,089.2	19.9	1.8	-162.82	350.0	346.2	428.4	414.4	14.03	30.542	
4,330.7	4,153.3	4,118.7	4,117.1	20.2	1.8	-163.31	349.8	345.8	441.1	427.0	14.11	31.256	
4,400.0	4,216.3	4,181.0	4,179.5	20.8	1.8	-164.31	349.5	344.8	470.0	455.7	14.32	32.822	
4,429.1	4,242.8	4,207.3	4,205.8	21.0	1.8	-164.69	349.4	344.4	482.2	467.8	14.41	33.461	
4,500.0	4,307.3	4,272.0	4,270.4	21.6	1.8	-165.54	349.3	343.3	511.8	497.2	14.64	34.967	
4,527.5	4,332.3	4,297.2	4,295.6	21.9	1.8	-165.84	349.2	342.9	523.3	508.6	14.73	35.534	
4,600.0	4,398.2	4,363.0	4,361.4	22.5	1.9	-166.57	349.2	341.9	553.7	538.7	14.97	36.981	
4,626.0	4,421.9	4,386.6	4,385.0	22.7	1.9	-166.81	349.3	341.6	564.5	549.5	15.06	37.484	
4,700.0	4,489.2	4,454.6	4,453.0	23.3	1.9	-167.44	349.4	340.6	595.5	580.2	15.32	38.877	
4,724.4	4,511.4	4,477.1	4,475.5	23.5	1.9	-167.63	349.5	340.2	605.7	590.3	15.40	39.321	
4,800.0	4,580.2	4,546.2	4,544.6	24.2	1.9	-168.17	349.9	339.3	637.3	621.6	15.67	40.655	
4,822.8	4,601.0	4,566.9	4,565.3	24.4	1.9	-168.32	350.0	339.0	646.8	631.0	15.76	41.046	
4,900.0	4,671.2	4,638.3	4,636.7	25.0	1.9	-168.81	350.5	338.1	679.0	662.9	16.04	42.335	
4,921.2	4,690.5	4,658.3	4,656.7	25.2	1.9	-168.93	350.7	337.9	687.8	671.7	16.12	42.679	
5,000.0	4,762.1	4,731.0	4,729.4	25.9	2.0	-169.36	351.3	337.2	720.4	704.0	16.41	43.911	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,748.8	4,747.2	26.0	2.0	-169.46	351.5	337.0	728.6	712.1	16.48	44.210	
5,100.0	4,853.1	4,821.6	4,820.0	26.7	2.0	-169.84	352.2	336.3	761.9	745.1	16.78	45.405	
5,118.1	4,869.6	4,838.2	4,836.6	26.9	2.0	-169.93	352.3	336.1	769.4	752.5	16.85	45.666	
5,200.0	4,944.1	4,913.4	4,911.8	27.6	2.0	-170.29	353.0	335.5	803.3	786.2	17.16	46.820	
5,216.5	4,959.1	4,928.4	4,926.8	27.7	2.0	-170.36	353.1	335.4	810.2	792.9	17.22	47.046	
5,300.0	5,035.0	5,004.3	5,002.7	28.4	2.0	-170.69	353.7	334.8	844.7	827.2	17.54	48.165	
5,314.9	5,048.6	5,017.8	5,016.2	28.6	2.0	-170.75	353.8	334.7	850.9	833.3	17.60	48.359	
5,400.0	5,126.0	5,094.5	5,092.9	29.3	2.0	-171.07	354.2	334.1	886.2	868.3	17.92	49.445	
5,413.4	5,138.2	5,106.6	5,105.0	29.4	2.0	-171.12	354.2	334.1	891.8	873.8	17.98	49.611	
5,479.4	5,198.3	5,166.1	5,164.5	30.0	2.0	-171.36	354.4	333.6	919.2	901.0	18.23	50.418	
5,500.0	5,217.0	5,184.7	5,183.1	30.1	2.0	-171.46	354.5	333.5	927.7	909.4	18.30	50.706	
5,511.8	5,227.8	5,195.4	5,193.8	30.2	2.0	-171.51	354.5	333.4	932.5	914.2	18.33	50.876	
5,600.0	5,309.0	5,275.7	5,274.1	30.8	2.1	-171.89	354.8	332.8	967.2	948.6	18.58	52.067	
5,610.2	5,318.5	5,285.1	5,283.4	30.8	2.1	-171.93	354.8	332.7	971.0	952.4	18.60	52.200	
5,700.0	5,402.3	5,366.8	5,365.2	31.4	2.1	-172.25	354.9	332.1	1,003.5	984.7	18.83	53.298	
5,708.6	5,410.4	5,374.7	5,373.1	31.4	2.1	-172.28	354.9	332.0	1,006.6	987.7	18.85	53.400	
5,800.0	5,496.7	5,459.0	5,457.4	31.9	2.1	-172.57	354.7	331.2	1,036.9	1,017.8	19.06	54.414	
5,807.1	5,503.5	5,465.6	5,463.9	31.9	2.1	-172.59	354.7	331.2	1,039.1	1,020.1	19.07	54.491	
5,900.0	5,592.3	5,550.2	5,548.6	32.4	2.2	-172.85	354.3	330.3	1,067.2	1,048.0	19.25	55.430	
5,905.5	5,597.6	5,555.1	5,553.5	32.4	2.2	-172.86	354.2	330.2	1,068.8	1,049.5	19.26	55.484	
6,000.0	5,688.8	5,640.3	5,638.7	32.9	2.2	-173.10	353.3	329.1	1,094.7	1,075.3	19.42	56.366	
6,003.9	5,692.6	5,643.9	5,642.2	32.9	2.2	-173.11	353.3	329.0	1,095.7	1,076.3	19.43	56.402	
6,100.0	5,786.2	5,737.4	5,735.8	33.3	2.2	-173.34	351.8	327.5	1,119.3	1,099.8	19.56	57.224	
6,102.3	5,788.5	5,740.0	5,738.4	33.3	2.2	-173.34	351.7	327.5	1,119.9	1,100.3	19.56	57.243	
6,200.0	5,884.3	5,847.5	5,845.8	33.6	2.2	-173.54	350.6	326.5	1,139.8	1,120.2	19.67	57.940	
6,200.8	5,885.1	5,848.4	5,846.7	33.6	2.2	-173.54	350.6	326.4	1,140.0	1,120.3	19.67	57.946	
6,299.2	5,982.3	5,953.1	5,951.4	33.9	2.3	-173.68	350.1	326.2	1,155.9	1,136.1	19.75	58.526	
6,300.0	5,983.1	5,953.9	5,952.2	33.9	2.3	-173.69	350.1	326.2	1,156.0	1,136.2	19.75	58.530	
6,397.6	6,079.9	6,053.4	6,051.7	34.1	2.3	-173.79	350.0	326.2	1,168.1	1,148.3	19.79	59.028	
6,400.0	6,082.3	6,055.8	6,054.1	34.1	2.3	-173.79	350.0	326.2	1,168.3	1,148.5	19.79	59.039	
6,496.0	6,177.9	6,151.9	6,150.2	34.3	2.3	-173.86	349.9	326.3	1,176.8	1,157.0	19.80	59.446	
6,500.0	6,181.9	6,155.8	6,154.1	34.3	2.3	-173.86	349.9	326.4	1,177.1	1,157.3	19.80	59.460	
6,594.5	6,276.2	6,250.7	6,249.0	34.5	2.3	-173.90	349.9	326.5	1,182.2	1,162.4	19.78	59.753	
6,600.0	6,281.7	6,256.3	6,254.6	34.5	2.3	-173.91	349.9	326.5	1,182.4	1,162.6	19.78	59.765	
6,692.9	6,374.6	6,348.8	6,347.1	34.6	2.3	-173.93	349.8	326.7	1,184.2	1,164.4	19.76	59.936	
6,706.1	6,387.8	6,361.8	6,360.1	34.6	2.3	-115.71	349.8	326.7	1,184.2	1,164.4	19.75	59.948	
6,736.1	6,417.8	6,391.3	6,389.6	34.6	2.3	-115.71	349.8	326.8	1,184.2	1,164.4	19.80	59.818	
6,750.0	6,431.7	6,405.0	6,403.3	34.6	2.3	64.30	349.8	326.8	1,184.1	1,164.3	19.78	59.874	
6,791.3	6,473.0	6,446.5	6,444.8	34.6	2.3	64.46	349.9	326.8	1,183.2	1,163.5	19.72	59.987	
6,800.0	6,481.6	6,455.2	6,453.5	34.6	2.3	64.51	349.9	326.8	1,182.9	1,163.2	19.72	59.993	
6,850.0	6,531.2	6,504.8	6,503.1	34.6	2.3	64.98	350.0	326.8	1,180.2	1,160.5	19.69	59.947	
6,889.7	6,570.3	6,542.7	6,541.0	34.6	2.3	65.52	350.0	326.8	1,177.0	1,157.3	19.69	59.774	
6,900.0	6,580.3	6,552.4	6,550.7	34.6	2.3	65.69	350.0	326.8	1,176.1	1,156.4	19.70	59.704	
6,950.0	6,628.5	6,600.0	6,598.3	34.6	2.3	66.64	350.0	326.7	1,170.7	1,151.0	19.76	59.253	
6,988.2	6,664.7	6,634.8	6,633.1	34.5	2.3	67.51	350.0	326.6	1,165.8	1,146.0	19.84	58.751	
7,000.0	6,675.8	6,645.6	6,643.9	34.5	2.3	67.81	350.0	326.6	1,164.2	1,144.3	19.88	58.562	
7,050.0	6,721.8	6,690.7	6,689.0	34.4	2.3	69.21	350.0	326.4	1,156.6	1,136.5	20.06	57.656	
7,086.6	6,754.5	6,723.1	6,721.4	34.3	2.3	70.36	350.1	326.3	1,150.5	1,130.3	20.23	56.874	
7,100.0	6,766.2	6,734.8	6,733.1	34.2	2.3	70.81	350.1	326.3	1,148.2	1,127.9	20.30	56.561	
7,150.0	6,809.0	6,777.3	6,775.6	34.1	2.3	72.58	350.1	326.1	1,139.1	1,118.5	20.59	55.330	
7,185.0	6,837.9	6,805.9	6,804.2	34.0	2.3	73.89	350.1	326.0	1,132.4	1,111.6	20.81	54.426	
7,200.0	6,849.9	6,817.7	6,816.0	33.9	2.3	74.47	350.0	325.9	1,129.5	1,108.6	20.90	54.035	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	6,855.5	6,853.8	33.8	2.3	76.43	350.0	325.8	1,119.8	1,098.6	21.23	52.752	
7,283.4	6,913.4	6,879.5	6,877.8	33.6	2.3	77.77	349.9	325.6	1,113.4	1,092.0	21.44	51.934	
7,300.0	6,925.2	6,891.0	6,889.3	33.6	2.3	78.43	349.9	325.6	1,110.2	1,088.7	21.54	51.546	
7,350.0	6,959.2	6,925.5	6,923.7	33.4	2.4	80.48	349.9	325.4	1,101.0	1,079.2	21.82	50.448	
7,381.9	6,979.6	6,946.3	6,944.6	33.3	2.4	81.77	349.8	325.2	1,095.5	1,073.5	21.98	49.830	
7,400.0	6,990.6	6,957.7	6,956.0	33.2	2.4	82.48	349.8	325.2	1,092.5	1,070.4	22.06	49.515	
7,450.0	7,019.2	6,987.1	6,985.3	33.0	2.4	84.37	349.8	325.1	1,084.8	1,062.6	22.24	48.781	
7,480.3	7,035.1	7,003.3	7,001.6	32.8	2.4	85.43	349.7	325.0	1,080.7	1,058.4	22.31	48.434	
7,500.0	7,044.9	7,012.8	7,011.1	32.8	2.4	86.07	349.7	324.9	1,078.4	1,056.0	22.34	48.263	
7,550.0	7,067.5	7,035.0	7,033.3	32.6	2.4	87.52	349.7	324.8	1,073.4	1,051.1	22.38	47.957	
7,578.7	7,079.1	7,046.3	7,044.6	32.4	2.4	88.24	349.7	324.8	1,071.4	1,049.0	22.39	47.862	
7,600.0	7,086.9	7,054.0	7,052.3	32.3	2.4	88.71	349.7	324.8	1,070.3	1,047.9	22.37	47.841	
7,650.0	7,103.1	7,069.8	7,068.1	32.1	2.4	89.60	349.7	324.7	1,069.1	1,046.7	22.32	47.900	
7,654.0	7,104.3	7,071.0	7,069.3	32.1	2.4	89.66	349.7	324.7	1,069.1	1,046.7	22.31	47.909	
7,677.1	7,110.5	7,077.0	7,075.3	32.0	2.4	89.96	349.7	324.6	1,069.3	1,047.0	22.28	47.989	
7,700.0	7,116.0	7,082.3	7,080.6	32.0	2.4	90.18	349.7	324.6	1,070.0	1,047.7	22.24	48.114	
7,750.0	7,125.4	7,091.5	7,089.8	31.8	2.4	90.41	349.7	324.5	1,073.1	1,051.0	22.14	48.463	
7,775.6	7,128.9	7,094.8	7,093.1	31.7	2.4	90.39	349.7	324.5	1,075.6	1,053.5	22.10	48.676	
7,800.0	7,131.4	7,097.2	7,095.5	31.6	2.4	90.28	349.7	324.5	1,078.5	1,056.5	22.04	48.927	
7,850.0	7,133.9	7,100.0	7,098.3	31.5	2.4	89.80	349.7	324.5	1,086.2	1,064.3	21.95	49.485	
7,866.5	7,134.0	7,100.0	7,098.3	31.4	2.4	89.56	349.7	324.5	1,089.2	1,067.3	21.92	49.689	
7,874.0	7,133.9	7,100.0	7,098.3	31.4	2.4	89.56	349.7	324.5	1,090.7	1,068.8	21.92	49.754	
7,900.0	7,133.7	7,100.0	7,098.3	31.4	2.4	89.56	349.7	324.5	1,096.1	1,074.2	21.93	49.993	
7,972.4	7,133.2	7,100.0	7,098.3	31.2	2.4	89.56	349.7	324.5	1,114.3	1,092.3	22.03	50.591	
8,000.0	7,133.0	7,100.0	7,098.3	31.2	2.4	89.56	349.7	324.5	1,122.4	1,100.3	22.06	50.870	
8,070.8	7,132.4	7,097.9	7,096.2	31.1	2.4	89.45	349.7	324.5	1,145.9	1,123.6	22.28	51.435	
8,100.0	7,132.2	7,097.7	7,096.0	31.1	2.4	89.43	349.7	324.5	1,156.7	1,134.3	22.37	51.706	
8,169.3	7,131.7	7,097.1	7,095.4	31.1	2.4	89.40	349.7	324.5	1,184.9	1,162.2	22.71	52.171	
8,200.0	7,131.5	7,096.8	7,095.1	31.1	2.4	89.39	349.7	324.5	1,198.4	1,175.6	22.86	52.420	
8,267.7	7,131.0	7,096.3	7,094.6	31.2	2.4	89.36	349.7	324.5	1,230.5	1,207.2	23.30	52.800	
8,300.0	7,130.7	7,096.0	7,094.3	31.2	2.4	89.34	349.7	324.5	1,246.8	1,223.3	23.52	53.019	
8,366.1	7,130.2	7,095.5	7,093.8	31.4	2.4	89.31	349.7	324.5	1,282.0	1,258.0	24.05	53.317	
8,400.0	7,130.0	7,095.2	7,093.5	31.5	2.4	89.30	349.7	324.5	1,301.0	1,276.7	24.32	53.502	
8,464.5	7,129.5	7,094.6	7,092.9	31.7	2.4	89.27	349.7	324.5	1,338.9	1,314.0	24.92	53.725	
8,500.0	7,129.2	7,094.4	7,092.6	31.9	2.4	89.26	349.7	324.5	1,360.5	1,335.2	25.25	53.877	
8,563.0	7,128.7	7,093.8	7,092.1	32.2	2.4	89.23	349.7	324.5	1,400.3	1,374.4	25.91	54.037	
8,600.0	7,128.5	7,093.5	7,091.8	32.4	2.4	89.21	349.7	324.5	1,424.5	1,398.2	26.30	54.157	
8,661.4	7,128.0	7,093.0	7,091.3	32.8	2.4	89.19	349.7	324.5	1,465.8	1,438.8	27.01	54.265	
8,700.0	7,127.7	7,092.7	7,091.0	33.1	2.4	89.17	349.7	324.5	1,492.5	1,465.0	27.46	54.356	
8,759.8	7,127.3	7,092.2	7,090.5	33.5	2.4	89.14	349.7	324.5	1,534.8	1,506.6	28.20	54.424	
8,800.0	7,127.0	7,091.9	7,090.2	33.9	2.4	89.12	349.7	324.5	1,563.9	1,535.2	28.70	54.490	
8,858.2	7,126.5	7,091.4	7,089.7	34.4	2.4	89.10	349.7	324.5	1,606.9	1,577.4	29.47	54.528	
8,900.0	7,126.2	7,091.1	7,089.4	34.8	2.4	89.08	349.7	324.5	1,638.3	1,608.2	30.02	54.573	
8,956.7	7,125.8	7,090.7	7,088.9	35.4	2.4	89.06	349.7	324.5	1,681.6	1,650.8	30.81	54.588	
9,000.0	7,125.5	7,090.3	7,088.6	35.8	2.4	89.04	349.7	324.5	1,715.3	1,683.9	31.41	54.616	
9,055.1	7,125.1	7,089.9	7,088.2	36.5	2.4	89.02	349.7	324.6	1,758.7	1,726.5	32.20	54.615	
9,100.0	7,124.7	7,089.5	7,087.8	37.0	2.4	89.00	349.7	324.6	1,794.5	1,761.7	32.85	54.629	
9,153.5	7,124.3	7,089.1	7,087.4	37.6	2.4	88.97	349.7	324.6	1,837.8	1,804.2	33.65	54.616	
9,200.0	7,124.0	7,088.7	7,087.0	38.2	2.4	88.95	349.7	324.6	1,875.8	1,841.5	34.34	54.619	
9,251.9	7,123.6	7,088.3	7,086.6	38.8	2.4	88.93	349.7	324.6	1,918.7	1,883.6	35.14	54.599	
9,300.0	7,123.2	7,087.9	7,086.2	39.5	2.4	88.91	349.7	324.6	1,958.8	1,922.9	35.88	54.593	
9,350.4	7,122.8	7,087.5	7,085.8	40.1	2.4	88.89	349.7	324.6	2,001.2	1,964.5	36.67	54.568	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN 30-31 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,400.0	7,122.5	7,087.2	7,085.5	40.8	2.4	88.87	349.7	324.6	2,043.3	2,005.8	37.45	54.555	
9,448.8	7,122.1	7,086.8	7,085.1	41.5	2.4	88.85	349.7	324.6	2,085.0	2,046.8	38.24	54.528	
9,500.0	7,121.7	7,086.4	7,084.7	42.2	2.4	88.83	349.7	324.6	2,129.2	2,090.1	39.06	54.509	
9,547.2	7,121.4	7,086.0	7,084.3	42.9	2.4	88.81	349.7	324.6	2,170.1	2,130.3	39.83	54.481	
9,600.0	7,121.0	7,085.6	7,083.9	43.7	2.4	88.79	349.7	324.6	2,216.2	2,175.5	40.70	54.458	
9,645.6	7,120.6	7,085.3	7,083.6	44.3	2.4	88.77	349.7	324.6	2,256.3	2,214.8	41.45	54.430	
9,700.0	7,120.2	7,084.8	7,083.1	45.1	2.4	88.75	349.7	324.6	2,304.3	2,261.9	42.36	54.404	
9,744.1	7,119.9	7,084.5	7,082.8	45.8	2.4	88.73	349.7	324.6	2,343.4	2,300.3	43.10	54.376	
9,800.0	7,119.5	7,084.1	7,082.4	46.6	2.4	88.71	349.7	324.6	2,393.3	2,349.3	44.04	54.347	
9,842.5	7,119.1	7,083.8	7,082.1	47.3	2.4	88.69	349.7	324.6	2,431.4	2,386.7	44.76	54.320	
9,900.0	7,118.7	7,083.3	7,081.6	48.2	2.4	88.66	349.7	324.6	2,483.2	2,437.4	45.74	54.290	
9,940.9	7,118.4	7,083.0	7,081.3	48.8	2.4	88.65	349.7	324.6	2,520.2	2,473.7	46.44	54.265	
10,000.0	7,118.0	7,082.6	7,080.9	49.8	2.4	88.62	349.7	324.6	2,573.8	2,526.3	47.46	54.233	
10,039.3	7,117.7	7,082.3	7,080.6	50.4	2.4	88.61	349.7	324.6	2,609.6	2,561.5	48.14	54.209	
10,100.0	7,117.2	7,081.8	7,080.1	51.4	2.4	88.58	349.7	324.6	2,665.1	2,615.9	49.19	54.177	
10,137.8	7,116.9	7,081.5	7,079.8	52.0	2.4	88.57	349.7	324.6	2,699.7	2,649.9	49.85	54.155	
10,200.0	7,116.5	7,081.1	7,079.4	53.0	2.4	88.54	349.7	324.6	2,757.0	2,706.0	50.94	54.122	
10,236.2	7,116.2	7,080.8	7,079.1	53.6	2.4	88.53	349.7	324.6	2,790.4	2,738.8	51.58	54.101	
10,300.0	7,115.7	7,080.3	7,078.6	54.6	2.4	88.50	349.7	324.6	2,849.4	2,796.7	52.70	54.069	
10,334.6	7,115.5	7,080.1	7,078.4	55.2	2.4	88.49	349.7	324.6	2,881.5	2,828.2	53.31	54.049	
10,400.0	7,115.0	7,079.6	7,077.9	56.3	2.4	88.47	349.7	324.6	2,942.3	2,887.9	54.47	54.017	
10,433.0	7,114.7	7,079.4	7,077.7	56.8	2.4	88.45	349.7	324.6	2,973.1	2,918.1	55.06	53.999	
10,500.0	7,114.2	7,078.9	7,077.2	58.0	2.4	88.43	349.7	324.6	3,035.7	2,979.5	56.25	53.967	
10,531.5	7,114.0	7,078.6	7,076.9	58.5	2.4	88.41	349.7	324.6	3,065.2	3,008.4	56.81	53.950	
10,600.0	7,113.5	7,078.1	7,076.4	59.7	2.4	88.39	349.7	324.6	3,129.5	3,071.5	58.04	53.918	
10,629.9	7,113.2	7,077.9	7,076.2	60.2	2.4	88.38	349.7	324.6	3,157.6	3,099.0	58.58	53.903	
10,700.0	7,112.7	7,077.4	7,075.7	61.4	2.4	88.35	349.7	324.6	3,223.7	3,163.8	59.84	53.872	
10,728.3	7,112.5	7,077.2	7,075.5	61.8	2.4	88.34	349.7	324.6	3,250.4	3,190.0	60.35	53.858	
10,800.0	7,112.0	7,076.7	7,075.0	63.1	2.4	88.31	349.7	324.6	3,318.2	3,256.5	61.64	53.827	
10,826.7	7,111.8	7,076.5	7,074.8	63.5	2.4	88.30	349.7	324.6	3,343.5	3,281.4	62.13	53.815	
10,900.0	7,111.2	7,076.0	7,074.3	64.8	2.4	88.27	349.7	324.6	3,413.0	3,349.5	63.46	53.784	
10,925.2	7,111.0	7,075.8	7,074.1	65.2	2.4	88.26	349.7	324.6	3,436.9	3,373.0	63.91	53.773	
11,000.0	7,110.5	7,075.3	7,073.6	66.5	2.4	88.23	349.7	324.6	3,508.1	3,442.8	65.28	53.743	
11,023.6	7,110.3	7,075.1	7,073.4	66.9	2.4	88.22	349.7	324.6	3,530.6	3,464.9	65.71	53.733	
11,100.0	7,109.7	7,074.6	7,072.9	68.3	2.4	88.20	349.7	324.6	3,603.4	3,536.3	67.10	53.703	
11,122.0	7,109.5	7,074.4	7,072.7	68.7	2.4	88.19	349.7	324.6	3,624.5	3,557.0	67.50	53.695	
11,200.0	7,109.0	7,073.9	7,072.2	70.0	2.4	88.16	349.7	324.6	3,699.1	3,630.1	68.93	53.666	
11,220.4	7,108.8	7,073.7	7,072.0	70.4	2.4	88.15	349.7	324.6	3,718.6	3,649.3	69.30	53.658	
11,300.0	7,108.2	7,073.2	7,071.5	71.8	2.4	88.12	349.7	324.7	3,794.9	3,724.1	70.76	53.629	
11,318.9	7,108.1	7,073.0	7,071.3	72.1	2.4	88.11	349.7	324.7	3,813.0	3,741.9	71.11	53.622	
11,400.0	7,107.5	7,072.5	7,070.8	73.6	2.4	88.08	349.7	324.7	3,890.9	3,818.3	72.60	53.595	
11,417.3	7,107.3	7,072.4	7,070.6	73.9	2.4	88.08	349.7	324.7	3,907.6	3,834.7	72.92	53.588	
11,500.0	7,106.7	7,071.8	7,070.1	75.3	2.4	88.05	349.7	324.7	3,987.2	3,912.7	74.44	53.561	
11,515.7	7,106.6	7,071.7	7,070.0	75.6	2.4	88.04	349.7	324.7	4,002.3	3,927.6	74.73	53.556	
11,600.0	7,106.0	7,071.1	7,069.4	77.1	2.4	88.01	349.7	324.7	4,083.6	4,007.3	76.29	53.529	
11,614.1	7,105.9	7,071.0	7,069.3	77.4	2.4	88.00	349.7	324.7	4,097.3	4,020.7	76.55	53.525	
11,700.0	7,105.2	7,070.4	7,068.7	78.9	2.4	87.97	349.7	324.7	4,180.2	4,102.1	78.14	53.499	
11,712.6	7,105.1	7,070.3	7,068.6	79.2	2.4	87.97	349.7	324.7	4,192.4	4,114.0	78.37	53.495	
11,800.0	7,104.5	7,069.7	7,068.0	80.7	2.4	87.94	349.7	324.7	4,276.9	4,197.0	79.99	53.469	
11,811.0	7,104.4	7,069.7	7,067.9	80.9	2.4	87.93	349.7	324.7	4,287.6	4,207.4	80.19	53.466	
11,860.2	7,104.0	7,069.3	7,067.6	81.8	2.4	87.92	349.7	324.7	4,335.3	4,254.2	81.11	53.452	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN MCCARTY 30-43 - Wellbore #1 - Wellbor

Offset Site Error: 0.0 usft

Survey Program: 100-GYD_CT

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	145.50	-2,379.2	1,635.2	2,887.0				
98.4	98.4	148.6	148.6	0.1	0.1	145.51	-2,377.8	1,633.6	2,885.6	2,885.4	0.22	N/A	
100.0	100.0	150.5	150.4	0.1	0.1	145.51	-2,377.7	1,633.5	2,885.6	2,885.4	0.22	N/A	
196.8	196.8	255.9	255.9	0.3	0.3	145.52	-2,375.8	1,631.6	2,883.1	2,882.5	0.57	5,051.929	
200.0	200.0	259.2	259.1	0.3	0.3	145.52	-2,375.7	1,631.5	2,883.0	2,882.4	0.58	4,965.245	
295.3	295.3	354.7	354.6	0.5	0.4	145.53	-2,374.0	1,629.5	2,880.5	2,879.6	0.87	3,315.678	
300.0	300.0	359.3	359.2	0.5	0.4	145.53	-2,373.9	1,629.4	2,880.3	2,879.4	0.88	3,263.554	
393.7	393.7	446.9	446.8	0.7	0.4	145.54	-2,372.2	1,627.8	2,877.9	2,876.7	1.15	2,504.677	
400.0	400.0	452.6	452.4	0.8	0.4	145.54	-2,372.1	1,627.7	2,877.7	2,876.6	1.17	2,466.986	
492.1	492.1	538.6	538.5	1.0	0.5	145.55	-2,370.8	1,626.1	2,875.6	2,874.2	1.42	2,021.806	
500.0	500.0	546.4	546.2	1.0	0.5	145.56	-2,370.7	1,626.0	2,875.4	2,874.0	1.44	1,991.069	
590.5	590.5	634.0	633.9	1.2	0.5	145.57	-2,369.5	1,624.3	2,873.4	2,871.7	1.69	1,696.753	
600.0	600.0	642.9	642.7	1.2	0.5	145.57	-2,369.4	1,624.2	2,873.2	2,871.5	1.72	1,671.283	
689.0	689.0	727.1	726.9	1.4	0.6	145.59	-2,368.5	1,622.4	2,871.4	2,869.5	1.96	1,464.592	
700.0	700.0	737.6	737.4	1.4	0.6	145.59	-2,368.4	1,622.2	2,871.2	2,869.2	1.99	1,442.568	
787.4	787.4	823.0	822.8	1.6	0.6	145.61	-2,367.5	1,620.6	2,869.6	2,867.4	2.23	1,288.690	
800.0	800.0	836.1	835.8	1.7	0.6	145.61	-2,367.4	1,620.4	2,869.3	2,867.1	2.26	1,269.094	
885.8	885.8	924.6	924.3	1.9	0.7	145.63	-2,366.5	1,618.8	2,867.7	2,865.2	2.49	1,150.104	
900.0	900.0	939.0	938.7	1.9	0.7	145.63	-2,366.3	1,618.5	2,867.4	2,864.9	2.53	1,132.637	
984.2	984.2	1,024.7	1,024.4	2.1	0.7	145.65	-2,365.5	1,616.6	2,865.7	2,863.0	2.76	1,038.906	
1,000.0	1,000.0	1,040.7	1,040.4	2.1	0.7	145.66	-2,365.4	1,616.2	2,865.4	2,862.6	2.80	1,023.116	
1,082.7	1,082.7	1,123.1	1,122.8	2.3	0.8	145.68	-2,364.6	1,614.4	2,863.7	2,860.7	3.02	947.828	
1,100.0	1,100.0	1,139.4	1,139.1	2.3	0.8	145.68	-2,364.4	1,614.0	2,863.4	2,860.3	3.07	933.602	
1,181.1	1,181.1	1,215.0	1,214.7	2.5	0.8	145.70	-2,363.8	1,612.4	2,861.8	2,858.5	3.28	872.397	
1,200.0	1,200.0	1,231.9	1,231.6	2.6	0.8	145.71	-2,363.7	1,612.0	2,861.5	2,858.1	3.33	859.355	
1,279.5	1,279.5	1,303.7	1,303.3	2.7	0.8	145.73	-2,363.3	1,610.5	2,860.2	2,856.7	3.54	808.475	
1,300.0	1,300.0	1,324.3	1,323.9	2.8	0.8	145.73	-2,363.3	1,610.1	2,859.9	2,856.3	3.59	796.165	
1,377.9	1,377.9	1,403.0	1,402.6	3.0	0.9	145.76	-2,362.9	1,608.5	2,858.8	2,855.0	3.80	752.513	
1,400.0	1,400.0	1,426.5	1,426.2	3.0	0.9	145.76	-2,362.8	1,608.1	2,858.4	2,854.6	3.86	740.954	
1,476.4	1,476.4	1,507.8	1,507.4	3.2	0.9	145.78	-2,362.3	1,606.5	2,857.2	2,853.1	4.06	703.507	
1,500.0	1,500.0	1,532.0	1,531.6	3.2	0.9	145.79	-2,362.1	1,606.0	2,856.8	2,852.6	4.12	692.727	
1,550.0	1,550.0	1,583.3	1,582.9	3.3	0.9	145.81	-2,361.8	1,604.8	2,855.9	2,851.6	4.26	670.954	
1,574.8	1,574.8	1,609.2	1,608.8	3.4	1.0	87.61	-2,361.7	1,604.1	2,855.4	2,851.1	4.33	659.898	
1,600.0	1,600.0	1,636.5	1,636.1	3.5	1.0	87.63	-2,361.6	1,603.4	2,855.0	2,850.6	4.39	650.099	
1,673.2	1,673.2	1,714.7	1,714.2	3.6	1.0	87.74	-2,361.1	1,601.3	2,853.4	2,848.8	4.57	623.708	
1,700.0	1,699.9	1,741.8	1,741.4	3.7	1.0	87.79	-2,360.9	1,600.6	2,852.8	2,848.2	4.64	614.657	
1,771.6	1,771.4	1,812.7	1,812.2	3.8	1.0	87.94	-2,360.5	1,598.6	2,851.1	2,846.3	4.82	591.281	
1,800.0	1,799.7	1,838.0	1,837.5	3.9	1.0	88.01	-2,360.3	1,597.9	2,850.5	2,845.6	4.89	582.653	
1,870.1	1,869.4	1,900.5	1,900.0	4.0	1.1	88.19	-2,360.0	1,596.4	2,848.9	2,843.9	5.07	561.661	
1,900.0	1,899.1	1,932.2	1,931.6	4.1	1.1	88.28	-2,359.8	1,595.6	2,848.3	2,843.2	5.15	552.883	
1,968.5	1,967.0	2,000.0	1,999.4	4.3	1.1	88.52	-2,359.4	1,594.0	2,846.8	2,841.4	5.34	532.951	
2,000.0	1,998.2	2,029.9	2,029.3	4.4	1.1	88.63	-2,359.2	1,593.3	2,846.1	2,840.7	5.43	524.240	
2,066.9	2,064.1	2,086.0	2,085.4	4.5	1.1	88.86	-2,358.9	1,592.1	2,844.8	2,839.1	5.63	505.530	
2,100.0	2,096.6	2,117.1	2,116.5	4.6	1.2	89.00	-2,358.8	1,591.5	2,844.2	2,838.5	5.73	496.591	
2,165.3	2,160.6	2,185.8	2,185.2	4.8	1.2	89.32	-2,358.5	1,590.2	2,843.1	2,837.1	5.95	478.037	
2,200.0	2,194.4	2,218.5	2,217.9	4.9	1.2	89.49	-2,358.3	1,589.6	2,842.5	2,836.4	6.06	468.733	
2,263.8	2,256.4	2,274.4	2,273.8	5.2	1.2	89.79	-2,358.1	1,588.5	2,841.5	2,835.2	6.30	450.869	
2,300.0	2,291.5	2,307.3	2,306.6	5.3	1.2	89.97	-2,358.1	1,587.9	2,841.0	2,834.6	6.44	441.188	
2,362.2	2,351.4	2,372.4	2,371.8	5.5	1.2	90.36	-2,357.9	1,586.6	2,840.2	2,833.5	6.71	423.512	
2,400.0	2,387.6	2,409.9	2,409.2	5.7	1.3	90.60	-2,357.7	1,585.9	2,839.8	2,832.9	6.87	413.366	
2,460.6	2,445.4	2,462.3	2,461.7	6.0	1.3	90.94	-2,357.5	1,584.9	2,839.2	2,832.1	7.16	396.397	
2,500.0	2,482.7	2,500.0	2,499.3	6.2	1.3	91.20	-2,357.4	1,584.2	2,839.0	2,831.6	7.36	385.962	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN MCCARTY 30-43 - Wellbore #1 - Wellbor — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,555.9	2,555.3	6.5	1.3	91.60	-2,357.3	1,583.1	2,838.8	2,831.1	7.68	369.625	
2,600.0	2,576.6	2,597.6	2,596.9	6.7	1.3	91.91	-2,357.2	1,582.3	2,838.7	2,830.8	7.91	358.966	
2,622.7	2,597.8	2,617.9	2,617.2	6.8	1.3	92.07	-2,357.1	1,581.9	2,838.7	2,830.6	8.05	352.729	
2,657.5	2,630.1	2,648.4	2,647.7	7.0	1.3	92.30	-2,357.0	1,581.2	2,838.7	2,830.5	8.26	343.543	
2,700.0	2,669.4	2,685.5	2,684.8	7.3	1.4	92.60	-2,356.9	1,580.5	2,838.9	2,830.4	8.53	332.909	
2,755.9	2,720.6	2,731.4	2,730.7	7.6	1.4	92.97	-2,356.8	1,579.6	2,839.4	2,830.5	8.91	318.733	
2,776.7	2,739.5	2,748.0	2,747.3	7.8	1.4	93.11	-2,356.8	1,579.3	2,839.7	2,830.7	9.05	313.763	
2,800.0	2,760.8	2,766.6	2,765.9	7.9	1.4	93.27	-2,356.8	1,579.0	2,840.1	2,830.9	9.22	308.138	
2,854.3	2,810.2	2,811.9	2,811.2	8.3	1.4	93.66	-2,356.8	1,578.3	2,841.1	2,831.5	9.61	295.524	
2,900.0	2,851.7	2,855.5	2,854.8	8.7	1.4	94.03	-2,356.7	1,577.7	2,842.2	2,832.2	9.95	285.641	
2,952.7	2,899.7	2,905.5	2,904.8	9.1	1.4	94.46	-2,356.7	1,577.1	2,843.5	2,833.2	10.35	274.750	
3,000.0	2,942.7	2,947.9	2,947.1	9.4	1.5	94.82	-2,356.6	1,576.5	2,844.8	2,834.1	10.71	265.693	
3,051.2	2,989.3	2,993.7	2,993.0	9.8	1.5	95.21	-2,356.5	1,575.8	2,846.5	2,835.3	11.10	256.368	
3,100.0	3,033.7	3,037.4	3,036.6	10.2	1.5	95.59	-2,356.5	1,575.1	2,848.1	2,836.7	11.48	248.081	
3,149.6	3,078.8	3,081.8	3,081.1	10.5	1.5	95.97	-2,356.4	1,574.5	2,850.0	2,838.2	11.87	240.090	
3,200.0	3,124.6	3,131.1	3,130.4	10.9	1.5	96.39	-2,356.3	1,573.9	2,852.1	2,839.8	12.27	232.481	
3,248.0	3,168.3	3,180.9	3,180.2	11.3	1.5	96.80	-2,356.0	1,573.3	2,854.1	2,841.5	12.65	225.585	
3,300.0	3,215.6	3,231.1	3,230.3	11.7	1.6	97.22	-2,355.6	1,572.9	2,856.4	2,843.3	13.07	218.573	
3,346.4	3,257.9	3,274.1	3,273.3	12.1	1.6	97.58	-2,355.2	1,572.7	2,858.5	2,845.1	13.44	212.618	
3,400.0	3,306.6	3,327.4	3,326.6	12.5	1.6	98.02	-2,354.6	1,572.4	2,861.1	2,847.2	13.88	206.162	
3,444.9	3,347.4	3,375.5	3,374.7	12.9	1.6	98.42	-2,353.9	1,572.2	2,863.3	2,849.1	14.24	201.012	
3,500.0	3,397.6	3,434.8	3,434.0	13.3	1.6	98.90	-2,352.9	1,572.0	2,866.0	2,851.3	14.69	195.059	
3,543.3	3,436.9	3,481.5	3,480.7	13.7	1.6	99.27	-2,351.9	1,572.0	2,868.2	2,853.1	15.05	190.614	
3,600.0	3,488.5	3,538.3	3,537.5	14.1	1.6	99.73	-2,350.4	1,572.2	2,871.0	2,855.5	15.51	185.123	
3,641.7	3,526.5	3,578.7	3,577.9	14.5	1.6	100.05	-2,349.3	1,572.4	2,873.2	2,857.4	15.85	181.278	
3,700.0	3,579.5	3,628.6	3,627.8	15.0	1.6	100.44	-2,347.9	1,572.8	2,876.4	2,860.1	16.32	176.198	
3,740.1	3,616.0	3,660.2	3,659.3	15.3	1.7	100.69	-2,347.1	1,572.9	2,878.8	2,862.1	16.65	172.867	
3,800.0	3,670.5	3,707.8	3,706.9	15.8	1.7	101.07	-2,346.0	1,573.0	2,882.6	2,865.5	17.14	168.163	
3,838.6	3,705.6	3,741.1	3,740.2	16.1	1.7	101.33	-2,345.3	1,573.1	2,885.2	2,867.8	17.46	165.267	
3,900.0	3,761.4	3,794.0	3,793.2	16.6	1.7	101.75	-2,344.3	1,573.1	2,889.6	2,871.7	17.96	160.891	
3,937.0	3,795.1	3,823.8	3,822.9	16.9	1.7	101.99	-2,343.8	1,573.1	2,892.4	2,874.2	18.26	158.375	
4,000.0	3,852.4	3,873.5	3,872.6	17.4	1.7	102.39	-2,343.0	1,573.1	2,897.5	2,878.7	18.78	154.304	
4,035.4	3,884.6	3,901.7	3,900.8	17.7	1.7	102.61	-2,342.7	1,573.1	2,900.5	2,881.4	19.07	152.117	
4,100.0	3,943.4	3,959.9	3,959.0	18.3	1.7	103.07	-2,341.9	1,573.2	2,906.2	2,886.6	19.59	148.323	
4,133.8	3,974.2	3,990.3	3,989.4	18.6	1.7	103.31	-2,341.5	1,573.2	2,909.2	2,889.4	19.87	146.419	
4,200.0	4,034.4	4,048.2	4,047.3	19.1	1.7	103.77	-2,340.9	1,573.2	2,915.5	2,895.1	20.41	142.867	
4,232.3	4,063.7	4,076.3	4,075.4	19.4	1.7	103.99	-2,340.6	1,573.1	2,918.6	2,898.0	20.67	141.207	
4,300.0	4,125.3	4,142.0	4,141.1	19.9	1.8	104.51	-2,339.9	1,573.0	2,925.4	2,904.2	21.22	137.884	
4,330.7	4,153.3	4,174.0	4,173.1	20.2	1.8	104.77	-2,339.5	1,572.9	2,928.5	2,907.1	21.46	136.439	
4,400.0	4,216.3	4,235.5	4,234.6	20.8	1.8	105.25	-2,338.7	1,572.8	2,935.7	2,913.7	22.02	133.308	
4,429.1	4,242.8	4,258.7	4,257.8	21.0	1.8	105.43	-2,338.5	1,572.7	2,938.8	2,916.5	22.26	132.044	
4,500.0	4,307.3	4,315.0	4,314.1	21.6	1.8	105.88	-2,338.0	1,572.3	2,946.7	2,923.9	22.82	129.103	
4,527.5	4,332.3	4,336.7	4,335.8	21.9	1.8	106.05	-2,337.8	1,572.2	2,949.9	2,926.9	23.04	128.008	
4,600.0	4,398.2	4,400.0	4,399.1	22.5	1.8	106.55	-2,337.6	1,571.7	2,958.7	2,935.0	23.62	125.261	
4,626.0	4,421.9	4,414.4	4,413.5	22.7	1.8	106.66	-2,337.6	1,571.6	2,961.9	2,938.1	23.83	124.308	
4,700.0	4,489.2	4,473.9	4,472.9	23.3	1.9	107.13	-2,337.5	1,571.3	2,971.5	2,947.1	24.41	121.741	
4,724.4	4,511.4	4,493.5	4,492.5	23.5	1.9	107.28	-2,337.6	1,571.2	2,974.7	2,950.1	24.60	120.928	
4,800.0	4,580.2	4,541.0	4,540.1	24.2	1.9	107.65	-2,337.8	1,571.0	2,985.3	2,960.1	25.19	118.510	
4,822.8	4,601.0	4,554.9	4,553.9	24.4	1.9	107.76	-2,337.9	1,570.9	2,988.6	2,963.3	25.37	117.809	
4,900.0	4,671.2	4,602.6	4,601.6	25.0	1.9	108.13	-2,338.6	1,570.9	3,000.5	2,974.5	25.97	115.543	
4,921.2	4,690.5	4,622.8	4,621.8	25.2	1.9	108.28	-2,338.9	1,570.9	3,003.9	2,977.8	26.13	114.965	
5,000.0	4,762.1	4,697.6	4,696.7	25.9	1.9	108.85	-2,340.1	1,571.0	3,016.6	2,989.9	26.72	112.903	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN MCCARTY 30-43 - Wellbore #1 - Wellbor — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,717.6	4,716.6	26.0	1.9	109.00	-2,340.4	1,571.1	3,019.8	2,993.0	26.86	112.411	
5,100.0	4,853.1	4,799.5	4,798.5	26.7	1.9	109.62	-2,341.6	1,571.0	3,033.0	3,005.5	27.45	110.473	
5,118.1	4,869.6	4,816.7	4,815.7	26.9	1.9	109.75	-2,341.8	1,571.0	3,036.0	3,008.4	27.59	110.045	
5,200.0	4,944.1	4,894.3	4,893.3	27.6	1.9	110.34	-2,342.7	1,570.6	3,049.6	3,021.4	28.19	108.174	
5,216.5	4,959.1	4,909.9	4,909.0	27.7	1.9	110.46	-2,342.9	1,570.6	3,052.4	3,024.1	28.31	107.808	
5,300.0	5,035.0	4,989.2	4,988.2	28.4	1.9	111.05	-2,343.8	1,570.1	3,066.6	3,037.7	28.92	106.020	
5,314.9	5,048.6	5,003.4	5,002.4	28.6	1.9	111.16	-2,343.9	1,570.0	3,069.2	3,040.2	29.03	105.710	
5,400.0	5,126.0	5,084.8	5,083.8	29.3	1.9	111.76	-2,344.7	1,569.5	3,084.0	3,054.3	29.65	104.004	
5,413.4	5,138.2	5,097.6	5,096.6	29.4	1.9	111.86	-2,344.8	1,569.5	3,086.3	3,056.6	29.75	103.744	
5,479.4	5,198.3	5,163.8	5,162.8	30.0	1.9	112.35	-2,345.3	1,569.1	3,098.0	3,067.7	30.22	102.500	
5,500.0	5,217.0	5,184.6	5,183.6	30.1	1.9	112.56	-2,345.4	1,569.0	3,101.6	3,071.2	30.34	102.228	
5,511.8	5,227.8	5,196.5	5,195.5	30.2	1.9	112.69	-2,345.5	1,569.0	3,103.6	3,073.2	30.39	102.117	
5,600.0	5,309.0	5,275.1	5,274.1	30.8	1.9	113.50	-2,345.9	1,568.6	3,118.6	3,087.8	30.80	101.254	
5,610.2	5,318.5	5,284.2	5,283.2	30.8	1.9	113.59	-2,346.0	1,568.6	3,120.3	3,089.4	30.84	101.169	
5,700.0	5,402.3	5,366.9	5,365.9	31.4	2.0	114.37	-2,346.5	1,568.3	3,134.7	3,103.5	31.21	100.433	
5,708.6	5,410.4	5,375.0	5,374.0	31.4	2.0	114.44	-2,346.6	1,568.3	3,136.0	3,104.8	31.24	100.374	
5,800.0	5,496.7	5,470.8	5,469.8	31.9	2.0	115.21	-2,347.0	1,568.1	3,149.6	3,118.0	31.57	99.770	
5,807.1	5,503.5	5,478.6	5,477.6	31.9	2.0	115.27	-2,347.0	1,568.1	3,150.6	3,119.0	31.59	99.733	
5,900.0	5,592.3	5,580.5	5,579.6	32.4	2.0	115.99	-2,347.1	1,568.1	3,162.8	3,130.9	31.88	99.222	
5,905.5	5,597.6	5,586.6	5,585.6	32.4	2.0	116.03	-2,347.1	1,568.1	3,163.5	3,131.6	31.89	99.198	
6,000.0	5,688.8	5,666.4	5,665.4	32.9	2.0	116.57	-2,347.0	1,568.0	3,174.6	3,142.5	32.16	98.700	
6,003.9	5,692.6	5,669.6	5,668.6	32.9	2.0	116.59	-2,347.0	1,568.0	3,175.1	3,142.9	32.17	98.684	
6,100.0	5,786.2	5,750.0	5,749.0	33.3	2.0	117.08	-2,347.4	1,567.5	3,185.5	3,153.1	32.42	98.272	
6,102.3	5,788.5	5,752.1	5,751.1	33.3	2.0	117.09	-2,347.4	1,567.5	3,185.7	3,153.3	32.42	98.265	
6,200.0	5,884.3	5,844.0	5,843.0	33.6	2.0	117.55	-2,348.1	1,567.1	3,195.2	3,162.6	32.62	97.948	
6,200.8	5,885.1	5,844.8	5,843.8	33.6	2.0	117.56	-2,348.1	1,567.1	3,195.3	3,162.7	32.62	97.947	
6,299.2	5,982.3	5,950.0	5,949.0	33.9	2.0	117.96	-2,348.8	1,567.1	3,203.2	3,170.5	32.79	97.696	
6,300.0	5,983.1	5,950.8	5,949.8	33.9	2.0	117.97	-2,348.8	1,567.1	3,203.3	3,170.5	32.79	97.694	
6,397.6	6,079.9	6,053.9	6,052.9	34.1	2.0	118.27	-2,349.1	1,567.5	3,209.4	3,176.5	32.93	97.463	
6,400.0	6,082.3	6,056.3	6,055.3	34.1	2.0	118.28	-2,349.1	1,567.6	3,209.5	3,176.6	32.93	97.456	
6,496.0	6,177.9	6,155.1	6,154.1	34.3	2.0	118.48	-2,349.3	1,568.4	3,213.9	3,180.8	33.05	97.234	
6,500.0	6,181.9	6,159.2	6,158.2	34.3	2.0	118.48	-2,349.3	1,568.5	3,214.0	3,181.0	33.06	97.222	
6,594.5	6,276.2	6,252.2	6,251.1	34.5	2.0	118.59	-2,349.4	1,569.6	3,216.7	3,183.5	33.16	97.012	
6,600.0	6,281.7	6,257.4	6,256.4	34.5	2.0	118.60	-2,349.4	1,569.6	3,216.8	3,183.6	33.16	96.996	
6,692.9	6,374.6	6,356.9	6,355.8	34.6	2.0	118.62	-2,349.5	1,571.3	3,217.9	3,184.7	33.24	96.799	
6,706.1	6,387.8	6,372.4	6,371.4	34.6	2.0	176.83	-2,349.5	1,571.6	3,217.9	3,184.7	33.26	96.760	
6,736.1	6,417.8	6,407.5	6,406.4	34.6	2.0	176.82	-2,349.4	1,572.4	3,217.9	3,184.6	33.29	96.661	
6,750.0	6,431.7	6,423.2	6,422.1	34.6	2.0	-3.19	-2,349.4	1,572.8	3,217.7	3,184.4	33.28	96.685	
6,791.3	6,473.0	6,469.8	6,468.8	34.6	2.0	-3.23	-2,349.1	1,574.1	3,215.6	3,182.4	33.24	96.741	
6,800.0	6,481.6	6,479.6	6,478.5	34.6	2.0	-3.24	-2,349.1	1,574.4	3,214.8	3,181.6	33.23	96.747	
6,850.0	6,531.2	6,523.2	6,522.1	34.6	2.0	-3.29	-2,348.8	1,575.7	3,208.4	3,175.3	33.14	96.805	
6,889.7	6,570.3	6,551.9	6,550.8	34.6	2.0	-3.35	-2,348.7	1,576.5	3,201.0	3,168.0	33.03	96.910	
6,900.0	6,580.3	6,559.3	6,558.2	34.6	2.0	-3.36	-2,348.7	1,576.6	3,198.8	3,165.8	33.00	96.947	
6,950.0	6,628.5	6,600.0	6,598.9	34.6	2.0	-3.45	-2,348.8	1,577.4	3,185.9	3,153.2	32.77	97.223	
6,988.2	6,664.7	6,621.6	6,620.5	34.5	2.0	-3.53	-2,349.0	1,577.7	3,174.0	3,141.5	32.53	97.586	
7,000.0	6,675.8	6,629.8	6,628.7	34.5	2.0	-3.56	-2,349.0	1,577.8	3,169.9	3,137.5	32.44	97.720	
7,050.0	6,721.8	6,663.8	6,662.7	34.4	2.0	-3.68	-2,349.4	1,578.1	3,150.9	3,118.8	32.01	98.435	
7,086.6	6,754.5	6,700.0	6,698.9	34.3	1.9	-3.80	-2,349.9	1,578.2	3,135.0	3,103.4	31.64	99.085	
7,100.0	6,766.2	6,700.0	6,698.9	34.2	1.9	-3.84	-2,349.9	1,578.2	3,128.8	3,097.3	31.48	99.389	
7,150.0	6,809.0	6,754.3	6,753.2	34.1	2.0	-4.03	-2,350.7	1,578.0	3,103.6	3,072.8	30.87	100.535	
7,185.0	6,837.9	6,794.6	6,793.5	34.0	2.0	-4.19	-2,351.2	1,577.6	3,084.1	3,053.7	30.39	101.477	
7,200.0	6,849.9	6,807.7	6,806.5	33.9	2.0	-4.26	-2,351.3	1,577.4	3,075.3	3,045.2	30.17	101.929	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN MCCARTY 30-43 - Wellbore #1 - Wellbor — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	6,844.1	6,842.9	33.8	2.0	-4.54	-2,351.6	1,576.8	3,044.2	3,014.8	29.37	103.642	
7,283.4	6,913.4	6,867.3	6,866.1	33.6	2.0	-4.75	-2,351.9	1,576.4	3,021.9	2,993.1	28.80	104.943	
7,300.0	6,925.2	6,878.4	6,877.3	33.6	2.0	-4.87	-2,352.0	1,576.2	3,010.4	2,981.9	28.50	105.629	
7,350.0	6,959.2	6,911.0	6,909.8	33.4	2.0	-5.29	-2,352.4	1,575.7	2,974.2	2,946.7	27.57	107.871	
7,381.9	6,979.6	6,931.0	6,929.8	33.3	2.0	-5.60	-2,352.6	1,575.3	2,949.9	2,923.0	26.96	109.411	
7,400.0	6,990.6	6,941.9	6,940.7	33.2	2.0	-5.81	-2,352.7	1,575.1	2,935.7	2,909.1	26.61	110.317	
7,450.0	7,019.2	6,970.2	6,969.0	33.0	2.0	-6.47	-2,353.1	1,574.7	2,895.1	2,869.5	25.65	112.880	
7,480.3	7,035.1	6,985.9	6,984.8	32.8	2.0	-6.97	-2,353.3	1,574.5	2,869.6	2,844.5	25.08	114.424	
7,500.0	7,044.9	6,995.6	6,994.4	32.8	2.0	-7.34	-2,353.4	1,574.4	2,852.6	2,827.9	24.72	115.396	
7,550.0	7,067.5	7,017.9	7,016.7	32.6	2.0	-8.49	-2,353.7	1,574.1	2,808.4	2,784.5	23.88	117.590	
7,578.7	7,079.1	7,029.3	7,028.1	32.4	2.0	-9.34	-2,353.8	1,574.0	2,782.3	2,758.8	23.47	118.545	
7,600.0	7,086.9	7,037.1	7,035.9	32.3	2.0	-10.08	-2,353.9	1,573.9	2,762.6	2,739.4	23.21	119.033	
7,650.0	7,103.1	7,053.2	7,052.0	32.1	2.0	-12.40	-2,354.1	1,573.8	2,715.6	2,692.8	22.80	119.106	
7,677.1	7,110.5	7,060.6	7,059.4	32.0	2.0	-14.15	-2,354.2	1,573.7	2,689.7	2,666.9	22.74	118.296	
7,700.0	7,116.0	7,066.1	7,064.9	32.0	2.0	-16.04	-2,354.3	1,573.6	2,667.6	2,644.8	22.80	117.024	
7,750.0	7,125.4	7,075.8	7,074.6	31.8	2.0	-22.41	-2,354.4	1,573.5	2,618.7	2,595.4	23.38	111.990	
7,775.6	7,128.9	7,079.5	7,078.3	31.7	2.0	-27.83	-2,354.5	1,573.5	2,593.5	2,569.5	23.98	108.175	
7,800.0	7,131.4	7,082.2	7,081.0	31.6	2.0	-35.65	-2,354.5	1,573.5	2,569.3	2,544.6	24.68	104.124	
7,850.0	7,133.9	7,085.3	7,084.1	31.5	2.0	-68.51	-2,354.5	1,573.4	2,519.5	2,495.4	24.18	104.217	
7,866.5	7,134.0	7,085.5	7,084.4	31.4	2.0	-85.90	-2,354.5	1,573.4	2,503.1	2,481.0	22.11	113.199	
7,874.0	7,133.9	7,085.6	7,084.4	31.4	2.0	-85.91	-2,354.5	1,573.4	2,495.6	2,473.5	22.11	112.850	
7,900.0	7,133.7	7,085.7	7,084.5	31.4	2.0	-85.96	-2,354.5	1,573.4	2,469.7	2,447.6	22.12	111.649	
7,972.4	7,133.2	7,086.1	7,085.0	31.2	2.0	-86.09	-2,354.5	1,573.4	2,397.5	2,375.2	22.22	107.879	
8,000.0	7,133.0	7,086.3	7,085.1	31.2	2.0	-86.14	-2,354.5	1,573.4	2,370.0	2,347.7	22.26	106.454	
8,070.8	7,132.4	7,086.7	7,085.5	31.1	2.0	-86.27	-2,354.6	1,573.4	2,299.3	2,276.8	22.49	102.241	
8,100.0	7,132.2	7,086.9	7,085.7	31.1	2.0	-86.32	-2,354.6	1,573.4	2,270.3	2,247.7	22.58	100.534	
8,169.3	7,131.7	7,087.3	7,086.1	31.1	2.0	-86.44	-2,354.6	1,573.4	2,201.2	2,178.3	22.92	96.039	
8,200.0	7,131.5	7,087.4	7,086.2	31.1	2.0	-86.50	-2,354.6	1,573.4	2,170.6	2,147.5	23.07	94.087	
8,267.7	7,131.0	7,087.8	7,086.6	31.2	2.0	-86.62	-2,354.6	1,573.4	2,103.1	2,079.6	23.51	89.469	
8,300.0	7,130.7	7,088.0	7,086.8	31.2	2.0	-86.68	-2,354.6	1,573.4	2,071.0	2,047.2	23.72	87.326	
8,366.1	7,130.2	7,088.4	7,087.2	31.4	2.0	-86.80	-2,354.6	1,573.4	2,005.1	1,980.8	24.24	82.729	
8,400.0	7,130.0	7,088.6	7,087.4	31.5	2.0	-86.86	-2,354.6	1,573.4	1,971.3	1,946.8	24.50	80.450	
8,464.5	7,129.5	7,088.9	7,087.8	31.7	2.0	-86.98	-2,354.6	1,573.4	1,907.1	1,882.0	25.10	75.989	
8,500.0	7,129.2	7,089.1	7,088.0	31.9	2.0	-87.04	-2,354.6	1,573.4	1,871.8	1,846.4	25.42	73.628	
8,563.0	7,128.7	7,089.5	7,088.3	32.2	2.0	-87.16	-2,354.6	1,573.4	1,809.1	1,783.0	26.07	69.388	
8,600.0	7,128.5	7,089.7	7,088.5	32.4	2.0	-87.22	-2,354.6	1,573.4	1,772.3	1,745.8	26.45	66.992	
8,661.4	7,128.0	7,090.1	7,088.9	32.8	2.0	-87.34	-2,354.6	1,573.4	1,711.2	1,684.1	27.15	63.026	
8,700.0	7,127.7	7,090.3	7,089.1	33.1	2.0	-87.41	-2,354.6	1,573.4	1,672.8	1,645.2	27.59	60.635	
8,759.8	7,127.3	7,090.6	7,089.4	33.5	2.0	-87.52	-2,354.6	1,573.4	1,613.4	1,585.0	28.32	56.970	
8,800.0	7,127.0	7,090.9	7,089.7	33.9	2.0	-87.59	-2,354.6	1,573.4	1,573.4	1,544.6	28.81	54.614	
8,858.2	7,126.5	7,091.2	7,090.0	34.4	2.0	-87.70	-2,354.6	1,573.4	1,515.6	1,486.0	29.57	51.260	
8,900.0	7,126.2	7,091.4	7,090.3	34.8	2.0	-87.77	-2,354.6	1,573.4	1,474.1	1,444.0	30.11	48.961	
8,956.7	7,125.8	7,091.8	7,090.6	35.4	2.0	-87.88	-2,354.6	1,573.4	1,417.9	1,387.0	30.88	45.914	
9,000.0	7,125.5	7,092.0	7,090.8	35.8	2.0	-87.96	-2,354.6	1,573.4	1,374.9	1,343.5	31.47	43.686	
9,055.1	7,125.1	7,092.3	7,091.2	36.5	2.0	-88.06	-2,354.6	1,573.4	1,320.3	1,288.1	32.26	40.932	
9,100.0	7,124.7	7,092.6	7,091.4	37.0	2.0	-88.14	-2,354.6	1,573.4	1,275.9	1,243.0	32.90	38.785	
9,153.5	7,124.3	7,092.9	7,091.7	37.6	2.0	-88.24	-2,354.6	1,573.4	1,222.9	1,189.2	33.68	36.305	
9,200.0	7,124.0	7,093.2	7,092.0	38.2	2.0	-88.33	-2,354.6	1,573.4	1,176.9	1,142.6	34.37	34.245	
9,251.9	7,123.6	7,093.5	7,092.3	38.8	2.0	-88.43	-2,354.6	1,573.4	1,125.6	1,090.5	35.16	32.018	
9,300.0	7,123.2	7,093.8	7,092.6	39.5	2.0	-88.52	-2,354.6	1,573.3	1,078.2	1,042.3	35.88	30.047	
9,350.4	7,122.8	7,094.1	7,092.9	40.1	2.0	-88.61	-2,354.7	1,573.3	1,028.6	991.9	36.67	28.052	
9,400.0	7,122.5	7,094.4	7,093.2	40.8	2.0	-88.70	-2,354.7	1,573.3	979.8	942.3	37.44	26.170	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN MCCARTY 30-43 - Wellbore #1 - Wellbor — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	7,094.6	7,093.5	41.5	2.0	-88.79	-2,354.7	1,573.3	931.8	893.6	38.21	24.385	
9,500.0	7,121.7	7,094.9	7,093.8	42.2	2.0	-88.89	-2,354.7	1,573.3	881.7	842.6	39.03	22.591	
9,547.2	7,121.4	7,095.2	7,094.0	42.9	2.0	-88.98	-2,354.7	1,573.3	835.5	795.7	39.79	20.997	
9,600.0	7,121.0	7,095.5	7,094.4	43.7	2.0	-89.08	-2,354.7	1,573.3	784.0	743.4	40.64	19.290	
9,645.6	7,120.6	7,095.8	7,094.6	44.3	2.0	-89.16	-2,354.7	1,573.3	739.7	698.3	41.39	17.869	
9,700.0	7,120.2	7,096.1	7,094.9	45.1	2.0	-89.27	-2,354.7	1,573.3	687.1	644.8	42.28	16.248	
9,744.1	7,119.9	7,096.4	7,095.2	45.8	2.0	-89.35	-2,354.7	1,573.3	644.6	601.6	43.02	14.985	
9,800.0	7,119.5	7,096.7	7,095.5	46.6	2.0	-89.46	-2,354.7	1,573.3	591.1	547.2	43.95	13.450	
9,842.5	7,119.1	7,097.0	7,095.8	47.3	2.0	-89.54	-2,354.7	1,573.3	550.8	506.1	44.67	12.331	
9,900.0	7,118.7	7,097.3	7,096.1	48.2	2.0	-89.65	-2,354.7	1,573.3	496.8	451.1	45.63	10.886	
9,940.9	7,118.4	7,097.6	7,096.4	48.8	2.0	-89.72	-2,354.7	1,573.3	458.9	412.5	46.33	9.904	
10,000.0	7,118.0	7,097.9	7,096.7	49.8	2.0	-89.84	-2,354.7	1,573.3	405.2	357.8	47.34	8.559	
10,039.3	7,117.7	7,098.1	7,097.0	50.4	2.0	-89.91	-2,354.7	1,573.3	370.3	322.3	48.01	7.713	
10,100.0	7,117.2	7,098.5	7,097.3	51.4	2.0	-90.03	-2,354.7	1,573.3	318.6	269.6	49.05	6.495	
10,137.8	7,116.9	7,098.7	7,097.5	52.0	2.0	-90.10	-2,354.7	1,573.3	288.2	238.5	49.71	5.798	
10,200.0	7,116.5	7,099.1	7,097.9	53.0	2.0	-90.22	-2,354.7	1,573.3	242.7	191.9	50.79	4.778	
10,236.2	7,116.2	7,099.3	7,098.1	53.6	2.0	-90.29	-2,354.7	1,573.3	220.0	168.5	51.42	4.278	
10,300.0	7,115.7	7,099.7	7,098.5	54.6	2.0	-90.41	-2,354.7	1,573.3	190.4	137.9	52.53	3.624	
10,334.6	7,115.5	7,100.0	7,098.8	55.2	2.0	-90.50	-2,354.7	1,573.3	181.9	128.7	53.14	3.422	
10,363.2	7,115.2	7,100.0	7,098.8	55.7	2.0	-90.50	-2,354.7	1,573.3	179.6	126.0	53.64	3.348	CC, ES, SF
10,400.0	7,115.0	7,100.0	7,098.8	56.3	2.0	-90.50	-2,354.7	1,573.3	183.3	129.0	54.30	3.377	
10,433.0	7,114.7	7,100.0	7,098.8	56.8	2.0	-90.50	-2,354.7	1,573.3	192.7	137.8	54.89	3.511	
10,500.0	7,114.2	7,100.9	7,099.7	58.0	2.0	-90.79	-2,354.7	1,573.3	225.8	169.7	56.05	4.028	
10,531.5	7,114.0	7,101.1	7,099.9	58.5	2.0	-90.85	-2,354.7	1,573.3	246.1	189.5	56.61	4.348	
10,600.0	7,113.5	7,101.5	7,100.3	59.7	2.0	-90.98	-2,354.8	1,573.3	297.2	239.4	57.83	5.140	
10,629.9	7,113.2	7,101.7	7,100.5	60.2	2.0	-91.03	-2,354.8	1,573.3	321.5	263.2	58.36	5.510	
10,700.0	7,112.7	7,102.1	7,100.9	61.4	2.0	-91.16	-2,354.8	1,573.3	381.7	322.1	59.61	6.403	
10,728.3	7,112.5	7,102.2	7,101.0	61.8	2.0	-91.22	-2,354.8	1,573.3	406.9	346.8	60.12	6.769	
10,800.0	7,112.0	7,102.7	7,101.5	63.1	2.0	-91.35	-2,354.8	1,573.3	472.3	410.9	61.40	7.692	
10,826.7	7,111.8	7,102.8	7,101.6	63.5	2.0	-91.40	-2,354.8	1,573.3	497.1	435.2	61.88	8.033	
10,900.0	7,111.2	7,103.2	7,102.0	64.8	2.0	-91.53	-2,354.8	1,573.3	566.1	502.9	63.20	8.957	
10,925.2	7,111.0	7,103.4	7,102.2	65.2	2.0	-91.57	-2,354.8	1,573.3	590.0	526.3	63.65	9.269	
11,000.0	7,110.5	7,103.8	7,102.6	66.5	2.0	-91.71	-2,354.8	1,573.3	661.6	596.6	65.00	10.179	
11,023.6	7,110.3	7,103.9	7,102.7	66.9	2.0	-91.75	-2,354.8	1,573.3	684.4	619.0	65.43	10.460	
11,100.0	7,109.7	7,104.3	7,103.2	68.3	2.0	-91.89	-2,354.8	1,573.3	758.4	691.6	66.81	11.351	
11,122.0	7,109.5	7,104.5	7,103.3	68.7	2.0	-91.93	-2,354.8	1,573.2	779.8	712.6	67.21	11.602	
11,200.0	7,109.0	7,104.9	7,103.7	70.0	2.0	-92.07	-2,354.8	1,573.2	855.9	787.2	68.63	12.471	
11,220.4	7,108.8	7,105.0	7,103.8	70.4	2.0	-92.10	-2,354.8	1,573.2	875.9	806.9	69.00	12.694	
11,300.0	7,108.2	7,105.5	7,104.3	71.8	2.0	-92.24	-2,354.8	1,573.2	953.9	883.4	70.45	13.540	
11,318.9	7,108.1	7,105.6	7,104.4	72.1	2.0	-92.27	-2,354.8	1,573.2	972.4	901.6	70.79	13.736	
11,400.0	7,107.5	7,106.0	7,104.8	73.6	2.0	-92.41	-2,354.8	1,573.2	1,052.2	980.0	72.27	14.560	
11,417.3	7,107.3	7,106.1	7,104.9	73.9	2.0	-92.44	-2,354.8	1,573.2	1,069.3	996.7	72.59	14.731	
11,500.0	7,106.7	7,106.5	7,105.3	75.3	2.0	-92.59	-2,354.8	1,573.2	1,150.9	1,076.8	74.10	15.532	
11,515.7	7,106.6	7,106.6	7,105.4	75.6	2.0	-92.61	-2,354.8	1,573.2	1,166.4	1,092.0	74.38	15.681	
11,600.0	7,106.0	7,107.1	7,105.9	77.1	2.0	-92.76	-2,354.8	1,573.2	1,249.8	1,173.8	75.93	16.460	
11,614.1	7,105.9	7,107.1	7,106.0	77.4	2.0	-92.78	-2,354.8	1,573.2	1,263.8	1,187.6	76.19	16.588	
11,700.0	7,105.2	7,107.6	7,106.4	78.9	2.0	-92.92	-2,354.8	1,573.2	1,348.8	1,271.0	77.76	17.346	
11,712.6	7,105.1	7,107.7	7,106.5	79.2	2.0	-92.94	-2,354.8	1,573.2	1,361.3	1,283.3	77.99	17.454	
11,800.0	7,104.5	7,108.1	7,106.9	80.7	2.0	-93.09	-2,354.8	1,573.2	1,448.0	1,368.4	79.60	18.191	
11,811.0	7,104.4	7,108.2	7,107.0	80.9	2.0	-93.11	-2,354.8	1,573.2	1,458.9	1,379.1	79.80	18.282	
11,860.2	7,104.0	7,108.4	7,107.2	81.8	2.0	-93.19	-2,354.8	1,573.2	1,507.8	1,427.1	80.70	18.683	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - Wellbore — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	121.95	-1,014.9	1,627.3	1,918.4				
98.4	98.4	54.5	54.5	0.1	0.0	121.95	-1,014.8	1,627.4	1,917.9	1,917.8	0.12	N/A	
100.0	100.0	56.1	56.1	0.1	0.0	121.95	-1,014.8	1,627.4	1,917.9	1,917.8	0.12	N/A	
196.8	196.8	154.3	154.3	0.3	0.1	121.94	-1,014.5	1,627.6	1,917.9	1,917.4	0.45	4,284.330	
200.0	200.0	157.5	157.5	0.3	0.1	121.94	-1,014.5	1,627.6	1,917.9	1,917.4	0.46	4,171.451	
295.3	295.3	256.7	256.7	0.5	0.3	121.93	-1,014.2	1,627.6	1,917.7	1,916.9	0.78	2,452.795	
300.0	300.0	261.7	261.7	0.5	0.3	121.93	-1,014.2	1,627.5	1,917.7	1,916.9	0.80	2,408.761	
393.7	393.7	357.2	357.2	0.7	0.3	121.93	-1,013.9	1,627.3	1,917.3	1,916.3	1.07	1,796.886	
400.0	400.0	363.5	363.5	0.8	0.3	121.93	-1,013.9	1,627.2	1,917.3	1,916.2	1.08	1,767.695	
492.1	492.1	452.2	452.2	1.0	0.4	121.93	-1,014.0	1,626.9	1,917.0	1,915.7	1.34	1,433.468	
500.0	500.0	459.6	459.6	1.0	0.4	121.94	-1,014.0	1,626.8	1,917.0	1,915.6	1.36	1,410.867	
590.5	590.5	551.1	551.1	1.2	0.4	121.95	-1,014.2	1,626.5	1,916.9	1,915.3	1.61	1,193.320	
600.0	600.0	561.2	561.2	1.2	0.4	121.95	-1,014.2	1,626.5	1,916.8	1,915.2	1.63	1,174.317	
689.0	689.0	653.5	653.5	1.4	0.5	121.95	-1,014.3	1,626.1	1,916.5	1,914.6	1.88	1,020.991	
700.0	700.0	664.7	664.7	1.4	0.5	121.96	-1,014.3	1,626.0	1,916.4	1,914.5	1.91	1,004.720	
787.4	787.4	755.2	755.2	1.6	0.5	121.96	-1,014.2	1,625.5	1,916.0	1,913.8	2.15	892.463	
800.0	800.0	768.5	768.5	1.7	0.5	121.96	-1,014.1	1,625.5	1,915.9	1,913.7	2.18	878.353	
885.8	885.8	853.9	853.9	1.9	0.6	121.96	-1,013.9	1,624.9	1,915.3	1,912.9	2.41	794.174	
900.0	900.0	867.5	867.5	1.9	0.6	121.96	-1,013.8	1,624.9	1,915.2	1,912.8	2.45	781.910	
984.2	984.2	952.5	952.5	2.1	0.6	121.96	-1,013.6	1,624.4	1,914.7	1,912.1	2.67	716.079	
1,000.0	1,000.0	968.9	968.9	2.1	0.6	121.96	-1,013.5	1,624.3	1,914.6	1,911.9	2.72	704.967	
1,082.7	1,082.7	1,053.4	1,053.4	2.3	0.7	121.96	-1,013.2	1,623.8	1,914.0	1,911.1	2.94	652.127	
1,100.0	1,100.0	1,070.9	1,070.9	2.3	0.7	121.96	-1,013.1	1,623.7	1,913.9	1,910.9	2.98	642.072	
1,181.1	1,181.1	1,153.3	1,153.3	2.5	0.7	121.97	-1,012.8	1,623.1	1,913.2	1,910.0	3.19	598.992	
1,200.0	1,200.0	1,172.6	1,172.5	2.6	0.7	121.97	-1,012.8	1,622.9	1,913.1	1,909.8	3.24	589.786	
1,279.5	1,279.5	1,248.5	1,248.4	2.7	0.8	121.97	-1,012.5	1,622.4	1,912.4	1,909.0	3.45	554.381	
1,300.0	1,300.0	1,267.3	1,267.3	2.8	0.8	121.97	-1,012.4	1,622.3	1,912.3	1,908.8	3.50	546.005	
1,377.9	1,377.9	1,343.2	1,343.2	3.0	0.8	121.97	-1,012.3	1,621.9	1,911.9	1,908.2	3.70	516.484	
1,400.0	1,400.0	1,365.6	1,365.6	3.0	0.8	121.97	-1,012.2	1,621.8	1,911.8	1,908.1	3.76	508.739	
1,476.4	1,476.4	1,445.2	1,445.1	3.2	0.8	121.97	-1,011.9	1,621.5	1,911.4	1,907.4	3.95	483.509	
1,500.0	1,500.0	1,470.2	1,470.2	3.2	0.8	121.97	-1,011.8	1,621.3	1,911.2	1,907.2	4.01	476.172	
1,550.0	1,550.0	1,521.7	1,521.7	3.3	0.9	121.97	-1,011.7	1,621.0	1,910.8	1,906.7	4.14	461.301	
1,574.8	1,574.8	1,546.3	1,546.3	3.4	0.9	63.76	-1,011.6	1,620.8	1,910.6	1,906.3	4.26	448.007	
1,600.0	1,600.0	1,571.2	1,571.2	3.5	0.9	63.77	-1,011.5	1,620.6	1,910.2	1,905.9	4.33	441.186	
1,673.2	1,673.2	1,642.4	1,642.3	3.6	0.9	63.86	-1,011.3	1,620.1	1,908.7	1,904.2	4.51	422.887	
1,700.0	1,699.9	1,668.0	1,668.0	3.7	0.9	63.91	-1,011.2	1,619.9	1,907.9	1,903.4	4.58	416.567	
1,771.6	1,771.4	1,740.5	1,740.5	3.8	0.9	64.09	-1,011.2	1,619.4	1,905.5	1,900.7	4.76	400.069	
1,800.0	1,799.7	1,770.5	1,770.5	3.9	1.0	64.18	-1,011.2	1,619.1	1,904.2	1,899.4	4.84	393.802	
1,870.1	1,869.4	1,841.2	1,841.1	4.0	1.0	64.45	-1,011.2	1,618.5	1,900.6	1,895.6	5.02	378.698	
1,900.0	1,899.1	1,870.4	1,870.3	4.1	1.0	64.58	-1,011.1	1,618.2	1,898.9	1,893.8	5.10	372.496	
1,968.5	1,967.0	1,938.5	1,938.5	4.3	1.0	64.91	-1,011.0	1,617.7	1,894.4	1,889.1	5.29	358.381	
2,000.0	1,998.2	1,970.3	1,970.3	4.4	1.0	65.09	-1,010.9	1,617.4	1,892.1	1,886.7	5.37	352.117	
2,066.9	2,064.1	2,036.6	2,036.6	4.5	1.1	65.50	-1,010.9	1,616.7	1,886.7	1,881.2	5.57	338.675	
2,100.0	2,096.6	2,068.9	2,068.9	4.6	1.1	65.73	-1,010.9	1,616.4	1,883.9	1,878.2	5.67	332.282	
2,165.3	2,160.6	2,131.6	2,131.6	4.8	1.1	66.20	-1,010.8	1,615.8	1,877.9	1,872.0	5.88	319.330	
2,200.0	2,194.4	2,164.3	2,164.2	4.9	1.1	66.47	-1,010.8	1,615.5	1,874.5	1,868.5	5.99	312.725	
2,263.8	2,256.4	2,226.8	2,226.7	5.2	1.1	67.01	-1,010.6	1,615.1	1,867.9	1,861.7	6.23	300.038	
2,300.0	2,291.5	2,264.3	2,264.3	5.3	1.1	67.35	-1,010.5	1,614.8	1,864.0	1,857.6	6.36	293.034	
2,362.2	2,351.4	2,325.1	2,325.1	5.5	1.2	67.96	-1,010.1	1,614.3	1,856.8	1,850.2	6.62	280.552	
2,400.0	2,387.6	2,359.4	2,359.3	5.7	1.2	68.32	-1,010.0	1,614.1	1,852.3	1,845.5	6.78	273.391	
2,460.6	2,445.4	2,415.8	2,415.7	6.0	1.2	68.96	-1,009.8	1,613.6	1,844.8	1,837.7	7.06	261.398	
2,500.0	2,482.7	2,455.5	2,455.4	6.2	1.2	69.43	-1,009.7	1,613.3	1,839.8	1,832.5	7.25	253.864	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - Wellbore — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,513.1	2,513.0	6.5	1.2	70.15	-1,009.4	1,612.8	1,832.0	1,824.4	7.56	242.232	
2,600.0	2,576.6	2,549.6	2,549.5	6.7	1.2	70.64	-1,009.2	1,612.5	1,826.4	1,818.6	7.78	234.621	
2,657.5	2,630.1	2,600.6	2,600.5	7.0	1.3	71.35	-1,008.9	1,612.2	1,818.6	1,810.4	8.13	223.636	
2,700.0	2,669.4	2,640.2	2,640.2	7.3	1.3	71.92	-1,008.6	1,612.0	1,812.7	1,804.3	8.39	215.954	
2,755.9	2,720.6	2,691.9	2,691.9	7.6	1.3	72.70	-1,008.4	1,611.7	1,804.8	1,796.1	8.77	205.740	
2,776.7	2,739.5	2,710.3	2,710.2	7.8	1.3	72.99	-1,008.3	1,611.5	1,801.9	1,793.0	8.91	202.135	
2,800.0	2,760.8	2,730.2	2,730.1	7.9	1.3	73.25	-1,008.2	1,611.4	1,798.6	1,789.6	9.08	198.104	
2,854.3	2,810.2	2,776.6	2,776.5	8.3	1.3	73.84	-1,008.0	1,611.1	1,791.3	1,781.8	9.47	189.081	
2,900.0	2,851.7	2,817.0	2,816.9	8.7	1.3	74.37	-1,007.9	1,611.0	1,785.4	1,775.6	9.81	182.003	
2,952.7	2,899.7	2,866.0	2,866.0	9.1	1.3	75.00	-1,007.7	1,610.8	1,778.7	1,768.5	10.21	174.200	
3,000.0	2,942.7	2,909.5	2,909.4	9.4	1.4	75.57	-1,007.5	1,610.6	1,773.0	1,762.4	10.57	167.686	
3,051.2	2,989.3	2,954.7	2,954.6	9.8	1.4	76.16	-1,007.3	1,610.4	1,767.0	1,756.0	10.97	161.016	
3,100.0	3,033.7	2,997.8	2,997.7	10.2	1.4	76.73	-1,007.2	1,610.2	1,761.6	1,750.2	11.36	155.079	
3,149.6	3,078.8	3,042.2	3,042.1	10.5	1.4	77.32	-1,007.2	1,610.0	1,756.3	1,744.5	11.76	149.394	
3,200.0	3,124.6	3,087.3	3,087.2	10.9	1.4	77.93	-1,007.2	1,609.7	1,751.1	1,739.0	12.16	143.993	
3,248.0	3,168.3	3,130.4	3,130.3	11.3	1.4	78.52	-1,007.4	1,609.4	1,746.5	1,733.9	12.55	139.132	
3,300.0	3,215.6	3,177.1	3,177.0	11.7	1.4	79.16	-1,007.5	1,609.0	1,741.7	1,728.8	12.98	134.211	
3,346.4	3,257.9	3,220.1	3,220.1	12.1	1.5	79.75	-1,007.6	1,608.7	1,737.7	1,724.4	13.36	130.042	
3,400.0	3,306.6	3,271.4	3,271.4	12.5	1.5	80.46	-1,007.8	1,608.2	1,733.3	1,719.5	13.81	125.517	
3,444.9	3,347.4	3,314.2	3,314.2	12.9	1.5	81.05	-1,007.9	1,607.7	1,729.7	1,715.5	14.19	121.922	
3,500.0	3,397.6	3,366.5	3,366.4	13.3	1.5	81.78	-1,008.0	1,607.0	1,725.6	1,710.9	14.65	117.763	
3,543.3	3,436.9	3,407.0	3,406.9	13.7	1.5	82.35	-1,008.1	1,606.5	1,722.5	1,707.4	15.02	114.670	
3,600.0	3,488.5	3,457.0	3,456.9	14.1	1.5	83.06	-1,008.2	1,605.8	1,718.7	1,703.2	15.50	110.870	
3,641.7	3,526.5	3,493.8	3,493.6	14.5	1.6	83.58	-1,008.2	1,605.3	1,716.2	1,700.3	15.86	108.222	
3,700.0	3,579.5	3,545.1	3,545.0	15.0	1.6	84.31	-1,008.4	1,604.6	1,713.0	1,696.6	16.35	104.743	
3,740.1	3,616.0	3,580.5	3,580.4	15.3	1.6	84.81	-1,008.5	1,604.1	1,711.0	1,694.3	16.70	102.471	
3,800.0	3,670.5	3,631.5	3,631.4	15.8	1.6	85.53	-1,008.7	1,603.6	1,708.5	1,691.3	17.21	99.289	
3,838.6	3,705.6	3,663.8	3,663.7	16.1	1.6	85.99	-1,008.8	1,603.3	1,707.1	1,689.5	17.54	97.350	
3,900.0	3,761.4	3,717.0	3,716.8	16.6	1.6	86.75	-1,009.1	1,602.9	1,705.3	1,687.2	18.06	94.433	
3,937.0	3,795.1	3,751.5	3,751.3	16.9	1.6	87.24	-1,009.3	1,602.6	1,704.4	1,686.0	18.37	92.762	
4,000.0	3,852.4	3,809.3	3,809.2	17.4	1.6	88.06	-1,009.5	1,602.3	1,703.2	1,684.3	18.91	90.067	
4,035.4	3,884.6	3,839.3	3,839.2	17.7	1.6	88.48	-1,009.6	1,602.1	1,702.7	1,683.5	19.21	88.632	
4,100.0	3,943.4	3,893.8	3,893.6	18.3	1.7	89.26	-1,010.0	1,601.8	1,702.3	1,682.5	19.76	86.157	
4,121.4	3,962.8	3,913.3	3,913.1	18.5	1.7	89.54	-1,010.1	1,601.6	1,702.3	1,682.3	19.94	85.374	
4,133.8	3,974.2	3,925.1	3,925.0	18.6	1.7	89.71	-1,010.2	1,601.5	1,702.3	1,682.2	20.04	84.924	
4,200.0	4,034.4	3,988.0	3,987.8	19.1	1.7	90.61	-1,010.7	1,601.0	1,702.5	1,681.9	20.60	82.635	
4,232.3	4,063.7	4,016.3	4,016.2	19.4	1.7	91.01	-1,010.9	1,600.8	1,702.8	1,681.9	20.87	81.571	
4,300.0	4,125.3	4,072.5	4,072.4	19.9	1.7	91.82	-1,011.4	1,600.3	1,703.8	1,682.4	21.44	79.457	
4,330.7	4,153.3	4,100.0	4,099.9	20.2	1.7	92.21	-1,011.7	1,600.1	1,704.5	1,682.8	21.70	78.547	
4,400.0	4,216.3	4,161.2	4,161.0	20.8	1.7	93.10	-1,012.6	1,599.3	1,706.5	1,684.2	22.28	76.599	
4,429.1	4,242.8	4,187.8	4,187.6	21.0	1.7	93.48	-1,013.0	1,599.0	1,707.4	1,684.9	22.52	75.819	
4,500.0	4,307.3	4,249.4	4,249.2	21.6	1.7	94.38	-1,014.0	1,598.1	1,710.2	1,687.1	23.11	74.014	
4,527.5	4,332.3	4,273.0	4,272.8	21.9	1.8	94.72	-1,014.4	1,597.7	1,711.5	1,688.2	23.33	73.347	
4,600.0	4,398.2	4,340.9	4,340.7	22.5	1.8	95.70	-1,015.5	1,596.7	1,715.2	1,691.3	23.93	71.683	
4,626.0	4,421.9	4,366.9	4,366.7	22.7	1.8	96.08	-1,015.9	1,596.3	1,716.6	1,692.5	24.14	71.114	
4,700.0	4,489.2	4,437.7	4,437.5	23.3	1.8	97.10	-1,016.9	1,595.0	1,720.9	1,696.2	24.74	69.563	
4,724.4	4,511.4	4,460.2	4,460.0	23.5	1.8	97.43	-1,017.2	1,594.6	1,722.4	1,697.5	24.94	69.074	
4,800.0	4,580.2	4,530.1	4,529.9	24.2	1.8	98.43	-1,018.1	1,593.3	1,727.5	1,702.0	25.54	67.632	
4,822.8	4,601.0	4,551.3	4,551.1	24.4	1.8	98.73	-1,018.3	1,592.9	1,729.2	1,703.4	25.73	67.217	
4,900.0	4,671.2	4,622.3	4,622.0	25.0	1.9	99.75	-1,019.1	1,591.5	1,735.1	1,708.7	26.34	65.879	
4,921.2	4,690.5	4,641.5	4,641.2	25.2	1.9	100.02	-1,019.3	1,591.1	1,736.8	1,710.3	26.50	65.528	
5,000.0	4,762.1	4,711.9	4,711.6	25.9	1.9	101.02	-1,020.1	1,589.6	1,743.6	1,716.5	27.12	64.289	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - Wellbore — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,728.9	4,728.6	26.0	1.9	101.26	-1,020.3	1,589.3	1,745.4	1,718.2	27.27	63.994	
5,100.0	4,853.1	4,800.0	4,799.7	26.7	1.9	102.25	-1,021.0	1,588.3	1,753.3	1,725.4	27.90	62.852	
5,118.1	4,869.6	4,814.6	4,814.3	26.9	1.9	102.45	-1,021.2	1,588.1	1,755.2	1,727.2	28.04	62.605	
5,200.0	4,944.1	4,887.6	4,887.3	27.6	1.9	103.44	-1,022.0	1,587.3	1,764.1	1,735.5	28.66	61.555	
5,216.5	4,959.1	4,902.5	4,902.2	27.7	1.9	103.65	-1,022.1	1,587.1	1,766.0	1,737.2	28.78	61.354	
5,300.0	5,035.0	4,983.0	4,982.7	28.4	2.0	104.74	-1,022.9	1,586.2	1,775.9	1,746.5	29.40	60.395	
5,314.9	5,048.6	4,997.4	4,997.1	28.6	2.0	104.93	-1,023.0	1,586.0	1,777.7	1,748.2	29.51	60.231	
5,400.0	5,126.0	5,075.3	5,075.0	29.3	2.0	105.97	-1,023.6	1,585.2	1,788.3	1,758.2	30.14	59.334	
5,413.4	5,138.2	5,087.6	5,087.2	29.4	2.0	106.13	-1,023.6	1,585.1	1,790.0	1,759.8	30.24	59.200	
5,479.4	5,198.3	5,149.2	5,148.9	30.0	2.0	106.94	-1,024.0	1,584.6	1,798.8	1,768.1	30.71	58.565	
5,500.0	5,217.0	5,168.6	5,168.2	30.1	2.0	107.24	-1,024.1	1,584.5	1,801.6	1,770.7	30.84	58.425	
5,511.8	5,227.8	5,179.7	5,179.3	30.2	2.0	107.41	-1,024.1	1,584.4	1,803.2	1,772.3	30.89	58.371	
5,600.0	5,309.0	5,256.5	5,256.1	30.8	2.0	108.57	-1,024.5	1,583.8	1,814.9	1,783.6	31.31	57.962	
5,610.2	5,318.5	5,265.2	5,264.8	30.8	2.0	108.70	-1,024.6	1,583.7	1,816.3	1,784.9	31.36	57.925	
5,700.0	5,402.3	5,353.2	5,352.9	31.4	2.1	109.90	-1,025.2	1,582.7	1,828.1	1,796.4	31.72	57.630	
5,708.6	5,410.4	5,362.7	5,362.3	31.4	2.1	110.02	-1,025.3	1,582.6	1,829.2	1,797.5	31.75	57.610	
5,800.0	5,496.7	5,457.0	5,456.7	31.9	2.1	111.18	-1,025.5	1,581.1	1,840.2	1,808.1	32.07	57.375	
5,807.1	5,503.5	5,464.1	5,463.7	31.9	2.1	111.26	-1,025.5	1,581.0	1,841.0	1,808.9	32.09	57.361	
5,900.0	5,592.3	5,564.7	5,564.3	32.4	2.1	112.34	-1,025.2	1,579.8	1,851.0	1,818.7	32.38	57.174	
5,905.5	5,597.6	5,571.0	5,570.6	32.4	2.1	112.40	-1,025.2	1,579.7	1,851.6	1,819.2	32.39	57.167	
6,000.0	5,688.8	5,673.8	5,673.4	32.9	2.2	113.37	-1,024.1	1,578.0	1,860.2	1,827.6	32.63	57.001	
6,003.9	5,692.6	5,678.0	5,677.6	32.9	2.2	113.40	-1,024.1	1,577.9	1,860.5	1,827.9	32.64	56.996	
6,100.0	5,786.2	5,759.1	5,758.7	33.3	2.2	114.11	-1,023.2	1,576.1	1,868.2	1,835.3	32.88	56.826	
6,102.3	5,788.5	5,760.9	5,760.5	33.3	2.2	114.13	-1,023.2	1,576.1	1,868.3	1,835.5	32.88	56.823	
6,200.0	5,884.3	5,851.9	5,851.4	33.6	2.2	114.79	-1,022.8	1,574.7	1,875.7	1,842.6	33.07	56.713	
6,200.8	5,885.1	5,852.7	5,852.3	33.6	2.2	114.79	-1,022.8	1,574.7	1,875.8	1,842.7	33.08	56.712	
6,299.2	5,982.3	5,952.5	5,952.1	33.9	2.2	115.35	-1,022.1	1,574.4	1,881.7	1,848.5	33.24	56.612	
6,300.0	5,983.1	5,953.3	5,952.8	33.9	2.2	115.35	-1,022.1	1,574.4	1,881.8	1,848.5	33.24	56.611	
6,397.6	6,079.9	6,042.8	6,042.3	34.1	2.2	115.73	-1,021.6	1,574.7	1,886.4	1,853.1	33.38	56.515	
6,400.0	6,082.3	6,044.8	6,044.4	34.1	2.2	115.74	-1,021.5	1,574.7	1,886.5	1,853.2	33.38	56.512	
6,496.0	6,177.9	6,130.9	6,130.4	34.3	2.2	116.02	-1,021.5	1,574.6	1,890.3	1,856.8	33.49	56.443	
6,500.0	6,181.9	6,134.6	6,134.1	34.3	2.2	116.03	-1,021.5	1,574.6	1,890.4	1,856.9	33.50	56.438	
6,594.5	6,276.2	6,236.9	6,236.4	34.5	2.3	116.23	-1,021.8	1,574.4	1,893.0	1,859.4	33.58	56.377	
6,600.0	6,281.7	6,245.2	6,244.7	34.5	2.3	116.24	-1,021.8	1,574.4	1,893.1	1,859.5	33.58	56.371	
6,692.9	6,374.6	6,346.2	6,345.8	34.6	2.3	116.32	-1,020.8	1,574.0	1,893.0	1,859.4	33.65	56.258	
6,706.1	6,387.8	6,357.0	6,356.6	34.6	2.3	174.54	-1,020.8	1,573.9	1,892.9	1,859.3	33.66	56.236	
6,736.1	6,417.8	6,381.6	6,381.1	34.6	2.3	174.54	-1,020.7	1,573.8	1,892.8	1,859.1	33.69	56.183	
6,750.0	6,431.7	6,400.0	6,399.6	34.6	2.3	-5.46	-1,020.6	1,573.7	1,892.6	1,858.9	33.68	56.196	
6,791.3	6,473.0	6,431.1	6,430.7	34.6	2.3	-5.48	-1,020.6	1,573.6	1,890.5	1,856.9	33.63	56.210	
6,800.0	6,481.6	6,439.3	6,438.9	34.6	2.3	-5.48	-1,020.6	1,573.5	1,889.8	1,856.2	33.62	56.206	
6,850.0	6,531.2	6,486.6	6,486.2	34.6	2.3	-5.54	-1,020.6	1,573.3	1,883.6	1,850.1	33.54	56.163	
6,889.7	6,570.3	6,525.2	6,524.7	34.6	2.3	-5.62	-1,020.6	1,573.2	1,876.3	1,842.9	33.44	56.117	
6,900.0	6,580.3	6,535.2	6,534.8	34.6	2.3	-5.64	-1,020.7	1,573.1	1,874.1	1,840.7	33.40	56.104	
6,950.0	6,628.5	6,583.7	6,583.2	34.6	2.3	-5.78	-1,020.7	1,572.9	1,861.2	1,828.0	33.20	56.067	
6,988.2	6,664.7	6,619.0	6,618.6	34.5	2.4	-5.92	-1,020.8	1,572.8	1,849.0	1,816.1	32.98	56.073	
7,000.0	6,675.8	6,629.6	6,629.2	34.5	2.4	-5.96	-1,020.8	1,572.8	1,844.9	1,812.0	32.90	56.081	
7,050.0	6,721.8	6,673.6	6,673.1	34.4	2.4	-6.20	-1,020.9	1,572.6	1,825.5	1,793.0	32.50	56.164	
7,086.6	6,754.5	6,705.2	6,704.8	34.3	2.4	-6.41	-1,021.0	1,572.5	1,809.3	1,777.1	32.15	56.273	
7,100.0	6,766.2	6,717.2	6,716.7	34.2	2.4	-6.49	-1,021.0	1,572.4	1,802.9	1,770.9	32.01	56.321	
7,150.0	6,809.0	6,760.7	6,760.3	34.1	2.4	-6.86	-1,021.2	1,572.3	1,777.4	1,745.9	31.43	56.551	
7,185.0	6,837.9	6,790.0	6,789.6	34.0	2.4	-7.18	-1,021.2	1,572.3	1,757.7	1,726.7	30.97	56.757	
7,200.0	6,849.9	6,802.3	6,801.9	33.9	2.4	-7.32	-1,021.3	1,572.3	1,748.9	1,718.1	30.76	56.853	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - Wellbore — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	6,842.5	6,842.1	33.8	2.4	-7.89	-1,021.3	1,572.3	1,717.6	1,687.5	30.02	57.216	
7,283.4	6,913.4	6,868.1	6,867.6	33.6	2.4	-8.34	-1,021.4	1,572.2	1,695.1	1,665.7	29.49	57.488	
7,300.0	6,925.2	6,880.3	6,879.9	33.6	2.4	-8.59	-1,021.4	1,572.2	1,683.6	1,654.4	29.22	57.628	
7,350.0	6,959.2	6,914.9	6,914.4	33.4	2.4	-9.45	-1,021.4	1,572.2	1,647.2	1,618.9	28.37	58.063	
7,381.9	6,979.6	6,935.1	6,934.6	33.3	2.4	-10.10	-1,021.4	1,572.1	1,622.8	1,595.0	27.82	58.334	
7,400.0	6,990.6	6,946.0	6,945.6	33.2	2.4	-10.52	-1,021.5	1,572.1	1,608.6	1,581.1	27.51	58.476	
7,450.0	7,019.2	6,974.4	6,974.0	33.0	2.4	-11.89	-1,021.5	1,572.0	1,567.8	1,541.2	26.67	58.792	
7,480.3	7,035.1	6,990.3	6,989.8	32.8	2.4	-12.90	-1,021.5	1,571.9	1,542.2	1,516.1	26.19	58.891	
7,500.0	7,044.9	7,000.0	6,999.5	32.8	2.5	-13.66	-1,021.5	1,571.8	1,525.3	1,499.4	25.90	58.897	
7,550.0	7,067.5	7,021.4	7,020.9	32.6	2.5	-15.99	-1,021.6	1,571.7	1,481.0	1,455.8	25.25	58.645	
7,578.7	7,079.1	7,032.3	7,031.9	32.4	2.5	-17.70	-1,021.6	1,571.7	1,454.9	1,430.0	24.97	58.257	
7,600.0	7,086.9	7,039.8	7,039.4	32.3	2.5	-19.20	-1,021.6	1,571.6	1,435.3	1,410.5	24.82	57.823	
7,650.0	7,103.1	7,055.3	7,054.8	32.1	2.5	-23.76	-1,021.7	1,571.6	1,388.5	1,363.8	24.69	56.228	
7,677.1	7,110.5	7,062.4	7,061.9	32.0	2.5	-27.10	-1,021.7	1,571.6	1,362.6	1,337.8	24.77	55.000	
7,700.0	7,116.0	7,067.6	7,067.2	32.0	2.5	-30.58	-1,021.7	1,571.5	1,340.6	1,315.7	24.92	53.792	
7,750.0	7,125.4	7,076.8	7,076.3	31.8	2.5	-41.26	-1,021.7	1,571.5	1,292.0	1,266.6	25.37	50.922	
7,775.6	7,128.9	7,080.2	7,079.8	31.7	2.5	-49.01	-1,021.8	1,571.5	1,266.9	1,241.5	25.47	49.734	
7,800.0	7,131.4	7,082.7	7,082.2	31.6	2.5	-58.27	-1,021.8	1,571.5	1,242.9	1,217.7	25.23	49.271	
7,850.0	7,133.9	7,085.3	7,084.8	31.5	2.5	-82.52	-1,021.8	1,571.5	1,193.5	1,170.6	22.95	52.006	
7,866.5	7,134.0	7,085.4	7,085.0	31.4	2.5	-91.20	-1,021.8	1,571.5	1,177.2	1,155.2	22.01	53.489	
7,874.0	7,133.9	7,085.4	7,085.0	31.4	2.5	-91.20	-1,021.8	1,571.5	1,169.8	1,147.8	22.01	53.147	
7,900.0	7,133.7	7,085.3	7,084.9	31.4	2.5	-91.17	-1,021.8	1,571.5	1,144.1	1,122.1	22.01	51.969	
7,972.4	7,133.2	7,085.1	7,084.7	31.2	2.5	-91.11	-1,021.8	1,571.5	1,072.6	1,050.5	22.12	48.493	
8,000.0	7,133.0	7,085.1	7,084.6	31.2	2.5	-91.08	-1,021.8	1,571.5	1,045.4	1,023.3	22.16	47.179	
8,070.8	7,132.4	7,084.9	7,084.4	31.1	2.5	-91.02	-1,021.8	1,571.5	975.7	953.3	22.39	43.574	
8,100.0	7,132.2	7,084.8	7,084.3	31.1	2.5	-90.99	-1,021.8	1,571.5	947.0	924.5	22.49	42.114	
8,169.3	7,131.7	7,084.6	7,084.1	31.1	2.5	-90.93	-1,021.8	1,571.5	879.1	856.3	22.84	38.493	
8,200.0	7,131.5	7,084.5	7,084.0	31.1	2.5	-90.90	-1,021.8	1,571.5	849.0	826.0	22.99	36.926	
8,267.7	7,131.0	7,084.3	7,083.8	31.2	2.5	-90.84	-1,021.8	1,571.5	783.0	759.5	23.45	33.394	
8,300.0	7,130.7	7,084.2	7,083.8	31.2	2.5	-90.81	-1,021.8	1,571.5	751.5	727.9	23.66	31.761	
8,366.1	7,130.2	7,084.0	7,083.6	31.4	2.5	-90.75	-1,021.8	1,571.5	687.5	663.3	24.20	28.405	
8,400.0	7,130.0	7,083.9	7,083.5	31.5	2.5	-90.72	-1,021.8	1,571.5	654.8	630.3	24.48	26.749	
8,464.5	7,129.5	7,083.7	7,083.3	31.7	2.5	-90.66	-1,021.8	1,571.5	592.9	567.8	25.09	23.629	
8,500.0	7,129.2	7,083.6	7,083.2	31.9	2.5	-90.62	-1,021.8	1,571.5	559.2	533.8	25.43	21.990	
8,563.0	7,128.7	7,083.4	7,083.0	32.2	2.5	-90.56	-1,021.8	1,571.5	499.9	473.8	26.10	19.151	
8,600.0	7,128.5	7,083.3	7,082.9	32.4	2.5	-90.53	-1,021.8	1,571.5	465.5	439.0	26.50	17.567	
8,661.4	7,128.0	7,083.2	7,082.7	32.8	2.5	-90.47	-1,021.8	1,571.5	409.4	382.2	27.22	15.043	
8,700.0	7,127.7	7,083.0	7,082.6	33.1	2.5	-90.43	-1,021.8	1,571.5	375.0	347.4	27.67	13.554	
8,759.8	7,127.3	7,082.9	7,082.4	33.5	2.5	-90.38	-1,021.8	1,571.5	323.6	295.2	28.42	11.385	
8,800.0	7,127.0	7,082.7	7,082.3	33.9	2.5	-90.34	-1,021.8	1,571.5	290.9	261.9	28.93	10.055	
8,858.2	7,126.5	7,082.6	7,082.1	34.4	2.5	-90.28	-1,021.8	1,571.5	247.4	217.6	29.71	8.326	
8,900.0	7,126.2	7,082.5	7,082.0	34.8	2.5	-90.24	-1,021.8	1,571.5	220.4	190.1	30.26	7.282	
8,956.7	7,125.8	7,082.3	7,081.8	35.4	2.5	-90.19	-1,021.8	1,571.5	192.4	161.4	31.06	6.195	
9,000.0	7,125.5	7,082.2	7,081.7	35.8	2.5	-90.15	-1,021.8	1,571.5	180.4	148.7	31.67	5.696	
9,030.2	7,125.2	7,082.1	7,081.6	36.2	2.5	-90.12	-1,021.8	1,571.5	177.8	145.7	32.11	5.538	CC, ES
9,055.1	7,125.1	7,082.0	7,081.5	36.5	2.5	-90.09	-1,021.8	1,571.5	179.5	147.1	32.47	5.530	SF
9,100.0	7,124.7	7,081.8	7,081.4	37.0	2.5	-90.05	-1,021.8	1,571.5	191.0	157.9	33.13	5.767	
9,153.5	7,124.3	7,081.7	7,081.2	37.6	2.5	-90.00	-1,021.8	1,571.5	216.4	182.5	33.93	6.377	
9,200.0	7,124.0	7,081.5	7,081.1	38.2	2.5	-89.95	-1,021.8	1,571.5	245.9	211.2	34.63	7.099	
9,251.9	7,123.6	7,081.4	7,080.9	38.8	2.5	-89.90	-1,021.8	1,571.5	284.2	248.8	35.44	8.020	
9,300.0	7,123.2	7,081.2	7,080.8	39.5	2.5	-89.85	-1,021.8	1,571.5	323.1	286.9	36.19	8.930	
9,350.4	7,122.8	7,081.1	7,080.6	40.1	2.5	-89.80	-1,021.8	1,571.5	366.2	329.3	36.99	9.902	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT BROWN-MCCARTY 30-5 - Wellbore #1 - Wellbore — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,400.0	7,122.5	7,080.9	7,080.5	40.8	2.5	-89.75	-1,021.8	1,571.5	410.3	372.6	37.77	10.863	
9,448.8	7,122.1	7,080.8	7,080.3	41.5	2.5	-89.71	-1,021.8	1,571.5	454.8	416.2	38.57	11.793	
9,500.0	7,121.7	7,080.6	7,080.2	42.2	2.5	-89.65	-1,021.8	1,571.5	502.3	462.9	39.40	12.751	
9,547.2	7,121.4	7,080.5	7,080.0	42.9	2.5	-89.61	-1,021.8	1,571.5	546.7	506.6	40.17	13.609	
9,600.0	7,121.0	7,080.3	7,079.9	43.7	2.5	-89.55	-1,021.8	1,571.5	596.9	555.9	41.04	14.543	
9,645.6	7,120.6	7,080.2	7,079.7	44.3	2.5	-89.51	-1,021.8	1,571.5	640.6	598.8	41.81	15.323	
9,700.0	7,120.2	7,080.0	7,079.5	45.1	2.5	-89.45	-1,021.8	1,571.5	693.0	650.3	42.72	16.222	
9,744.1	7,119.9	7,079.9	7,079.4	45.8	2.5	-89.41	-1,021.8	1,571.5	735.7	692.2	43.47	16.926	
9,800.0	7,119.5	7,079.7	7,079.2	46.6	2.5	-89.35	-1,021.8	1,571.5	790.1	745.7	44.41	17.789	
9,842.5	7,119.1	7,079.5	7,079.1	47.3	2.5	-89.31	-1,021.8	1,571.5	831.5	786.4	45.14	18.420	
9,900.0	7,118.7	7,079.4	7,078.9	48.2	2.5	-89.25	-1,021.8	1,571.5	887.8	841.7	46.13	19.246	
9,940.9	7,118.4	7,079.2	7,078.8	48.8	2.5	-89.20	-1,021.8	1,571.5	927.9	881.1	46.84	19.811	
10,000.0	7,118.0	7,079.0	7,078.6	49.8	2.5	-89.14	-1,021.8	1,571.5	986.0	938.1	47.86	20.600	
10,039.3	7,117.7	7,078.9	7,078.5	50.4	2.5	-89.10	-1,021.8	1,571.5	1,024.7	976.1	48.55	21.107	
10,100.0	7,117.2	7,078.7	7,078.3	51.4	2.5	-89.04	-1,021.8	1,571.5	1,084.5	1,034.9	49.61	21.861	
10,137.8	7,116.9	7,078.6	7,078.1	52.0	2.5	-89.00	-1,021.8	1,571.5	1,121.8	1,071.5	50.27	22.313	
10,200.0	7,116.5	7,078.4	7,077.9	53.0	2.5	-88.93	-1,021.8	1,571.5	1,183.2	1,131.9	51.37	23.034	
10,236.2	7,116.2	7,078.3	7,077.8	53.6	2.5	-88.90	-1,021.8	1,571.5	1,219.0	1,167.0	52.01	23.438	
10,300.0	7,115.7	7,078.1	7,077.6	54.6	2.5	-88.83	-1,021.8	1,571.5	1,282.2	1,229.0	53.14	24.128	
10,334.6	7,115.5	7,077.9	7,077.5	55.2	2.5	-88.79	-1,021.8	1,571.5	1,316.5	1,262.7	53.76	24.489	
10,400.0	7,115.0	7,077.7	7,077.3	56.3	2.5	-88.72	-1,021.8	1,571.5	1,381.3	1,326.4	54.92	25.149	
10,433.0	7,114.7	7,077.6	7,077.2	56.8	2.5	-88.69	-1,021.8	1,571.5	1,414.1	1,358.6	55.52	25.471	
10,500.0	7,114.2	7,077.4	7,076.9	58.0	2.5	-88.61	-1,021.7	1,571.5	1,480.5	1,423.8	56.72	26.103	
10,531.5	7,114.0	7,077.3	7,076.8	58.5	2.5	-88.58	-1,021.7	1,571.5	1,511.8	1,454.5	57.29	26.390	
10,600.0	7,113.5	7,077.1	7,076.6	59.7	2.5	-88.51	-1,021.7	1,571.5	1,579.8	1,521.3	58.52	26.997	
10,629.9	7,113.2	7,077.0	7,076.5	60.2	2.5	-88.47	-1,021.7	1,571.5	1,609.5	1,550.5	59.06	27.252	
10,700.0	7,112.7	7,076.7	7,076.3	61.4	2.5	-88.40	-1,021.7	1,571.5	1,679.2	1,618.9	60.33	27.834	
10,728.3	7,112.5	7,076.6	7,076.2	61.8	2.5	-88.37	-1,021.7	1,571.5	1,707.4	1,646.6	60.84	28.062	
10,800.0	7,112.0	7,076.4	7,075.9	63.1	2.5	-88.29	-1,021.7	1,571.5	1,778.7	1,716.6	62.15	28.621	
10,826.7	7,111.8	7,076.3	7,075.8	63.5	2.5	-88.26	-1,021.7	1,571.5	1,805.3	1,742.7	62.63	28.823	
10,900.0	7,111.2	7,076.0	7,075.6	64.8	2.5	-88.18	-1,021.7	1,571.5	1,878.2	1,814.3	63.97	29.361	
10,925.2	7,111.0	7,075.9	7,075.5	65.2	2.5	-88.15	-1,021.7	1,571.5	1,903.3	1,838.9	64.43	29.540	
11,000.0	7,110.5	7,075.7	7,075.2	66.5	2.5	-88.07	-1,021.7	1,571.5	1,977.8	1,912.0	65.80	30.058	
11,023.6	7,110.3	7,075.6	7,075.2	66.9	2.5	-88.04	-1,021.7	1,571.5	2,001.3	1,935.1	66.23	30.217	
11,100.0	7,109.7	7,075.3	7,074.9	68.3	2.5	-87.95	-1,021.7	1,571.5	2,077.4	2,009.8	67.63	30.716	
11,122.0	7,109.5	7,075.3	7,074.8	68.7	2.5	-87.93	-1,021.7	1,571.5	2,099.4	2,031.3	68.04	30.855	
11,200.0	7,109.0	7,075.0	7,074.5	70.0	2.5	-87.84	-1,021.7	1,571.5	2,177.1	2,107.6	69.47	31.337	
11,220.4	7,108.8	7,074.9	7,074.5	70.4	2.5	-87.82	-1,021.7	1,571.5	2,197.4	2,127.6	69.85	31.459	
11,300.0	7,108.2	7,074.6	7,074.2	71.8	2.5	-87.73	-1,021.7	1,571.5	2,276.7	2,205.4	71.32	31.924	
11,318.9	7,108.1	7,074.6	7,074.1	72.1	2.5	-87.71	-1,021.7	1,571.5	2,295.6	2,223.9	71.67	32.031	
11,400.0	7,107.5	7,074.3	7,073.8	73.6	2.5	-87.61	-1,021.7	1,571.5	2,376.5	2,303.3	73.16	32.481	
11,417.3	7,107.3	7,074.2	7,073.8	73.9	2.5	-87.59	-1,021.7	1,571.5	2,393.7	2,320.2	73.49	32.574	
11,500.0	7,106.7	7,073.9	7,073.5	75.3	2.5	-87.50	-1,021.7	1,571.5	2,476.2	2,401.2	75.02	33.009	
11,515.7	7,106.6	7,073.9	7,073.4	75.6	2.5	-87.48	-1,021.7	1,571.5	2,491.9	2,416.6	75.31	33.089	
11,600.0	7,106.0	7,073.6	7,073.1	77.1	2.5	-87.38	-1,021.7	1,571.5	2,575.9	2,499.1	76.87	33.510	
11,614.1	7,105.9	7,073.5	7,073.1	77.4	2.5	-87.36	-1,021.7	1,571.5	2,590.1	2,512.9	77.13	33.578	
11,700.0	7,105.2	7,073.2	7,072.7	78.9	2.5	-87.26	-1,021.7	1,571.5	2,675.7	2,597.0	78.73	33.986	
11,712.6	7,105.1	7,073.1	7,072.7	79.2	2.5	-87.25	-1,021.7	1,571.5	2,688.3	2,609.3	78.96	34.044	
11,800.0	7,104.5	7,072.8	7,072.4	80.7	2.5	-87.15	-1,021.7	1,571.5	2,775.5	2,694.9	80.59	34.440	
11,811.0	7,104.4	7,072.8	7,072.3	80.9	2.5	-87.13	-1,021.7	1,571.5	2,786.5	2,705.7	80.80	34.488	
11,860.2	7,104.0	7,072.6	7,072.1	81.8	2.5	-87.07	-1,021.7	1,571.5	2,835.6	2,753.9	81.71	34.702	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT MCCART 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	9.9	9.9	0.0	0.0	156.61	-3,683.1	1,593.2	4,012.9				
98.4	98.4	132.1	132.1	0.1	0.1	156.61	-3,682.5	1,593.0	4,012.4	4,012.2	0.16	N/A	
100.0	100.0	133.6	133.6	0.1	0.1	156.61	-3,682.5	1,593.0	4,012.4	4,012.2	0.16	N/A	
196.8	196.8	221.7	221.7	0.3	0.2	156.61	-3,682.0	1,592.9	4,011.8	4,011.3	0.53	7,580.416	
200.0	200.0	224.5	224.5	0.3	0.2	156.61	-3,682.0	1,592.9	4,011.8	4,011.3	0.54	7,448.043	
295.3	295.3	309.8	309.8	0.5	0.3	156.60	-3,681.7	1,593.0	4,011.5	4,010.7	0.82	4,874.883	
300.0	300.0	314.8	314.8	0.5	0.3	156.60	-3,681.7	1,593.0	4,011.5	4,010.7	0.84	4,793.321	
393.7	393.7	412.5	412.5	0.7	0.4	156.60	-3,681.4	1,593.0	4,011.3	4,010.2	1.11	3,609.897	
400.0	400.0	418.2	418.2	0.8	0.4	156.60	-3,681.3	1,593.0	4,011.3	4,010.1	1.13	3,554.931	
492.1	492.1	502.3	502.3	1.0	0.4	156.60	-3,681.1	1,593.2	4,011.1	4,009.7	1.38	2,908.635	
500.0	500.0	510.5	510.5	1.0	0.4	156.60	-3,681.1	1,593.2	4,011.1	4,009.7	1.40	2,866.835	
590.5	590.5	600.0	600.0	1.2	0.5	156.60	-3,681.0	1,593.2	4,011.0	4,009.3	1.63	2,462.268	
600.0	600.0	612.3	612.3	1.2	0.5	156.60	-3,681.0	1,593.2	4,011.0	4,009.3	1.65	2,429.981	
647.6	647.6	654.6	654.6	1.3	0.5	156.60	-3,680.9	1,593.2	4,010.9	4,009.2	1.76	2,280.307	
689.0	689.0	691.4	691.4	1.4	0.5	156.60	-3,681.0	1,593.2	4,010.9	4,009.1	1.85	2,164.399	
700.0	700.0	701.4	701.4	1.4	0.5	156.60	-3,681.0	1,593.2	4,011.0	4,009.1	1.88	2,134.793	
787.4	787.4	791.0	791.0	1.6	0.5	156.59	-3,681.0	1,593.4	4,011.1	4,008.9	2.12	1,894.151	
800.0	800.0	804.2	804.2	1.7	0.5	156.59	-3,681.0	1,593.4	4,011.1	4,008.9	2.15	1,865.261	
885.8	885.8	898.6	898.6	1.9	0.5	156.59	-3,681.0	1,593.4	4,011.0	4,008.7	2.35	1,707.619	
900.0	900.0	912.7	912.7	1.9	0.5	156.59	-3,680.9	1,593.4	4,011.0	4,008.6	2.38	1,682.515	
984.2	984.2	995.8	995.8	2.1	0.6	156.59	-3,680.8	1,593.4	4,010.9	4,008.3	2.59	1,546.513	
1,000.0	1,000.0	1,011.5	1,011.5	2.1	0.6	156.59	-3,680.8	1,593.4	4,010.9	4,008.3	2.63	1,524.409	
1,082.7	1,082.7	1,093.7	1,093.7	2.3	0.6	156.59	-3,680.7	1,593.4	4,010.8	4,008.0	2.83	1,419.551	
1,100.0	1,100.0	1,111.8	1,111.8	2.3	0.6	156.59	-3,680.7	1,593.4	4,010.8	4,007.9	2.87	1,398.444	
1,181.1	1,181.1	1,198.9	1,198.9	2.5	0.6	156.59	-3,680.6	1,593.3	4,010.6	4,007.6	3.07	1,305.284	
1,200.0	1,200.0	1,217.8	1,217.8	2.6	0.6	156.59	-3,680.5	1,593.3	4,010.6	4,007.5	3.12	1,284.562	
1,279.5	1,279.5	1,296.8	1,296.8	2.7	0.6	156.59	-3,680.3	1,593.2	4,010.4	4,007.0	3.33	1,203.965	
1,300.0	1,300.0	1,318.0	1,318.0	2.8	0.7	156.59	-3,680.2	1,593.2	4,010.3	4,006.9	3.38	1,184.839	
1,377.9	1,377.9	1,399.5	1,399.5	3.0	0.7	156.59	-3,680.0	1,593.2	4,010.1	4,006.5	3.59	1,117.266	
1,400.0	1,400.0	1,420.6	1,420.6	3.0	0.7	156.59	-3,679.9	1,593.1	4,010.0	4,006.3	3.64	1,100.143	
1,476.4	1,476.4	1,493.7	1,493.7	3.2	0.7	156.59	-3,679.7	1,593.0	4,009.8	4,005.9	3.84	1,044.816	
1,500.0	1,500.0	1,515.7	1,515.7	3.2	0.7	156.59	-3,679.7	1,592.9	4,009.7	4,005.8	3.89	1,029.530	
1,550.0	1,550.0	1,561.8	1,561.8	3.3	0.7	156.59	-3,679.7	1,592.8	4,009.6	4,005.6	4.01	999.155	
1,567.1	1,567.1	1,577.5	1,577.5	3.4	0.7	98.38	-3,679.6	1,592.8	4,009.6	4,005.5	4.11	974.984	
1,574.8	1,574.8	1,584.7	1,584.7	3.4	0.7	98.38	-3,679.6	1,592.8	4,009.6	4,005.5	4.13	970.670	
1,600.0	1,600.0	1,610.1	1,610.1	3.5	0.7	98.38	-3,679.6	1,592.8	4,009.6	4,005.5	4.19	956.550	
1,673.2	1,673.2	1,696.4	1,696.4	3.6	0.8	98.41	-3,679.4	1,592.8	4,009.8	4,005.4	4.37	916.615	
1,700.0	1,699.9	1,722.7	1,722.7	3.7	0.8	98.43	-3,679.3	1,592.7	4,009.9	4,005.4	4.44	902.907	
1,771.6	1,771.4	1,791.2	1,791.2	3.8	0.8	98.48	-3,679.1	1,592.7	4,010.3	4,005.7	4.62	867.471	
1,800.0	1,799.7	1,818.9	1,818.9	3.9	0.8	98.51	-3,678.9	1,592.8	4,010.6	4,005.9	4.70	854.126	
1,870.1	1,869.4	1,887.9	1,887.9	4.0	0.9	98.59	-3,678.7	1,592.8	4,011.4	4,006.5	4.88	821.630	
1,900.0	1,899.1	1,917.8	1,917.8	4.1	0.9	98.63	-3,678.6	1,592.8	4,011.8	4,006.9	4.96	808.442	
1,968.5	1,967.0	1,987.2	1,987.2	4.3	0.9	98.73	-3,678.3	1,592.9	4,013.0	4,007.9	5.16	778.393	
2,000.0	1,998.2	2,017.3	2,017.3	4.4	0.9	98.78	-3,678.2	1,593.0	4,013.6	4,008.4	5.24	765.402	
2,066.9	2,064.1	2,078.6	2,078.6	4.5	0.9	98.89	-3,678.0	1,593.2	4,015.2	4,009.8	5.44	737.432	
2,100.0	2,096.6	2,109.9	2,109.9	4.6	0.9	98.95	-3,677.9	1,593.3	4,016.1	4,010.6	5.55	724.250	
2,165.3	2,160.6	2,176.7	2,176.7	4.8	1.0	99.10	-3,677.6	1,593.5	4,018.1	4,012.4	5.77	696.983	
2,200.0	2,194.4	2,210.0	2,210.0	4.9	1.0	99.18	-3,677.5	1,593.6	4,019.3	4,013.4	5.88	683.456	
2,263.8	2,256.4	2,264.2	2,264.2	5.2	1.0	99.31	-3,677.4	1,593.8	4,021.7	4,015.6	6.11	657.918	
2,300.0	2,291.5	2,300.0	2,300.0	5.3	1.0	99.40	-3,677.4	1,593.8	4,023.2	4,017.0	6.25	644.072	
2,362.2	2,351.4	2,349.9	2,349.9	5.5	1.0	99.53	-3,677.4	1,593.9	4,026.2	4,019.7	6.50	619.858	
2,400.0	2,387.6	2,383.4	2,383.4	5.7	1.0	99.63	-3,677.5	1,593.9	4,028.2	4,021.5	6.65	605.866	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT MCCART 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,460.6	2,445.4	2,438.2	2,438.2	6.0	1.0	99.80	-3,677.7	1,593.9	4,031.6	4,024.7	6.93	581.660	
2,500.0	2,482.7	2,473.9	2,473.9	6.2	1.0	99.91	-3,677.9	1,593.8	4,034.0	4,026.9	7.12	566.798	
2,559.0	2,538.3	2,526.7	2,526.7	6.5	1.0	100.09	-3,678.2	1,593.6	4,037.9	4,030.5	7.43	543.280	
2,600.0	2,576.6	2,562.7	2,562.7	6.7	1.0	100.21	-3,678.4	1,593.5	4,040.8	4,033.2	7.65	527.996	
2,657.5	2,630.1	2,614.8	2,614.7	7.0	1.0	100.39	-3,678.8	1,593.2	4,045.2	4,037.2	8.00	505.616	
2,700.0	2,669.4	2,657.0	2,657.0	7.3	1.0	100.56	-3,679.2	1,592.9	4,048.7	4,040.4	8.26	490.150	
2,755.9	2,720.6	2,710.2	2,710.2	7.6	1.0	100.77	-3,679.6	1,592.6	4,053.4	4,044.8	8.63	469.433	
2,776.7	2,739.5	2,727.4	2,727.4	7.8	1.0	100.83	-3,679.7	1,592.4	4,055.3	4,046.5	8.77	462.181	
2,800.0	2,760.8	2,746.7	2,746.7	7.9	1.0	100.94	-3,679.8	1,592.3	4,057.4	4,048.5	8.94	453.984	
2,854.3	2,810.2	2,791.5	2,791.5	8.3	1.0	101.21	-3,680.2	1,592.0	4,062.5	4,053.2	9.33	435.617	
2,900.0	2,851.7	2,834.5	2,834.4	8.7	1.0	101.46	-3,680.6	1,591.6	4,066.9	4,057.3	9.65	421.254	
2,952.7	2,899.7	2,886.0	2,885.9	9.1	1.0	101.77	-3,681.1	1,591.2	4,072.1	4,062.0	10.04	405.407	
3,000.0	2,942.7	2,939.3	2,939.3	9.4	1.0	102.08	-3,681.4	1,590.8	4,076.7	4,066.3	10.39	392.215	
3,051.2	2,989.3	3,000.4	3,000.3	9.8	1.1	102.44	-3,681.7	1,590.2	4,081.7	4,070.9	10.78	378.555	
3,100.0	3,033.7	3,053.9	3,053.9	10.2	1.1	102.75	-3,681.8	1,589.6	4,086.4	4,075.2	11.15	366.370	
3,149.6	3,078.8	3,108.4	3,108.3	10.5	1.1	103.07	-3,681.8	1,588.8	4,091.2	4,079.7	11.54	354.591	
3,200.0	3,124.6	3,164.0	3,163.9	10.9	1.1	103.40	-3,681.6	1,588.0	4,096.1	4,084.1	11.93	343.372	
3,248.0	3,168.3	3,222.8	3,222.7	11.3	1.1	103.74	-3,681.4	1,587.0	4,100.7	4,088.4	12.31	333.210	
3,300.0	3,215.6	3,299.7	3,299.7	11.7	1.1	104.19	-3,680.5	1,585.8	4,105.5	4,092.8	12.72	322.853	
3,346.4	3,257.9	3,354.6	3,354.6	12.1	1.1	104.50	-3,679.6	1,585.0	4,109.7	4,096.6	13.09	314.065	
3,400.0	3,306.6	3,412.1	3,412.0	12.5	1.2	104.83	-3,678.4	1,584.3	4,114.5	4,101.0	13.51	304.561	
3,444.9	3,347.4	3,447.6	3,447.5	12.9	1.2	105.03	-3,677.6	1,584.1	4,118.6	4,104.8	13.87	297.006	
3,500.0	3,397.6	3,491.4	3,491.3	13.3	1.2	105.27	-3,676.7	1,583.9	4,123.8	4,109.5	14.31	288.267	
3,543.3	3,436.9	3,526.4	3,526.2	13.7	1.2	105.47	-3,675.9	1,583.9	4,128.1	4,113.4	14.65	281.724	
3,600.0	3,488.5	3,572.3	3,572.2	14.1	1.2	105.72	-3,675.0	1,583.9	4,133.8	4,118.7	15.11	273.631	
3,641.7	3,526.5	3,606.6	3,606.4	14.5	1.2	105.91	-3,674.3	1,583.9	4,138.1	4,122.7	15.44	267.959	
3,700.0	3,579.5	3,656.9	3,656.8	15.0	1.2	106.18	-3,673.4	1,584.0	4,144.3	4,128.4	15.91	260.458	
3,740.1	3,616.0	3,691.6	3,691.5	15.3	1.2	106.37	-3,672.8	1,584.0	4,148.7	4,132.5	16.24	255.530	
3,800.0	3,670.5	3,743.6	3,743.4	15.8	1.3	106.66	-3,671.9	1,584.1	4,155.4	4,138.6	16.72	248.563	
3,838.6	3,705.6	3,777.2	3,777.0	16.1	1.3	106.84	-3,671.4	1,584.2	4,159.7	4,142.7	17.03	244.276	
3,900.0	3,761.4	3,827.7	3,827.5	16.6	1.3	107.11	-3,670.6	1,584.4	4,166.9	4,149.3	17.52	237.785	
3,937.0	3,795.1	3,856.7	3,856.6	16.9	1.3	107.27	-3,670.1	1,584.5	4,171.3	4,153.4	17.82	234.049	
4,000.0	3,852.4	3,907.8	3,907.6	17.4	1.3	107.55	-3,669.5	1,584.6	4,179.0	4,160.6	18.33	227.990	
4,035.4	3,884.6	3,942.6	3,942.4	17.7	1.3	107.73	-3,669.0	1,584.7	4,183.4	4,164.7	18.62	224.726	
4,100.0	3,943.4	4,005.5	4,005.3	18.3	1.3	108.07	-3,668.1	1,585.0	4,191.4	4,172.3	19.13	219.047	
4,133.8	3,974.2	4,035.1	4,034.9	18.6	1.3	108.23	-3,667.7	1,585.1	4,195.7	4,176.3	19.41	216.194	
4,200.0	4,034.4	4,093.0	4,092.8	19.1	1.4	108.54	-3,666.9	1,585.4	4,204.3	4,184.3	19.94	210.865	
4,232.3	4,063.7	4,119.3	4,119.1	19.4	1.4	108.68	-3,666.6	1,585.5	4,208.5	4,188.3	20.20	208.370	
4,300.0	4,125.3	4,173.1	4,172.9	19.9	1.4	108.96	-3,665.9	1,585.8	4,217.6	4,196.9	20.74	203.357	
4,330.7	4,153.3	4,200.0	4,199.8	20.2	1.4	109.10	-3,665.6	1,586.0	4,221.8	4,200.8	20.99	201.175	
4,400.0	4,216.3	4,254.6	4,254.3	20.8	1.4	109.39	-3,665.1	1,586.4	4,231.5	4,210.0	21.54	196.458	
4,429.1	4,242.8	4,278.6	4,278.3	21.0	1.4	109.52	-3,664.9	1,586.6	4,235.7	4,213.9	21.77	194.552	
4,500.0	4,307.3	4,343.4	4,343.1	21.6	1.4	109.85	-3,664.4	1,587.1	4,246.0	4,223.6	22.33	190.108	
4,527.5	4,332.3	4,370.0	4,369.8	21.9	1.4	109.99	-3,664.2	1,587.3	4,250.0	4,227.4	22.55	188.446	
4,600.0	4,398.2	4,436.5	4,436.2	22.5	1.5	110.34	-3,663.6	1,587.9	4,260.7	4,237.5	23.13	184.237	
4,626.0	4,421.9	4,459.3	4,459.0	22.7	1.5	110.45	-3,663.4	1,588.1	4,264.6	4,241.2	23.33	182.780	
4,700.0	4,489.2	4,524.0	4,523.7	23.3	1.5	110.79	-3,662.8	1,588.6	4,275.8	4,251.8	23.92	178.784	
4,724.4	4,511.4	4,545.1	4,544.9	23.5	1.5	110.90	-3,662.7	1,588.7	4,279.5	4,255.4	24.11	177.512	
4,800.0	4,580.2	4,610.8	4,610.5	24.2	1.5	111.24	-3,662.2	1,589.1	4,291.3	4,266.6	24.70	173.712	
4,822.8	4,601.0	4,630.6	4,630.4	24.4	1.5	111.34	-3,662.1	1,589.3	4,294.9	4,270.0	24.88	172.603	
4,900.0	4,671.2	4,700.0	4,699.7	25.0	1.5	111.69	-3,661.7	1,589.6	4,307.2	4,281.7	25.49	168.995	
4,921.2	4,690.5	4,715.2	4,715.0	25.2	1.5	111.77	-3,661.6	1,589.7	4,310.7	4,285.0	25.65	168.030	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT MCCART 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.0	4,762.1	4,779.4	4,779.2	25.9	1.5	112.10	-3,661.4	1,589.9	4,323.6	4,297.4	26.27	164.593	
5,019.7	4,780.0	4,800.0	4,799.7	26.0	1.5	112.21	-3,661.4	1,589.9	4,326.9	4,300.5	26.42	163.770	
5,100.0	4,853.1	4,878.6	4,878.4	26.7	1.6	112.61	-3,661.1	1,589.8	4,340.4	4,313.4	27.05	160.481	
5,118.1	4,869.6	4,897.7	4,897.4	26.9	1.6	112.71	-3,661.0	1,589.8	4,343.5	4,316.3	27.19	159.765	
5,200.0	4,944.1	4,974.3	4,974.1	27.6	1.6	113.11	-3,660.7	1,589.7	4,357.4	4,329.6	27.82	156.614	
5,216.5	4,959.1	4,989.7	4,989.5	27.7	1.6	113.18	-3,660.6	1,589.6	4,360.2	4,332.2	27.95	155.999	
5,300.0	5,035.0	5,058.5	5,058.3	28.4	1.6	113.53	-3,660.3	1,589.5	4,374.6	4,346.1	28.60	152.974	
5,314.9	5,048.6	5,070.6	5,070.4	28.6	1.6	113.60	-3,660.2	1,589.5	4,377.3	4,348.6	28.71	152.449	
5,400.0	5,126.0	5,142.5	5,142.3	29.3	1.6	113.96	-3,660.0	1,589.5	4,392.4	4,363.1	29.37	149.556	
5,413.4	5,138.2	5,154.2	5,154.0	29.4	1.7	114.02	-3,660.0	1,589.5	4,394.8	4,365.4	29.47	149.114	
5,479.4	5,198.3	5,212.6	5,212.3	30.0	1.7	114.31	-3,659.9	1,589.6	4,406.9	4,376.9	29.98	146.991	
5,500.0	5,217.0	5,231.6	5,231.3	30.1	1.7	114.47	-3,659.9	1,589.6	4,410.6	4,380.5	30.11	146.502	
5,511.8	5,227.8	5,242.5	5,242.2	30.2	1.7	114.56	-3,659.9	1,589.6	4,412.7	4,382.6	30.17	146.285	
5,600.0	5,309.0	5,325.8	5,325.5	30.8	1.7	115.24	-3,659.7	1,589.6	4,428.1	4,397.5	30.60	144.689	
5,610.2	5,318.5	5,335.7	5,335.5	30.8	1.7	115.31	-3,659.7	1,589.6	4,429.8	4,399.1	30.65	144.528	
5,700.0	5,402.3	5,423.9	5,423.6	31.4	1.7	115.95	-3,659.5	1,589.4	4,444.2	4,413.2	31.05	143.118	
5,708.6	5,410.4	5,432.4	5,432.2	31.4	1.7	116.01	-3,659.4	1,589.4	4,445.6	4,414.5	31.09	142.999	
5,800.0	5,496.7	5,524.6	5,524.3	31.9	1.8	116.61	-3,659.1	1,589.1	4,459.0	4,427.6	31.46	141.744	
5,807.1	5,503.5	5,532.0	5,531.8	31.9	1.8	116.65	-3,659.1	1,589.1	4,460.0	4,428.5	31.48	141.661	
5,900.0	5,592.3	5,623.1	5,622.8	32.4	1.8	117.18	-3,658.5	1,589.1	4,472.3	4,440.4	31.82	140.543	
5,905.5	5,597.6	5,627.5	5,627.3	32.4	1.8	117.21	-3,658.5	1,589.2	4,472.9	4,441.1	31.84	140.487	
6,000.0	5,688.8	5,704.7	5,704.4	32.9	1.8	117.63	-3,658.2	1,589.4	4,484.2	4,452.1	32.15	139.500	
6,003.9	5,692.6	5,708.4	5,708.1	32.9	1.8	117.65	-3,658.2	1,589.4	4,484.7	4,452.5	32.16	139.466	
6,100.0	5,786.2	5,800.0	5,799.7	33.3	1.8	118.07	-3,658.1	1,589.5	4,494.9	4,462.5	32.43	138.620	
6,102.3	5,788.5	5,802.2	5,801.9	33.3	1.8	118.08	-3,658.1	1,589.5	4,495.1	4,462.7	32.43	138.602	
6,200.0	5,884.3	5,900.0	5,899.7	33.6	1.9	118.45	-3,657.9	1,589.5	4,504.0	4,471.3	32.68	137.838	
6,200.8	5,885.1	5,900.0	5,899.7	33.6	1.9	118.45	-3,657.9	1,589.5	4,504.0	4,471.4	32.68	137.833	
6,299.2	5,982.3	5,988.9	5,988.6	33.9	1.9	118.73	-3,657.8	1,589.6	4,511.5	4,478.6	32.87	137.242	
6,300.0	5,983.1	5,989.6	5,989.3	33.9	1.9	118.74	-3,657.8	1,589.6	4,511.5	4,478.6	32.87	137.237	
6,397.6	6,079.9	6,071.7	6,071.4	34.1	1.9	118.96	-3,657.9	1,589.7	4,517.6	4,484.6	33.03	136.786	
6,400.0	6,082.3	6,073.7	6,073.4	34.1	1.9	118.96	-3,657.9	1,589.7	4,517.7	4,484.7	33.03	136.774	
6,496.0	6,177.9	6,175.8	6,175.6	34.3	1.9	119.14	-3,658.3	1,590.0	4,522.3	4,489.1	33.14	136.441	
6,500.0	6,181.9	6,180.5	6,180.2	34.3	1.9	119.14	-3,658.3	1,590.0	4,522.4	4,489.3	33.15	136.425	
6,594.5	6,276.2	6,268.6	6,268.3	34.5	1.9	119.25	-3,658.4	1,590.1	4,525.2	4,491.9	33.23	136.160	
6,600.0	6,281.7	6,273.4	6,273.2	34.5	1.9	119.25	-3,658.5	1,590.1	4,525.3	4,492.1	33.24	136.141	
6,692.9	6,374.6	6,365.5	6,365.2	34.6	1.9	119.29	-3,658.8	1,590.0	4,526.6	4,493.3	33.29	135.955	
6,706.1	6,387.8	6,379.2	6,378.9	34.6	1.9	177.52	-3,658.9	1,590.0	4,526.7	4,493.4	33.30	135.920	
6,736.1	6,417.8	6,410.3	6,410.0	34.6	1.9	177.51	-3,659.0	1,590.0	4,526.8	4,493.4	33.33	135.825	
6,750.0	6,431.7	6,424.4	6,424.2	34.6	1.9	-2.49	-3,659.0	1,590.0	4,526.7	4,493.4	33.31	135.885	
6,791.3	6,473.0	6,466.5	6,466.2	34.6	1.8	-2.49	-3,659.2	1,590.0	4,524.8	4,491.6	33.25	136.094	
6,800.0	6,481.6	6,475.3	6,475.1	34.6	1.8	-2.50	-3,659.2	1,590.0	4,524.1	4,490.9	33.23	136.139	
6,850.0	6,531.2	6,529.3	6,529.0	34.6	1.8	-2.52	-3,659.3	1,589.9	4,518.1	4,485.0	33.12	136.435	
6,889.7	6,570.3	6,574.2	6,574.0	34.6	1.8	-2.55	-3,659.4	1,589.8	4,510.7	4,477.8	32.99	136.747	
6,900.0	6,580.3	6,585.7	6,585.5	34.6	1.8	-2.56	-3,659.4	1,589.7	4,508.5	4,475.6	32.95	136.843	
6,950.0	6,628.5	6,629.5	6,629.3	34.6	1.8	-2.61	-3,659.4	1,589.6	4,495.5	4,462.8	32.70	137.485	
6,988.2	6,664.7	6,659.3	6,659.1	34.5	1.8	-2.66	-3,659.5	1,589.6	4,483.4	4,451.0	32.45	138.180	
7,000.0	6,675.8	6,668.5	6,668.2	34.5	1.8	-2.68	-3,659.5	1,589.5	4,479.3	4,446.9	32.36	138.433	
7,050.0	6,721.8	6,708.8	6,708.6	34.4	1.8	-2.77	-3,659.7	1,589.4	4,459.9	4,427.9	31.92	139.726	
7,086.6	6,754.5	6,746.1	6,745.8	34.3	1.8	-2.85	-3,659.9	1,589.3	4,443.6	4,412.1	31.54	140.890	
7,100.0	6,766.2	6,759.4	6,759.2	34.2	1.8	-2.89	-3,659.9	1,589.3	4,437.3	4,405.9	31.39	141.367	
7,150.0	6,809.0	6,800.0	6,799.7	34.1	1.8	-3.02	-3,660.0	1,589.1	4,411.6	4,380.8	30.75	143.452	
7,185.0	6,837.9	6,830.9	6,830.6	34.0	1.8	-3.14	-3,660.1	1,588.9	4,391.8	4,361.6	30.26	145.160	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT MCCART 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,200.0	6,849.9	6,841.2	6,840.9	33.9	1.8	-3.19	-3,660.2	1,588.9	4,383.0	4,352.9	30.03	145.970	
7,250.0	6,888.7	6,874.6	6,874.3	33.8	1.8	-3.39	-3,660.3	1,588.7	4,351.6	4,322.4	29.21	148.993	
7,283.4	6,913.4	6,900.0	6,899.7	33.6	1.8	-3.56	-3,660.4	1,588.6	4,329.2	4,300.6	28.62	151.261	
7,300.0	6,925.2	6,907.1	6,906.8	33.6	1.8	-3.64	-3,660.5	1,588.6	4,317.7	4,289.4	28.31	152.498	
7,350.0	6,959.2	6,941.4	6,941.1	33.4	1.8	-3.95	-3,660.7	1,588.4	4,281.3	4,253.9	27.37	156.450	
7,381.9	6,979.6	6,961.9	6,961.6	33.3	1.8	-4.19	-3,660.8	1,588.2	4,256.9	4,230.2	26.74	159.200	
7,400.0	6,990.6	6,973.1	6,972.8	33.2	1.8	-4.34	-3,660.9	1,588.1	4,242.6	4,216.2	26.38	160.835	
7,450.0	7,019.2	7,002.9	7,002.6	33.0	1.8	-4.83	-3,661.1	1,587.8	4,201.8	4,176.4	25.38	165.541	
7,480.3	7,035.1	7,025.9	7,025.6	32.8	1.9	-5.20	-3,661.2	1,587.5	4,176.1	4,151.3	24.80	168.381	
7,500.0	7,044.9	7,040.0	7,039.7	32.8	1.9	-5.48	-3,661.3	1,587.3	4,159.1	4,134.7	24.43	170.217	
7,550.0	7,067.5	7,072.5	7,072.2	32.6	1.9	-6.37	-3,661.3	1,586.9	4,114.6	4,091.0	23.56	174.620	
7,578.7	7,079.1	7,089.0	7,088.7	32.4	1.9	-7.02	-3,661.4	1,586.6	4,088.3	4,065.2	23.12	176.798	
7,600.0	7,086.9	7,100.2	7,100.0	32.3	1.9	-7.61	-3,661.4	1,586.5	4,068.6	4,045.7	22.84	178.134	
7,650.0	7,103.1	7,127.7	7,127.4	32.1	1.9	-9.49	-3,661.3	1,586.0	4,021.3	3,998.9	22.38	179.688	
7,677.1	7,110.5	7,140.1	7,139.8	32.0	1.9	-10.96	-3,661.2	1,585.8	3,995.2	3,972.9	22.28	179.285	
7,700.0	7,116.0	7,149.1	7,148.8	32.0	1.9	-12.59	-3,661.2	1,585.7	3,973.0	3,950.6	22.32	178.018	
7,750.0	7,125.4	7,164.4	7,164.1	31.8	1.9	-18.47	-3,661.1	1,585.4	3,923.9	3,900.9	22.91	171.256	
7,775.6	7,128.9	7,169.9	7,169.6	31.7	1.9	-24.00	-3,661.1	1,585.3	3,898.5	3,874.9	23.61	165.133	
7,800.0	7,131.4	7,173.8	7,173.5	31.6	1.9	-33.02	-3,661.0	1,585.3	3,874.2	3,849.7	24.55	157.801	
7,850.0	7,133.9	7,177.2	7,176.9	31.5	1.9	-83.11	-3,661.0	1,585.2	3,824.4	3,802.2	22.13	172.807	
7,866.5	7,134.0	7,177.1	7,176.8	31.4	1.9	-108.58	-3,661.0	1,585.2	3,807.9	3,787.7	20.17	188.744	
7,874.0	7,133.9	7,176.9	7,176.6	31.4	1.9	-108.53	-3,661.0	1,585.2	3,800.4	3,780.2	20.17	188.397	
7,900.0	7,133.7	7,176.2	7,175.9	31.4	1.9	-108.34	-3,661.0	1,585.2	3,774.4	3,754.3	20.16	187.195	
7,972.4	7,133.2	7,174.4	7,174.1	31.2	1.9	-107.84	-3,661.0	1,585.2	3,702.1	3,681.9	20.23	182.973	
8,000.0	7,133.0	7,173.7	7,173.4	31.2	1.9	-107.65	-3,661.0	1,585.3	3,674.6	3,654.3	20.26	181.369	
8,070.8	7,132.4	7,171.9	7,171.6	31.1	1.9	-107.16	-3,661.0	1,585.3	3,603.8	3,583.4	20.47	176.077	
8,100.0	7,132.2	7,171.2	7,170.9	31.1	1.9	-106.97	-3,661.0	1,585.3	3,574.7	3,554.2	20.55	173.923	
8,169.3	7,131.7	7,169.5	7,169.2	31.1	1.9	-106.51	-3,661.1	1,585.3	3,505.6	3,484.7	20.89	167.831	
8,200.0	7,131.5	7,168.8	7,168.5	31.1	1.9	-106.30	-3,661.1	1,585.3	3,474.9	3,453.8	21.03	165.197	
8,267.7	7,131.0	7,167.2	7,166.9	31.2	1.9	-105.87	-3,661.1	1,585.4	3,407.3	3,385.8	21.48	158.634	
8,300.0	7,130.7	7,166.5	7,166.2	31.2	1.9	-105.66	-3,661.1	1,585.4	3,375.1	3,353.4	21.69	155.597	
8,366.1	7,130.2	7,165.0	7,164.7	31.4	1.9	-105.24	-3,661.1	1,585.4	3,309.0	3,286.8	22.23	148.859	
8,400.0	7,130.0	7,164.2	7,163.9	31.5	1.9	-105.03	-3,661.1	1,585.4	3,275.2	3,252.7	22.51	145.530	
8,464.5	7,129.5	7,162.8	7,162.5	31.7	1.9	-104.63	-3,661.1	1,585.4	3,210.8	3,187.7	23.12	138.863	
8,500.0	7,129.2	7,162.0	7,161.7	31.9	1.9	-104.42	-3,661.1	1,585.5	3,175.4	3,152.0	23.46	135.350	
8,563.0	7,128.7	7,160.7	7,160.4	32.2	1.9	-104.04	-3,661.1	1,585.5	3,112.6	3,088.4	24.14	128.937	
8,600.0	7,128.5	7,159.9	7,159.6	32.4	1.9	-103.82	-3,661.1	1,585.5	3,075.6	3,051.1	24.54	125.333	
8,661.4	7,128.0	7,158.6	7,158.3	32.8	1.9	-103.46	-3,661.1	1,585.5	3,014.4	2,989.1	25.27	119.297	
8,700.0	7,127.7	7,157.8	7,157.5	33.1	1.9	-103.23	-3,661.1	1,585.5	2,975.8	2,950.1	25.73	115.678	
8,759.8	7,127.3	7,156.6	7,156.3	33.5	1.9	-102.89	-3,661.1	1,585.5	2,916.1	2,889.7	26.49	110.086	
8,800.0	7,127.0	7,155.8	7,155.5	33.9	1.9	-102.66	-3,661.2	1,585.6	2,876.1	2,849.1	27.00	106.510	
8,858.2	7,126.5	7,154.7	7,154.4	34.4	1.9	-102.34	-3,661.2	1,585.6	2,818.0	2,790.2	27.79	101.389	
8,900.0	7,126.2	7,153.9	7,153.6	34.8	1.9	-102.11	-3,661.2	1,585.6	2,776.3	2,747.9	28.36	97.896	
8,956.7	7,125.8	7,152.8	7,152.5	35.4	1.9	-101.80	-3,661.2	1,585.6	2,719.8	2,690.6	29.17	93.247	
9,000.0	7,125.5	7,152.0	7,151.7	35.8	1.9	-101.57	-3,661.2	1,585.6	2,676.6	2,646.8	29.78	89.863	
9,055.1	7,125.1	7,151.0	7,150.7	36.5	1.9	-101.27	-3,661.2	1,585.6	2,621.6	2,591.0	30.60	85.667	
9,100.0	7,124.7	7,150.2	7,149.9	37.0	1.9	-101.04	-3,661.2	1,585.7	2,576.8	2,545.6	31.27	82.411	
9,153.5	7,124.3	7,149.2	7,148.9	37.6	1.9	-100.76	-3,661.2	1,585.7	2,523.5	2,491.4	32.09	78.639	
9,200.0	7,124.0	7,148.4	7,148.1	38.2	1.9	-100.52	-3,661.2	1,585.7	2,477.1	2,444.3	32.80	75.517	
9,251.9	7,123.6	7,147.5	7,147.2	38.8	1.9	-100.26	-3,661.2	1,585.7	2,425.4	2,391.7	33.62	72.136	
9,300.0	7,123.2	7,146.6	7,146.3	39.5	1.9	-100.02	-3,661.2	1,585.7	2,377.5	2,343.1	34.38	69.153	
9,350.4	7,122.8	7,145.8	7,145.5	40.1	1.9	-99.77	-3,661.2	1,585.7	2,327.3	2,292.1	35.19	66.127	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT MCCART 30-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,400.0	7,122.5	7,144.9	7,144.7	40.8	1.9	-99.52	-3,661.2	1,585.7	2,277.8	2,241.8	36.00	63.281	
9,448.8	7,122.1	7,144.1	7,143.8	41.5	1.9	-99.29	-3,661.2	1,585.8	2,229.2	2,192.4	36.80	60.577	
9,500.0	7,121.7	7,143.3	7,143.0	42.2	1.9	-99.04	-3,661.2	1,585.8	2,178.2	2,140.6	37.64	57.864	
9,547.2	7,121.4	7,142.5	7,142.2	42.9	1.9	-98.82	-3,661.2	1,585.8	2,131.2	2,092.7	38.44	55.448	
9,600.0	7,121.0	7,141.7	7,141.4	43.7	1.9	-98.58	-3,661.2	1,585.8	2,078.6	2,039.3	39.32	52.864	
9,645.6	7,120.6	7,141.0	7,140.7	44.3	1.9	-98.36	-3,661.2	1,585.8	2,033.2	1,993.1	40.10	50.706	
9,700.0	7,120.2	7,140.1	7,139.8	45.1	1.9	-98.12	-3,661.2	1,585.8	1,979.1	1,938.1	41.02	48.244	
9,744.1	7,119.9	7,139.5	7,139.2	45.8	1.9	-97.92	-3,661.2	1,585.8	1,935.2	1,893.4	41.78	46.316	
9,800.0	7,119.5	7,138.6	7,138.3	46.6	1.9	-97.67	-3,661.2	1,585.8	1,879.6	1,836.8	42.75	43.970	
9,842.5	7,119.1	7,138.0	7,137.7	47.3	1.9	-97.48	-3,661.3	1,585.9	1,837.3	1,793.8	43.49	42.249	
9,900.0	7,118.7	7,137.1	7,136.8	48.2	1.9	-97.23	-3,661.3	1,585.9	1,780.1	1,735.7	44.49	40.012	
9,940.9	7,118.4	7,136.5	7,136.2	48.8	1.9	-97.06	-3,661.3	1,585.9	1,739.5	1,694.3	45.21	38.474	
10,000.0	7,118.0	7,135.7	7,135.4	49.8	1.9	-96.81	-3,661.3	1,585.9	1,680.8	1,634.5	46.25	36.340	
10,039.3	7,117.7	7,135.1	7,134.8	50.4	1.9	-96.64	-3,661.3	1,585.9	1,641.7	1,594.7	46.95	34.966	
10,100.0	7,117.2	7,134.2	7,134.0	51.4	1.9	-96.39	-3,661.3	1,585.9	1,581.5	1,533.5	48.03	32.928	
10,137.8	7,116.9	7,133.7	7,133.4	52.0	1.9	-96.23	-3,661.3	1,585.9	1,544.0	1,495.3	48.70	31.702	
10,200.0	7,116.5	7,132.9	7,132.6	53.0	1.9	-95.98	-3,661.3	1,585.9	1,482.3	1,432.5	49.82	29.754	
10,236.2	7,116.2	7,132.4	7,132.1	53.6	1.9	-95.84	-3,661.3	1,585.9	1,446.4	1,395.9	50.47	28.658	
10,300.0	7,115.7	7,131.5	7,131.2	54.6	1.9	-95.58	-3,661.3	1,586.0	1,383.2	1,331.6	51.62	26.796	
10,334.6	7,115.5	7,131.1	7,130.8	55.2	1.9	-95.45	-3,661.3	1,586.0	1,348.9	1,296.7	52.25	25.818	
10,400.0	7,115.0	7,130.2	7,129.9	56.3	1.9	-95.19	-3,661.3	1,586.0	1,284.3	1,230.8	53.43	24.035	
10,433.0	7,114.7	7,129.8	7,129.5	56.8	1.9	-95.07	-3,661.3	1,586.0	1,251.6	1,197.6	54.04	23.162	
10,500.0	7,114.2	7,128.9	7,128.6	58.0	1.9	-94.81	-3,661.3	1,586.0	1,185.5	1,130.2	55.26	21.455	
10,531.5	7,114.0	7,128.5	7,128.2	58.5	1.9	-94.69	-3,661.3	1,586.0	1,154.4	1,098.6	55.83	20.677	
10,600.0	7,113.5	7,127.7	7,127.4	59.7	1.9	-94.44	-3,661.3	1,586.0	1,086.9	1,029.9	57.09	19.040	
10,629.9	7,113.2	7,127.3	7,127.0	60.2	1.9	-94.33	-3,661.3	1,586.0	1,057.5	999.9	57.64	18.348	
10,700.0	7,112.7	7,126.4	7,126.1	61.4	1.9	-94.08	-3,661.3	1,586.0	988.7	929.8	58.93	16.779	
10,728.3	7,112.5	7,126.1	7,125.8	61.8	1.9	-93.97	-3,661.3	1,586.1	960.9	901.5	59.45	16.164	
10,800.0	7,112.0	7,125.2	7,124.9	63.1	1.9	-93.72	-3,661.3	1,586.1	890.8	830.0	60.77	14.659	
10,826.7	7,111.8	7,124.9	7,124.6	63.5	1.9	-93.62	-3,661.3	1,586.1	864.7	803.5	61.27	14.114	
10,900.0	7,111.2	7,124.1	7,123.8	64.8	1.9	-93.37	-3,661.3	1,586.1	793.5	730.9	62.62	12.671	
10,925.2	7,111.0	7,123.8	7,123.5	65.2	1.9	-93.28	-3,661.3	1,586.1	769.1	706.0	63.09	12.190	
11,000.0	7,110.5	7,122.9	7,122.6	66.5	1.9	-93.03	-3,661.3	1,586.1	696.9	632.4	64.48	10.808	
11,023.6	7,110.3	7,122.6	7,122.3	66.9	1.9	-92.95	-3,661.3	1,586.1	674.2	609.3	64.92	10.386	
11,100.0	7,109.7	7,121.8	7,121.5	68.3	1.9	-92.69	-3,661.3	1,586.1	601.4	535.1	66.34	9.065	
11,122.0	7,109.5	7,121.5	7,121.2	68.7	1.9	-92.62	-3,661.3	1,586.1	580.6	513.9	66.75	8.698	
11,200.0	7,109.0	7,120.7	7,120.4	70.0	1.9	-92.37	-3,661.3	1,586.1	507.7	439.5	68.21	7.443	
11,220.4	7,108.8	7,120.5	7,120.2	70.4	1.9	-92.30	-3,661.3	1,586.1	488.8	420.3	68.59	7.127	
11,300.0	7,108.2	7,119.6	7,119.3	71.8	1.9	-92.05	-3,661.3	1,586.2	416.9	346.8	70.08	5.949	
11,318.9	7,108.1	7,119.4	7,119.1	72.1	1.9	-91.99	-3,661.3	1,586.2	400.3	329.8	70.43	5.683	
11,400.0	7,107.5	7,118.5	7,118.3	73.6	1.9	-91.73	-3,661.3	1,586.2	331.5	259.5	71.95	4.606	
11,417.3	7,107.3	7,118.4	7,118.1	73.9	1.9	-91.68	-3,661.3	1,586.2	317.5	245.3	72.28	4.393	
11,500.0	7,106.7	7,117.5	7,117.2	75.3	1.9	-91.43	-3,661.3	1,586.2	256.7	182.9	73.83	3.477	
11,515.7	7,106.6	7,117.4	7,117.1	75.6	1.9	-91.38	-3,661.3	1,586.2	246.6	172.5	74.13	3.327	
11,600.0	7,106.0	7,116.5	7,116.2	77.1	1.9	-91.13	-3,661.3	1,586.2	204.8	129.1	75.71	2.705	
11,614.1	7,105.9	7,116.4	7,116.1	77.4	1.9	-91.08	-3,661.3	1,586.2	200.4	124.4	75.98	2.638	
11,669.8	7,105.4	7,115.8	7,115.5	78.4	1.9	-90.92	-3,661.3	1,586.2	192.5	115.5	77.03	2.500	CC, ES, SF
11,700.0	7,105.2	7,115.5	7,115.2	78.9	1.9	-90.83	-3,661.3	1,586.2	194.9	117.3	77.59	2.512	
11,712.6	7,105.1	7,115.4	7,115.1	79.2	1.9	-90.79	-3,661.3	1,586.2	197.2	119.4	77.83	2.534	
11,800.0	7,104.5	7,114.5	7,114.3	80.7	1.9	-90.54	-3,661.3	1,586.2	232.4	152.9	79.48	2.924	
11,811.0	7,104.4	7,114.4	7,114.1	80.9	1.9	-90.51	-3,661.3	1,586.2	238.8	159.1	79.69	2.996	
11,860.2	7,104.0	7,114.0	7,113.7	81.8	1.9	-90.37	-3,661.3	1,586.2	270.8	190.2	80.61	3.359	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-INC — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-79.10	231.4	-1,201.0	1,223.1				
98.4	98.4	99.4	99.4	0.1	0.1	-79.10	231.4	-1,201.0	1,223.1	1,222.9	0.22	5,632.737	
100.0	100.0	101.0	101.0	0.1	0.2	-79.10	231.4	-1,201.0	1,223.1	1,222.8	0.25	4,976.918	
196.8	196.8	197.8	197.8	0.3	2.7	-79.10	231.4	-1,201.0	1,223.1	1,220.1	2.99	409.193	
200.0	200.0	201.0	201.0	0.3	2.8	-79.10	231.4	-1,201.0	1,223.1	1,220.0	3.07	398.034	
295.3	295.3	296.3	296.3	0.5	4.7	-79.10	231.4	-1,201.0	1,223.1	1,217.8	5.25	232.781	
300.0	300.0	301.0	301.0	0.5	4.8	-79.10	231.4	-1,201.0	1,223.1	1,217.7	5.36	228.098	
393.7	393.7	394.7	394.7	0.7	6.7	-79.10	231.4	-1,201.0	1,223.1	1,215.6	7.48	163.570	
400.0	400.0	401.0	401.0	0.8	6.9	-79.10	231.4	-1,201.0	1,223.1	1,215.5	7.62	160.519	
492.1	492.1	493.1	493.1	1.0	8.7	-79.10	231.4	-1,201.0	1,223.1	1,213.4	9.69	126.219	
500.0	500.0	501.0	501.0	1.0	8.9	-79.10	231.4	-1,201.0	1,223.1	1,213.2	9.87	123.955	
590.5	590.5	591.5	591.5	1.2	10.7	-79.10	231.4	-1,201.0	1,223.1	1,211.2	11.90	102.794	
600.0	600.0	601.0	601.0	1.2	10.9	-79.10	231.4	-1,201.0	1,223.1	1,211.0	12.11	100.995	
689.0	689.0	690.0	690.0	1.4	12.7	-79.10	231.4	-1,201.0	1,223.1	1,209.0	14.10	86.718	
700.0	700.0	701.0	701.0	1.4	12.9	-79.10	231.4	-1,201.0	1,223.1	1,208.7	14.35	85.225	
787.4	787.4	788.4	788.4	1.6	14.7	-79.10	231.4	-1,201.0	1,223.1	1,206.8	16.31	74.997	
800.0	800.0	801.0	801.0	1.7	14.9	-79.10	231.4	-1,201.0	1,223.1	1,206.5	16.59	73.721	
885.8	885.8	886.8	886.8	1.9	16.7	-79.10	231.4	-1,201.0	1,223.1	1,204.6	18.51	66.070	
900.0	900.0	901.0	901.0	1.9	16.9	-79.10	231.4	-1,201.0	1,223.1	1,204.2	18.83	64.957	
984.2	984.2	985.2	985.2	2.1	18.6	-79.10	231.4	-1,201.0	1,223.1	1,202.4	20.71	59.044	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	19.0	-79.10	231.4	-1,201.0	1,223.1	1,202.0	21.07	58.056	
1,082.7	1,082.7	1,083.7	1,083.7	2.3	20.6	-79.10	231.4	-1,201.0	1,223.1	1,200.2	22.92	53.370	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	21.0	-79.10	231.4	-1,201.0	1,223.1	1,199.8	23.30	52.482	
1,181.1	1,181.1	1,182.1	1,182.1	2.5	22.6	-79.10	231.4	-1,201.0	1,223.1	1,198.0	25.12	48.691	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	23.0	-79.10	231.4	-1,201.0	1,223.1	1,197.5	25.54	47.885	
1,279.5	1,279.5	1,280.5	1,280.5	2.7	24.6	-79.10	231.4	-1,201.0	1,223.1	1,195.8	27.32	44.767	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	25.0	-79.10	231.4	-1,201.0	1,223.1	1,195.3	27.78	44.029	
1,377.9	1,377.9	1,378.9	1,378.9	3.0	26.6	-79.10	231.4	-1,201.0	1,223.1	1,193.6	29.52	41.429	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	27.0	-79.10	231.4	-1,201.0	1,223.1	1,193.1	30.02	40.748	
1,476.4	1,476.4	1,477.4	1,477.4	3.2	28.5	-79.10	231.4	-1,201.0	1,223.1	1,191.3	31.72	38.554	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	29.0	-79.10	231.4	-1,201.0	1,223.1	1,190.8	32.25	37.922	
1,550.0	1,550.0	1,551.0	1,551.0	3.3	30.0	-79.10	231.4	-1,201.0	1,223.1	1,189.7	33.37	36.652 CC	
1,574.8	1,574.8	1,575.8	1,575.8	3.4	30.5	-137.32	231.4	-1,201.0	1,223.2	1,189.2	33.92	36.057	
1,600.0	1,600.0	1,601.0	1,601.0	3.5	31.0	-137.32	231.4	-1,201.0	1,223.4	1,188.9	34.48	35.479 ES	
1,673.2	1,673.2	1,674.2	1,674.2	3.6	32.5	-137.37	231.4	-1,201.0	1,225.0	1,188.9	36.09	33.939	
1,700.0	1,699.9	1,700.9	1,700.9	3.7	33.0	-137.40	231.4	-1,201.0	1,226.0	1,189.3	36.68	33.423	
1,771.6	1,771.4	1,772.4	1,772.4	3.8	34.5	-137.50	231.4	-1,201.0	1,229.4	1,191.1	38.24	32.151	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	35.0	-137.55	231.4	-1,201.0	1,231.1	1,192.3	38.85	31.690	
1,870.1	1,869.4	1,870.4	1,870.4	4.0	36.4	-137.70	231.4	-1,201.0	1,236.3	1,195.9	40.35	30.640	
1,900.0	1,899.1	1,900.1	1,900.1	4.1	37.0	-137.77	231.4	-1,201.0	1,238.9	1,197.9	40.98	30.229	
1,968.5	1,967.0	1,968.0	1,968.0	4.3	38.4	-137.96	231.4	-1,201.0	1,245.7	1,203.3	42.42	29.363	
2,000.0	1,998.2	1,999.2	1,999.2	4.4	39.0	-138.06	231.4	-1,201.0	1,249.2	1,206.2	43.08	29.000	
2,066.9	2,064.1	2,065.1	2,065.1	4.5	40.4	-138.29	231.4	-1,201.0	1,257.7	1,213.2	44.46	28.289	
2,100.0	2,096.6	2,097.6	2,097.6	4.6	41.0	-138.41	231.4	-1,201.0	1,262.3	1,217.1	45.13	27.969	
2,165.3	2,160.6	2,161.6	2,161.6	4.8	42.3	-138.67	231.4	-1,201.0	1,272.2	1,225.8	46.45	27.390	
2,200.0	2,194.4	2,195.4	2,195.4	4.9	43.0	-138.81	231.4	-1,201.0	1,278.0	1,230.9	47.14	27.112	
2,263.8	2,256.4	2,257.4	2,257.4	5.2	44.2	-139.09	231.4	-1,201.0	1,289.5	1,241.1	48.39	26.645	
2,300.0	2,291.5	2,292.5	2,292.5	5.3	44.9	-139.26	231.4	-1,201.0	1,296.5	1,247.4	49.10	26.408	
2,362.2	2,351.4	2,352.4	2,352.4	5.5	46.1	-139.56	231.4	-1,201.0	1,309.4	1,259.1	50.29	26.037	
2,400.0	2,387.6	2,388.6	2,388.6	5.7	46.9	-139.75	231.4	-1,201.0	1,317.8	1,266.8	51.00	25.840	
2,460.6	2,445.4	2,446.4	2,446.4	6.0	48.0	-140.06	231.4	-1,201.0	1,332.1	1,280.0	52.13	25.556	
2,500.0	2,482.7	2,483.7	2,483.7	6.2	48.8	-140.27	231.4	-1,201.0	1,342.0	1,289.1	52.85	25.394	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,539.3	2,539.3	6.5	49.9	-140.58	231.4	-1,201.0	1,357.6	1,303.7	53.91	25.183	
2,600.0	2,576.6	2,577.6	2,577.6	6.7	50.7	-140.81	231.4	-1,201.0	1,369.0	1,314.4	54.63	25.060	
2,657.5	2,630.1	2,631.1	2,631.1	7.0	51.7	-141.12	231.4	-1,201.0	1,385.9	1,330.3	55.63	24.914	
2,700.0	2,669.4	2,670.4	2,670.4	7.3	52.5	-141.36	231.4	-1,201.0	1,399.0	1,342.7	56.35	24.829	
2,755.9	2,720.6	2,721.6	2,721.6	7.6	53.6	-141.67	231.4	-1,201.0	1,417.1	1,359.8	57.28	24.741	
2,776.7	2,739.5	2,740.5	2,740.5	7.8	54.0	-141.79	231.4	-1,201.0	1,424.0	1,366.4	57.61	24.717	
2,800.0	2,760.8	2,761.8	2,761.8	7.9	54.4	-142.02	231.4	-1,201.0	1,431.9	1,373.8	58.10	24.647	
2,854.3	2,810.2	2,811.2	2,811.2	8.3	55.4	-142.55	231.4	-1,201.0	1,450.4	1,391.1	59.22	24.489	
2,900.0	2,851.7	2,852.7	2,852.7	8.7	56.2	-142.98	231.4	-1,201.0	1,466.0	1,405.8	60.17	24.363	
2,952.7	2,899.7	2,900.7	2,900.7	9.1	57.2	-143.48	231.4	-1,201.0	1,484.1	1,422.8	61.27	24.222	
3,000.0	2,942.7	2,943.7	2,943.7	9.4	58.0	-143.91	231.4	-1,201.0	1,500.4	1,438.1	62.25	24.102	
3,051.2	2,989.3	2,990.3	2,990.3	9.8	59.0	-144.37	231.4	-1,201.0	1,518.1	1,454.8	63.32	23.976	
3,100.0	3,033.7	3,034.7	3,034.7	10.2	59.9	-144.80	231.4	-1,201.0	1,535.2	1,470.8	64.33	23.862	
3,149.6	3,078.8	3,079.8	3,079.8	10.5	60.8	-145.22	231.4	-1,201.0	1,552.5	1,487.2	65.37	23.751	
3,200.0	3,124.6	3,125.6	3,125.6	10.9	61.7	-145.65	231.4	-1,201.0	1,570.3	1,503.9	66.42	23.643	
3,248.0	3,168.3	3,169.3	3,169.3	11.3	62.6	-146.04	231.4	-1,201.0	1,587.2	1,519.8	67.42	23.544	
3,300.0	3,215.6	3,216.6	3,216.6	11.7	63.5	-146.46	231.4	-1,201.0	1,605.7	1,537.2	68.50	23.442	
3,346.4	3,257.9	3,258.9	3,258.9	12.1	64.4	-146.83	231.4	-1,201.0	1,622.2	1,552.8	69.46	23.354	
3,400.0	3,306.6	3,307.6	3,307.6	12.5	65.4	-147.24	231.4	-1,201.0	1,641.4	1,570.8	70.57	23.257	
3,444.9	3,347.4	3,348.4	3,348.4	12.9	66.2	-147.58	231.4	-1,201.0	1,657.5	1,586.0	71.51	23.179	
3,500.0	3,397.6	3,398.6	3,398.6	13.3	67.2	-147.99	231.4	-1,201.0	1,677.3	1,604.7	72.65	23.088	
3,543.3	3,436.9	3,437.9	3,437.9	13.7	68.0	-148.30	231.4	-1,201.0	1,693.0	1,619.4	73.55	23.019	
3,600.0	3,488.5	3,489.5	3,489.5	14.1	69.0	-148.71	231.4	-1,201.0	1,713.6	1,638.8	74.72	22.933	
3,641.7	3,526.5	3,527.5	3,527.5	14.5	69.8	-149.00	231.4	-1,201.0	1,728.7	1,653.2	75.58	22.872	
3,700.0	3,579.5	3,580.5	3,580.5	15.0	70.8	-149.40	231.4	-1,201.0	1,750.0	1,673.2	76.79	22.790	
3,740.1	3,616.0	3,617.0	3,617.0	15.3	71.6	-149.67	231.4	-1,201.0	1,764.7	1,687.1	77.62	22.736	
3,800.0	3,670.5	3,671.5	3,671.5	15.8	72.7	-150.06	231.4	-1,201.0	1,786.7	1,707.8	78.85	22.659	
3,838.6	3,705.6	3,706.6	3,706.6	16.1	73.4	-150.31	231.4	-1,201.0	1,800.9	1,721.2	79.65	22.611	
3,900.0	3,761.4	3,762.4	3,762.4	16.6	74.5	-150.70	231.4	-1,201.0	1,823.6	1,742.7	80.91	22.538	
3,937.0	3,795.1	3,796.1	3,796.1	16.9	75.2	-150.93	231.4	-1,201.0	1,837.3	1,755.6	81.67	22.495	
4,000.0	3,852.4	3,853.4	3,853.4	17.4	76.3	-151.31	231.4	-1,201.0	1,860.6	1,777.7	82.97	22.426	
4,035.4	3,884.6	3,885.6	3,885.6	17.7	77.0	-151.52	231.4	-1,201.0	1,873.8	1,790.1	83.70	22.388	
4,100.0	3,943.4	3,944.4	3,944.4	18.3	78.2	-151.90	231.4	-1,201.0	1,897.9	1,812.9	85.02	22.323	
4,133.8	3,974.2	3,975.2	3,975.2	18.6	78.8	-152.10	231.4	-1,201.0	1,910.6	1,824.8	85.72	22.290	
4,200.0	4,034.4	4,035.4	4,035.4	19.1	80.0	-152.47	231.4	-1,201.0	1,935.3	1,848.3	87.07	22.227	
4,232.3	4,063.7	4,064.7	4,064.7	19.4	80.6	-152.65	231.4	-1,201.0	1,947.5	1,859.7	87.73	22.198	
4,300.0	4,125.3	4,126.3	4,126.3	19.9	81.8	-153.02	231.4	-1,201.0	1,972.9	1,883.8	89.12	22.139	
4,330.7	4,153.3	4,154.3	4,154.3	20.2	82.4	-153.18	231.4	-1,201.0	1,984.5	1,894.8	89.74	22.113	
4,400.0	4,216.3	4,217.3	4,217.3	20.8	83.6	-153.54	231.4	-1,201.0	2,010.7	1,919.5	91.16	22.057	
4,429.1	4,242.8	4,243.8	4,243.8	21.0	84.2	-153.69	231.4	-1,201.0	2,021.7	1,930.0	91.76	22.034	
4,500.0	4,307.3	4,308.3	4,308.3	21.6	85.5	-154.05	231.4	-1,201.0	2,048.6	1,955.4	93.20	21.980	
4,527.5	4,332.3	4,333.3	4,333.3	21.9	86.0	-154.19	231.4	-1,201.0	2,059.1	1,965.3	93.76	21.960	
4,600.0	4,398.2	4,399.2	4,399.2	22.5	87.3	-154.54	231.4	-1,201.0	2,086.6	1,991.4	95.24	21.910	
4,626.0	4,421.9	4,422.9	4,422.9	22.7	87.8	-154.67	231.4	-1,201.0	2,096.5	2,000.8	95.77	21.892	
4,700.0	4,489.2	4,490.2	4,490.2	23.3	89.1	-155.02	231.4	-1,201.0	2,124.8	2,027.5	97.27	21.843	
4,724.4	4,511.4	4,512.4	4,512.4	23.5	89.6	-155.13	231.4	-1,201.0	2,134.1	2,036.4	97.77	21.828	
4,800.0	4,580.2	4,581.2	4,581.2	24.2	91.0	-155.48	231.4	-1,201.0	2,163.1	2,063.8	99.31	21.782	
4,822.8	4,601.0	4,602.0	4,602.0	24.4	91.4	-155.58	231.4	-1,201.0	2,171.8	2,072.1	99.77	21.768	
4,900.0	4,671.2	4,672.2	4,672.2	25.0	92.8	-155.92	231.4	-1,201.0	2,201.5	2,100.2	101.34	21.724	
4,921.2	4,690.5	4,691.5	4,691.5	25.2	93.2	-156.01	231.4	-1,201.0	2,209.7	2,107.9	101.77	21.713	
5,000.0	4,762.1	4,763.1	4,763.1	25.9	94.6	-156.34	231.4	-1,201.0	2,240.0	2,136.6	103.37	21.671	
5,019.7	4,780.0	4,781.0	4,781.0	26.0	95.0	-156.43	231.4	-1,201.0	2,247.6	2,143.8	103.77	21.660	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,854.1	4,854.1	26.7	96.5	-156.76	231.4	-1,201.0	2,278.6	2,173.2	105.39	21.620	
5,118.1	4,869.6	4,870.6	4,870.6	26.9	96.8	-156.83	231.4	-1,201.0	2,285.6	2,179.9	105.76	21.612	
5,200.0	4,944.1	4,945.1	4,945.1	27.6	98.3	-157.16	231.4	-1,201.0	2,317.4	2,209.9	107.42	21.573	
5,216.5	4,959.1	4,960.1	4,960.1	27.7	98.6	-157.22	231.4	-1,201.0	2,323.8	2,216.0	107.75	21.566	
5,300.0	5,035.0	5,036.0	5,036.0	28.4	100.1	-157.54	231.4	-1,201.0	2,356.2	2,246.7	109.44	21.529	
5,314.9	5,048.6	5,049.6	5,049.6	28.6	100.4	-157.60	231.4	-1,201.0	2,362.0	2,252.3	109.74	21.523	
5,400.0	5,126.0	5,127.0	5,127.0	29.3	101.9	-157.92	231.4	-1,201.0	2,395.1	2,283.6	111.46	21.488	
5,413.4	5,138.2	5,139.2	5,139.2	29.4	102.2	-157.97	231.4	-1,201.0	2,400.3	2,288.6	111.73	21.482	
5,479.4	5,198.3	5,199.3	5,199.3	30.0	103.4	-158.21	231.4	-1,201.0	2,426.1	2,313.0	113.07	21.456	
5,500.0	5,217.0	5,218.0	5,218.0	30.1	103.8	-158.35	231.4	-1,201.0	2,434.0	2,320.3	113.73	21.402	
5,511.8	5,227.8	5,228.8	5,228.8	30.2	104.0	-158.42	231.4	-1,201.0	2,438.5	2,324.4	114.10	21.372	
5,600.0	5,309.0	5,310.0	5,310.0	30.8	105.6	-158.97	231.4	-1,201.0	2,471.0	2,354.1	116.89	21.140	
5,610.2	5,318.5	5,319.5	5,319.5	30.8	105.8	-159.03	231.4	-1,201.0	2,474.6	2,357.4	117.21	21.113	
5,700.0	5,402.3	5,403.3	5,403.3	31.4	107.5	-159.51	231.4	-1,201.0	2,505.0	2,384.9	120.02	20.871	
5,708.6	5,410.4	5,411.4	5,411.4	31.4	107.7	-159.56	231.4	-1,201.0	2,507.8	2,387.5	120.29	20.847	
5,800.0	5,496.7	5,497.7	5,497.7	31.9	109.4	-160.00	231.4	-1,201.0	2,535.9	2,412.8	123.11	20.598	
5,807.1	5,503.5	5,504.5	5,504.5	31.9	109.5	-160.03	231.4	-1,201.0	2,538.0	2,414.6	123.33	20.579	
5,900.0	5,592.3	5,593.3	5,593.3	32.4	111.3	-160.41	231.4	-1,201.0	2,563.7	2,437.6	126.14	20.324	
5,905.5	5,597.6	5,598.6	5,598.6	32.4	111.4	-160.44	231.4	-1,201.0	2,565.2	2,438.9	126.31	20.309	
6,000.0	5,688.8	5,689.8	5,689.8	32.9	113.3	-160.78	231.4	-1,201.0	2,588.4	2,459.3	129.10	20.050	
6,003.9	5,692.6	5,693.6	5,693.6	32.9	113.3	-160.79	231.4	-1,201.0	2,589.3	2,460.1	129.21	20.039	
6,100.0	5,786.2	5,787.2	5,787.2	33.3	115.2	-161.08	231.4	-1,201.0	2,609.9	2,478.0	131.97	19.777	
6,102.3	5,788.5	5,789.5	5,789.5	33.3	115.3	-161.09	231.4	-1,201.0	2,610.4	2,478.4	132.03	19.771	
6,200.0	5,884.3	5,885.3	5,885.3	33.6	117.2	-161.34	231.4	-1,201.0	2,628.2	2,493.5	134.74	19.506	
6,200.8	5,885.1	5,886.1	5,886.1	33.6	117.2	-161.34	231.4	-1,201.0	2,628.4	2,493.6	134.76	19.504	
6,299.2	5,982.3	5,983.3	5,983.3	33.9	119.2	-161.54	231.4	-1,201.0	2,643.2	2,505.8	137.37	19.241	
6,300.0	5,983.1	5,984.1	5,984.1	33.9	119.2	-161.54	231.4	-1,201.0	2,643.3	2,505.9	137.39	19.239	
6,397.6	6,079.9	6,080.9	6,080.9	34.1	121.1	-161.70	231.4	-1,201.0	2,654.8	2,515.0	139.87	18.981	
6,400.0	6,082.3	6,083.3	6,083.3	34.1	121.2	-161.70	231.4	-1,201.0	2,655.1	2,515.1	139.92	18.975	
6,496.0	6,177.9	6,178.9	6,178.9	34.3	123.1	-161.81	231.4	-1,201.0	2,663.3	2,521.0	142.23	18.725	
6,500.0	6,181.9	6,182.9	6,182.9	34.3	123.2	-161.82	231.4	-1,201.0	2,663.5	2,521.2	142.32	18.715	
6,594.5	6,276.2	6,277.2	6,277.2	34.5	125.1	-161.88	231.4	-1,201.0	2,668.5	2,524.1	144.45	18.473	
6,600.0	6,281.7	6,282.7	6,282.7	34.5	125.2	-161.89	231.4	-1,201.0	2,668.7	2,524.1	144.57	18.459	
6,692.9	6,374.6	6,375.6	6,375.6	34.6	127.1	-161.91	231.4	-1,201.0	2,670.6	2,524.0	146.53	18.225	
6,706.1	6,387.8	6,388.8	6,388.8	34.6	127.3	-103.69	231.4	-1,201.0	2,670.6	2,523.8	146.80	18.192	
6,736.1	6,417.8	6,418.8	6,418.8	34.6	127.9	-103.69	231.4	-1,201.0	2,670.6	2,523.1	147.44	18.113	
6,750.0	6,431.7	6,432.7	6,432.7	34.6	128.2	76.31	231.4	-1,201.0	2,670.6	2,522.8	147.72	18.078	
6,791.3	6,473.0	6,474.0	6,474.0	34.6	129.0	76.39	231.4	-1,201.0	2,670.1	2,521.5	148.54	17.976	
6,800.0	6,481.6	6,482.6	6,482.6	34.6	129.2	76.42	231.4	-1,201.0	2,669.9	2,521.2	148.71	17.954	
6,850.0	6,531.2	6,532.2	6,532.2	34.6	130.2	76.66	231.4	-1,201.0	2,668.5	2,518.8	149.67	17.829	
6,889.7	6,570.3	6,571.3	6,571.3	34.6	131.0	76.95	231.4	-1,201.0	2,666.7	2,516.3	150.42	17.728	
6,900.0	6,580.3	6,581.3	6,581.3	34.6	131.2	77.03	231.4	-1,201.0	2,666.2	2,515.6	150.62	17.702	
6,950.0	6,628.5	6,629.5	6,629.5	34.6	132.2	77.53	231.4	-1,201.0	2,663.3	2,511.7	151.55	17.573	
6,988.2	6,664.7	6,665.7	6,665.7	34.5	132.9	77.99	231.4	-1,201.0	2,660.5	2,508.3	152.26	17.474	
7,000.0	6,675.8	6,676.8	6,676.8	34.5	133.1	78.14	231.4	-1,201.0	2,659.6	2,507.1	152.48	17.443	
7,050.0	6,721.8	6,722.8	6,722.8	34.4	134.0	78.86	231.4	-1,201.0	2,655.4	2,502.0	153.40	17.310	
7,086.6	6,754.5	6,755.5	6,755.5	34.3	134.7	79.44	231.4	-1,201.0	2,651.9	2,497.9	154.08	17.212	
7,100.0	6,766.2	6,767.2	6,767.2	34.2	134.9	79.66	231.4	-1,201.0	2,650.6	2,496.3	154.33	17.175	
7,150.0	6,809.0	6,810.0	6,810.0	34.1	135.8	80.55	231.4	-1,201.0	2,645.5	2,490.2	155.25	17.040	
7,185.0	6,837.9	6,838.9	6,838.9	34.0	136.4	81.20	231.4	-1,201.0	2,641.7	2,485.8	155.90	16.945	
7,200.0	6,849.9	6,850.9	6,850.9	33.9	136.6	81.49	231.4	-1,201.0	2,640.0	2,483.8	156.17	16.905	
7,250.0	6,888.7	6,889.7	6,889.7	33.8	137.4	82.47	231.4	-1,201.0	2,634.4	2,477.3	157.07	16.772	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	6,914.4	6,914.4	33.6	137.9	83.13	231.4	-1,201.0	2,630.6	2,472.9	157.65	16.687	
7,300.0	6,925.2	6,926.2	6,926.2	33.6	138.1	83.46	231.4	-1,201.0	2,628.7	2,470.8	157.93	16.645	
7,350.0	6,959.2	6,960.2	6,960.2	33.4	138.8	84.46	231.4	-1,201.0	2,623.1	2,464.3	158.73	16.526	
7,381.9	6,979.6	6,980.6	6,980.6	33.3	139.2	85.08	231.4	-1,201.0	2,619.6	2,460.4	159.20	16.454	
7,400.0	6,990.6	6,991.6	6,991.6	33.2	139.4	85.43	231.4	-1,201.0	2,617.6	2,458.2	159.45	16.416	
7,450.0	7,019.2	7,020.2	7,020.2	33.0	140.0	86.35	231.4	-1,201.0	2,612.5	2,452.4	160.09	16.319	
7,480.3	7,035.1	7,036.1	7,036.1	32.8	140.3	86.88	231.4	-1,201.0	2,609.7	2,449.2	160.43	16.266	
7,500.0	7,044.9	7,045.9	7,045.9	32.8	140.5	87.21	231.4	-1,201.0	2,607.9	2,447.2	160.63	16.235	
7,550.0	7,067.5	7,068.5	7,068.5	32.6	141.0	87.98	231.4	-1,201.0	2,603.8	2,442.7	161.07	16.165	
7,578.7	7,079.1	7,080.1	7,080.1	32.4	141.2	88.38	231.4	-1,201.0	2,601.7	2,440.4	161.28	16.132	
7,600.0	7,086.9	7,087.9	7,087.9	32.3	141.4	88.65	231.4	-1,201.0	2,600.3	2,438.9	161.41	16.110	
7,650.0	7,103.1	7,104.1	7,104.1	32.1	141.7	89.20	231.4	-1,201.0	2,597.7	2,436.0	161.66	16.069	
7,677.1	7,110.5	7,111.5	7,111.5	32.0	141.9	89.45	231.4	-1,201.0	2,596.5	2,434.8	161.76	16.051	
7,700.0	7,116.0	7,117.0	7,117.0	32.0	142.0	89.63	231.4	-1,201.0	2,595.8	2,434.0	161.83	16.040	
7,750.0	7,125.4	7,126.4	7,126.4	31.8	142.2	89.91	231.4	-1,201.0	2,594.8	2,432.9	161.93	16.024	
7,775.6	7,128.9	7,129.9	7,129.9	31.7	142.2	90.00	231.4	-1,201.0	2,594.7	2,432.7	161.97	16.020	
7,776.8	7,129.0	7,130.0	7,130.0	31.7	142.2	90.00	231.4	-1,201.0	2,594.7	2,432.7	161.97	16.020	
7,800.0	7,131.4	7,132.4	7,132.4	31.6	142.3	90.04	231.4	-1,201.0	2,594.8	2,432.8	161.98	16.019 SF	
7,850.0	7,133.9	7,134.9	7,134.9	31.5	142.3	90.02	231.4	-1,201.0	2,595.7	2,433.7	161.99	16.024	
7,866.5	7,134.0	7,135.0	7,135.0	31.4	142.3	89.99	231.4	-1,201.0	2,596.2	2,434.3	161.98	16.028	
7,874.0	7,133.9	7,134.9	7,134.9	31.4	142.3	89.98	231.4	-1,201.0	2,596.5	2,434.5	161.98	16.030	
7,900.0	7,133.7	7,134.7	7,134.7	31.4	142.3	89.98	231.4	-1,201.0	2,597.6	2,435.6	161.98	16.037	
7,972.4	7,133.2	7,134.2	7,134.2	31.2	142.3	89.97	231.4	-1,201.0	2,602.0	2,440.0	162.07	16.055	
8,000.0	7,133.0	7,134.0	7,134.0	31.2	142.3	89.96	231.4	-1,201.0	2,604.3	2,442.1	162.10	16.065	
8,070.8	7,132.4	7,133.4	7,133.4	31.1	142.3	89.95	231.4	-1,201.0	2,611.3	2,449.0	162.32	16.087	
8,100.0	7,132.2	7,133.2	7,133.2	31.1	142.3	89.95	231.4	-1,201.0	2,614.7	2,452.3	162.41	16.099	
8,169.3	7,131.7	7,132.7	7,132.7	31.1	142.3	89.94	231.4	-1,201.0	2,624.2	2,461.4	162.74	16.124	
8,200.0	7,131.5	7,132.5	7,132.5	31.1	142.3	89.93	231.4	-1,201.0	2,628.9	2,466.0	162.89	16.139	
8,267.7	7,131.0	7,132.0	7,132.0	31.2	142.3	89.92	231.4	-1,201.0	2,640.7	2,477.3	163.33	16.168	
8,300.0	7,130.7	7,131.7	7,131.7	31.2	142.3	89.91	231.4	-1,201.0	2,646.9	2,483.3	163.54	16.185	
8,366.1	7,130.2	7,131.2	7,131.2	31.4	142.2	89.90	231.4	-1,201.0	2,660.7	2,496.7	164.06	16.218	
8,400.0	7,130.0	7,131.0	7,131.0	31.5	142.2	89.90	231.4	-1,201.0	2,668.4	2,504.1	164.33	16.238	
8,464.5	7,129.5	7,130.5	7,130.5	31.7	142.2	89.89	231.4	-1,201.0	2,684.2	2,519.3	164.92	16.276	
8,500.0	7,129.2	7,130.2	7,130.2	31.9	142.2	89.88	231.4	-1,201.0	2,693.5	2,528.3	165.25	16.300	
8,563.0	7,128.7	7,129.7	7,129.7	32.2	142.2	89.87	231.4	-1,201.0	2,711.1	2,545.2	165.91	16.341	
8,600.0	7,128.5	7,129.5	7,129.5	32.4	142.2	89.86	231.4	-1,201.0	2,722.1	2,555.8	166.29	16.369	
8,661.4	7,128.0	7,129.0	7,129.0	32.8	142.2	89.85	231.4	-1,201.0	2,741.3	2,574.3	166.99	16.416	
8,700.0	7,127.7	7,128.7	7,128.7	33.1	142.2	89.85	231.4	-1,201.0	2,754.0	2,586.5	167.43	16.448	
8,759.8	7,127.3	7,128.3	7,128.3	33.5	142.2	89.84	231.4	-1,201.0	2,774.6	2,606.4	168.17	16.499	
8,800.0	7,127.0	7,128.0	7,128.0	33.9	142.2	89.83	231.4	-1,201.0	2,789.1	2,620.4	168.66	16.536	
8,858.2	7,126.5	7,127.5	7,127.5	34.4	142.2	89.82	231.4	-1,201.0	2,810.9	2,641.5	169.42	16.591	
8,900.0	7,126.2	7,127.2	7,127.2	34.8	142.2	89.81	231.4	-1,201.0	2,827.3	2,657.3	169.97	16.634	
8,956.7	7,125.8	7,126.8	7,126.8	35.4	142.2	89.80	231.4	-1,201.0	2,850.2	2,679.5	170.75	16.693	
9,000.0	7,125.5	7,126.5	7,126.5	35.8	142.2	89.80	231.4	-1,201.0	2,868.4	2,697.1	171.34	16.741	
9,055.1	7,125.1	7,126.1	7,126.1	36.5	142.1	89.79	231.4	-1,201.0	2,892.4	2,720.2	172.13	16.803	
9,100.0	7,124.7	7,125.7	7,125.7	37.0	142.1	89.78	231.4	-1,201.0	2,912.5	2,739.7	172.78	16.857	
9,153.5	7,124.3	7,125.3	7,125.3	37.6	142.1	89.77	231.4	-1,201.0	2,937.2	2,763.6	173.57	16.922	
9,200.0	7,124.0	7,125.0	7,125.0	38.2	142.1	89.76	231.4	-1,201.0	2,959.2	2,785.0	174.26	16.982	
9,251.9	7,123.6	7,124.6	7,124.6	38.8	142.1	89.76	231.4	-1,201.0	2,984.6	2,809.5	175.05	17.050	
9,300.0	7,123.2	7,124.2	7,124.2	39.5	142.1	89.75	231.4	-1,201.0	3,008.6	2,832.8	175.78	17.116	
9,350.4	7,122.8	7,123.8	7,123.8	40.1	142.1	89.74	231.4	-1,201.0	3,034.4	2,857.9	176.57	17.186	
9,400.0	7,122.5	7,123.5	7,123.5	40.8	142.1	89.73	231.4	-1,201.0	3,060.4	2,883.1	177.34	17.257	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT NYGREN 21-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	7,123.1	7,123.1	41.5	142.1	89.72	231.4	-1,201.0	3,086.6	2,908.5	178.12	17.329	
9,500.0	7,121.7	7,122.7	7,122.7	42.2	142.1	89.71	231.4	-1,201.0	3,114.6	2,935.7	178.93	17.407	
9,547.2	7,121.4	7,122.4	7,122.4	42.9	142.1	89.71	231.4	-1,201.0	3,141.0	2,961.3	179.70	17.479	
9,600.0	7,121.0	7,122.0	7,122.0	43.7	142.1	89.70	231.4	-1,201.0	3,171.0	2,990.5	180.56	17.563	
9,645.6	7,120.6	7,121.6	7,121.6	44.3	142.1	89.69	231.4	-1,201.0	3,197.5	3,016.2	181.31	17.636	
9,700.0	7,120.2	7,121.2	7,121.2	45.1	142.0	89.68	231.4	-1,201.0	3,229.6	3,047.4	182.20	17.725	
9,744.1	7,119.9	7,120.9	7,120.9	45.8	142.0	89.67	231.4	-1,201.0	3,256.0	3,073.1	182.94	17.798	
9,800.0	7,119.5	7,120.5	7,120.5	46.6	142.0	89.66	231.4	-1,201.0	3,290.1	3,106.2	183.87	17.893	
9,842.5	7,119.1	7,120.1	7,120.1	47.3	142.0	89.66	231.4	-1,201.0	3,316.4	3,131.8	184.59	17.966	
9,900.0	7,118.7	7,119.7	7,119.7	48.2	142.0	89.65	231.4	-1,201.0	3,352.5	3,166.9	185.56	18.067	
9,940.9	7,118.4	7,119.4	7,119.4	48.8	142.0	89.64	231.4	-1,201.0	3,378.5	3,192.3	186.26	18.139	
10,000.0	7,118.0	7,119.0	7,119.0	49.8	142.0	89.63	231.4	-1,201.0	3,416.7	3,229.4	187.27	18.245	
10,039.3	7,117.7	7,118.7	7,118.7	50.4	142.0	89.63	231.4	-1,201.0	3,442.4	3,254.5	187.94	18.316	
10,100.0	7,117.2	7,118.2	7,118.2	51.4	142.0	89.62	231.4	-1,201.0	3,482.6	3,293.6	188.99	18.428	
10,137.8	7,116.9	7,117.9	7,117.9	52.0	142.0	89.61	231.4	-1,201.0	3,507.9	3,318.2	189.64	18.497	
10,200.0	7,116.5	7,117.5	7,117.5	53.0	142.0	89.60	231.4	-1,201.0	3,550.1	3,359.3	190.72	18.614	
10,236.2	7,116.2	7,117.2	7,117.2	53.6	142.0	89.59	231.4	-1,201.0	3,574.9	3,383.5	191.35	18.682	
10,300.0	7,115.7	7,116.7	7,116.7	54.6	142.0	89.58	231.4	-1,201.0	3,619.0	3,426.6	192.47	18.803	
10,334.6	7,115.5	7,116.5	7,116.5	55.2	142.0	89.58	231.4	-1,201.0	3,643.3	3,450.2	193.08	18.870	
10,400.0	7,115.0	7,116.0	7,116.0	56.3	141.9	89.57	231.4	-1,201.0	3,689.4	3,495.2	194.23	18.996	
10,433.0	7,114.7	7,115.7	7,115.7	56.8	141.9	89.56	231.4	-1,201.0	3,713.0	3,518.2	194.81	19.060	
10,500.0	7,114.2	7,115.2	7,115.2	58.0	141.9	89.55	231.4	-1,201.0	3,761.2	3,565.2	195.99	19.190	
10,531.5	7,114.0	7,115.0	7,115.0	58.5	141.9	89.54	231.4	-1,201.0	3,784.0	3,587.5	196.55	19.252	
10,600.0	7,113.5	7,114.5	7,114.5	59.7	141.9	89.53	231.4	-1,201.0	3,834.2	3,636.4	197.77	19.387	
10,629.9	7,113.2	7,114.2	7,114.2	60.2	141.9	89.53	231.4	-1,201.0	3,856.3	3,658.0	198.30	19.446	
10,700.0	7,112.7	7,113.7	7,113.7	61.4	141.9	89.52	231.4	-1,201.0	3,908.4	3,708.9	199.56	19.586	
10,728.3	7,112.5	7,113.5	7,113.5	61.8	141.9	89.51	231.4	-1,201.0	3,929.6	3,729.6	200.06	19.642	
10,800.0	7,112.0	7,113.0	7,113.0	63.1	141.9	89.50	231.4	-1,201.0	3,983.7	3,782.4	201.35	19.785	
10,826.7	7,111.8	7,112.8	7,112.8	63.5	141.9	89.49	231.4	-1,201.0	4,004.1	3,802.3	201.83	19.839	
10,900.0	7,111.2	7,112.2	7,112.2	64.8	141.9	89.48	231.4	-1,201.0	4,060.1	3,857.0	203.15	19.986	
10,925.2	7,111.0	7,112.0	7,112.0	65.2	141.9	89.48	231.4	-1,201.0	4,079.5	3,875.9	203.60	20.037	
11,000.0	7,110.5	7,111.5	7,111.5	66.5	141.9	89.47	231.4	-1,201.0	4,137.6	3,932.6	204.95	20.188	
11,023.6	7,110.3	7,111.3	7,111.3	66.9	141.8	89.46	231.4	-1,201.0	4,156.0	3,950.6	205.38	20.236	
11,100.0	7,109.7	7,110.7	7,110.7	68.3	141.8	89.45	231.4	-1,201.0	4,215.9	4,009.2	206.76	20.390	
11,122.0	7,109.5	7,110.5	7,110.5	68.7	141.8	89.45	231.4	-1,201.0	4,233.3	4,026.1	207.16	20.435	
11,200.0	7,109.0	7,110.0	7,110.0	70.0	141.8	89.43	231.4	-1,201.0	4,295.2	4,086.6	208.58	20.593	
11,220.4	7,108.8	7,109.8	7,109.8	70.4	141.8	89.43	231.4	-1,201.0	4,311.5	4,102.5	208.95	20.634	
11,300.0	7,108.2	7,109.2	7,109.2	71.8	141.8	89.42	231.4	-1,201.0	4,375.3	4,164.9	210.40	20.795	
11,318.9	7,108.1	7,109.1	7,109.1	72.1	141.8	89.41	231.4	-1,201.0	4,390.5	4,179.7	210.74	20.833	
11,400.0	7,107.5	7,108.5	7,108.5	73.6	141.8	89.40	231.4	-1,201.0	4,456.2	4,244.0	212.23	20.997	
11,417.3	7,107.3	7,108.3	7,108.3	73.9	141.8	89.40	231.4	-1,201.0	4,470.3	4,257.7	212.54	21.032	
11,500.0	7,106.7	7,107.7	7,107.7	75.3	141.8	89.38	231.4	-1,201.0	4,537.9	4,323.8	214.05	21.200	
11,515.7	7,106.6	7,107.6	7,107.6	75.6	141.8	89.38	231.4	-1,201.0	4,550.8	4,336.4	214.34	21.231	
11,600.0	7,106.0	7,107.0	7,107.0	77.1	141.8	89.37	231.4	-1,201.0	4,620.2	4,404.4	215.89	21.401	
11,614.1	7,105.9	7,106.9	7,106.9	77.4	141.8	89.36	231.4	-1,201.0	4,632.0	4,415.8	216.15	21.430	
11,700.0	7,105.2	7,106.2	7,106.2	78.9	141.7	89.35	231.4	-1,201.0	4,703.3	4,485.6	217.72	21.602	
11,712.6	7,105.1	7,106.1	7,106.1	79.2	141.7	89.35	231.4	-1,201.0	4,713.8	4,495.9	217.96	21.627	
11,800.0	7,104.5	7,105.5	7,105.5	80.7	141.7	89.33	231.4	-1,201.0	4,787.0	4,567.5	219.56	21.803	
11,811.0	7,104.4	7,105.4	7,105.4	80.9	141.7	89.33	231.4	-1,201.0	4,796.3	4,576.5	219.77	21.825	
11,860.2	7,104.0	7,105.0	7,105.0	81.8	141.7	89.32	231.4	-1,201.0	4,837.8	4,617.1	220.67	21.923	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-INC — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-133.66	-780.7	-818.0	1,130.8				
98.4	98.4	94.4	94.4	0.1	0.2	-133.66	-780.7	-818.0	1,130.7	1,130.5	0.27	4,136.830	
100.0	100.0	96.0	96.0	0.1	0.2	-133.66	-780.7	-818.0	1,130.7	1,130.5	0.28	4,063.752	
196.8	196.8	192.8	192.8	0.3	2.6	-133.66	-780.7	-818.0	1,130.7	1,127.8	2.90	389.767	
200.0	200.0	196.0	196.0	0.3	2.7	-133.66	-780.7	-818.0	1,130.7	1,127.8	2.99	378.241	
295.3	295.3	291.3	291.3	0.5	4.7	-133.66	-780.7	-818.0	1,130.7	1,125.6	5.19	217.668	
300.0	300.0	296.0	296.0	0.5	4.8	-133.66	-780.7	-818.0	1,130.7	1,125.4	5.30	213.221	
393.7	393.7	389.7	389.7	0.7	6.7	-133.66	-780.7	-818.0	1,130.7	1,123.3	7.42	152.363	
400.0	400.0	396.0	396.0	0.8	6.8	-133.66	-780.7	-818.0	1,130.7	1,123.2	7.56	149.496	
492.1	492.1	488.1	488.1	1.0	8.7	-133.66	-780.7	-818.0	1,130.7	1,121.1	9.64	117.351	
500.0	500.0	496.0	496.0	1.0	8.8	-133.66	-780.7	-818.0	1,130.7	1,120.9	9.81	115.233	
590.5	590.5	586.5	586.5	1.2	10.7	-133.66	-780.7	-818.0	1,130.7	1,118.9	11.84	95.465	
600.0	600.0	596.0	596.0	1.2	10.8	-133.66	-780.7	-818.0	1,130.7	1,118.7	12.06	93.786	
689.0	689.0	685.0	685.0	1.4	12.6	-133.66	-780.7	-818.0	1,130.7	1,116.7	14.05	80.475	
700.0	700.0	696.0	696.0	1.4	12.9	-133.66	-780.7	-818.0	1,130.7	1,116.4	14.30	79.084	
787.4	787.4	783.4	783.4	1.6	14.6	-133.66	-780.7	-818.0	1,130.7	1,114.5	16.26	69.560	
800.0	800.0	796.0	796.0	1.7	14.9	-133.66	-780.7	-818.0	1,130.7	1,114.2	16.54	68.373	
885.8	885.8	881.8	881.8	1.9	16.6	-133.66	-780.7	-818.0	1,130.7	1,112.3	18.46	61.256	
900.0	900.0	896.0	896.0	1.9	16.9	-133.66	-780.7	-818.0	1,130.7	1,112.0	18.78	60.221	
984.2	984.2	980.2	980.2	2.1	18.6	-133.66	-780.7	-818.0	1,130.7	1,110.1	20.66	54.725	
1,000.0	1,000.0	996.0	996.0	2.1	18.9	-133.66	-780.7	-818.0	1,130.7	1,109.7	21.01	53.807	
1,082.7	1,082.7	1,078.7	1,078.7	2.3	20.6	-133.66	-780.7	-818.0	1,130.7	1,107.9	22.86	49.453	
1,100.0	1,100.0	1,096.0	1,096.0	2.3	20.9	-133.66	-780.7	-818.0	1,130.7	1,107.5	23.25	48.629	
1,181.1	1,181.1	1,177.1	1,177.1	2.5	22.6	-133.66	-780.7	-818.0	1,130.7	1,105.7	25.07	45.109	
1,200.0	1,200.0	1,196.0	1,196.0	2.6	22.9	-133.66	-780.7	-818.0	1,130.7	1,105.3	25.49	44.360	
1,279.5	1,279.5	1,275.5	1,275.5	2.7	24.5	-133.66	-780.7	-818.0	1,130.7	1,103.5	27.27	41.466	
1,300.0	1,300.0	1,296.0	1,296.0	2.8	24.9	-133.66	-780.7	-818.0	1,130.7	1,103.0	27.73	40.781	
1,377.9	1,377.9	1,373.9	1,373.9	3.0	26.5	-133.66	-780.7	-818.0	1,130.7	1,101.3	29.47	38.369	
1,400.0	1,400.0	1,396.0	1,396.0	3.0	27.0	-133.66	-780.7	-818.0	1,130.7	1,100.8	29.96	37.737	
1,476.4	1,476.4	1,472.4	1,472.4	3.2	28.5	-133.66	-780.7	-818.0	1,130.7	1,099.1	31.67	35.702	
1,500.0	1,500.0	1,496.0	1,496.0	3.2	29.0	-133.66	-780.7	-818.0	1,130.7	1,098.5	32.20	35.116	
1,550.0	1,550.0	1,546.0	1,546.0	3.3	30.0	-133.66	-780.7	-818.0	1,130.7	1,097.4	33.32	33.937 CC	
1,574.8	1,574.8	1,570.8	1,570.8	3.4	30.5	168.12	-780.7	-818.0	1,130.9	1,097.0	33.87	33.387	
1,600.0	1,600.0	1,596.0	1,596.0	3.5	31.0	168.12	-780.7	-818.0	1,131.2	1,096.7	34.43	32.855 ES	
1,673.2	1,673.2	1,669.2	1,669.2	3.6	32.5	168.13	-780.7	-818.0	1,133.3	1,097.3	36.03	31.455	
1,700.0	1,699.9	1,695.9	1,695.9	3.7	33.0	168.14	-780.7	-818.0	1,134.6	1,098.0	36.61	30.991	
1,771.6	1,771.4	1,767.4	1,767.4	3.8	34.4	168.17	-780.7	-818.0	1,139.1	1,101.0	38.14	29.865	
1,800.0	1,799.7	1,795.7	1,795.7	3.9	35.0	168.19	-780.7	-818.0	1,141.4	1,102.7	38.74	29.463	
1,870.1	1,869.4	1,865.4	1,865.4	4.0	36.4	168.23	-780.7	-818.0	1,148.2	1,108.0	40.20	28.563	
1,900.0	1,899.1	1,895.1	1,895.1	4.1	37.0	168.25	-780.7	-818.0	1,151.7	1,110.8	40.81	28.219	
1,968.5	1,967.0	1,963.0	1,963.0	4.3	38.4	168.31	-780.7	-818.0	1,160.6	1,118.4	42.19	27.509	
2,000.0	1,998.2	1,994.2	1,994.2	4.4	39.0	168.34	-780.7	-818.0	1,165.3	1,122.5	42.81	27.218	
2,066.9	2,064.1	2,060.1	2,060.1	4.5	40.3	168.40	-780.7	-818.0	1,176.3	1,132.2	44.11	26.666	
2,100.0	2,096.6	2,092.6	2,092.6	4.6	41.0	168.44	-780.7	-818.0	1,182.3	1,137.6	44.74	26.427	
2,165.3	2,160.6	2,156.6	2,156.6	4.8	42.3	168.51	-780.7	-818.0	1,195.2	1,149.3	45.95	26.010	
2,200.0	2,194.4	2,190.4	2,190.4	4.9	42.9	168.55	-780.7	-818.0	1,202.7	1,156.1	46.58	25.820	
2,263.8	2,256.4	2,252.4	2,252.4	5.2	44.2	168.63	-780.7	-818.0	1,217.4	1,169.7	47.71	25.518	
2,300.0	2,291.5	2,287.5	2,287.5	5.3	44.9	168.68	-780.7	-818.0	1,226.4	1,178.1	48.33	25.376	
2,362.2	2,351.4	2,347.4	2,347.4	5.5	46.1	168.77	-780.7	-818.0	1,242.9	1,193.5	49.37	25.174	
2,400.0	2,387.6	2,383.6	2,383.6	5.7	46.8	168.82	-780.7	-818.0	1,253.5	1,203.5	49.98	25.079	
2,460.6	2,445.4	2,441.4	2,441.4	6.0	48.0	168.91	-780.7	-818.0	1,271.5	1,220.6	50.93	24.965	
2,500.0	2,482.7	2,478.7	2,478.7	6.2	48.7	168.96	-780.7	-818.0	1,283.9	1,232.4	51.53	24.916	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,534.3	2,534.3	6.5	49.9	169.05	-780.7	-818.0	1,303.4	1,251.0	52.39	24.876	
2,600.0	2,576.6	2,572.6	2,572.6	6.7	50.6	169.11	-780.7	-818.0	1,317.5	1,264.6	52.97	24.875	
2,657.5	2,630.1	2,626.1	2,626.1	7.0	51.7	169.20	-780.7	-818.0	1,338.3	1,284.6	53.74	24.903	
2,700.0	2,669.4	2,665.4	2,665.4	7.3	52.5	169.27	-780.7	-818.0	1,354.4	1,300.1	54.29	24.950	
2,755.9	2,720.6	2,716.6	2,716.6	7.6	53.5	169.35	-780.7	-818.0	1,376.4	1,321.5	54.97	25.039	
2,776.7	2,739.5	2,735.5	2,735.5	7.8	53.9	169.38	-780.7	-818.0	1,384.9	1,329.7	55.21	25.081	
2,800.0	2,760.8	2,756.8	2,756.8	7.9	54.3	169.46	-780.7	-818.0	1,394.4	1,338.7	55.67	25.046	
2,854.3	2,810.2	2,806.2	2,806.2	8.3	55.3	169.62	-780.7	-818.0	1,416.7	1,359.9	56.75	24.965	
2,900.0	2,851.7	2,847.7	2,847.7	8.7	56.2	169.76	-780.7	-818.0	1,435.4	1,377.7	57.65	24.900	
2,952.7	2,899.7	2,895.7	2,895.7	9.1	57.1	169.91	-780.7	-818.0	1,457.0	1,398.3	58.69	24.825	
3,000.0	2,942.7	2,938.7	2,938.7	9.4	58.0	170.04	-780.7	-818.0	1,476.4	1,416.7	59.62	24.761	
3,051.2	2,989.3	2,985.3	2,985.3	9.8	58.9	170.18	-780.7	-818.0	1,497.3	1,436.7	60.64	24.692	
3,100.0	3,033.7	3,029.7	3,029.7	10.2	59.8	170.31	-780.7	-818.0	1,517.4	1,455.8	61.61	24.629	
3,149.6	3,078.8	3,074.8	3,074.8	10.5	60.7	170.44	-780.7	-818.0	1,537.7	1,475.1	62.60	24.566	
3,200.0	3,124.6	3,120.6	3,120.6	10.9	61.6	170.57	-780.7	-818.0	1,558.4	1,494.8	63.60	24.504	
3,248.0	3,168.3	3,164.3	3,164.3	11.3	62.5	170.69	-780.7	-818.0	1,578.1	1,513.6	64.56	24.446	
3,300.0	3,215.6	3,211.6	3,211.6	11.7	63.5	170.81	-780.7	-818.0	1,599.5	1,533.9	65.59	24.385	
3,346.4	3,257.9	3,253.9	3,253.9	12.1	64.3	170.92	-780.7	-818.0	1,618.6	1,552.0	66.52	24.331	
3,400.0	3,306.6	3,302.6	3,302.6	12.5	65.3	171.04	-780.7	-818.0	1,640.6	1,573.0	67.59	24.272	
3,444.9	3,347.4	3,343.4	3,343.4	12.9	66.1	171.14	-780.7	-818.0	1,659.0	1,590.5	68.49	24.223	
3,500.0	3,397.6	3,393.6	3,393.6	13.3	67.1	171.26	-780.7	-818.0	1,681.7	1,612.1	69.59	24.165	
3,543.3	3,436.9	3,432.9	3,432.9	13.7	67.9	171.36	-780.7	-818.0	1,699.5	1,629.0	70.46	24.120	
3,600.0	3,488.5	3,484.5	3,484.5	14.1	69.0	171.47	-780.7	-818.0	1,722.8	1,651.2	71.60	24.063	
3,641.7	3,526.5	3,522.5	3,522.5	14.5	69.7	171.56	-780.7	-818.0	1,740.0	1,667.6	72.43	24.022	
3,700.0	3,579.5	3,575.5	3,575.5	15.0	70.8	171.67	-780.7	-818.0	1,764.0	1,690.4	73.60	23.966	
3,740.1	3,616.0	3,612.0	3,612.0	15.3	71.5	171.75	-780.7	-818.0	1,780.5	1,706.1	74.41	23.928	
3,800.0	3,670.5	3,666.5	3,666.5	15.8	72.6	171.86	-780.7	-818.0	1,805.1	1,729.5	75.61	23.874	
3,838.6	3,705.6	3,701.6	3,701.6	16.1	73.3	171.93	-780.7	-818.0	1,821.0	1,744.6	76.39	23.839	
3,900.0	3,761.4	3,757.4	3,757.4	16.6	74.5	172.05	-780.7	-818.0	1,846.3	1,768.7	77.62	23.786	
3,937.0	3,795.1	3,791.1	3,791.1	16.9	75.1	172.11	-780.7	-818.0	1,861.6	1,783.2	78.37	23.755	
4,000.0	3,852.4	3,848.4	3,848.4	17.4	76.3	172.22	-780.7	-818.0	1,887.5	1,807.9	79.63	23.703	
4,035.4	3,884.6	3,880.6	3,880.6	17.7	76.9	172.28	-780.7	-818.0	1,902.1	1,821.8	80.35	23.674	
4,100.0	3,943.4	3,939.4	3,939.4	18.3	78.1	172.39	-780.7	-818.0	1,928.7	1,847.1	81.65	23.623	
4,133.8	3,974.2	3,970.2	3,970.2	18.6	78.7	172.44	-780.7	-818.0	1,942.7	1,860.4	82.33	23.597	
4,200.0	4,034.4	4,030.4	4,030.4	19.1	79.9	172.55	-780.7	-818.0	1,970.0	1,886.3	83.66	23.547	
4,232.3	4,063.7	4,059.7	4,059.7	19.4	80.5	172.60	-780.7	-818.0	1,983.3	1,899.0	84.31	23.523	
4,300.0	4,125.3	4,121.3	4,121.3	19.9	81.8	172.70	-780.7	-818.0	2,011.2	1,925.5	85.68	23.474	
4,330.7	4,153.3	4,149.3	4,149.3	20.2	82.3	172.75	-780.7	-818.0	2,023.9	1,937.6	86.30	23.452	
4,400.0	4,216.3	4,212.3	4,212.3	20.8	83.6	172.85	-780.7	-818.0	2,052.4	1,964.8	87.69	23.404	
4,429.1	4,242.8	4,238.8	4,238.8	21.0	84.1	172.89	-780.7	-818.0	2,064.5	1,976.2	88.28	23.385	
4,500.0	4,307.3	4,303.3	4,303.3	21.6	85.4	172.99	-780.7	-818.0	2,093.7	2,004.0	89.71	23.338	
4,527.5	4,332.3	4,328.3	4,328.3	21.9	85.9	173.03	-780.7	-818.0	2,105.1	2,014.8	90.27	23.320	
4,600.0	4,398.2	4,394.2	4,394.2	22.5	87.3	173.12	-780.7	-818.0	2,135.0	2,043.2	91.73	23.274	
4,626.0	4,421.9	4,417.9	4,417.9	22.7	87.7	173.16	-780.7	-818.0	2,145.7	2,053.4	92.26	23.258	
4,700.0	4,489.2	4,485.2	4,485.2	23.3	89.1	173.25	-780.7	-818.0	2,176.3	2,082.5	93.75	23.213	
4,724.4	4,511.4	4,507.4	4,507.4	23.5	89.5	173.29	-780.7	-818.0	2,186.3	2,092.1	94.24	23.199	
4,800.0	4,580.2	4,576.2	4,576.2	24.2	90.9	173.38	-780.7	-818.0	2,217.5	2,121.8	95.77	23.155	
4,822.8	4,601.0	4,597.0	4,597.0	24.4	91.3	173.41	-780.7	-818.0	2,227.0	2,130.7	96.23	23.142	
4,900.0	4,671.2	4,667.2	4,667.2	25.0	92.7	173.50	-780.7	-818.0	2,258.8	2,161.1	97.79	23.098	
4,921.2	4,690.5	4,686.5	4,686.5	25.2	93.1	173.53	-780.7	-818.0	2,267.6	2,169.4	98.22	23.087	
5,000.0	4,762.1	4,758.1	4,758.1	25.9	94.6	173.62	-780.7	-818.0	2,300.1	2,200.3	99.81	23.044	
5,019.7	4,780.0	4,776.0	4,776.0	26.0	94.9	173.64	-780.7	-818.0	2,308.3	2,208.1	100.21	23.034	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,849.1	4,849.1	26.7	96.4	173.73	-780.7	-818.0	2,341.5	2,239.6	101.84	22.992	
5,118.1	4,869.6	4,865.6	4,865.6	26.9	96.7	173.75	-780.7	-818.0	2,348.9	2,246.7	102.20	22.983	
5,200.0	4,944.1	4,940.1	4,940.1	27.6	98.2	173.84	-780.7	-818.0	2,382.8	2,278.9	103.86	22.942	
5,216.5	4,959.1	4,955.1	4,955.1	27.7	98.5	173.86	-780.7	-818.0	2,389.6	2,285.4	104.19	22.934	
5,300.0	5,035.0	5,031.0	5,031.0	28.4	100.1	173.95	-780.7	-818.0	2,424.1	2,318.2	105.88	22.894	
5,314.9	5,048.6	5,044.6	5,044.6	28.6	100.3	173.96	-780.7	-818.0	2,430.3	2,324.1	106.18	22.887	
5,400.0	5,126.0	5,122.0	5,122.0	29.3	101.9	174.05	-780.7	-818.0	2,465.4	2,357.5	107.91	22.848	
5,413.4	5,138.2	5,134.2	5,134.2	29.4	102.1	174.06	-780.7	-818.0	2,471.0	2,362.8	108.18	22.842	
5,479.4	5,198.3	5,194.3	5,194.3	30.0	103.3	174.13	-780.7	-818.0	2,498.3	2,388.8	109.51	22.813	
5,500.0	5,217.0	5,213.0	5,213.0	30.1	103.7	174.16	-780.7	-818.0	2,506.7	2,396.5	110.24	22.740	
5,511.8	5,227.8	5,223.8	5,223.8	30.2	103.9	174.19	-780.7	-818.0	2,511.5	2,400.8	110.65	22.698	
5,600.0	5,309.0	5,305.0	5,305.0	30.8	105.6	174.34	-780.7	-818.0	2,545.8	2,432.1	113.69	22.393	
5,610.2	5,318.5	5,314.5	5,314.5	30.8	105.8	174.36	-780.7	-818.0	2,549.6	2,435.6	114.04	22.358	
5,700.0	5,402.3	5,398.3	5,398.3	31.4	107.4	174.49	-780.7	-818.0	2,581.7	2,464.6	117.07	22.053	
5,708.6	5,410.4	5,406.4	5,406.4	31.4	107.6	174.50	-780.7	-818.0	2,584.7	2,467.3	117.36	22.024	
5,800.0	5,496.7	5,492.7	5,492.7	31.9	109.3	174.63	-780.7	-818.0	2,614.3	2,494.0	120.37	21.719	
5,807.1	5,503.5	5,499.5	5,499.5	31.9	109.5	174.63	-780.7	-818.0	2,616.5	2,495.9	120.60	21.696	
5,900.0	5,592.3	5,588.3	5,588.3	32.4	111.3	174.74	-780.7	-818.0	2,643.6	2,520.1	123.58	21.393	
5,905.5	5,597.6	5,593.6	5,593.6	32.4	111.4	174.75	-780.7	-818.0	2,645.2	2,521.4	123.75	21.375	
6,000.0	5,688.8	5,684.8	5,684.8	32.9	113.2	174.84	-780.7	-818.0	2,669.6	2,543.0	126.68	21.074	
6,003.9	5,692.6	5,688.6	5,688.6	32.9	113.3	174.85	-780.7	-818.0	2,670.6	2,543.8	126.80	21.061	
6,100.0	5,786.2	5,782.2	5,782.2	33.3	115.2	174.93	-780.7	-818.0	2,692.2	2,562.6	129.67	20.762	
6,102.3	5,788.5	5,784.5	5,784.5	33.3	115.2	174.93	-780.7	-818.0	2,692.7	2,563.0	129.74	20.755	
6,200.0	5,884.3	5,880.3	5,880.3	33.6	117.1	175.00	-780.7	-818.0	2,711.5	2,578.9	132.54	20.458	
6,200.8	5,885.1	5,881.1	5,881.1	33.6	117.2	175.00	-780.7	-818.0	2,711.6	2,579.0	132.56	20.456	
6,299.2	5,982.3	5,978.3	5,978.3	33.9	119.1	175.05	-780.7	-818.0	2,727.1	2,591.9	135.25	20.164	
6,300.0	5,983.1	5,979.1	5,979.1	33.9	119.1	175.05	-780.7	-818.0	2,727.3	2,592.0	135.27	20.162	
6,397.6	6,079.9	6,075.9	6,075.9	34.1	121.1	175.10	-780.7	-818.0	2,739.4	2,601.6	137.79	19.880	
6,400.0	6,082.3	6,078.3	6,078.3	34.1	121.1	175.10	-780.7	-818.0	2,739.6	2,601.8	137.85	19.874	
6,496.0	6,177.9	6,173.9	6,173.9	34.3	123.0	175.13	-780.7	-818.0	2,748.2	2,608.0	140.19	19.604	
6,500.0	6,181.9	6,177.9	6,177.9	34.3	123.1	175.13	-780.7	-818.0	2,748.5	2,608.2	140.28	19.593	
6,594.5	6,276.2	6,272.2	6,272.2	34.5	125.0	175.15	-780.7	-818.0	2,753.7	2,611.3	142.42	19.335	
6,600.0	6,281.7	6,277.7	6,277.7	34.5	125.1	175.15	-780.7	-818.0	2,753.9	2,611.4	142.54	19.320	
6,692.9	6,374.6	6,370.6	6,370.6	34.6	127.0	175.15	-780.7	-818.0	2,755.9	2,611.4	144.49	19.073	
6,706.1	6,387.8	6,383.8	6,383.8	34.6	127.3	-126.63	-780.7	-818.0	2,755.9	2,611.1	144.76	19.038	
6,736.1	6,417.8	6,413.8	6,413.8	34.6	127.9	-126.63	-780.7	-818.0	2,755.9	2,610.5	145.41	18.953	
6,750.0	6,431.7	6,427.7	6,427.7	34.6	128.2	53.38	-780.7	-818.0	2,755.8	2,610.2	145.64	18.922	
6,791.3	6,473.0	6,469.0	6,469.0	34.6	129.0	53.49	-780.7	-818.0	2,754.6	2,608.4	146.21	18.840	
6,800.0	6,481.6	6,477.6	6,477.6	34.6	129.2	53.53	-780.7	-818.0	2,754.2	2,607.9	146.31	18.825	
6,850.0	6,531.2	6,527.2	6,527.2	34.6	130.2	53.87	-780.7	-818.0	2,750.5	2,603.8	146.71	18.748	
6,889.7	6,570.3	6,566.3	6,566.3	34.6	130.9	54.28	-780.7	-818.0	2,746.1	2,599.3	146.85	18.700	
6,900.0	6,580.3	6,576.3	6,576.3	34.6	131.1	54.40	-780.7	-818.0	2,744.8	2,597.9	146.87	18.689	
6,950.0	6,628.5	6,624.5	6,624.5	34.6	132.1	55.13	-780.7	-818.0	2,737.1	2,590.3	146.84	18.640	
6,988.2	6,664.7	6,660.7	6,660.7	34.5	132.8	55.82	-780.7	-818.0	2,729.9	2,583.2	146.74	18.604	
7,000.0	6,675.8	6,671.8	6,671.8	34.5	133.1	56.05	-780.7	-818.0	2,727.5	2,580.8	146.70	18.592	
7,050.0	6,721.8	6,717.8	6,717.8	34.4	134.0	57.16	-780.7	-818.0	2,716.0	2,569.5	146.52	18.537	
7,086.6	6,754.5	6,750.5	6,750.5	34.3	134.6	58.09	-780.7	-818.0	2,706.6	2,560.2	146.42	18.485	
7,100.0	6,766.2	6,762.2	6,762.2	34.2	134.9	58.46	-780.7	-818.0	2,702.9	2,556.5	146.40	18.462	
7,150.0	6,809.0	6,805.0	6,805.0	34.1	135.7	59.95	-780.7	-818.0	2,688.1	2,541.7	146.43	18.358	
7,185.0	6,837.9	6,833.9	6,833.9	34.0	136.3	61.09	-780.7	-818.0	2,676.9	2,530.3	146.59	18.261	
7,200.0	6,849.9	6,845.9	6,845.9	33.9	136.6	61.61	-780.7	-818.0	2,671.9	2,525.2	146.70	18.214	
7,250.0	6,888.7	6,884.7	6,884.7	33.8	137.3	63.44	-780.7	-818.0	2,654.3	2,507.1	147.26	18.025	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	6,909.4	6,909.4	33.6	137.8	64.75	-780.7	-818.0	2,641.9	2,494.1	147.82	17.873	
7,300.0	6,925.2	6,921.2	6,921.2	33.6	138.1	65.42	-780.7	-818.0	2,635.6	2,487.4	148.15	17.790	
7,350.0	6,959.2	6,955.2	6,955.2	33.4	138.8	67.54	-780.7	-818.0	2,615.8	2,466.5	149.35	17.514	
7,381.9	6,979.6	6,975.6	6,975.6	33.3	139.2	68.95	-780.7	-818.0	2,602.8	2,452.5	150.27	17.321	
7,400.0	6,990.6	6,986.6	6,986.6	33.2	139.4	69.77	-780.7	-818.0	2,595.3	2,444.4	150.83	17.206	
7,450.0	7,019.2	7,015.2	7,015.2	33.0	140.0	72.08	-780.7	-818.0	2,574.1	2,421.5	152.51	16.878	
7,480.3	7,035.1	7,031.1	7,031.1	32.8	140.3	73.51	-780.7	-818.0	2,561.0	2,407.4	153.58	16.675	
7,500.0	7,044.9	7,040.9	7,040.9	32.8	140.5	74.45	-780.7	-818.0	2,552.4	2,398.1	154.27	16.545	
7,550.0	7,067.5	7,063.5	7,063.5	32.6	140.9	76.83	-780.7	-818.0	2,530.4	2,374.4	156.02	16.219	
7,578.7	7,079.1	7,075.1	7,075.1	32.4	141.2	78.20	-780.7	-818.0	2,517.7	2,360.8	156.97	16.039	
7,600.0	7,086.9	7,082.9	7,082.9	32.3	141.3	79.20	-780.7	-818.0	2,508.4	2,350.7	157.64	15.912	
7,650.0	7,103.1	7,099.1	7,099.1	32.1	141.7	81.51	-780.7	-818.0	2,486.4	2,327.4	159.04	15.634	
7,677.1	7,110.5	7,106.5	7,106.5	32.0	141.8	82.74	-780.7	-818.0	2,474.6	2,314.9	159.70	15.495	
7,700.0	7,116.0	7,112.0	7,112.0	32.0	141.9	83.74	-780.7	-818.0	2,464.7	2,304.5	160.18	15.387	
7,750.0	7,125.4	7,121.4	7,121.4	31.8	142.1	85.85	-780.7	-818.0	2,443.4	2,282.4	161.03	15.174	
7,775.6	7,128.9	7,124.9	7,124.9	31.7	142.2	86.88	-780.7	-818.0	2,432.8	2,271.4	161.35	15.077	
7,800.0	7,131.4	7,127.4	7,127.4	31.6	142.2	87.82	-780.7	-818.0	2,422.7	2,261.2	161.59	14.993	
7,850.0	7,133.9	7,129.9	7,129.9	31.5	142.3	89.62	-780.7	-818.0	2,402.8	2,240.9	161.89	14.842	
7,866.5	7,134.0	7,130.0	7,130.0	31.4	142.3	90.18	-780.7	-818.0	2,396.4	2,234.5	161.95	14.797	
7,874.0	7,133.9	7,129.9	7,129.9	31.4	142.3	90.18	-780.7	-818.0	2,393.5	2,231.6	161.95	14.780	
7,900.0	7,133.7	7,129.7	7,129.7	31.4	142.3	90.17	-780.7	-818.0	2,383.7	2,221.8	161.95	14.719	
7,972.4	7,133.2	7,129.2	7,129.2	31.2	142.3	90.16	-780.7	-818.0	2,357.6	2,195.6	162.04	14.550	
8,000.0	7,133.0	7,129.0	7,129.0	31.2	142.3	90.15	-780.7	-818.0	2,348.2	2,186.2	162.07	14.489	
8,070.8	7,132.4	7,128.4	7,128.4	31.1	142.2	90.14	-780.7	-818.0	2,325.4	2,163.1	162.29	14.329	
8,100.0	7,132.2	7,128.2	7,128.2	31.1	142.2	90.13	-780.7	-818.0	2,316.6	2,154.2	162.38	14.266	
8,169.3	7,131.7	7,127.7	7,127.7	31.1	142.2	90.12	-780.7	-818.0	2,296.9	2,134.2	162.71	14.116	
8,200.0	7,131.5	7,127.5	7,127.5	31.1	142.2	90.11	-780.7	-818.0	2,288.8	2,125.9	162.86	14.054	
8,267.7	7,131.0	7,127.0	7,127.0	31.2	142.2	90.10	-780.7	-818.0	2,272.3	2,109.0	163.30	13.915	
8,300.0	7,130.7	7,126.7	7,126.7	31.2	142.2	90.10	-780.7	-818.0	2,265.1	2,101.6	163.51	13.853	
8,366.1	7,130.2	7,126.2	7,126.2	31.4	142.2	90.08	-780.7	-818.0	2,251.8	2,087.7	164.03	13.728	
8,400.0	7,130.0	7,126.0	7,126.0	31.5	142.2	90.08	-780.7	-818.0	2,245.7	2,081.4	164.30	13.668	
8,464.5	7,129.5	7,125.5	7,125.5	31.7	142.2	90.06	-780.7	-818.0	2,235.4	2,070.5	164.89	13.556	
8,500.0	7,129.2	7,125.2	7,125.2	31.9	142.2	90.06	-780.7	-818.0	2,230.5	2,065.3	165.22	13.500	
8,563.0	7,128.7	7,124.7	7,124.7	32.2	142.2	90.04	-780.7	-818.0	2,223.2	2,057.3	165.88	13.403	
8,600.0	7,128.5	7,124.5	7,124.5	32.4	142.2	90.04	-780.7	-818.0	2,219.8	2,053.5	166.26	13.351	
8,661.4	7,128.0	7,124.0	7,124.0	32.8	142.2	90.02	-780.7	-818.0	2,215.4	2,048.4	166.96	13.269	
8,700.0	7,127.7	7,123.7	7,123.7	33.1	142.1	90.02	-780.7	-818.0	2,213.5	2,046.1	167.40	13.223	
8,759.8	7,127.3	7,123.3	7,123.3	33.5	142.1	90.01	-780.7	-818.0	2,211.9	2,043.7	168.14	13.155	
8,789.1	7,127.1	7,123.1	7,123.1	33.8	142.1	90.00	-780.7	-818.0	2,211.7	2,043.2	168.50	13.126	
8,800.0	7,127.0	7,123.0	7,123.0	33.9	142.1	90.00	-780.7	-818.0	2,211.7	2,043.1	168.63	13.116	
8,858.2	7,126.5	7,122.5	7,122.5	34.4	142.1	89.99	-780.7	-818.0	2,212.8	2,043.4	169.39	13.063	
8,900.0	7,126.2	7,122.2	7,122.2	34.8	142.1	89.98	-780.7	-818.0	2,214.5	2,044.5	169.94	13.031	
8,956.7	7,125.8	7,121.8	7,121.8	35.4	142.1	89.97	-780.7	-818.0	2,218.0	2,047.3	170.72	12.992	
9,000.0	7,125.5	7,121.5	7,121.5	35.8	142.1	89.96	-780.7	-818.0	2,221.7	2,050.4	171.31	12.969	
9,055.1	7,125.1	7,121.1	7,121.1	36.5	142.1	89.95	-780.7	-818.0	2,227.6	2,055.5	172.10	12.944	
9,100.0	7,124.7	7,120.7	7,120.7	37.0	142.1	89.94	-780.7	-818.0	2,233.4	2,060.7	172.74	12.929	
9,153.5	7,124.3	7,120.3	7,120.3	37.6	142.1	89.93	-780.7	-818.0	2,241.5	2,068.0	173.54	12.917	
9,200.0	7,124.0	7,120.0	7,120.0	38.2	142.1	89.92	-780.7	-818.0	2,249.5	2,075.3	174.22	12.912	
9,251.9	7,123.6	7,119.6	7,119.6	38.8	142.1	89.91	-780.7	-818.0	2,259.6	2,084.6	175.02	12.911	SF
9,300.0	7,123.2	7,119.2	7,119.2	39.5	142.1	89.90	-780.7	-818.0	2,269.9	2,094.2	175.75	12.916	
9,350.4	7,122.8	7,118.8	7,118.8	40.1	142.0	89.89	-780.7	-818.0	2,281.8	2,105.3	176.53	12.926	
9,400.0	7,122.5	7,118.5	7,118.5	40.8	142.0	89.88	-780.7	-818.0	2,294.5	2,117.2	177.31	12.941	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 22-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	7,118.1	7,118.1	41.5	142.0	89.87	-780.7	-818.0	2,308.0	2,129.9	178.08	12.960	
9,500.0	7,121.7	7,117.7	7,117.7	42.2	142.0	89.86	-780.7	-818.0	2,323.1	2,144.2	178.90	12.986	
9,547.2	7,121.4	7,117.4	7,117.4	42.9	142.0	89.85	-780.7	-818.0	2,338.0	2,158.3	179.67	13.013	
9,600.0	7,121.0	7,117.0	7,117.0	43.7	142.0	89.84	-780.7	-818.0	2,355.6	2,175.1	180.52	13.049	
9,645.6	7,120.6	7,116.6	7,116.6	44.3	142.0	89.83	-780.7	-818.0	2,371.7	2,190.5	181.27	13.084	
9,700.0	7,120.2	7,116.2	7,116.2	45.1	142.0	89.82	-780.7	-818.0	2,391.9	2,209.7	182.17	13.130	
9,744.1	7,119.9	7,115.9	7,115.9	45.8	142.0	89.81	-780.7	-818.0	2,409.0	2,226.1	182.90	13.171	
9,800.0	7,119.5	7,115.5	7,115.5	46.6	142.0	89.80	-780.7	-818.0	2,431.8	2,247.9	183.84	13.228	
9,842.5	7,119.1	7,115.1	7,115.1	47.3	142.0	89.80	-780.7	-818.0	2,449.7	2,265.2	184.55	13.274	
9,900.0	7,118.7	7,114.7	7,114.7	48.2	142.0	89.78	-780.7	-818.0	2,475.0	2,289.5	185.53	13.340	
9,940.9	7,118.4	7,114.4	7,114.4	48.8	142.0	89.78	-780.7	-818.0	2,493.6	2,307.4	186.22	13.391	
10,000.0	7,118.0	7,114.0	7,114.0	49.8	142.0	89.76	-780.7	-818.0	2,521.5	2,334.2	187.23	13.467	
10,039.3	7,117.7	7,113.7	7,113.7	50.4	141.9	89.76	-780.7	-818.0	2,540.6	2,352.7	187.91	13.520	
10,100.0	7,117.2	7,113.2	7,113.2	51.4	141.9	89.75	-780.7	-818.0	2,571.0	2,382.0	188.95	13.607	
10,137.8	7,116.9	7,112.9	7,112.9	52.0	141.9	89.74	-780.7	-818.0	2,590.4	2,400.8	189.61	13.662	
10,200.0	7,116.5	7,112.5	7,112.5	53.0	141.9	89.73	-780.7	-818.0	2,623.4	2,432.7	190.69	13.758	
10,236.2	7,116.2	7,112.2	7,112.2	53.6	141.9	89.72	-780.7	-818.0	2,643.0	2,451.7	191.32	13.815	
10,300.0	7,115.7	7,111.7	7,111.7	54.6	141.9	89.71	-780.7	-818.0	2,678.5	2,486.0	192.43	13.919	
10,334.6	7,115.5	7,111.5	7,111.5	55.2	141.9	89.70	-780.7	-818.0	2,698.2	2,505.1	193.04	13.977	
10,400.0	7,115.0	7,111.0	7,111.0	56.3	141.9	89.69	-780.7	-818.0	2,736.1	2,541.9	194.19	14.090	
10,433.0	7,114.7	7,110.7	7,110.7	56.8	141.9	89.68	-780.7	-818.0	2,755.7	2,560.9	194.77	14.148	
10,500.0	7,114.2	7,110.2	7,110.2	58.0	141.9	89.67	-780.7	-818.0	2,796.2	2,600.2	195.96	14.269	
10,531.5	7,114.0	7,110.0	7,110.0	58.5	141.9	89.66	-780.7	-818.0	2,815.5	2,619.0	196.52	14.327	
10,600.0	7,113.5	7,109.5	7,109.5	59.7	141.9	89.65	-780.7	-818.0	2,858.4	2,660.7	197.73	14.456	
10,629.9	7,113.2	7,109.2	7,109.2	60.2	141.9	89.64	-780.7	-818.0	2,877.5	2,679.2	198.27	14.513	
10,700.0	7,112.7	7,108.7	7,108.7	61.4	141.8	89.63	-780.7	-818.0	2,922.8	2,723.3	199.52	14.649	
10,728.3	7,112.5	7,108.5	7,108.5	61.8	141.8	89.62	-780.7	-818.0	2,941.4	2,741.4	200.03	14.705	
10,800.0	7,112.0	7,108.0	7,108.0	63.1	141.8	89.61	-780.7	-818.0	2,989.1	2,787.8	201.31	14.848	
10,826.7	7,111.8	7,107.8	7,107.8	63.5	141.8	89.60	-780.7	-818.0	3,007.2	2,805.4	201.79	14.903	
10,900.0	7,111.2	7,107.2	7,107.2	64.8	141.8	89.59	-780.7	-818.0	3,057.3	2,854.2	203.11	15.053	
10,925.2	7,111.0	7,107.0	7,107.0	65.2	141.8	89.58	-780.7	-818.0	3,074.7	2,871.2	203.56	15.105	
11,000.0	7,110.5	7,106.5	7,106.5	66.5	141.8	89.57	-780.7	-818.0	3,127.2	2,922.3	204.91	15.261	
11,023.6	7,110.3	7,106.3	7,106.3	66.9	141.8	89.57	-780.7	-818.0	3,143.9	2,938.6	205.34	15.311	
11,100.0	7,109.7	7,105.7	7,105.7	68.3	141.8	89.55	-780.7	-818.0	3,198.7	2,991.9	206.72	15.473	
11,122.0	7,109.5	7,105.5	7,105.5	68.7	141.8	89.55	-780.7	-818.0	3,214.6	3,007.5	207.12	15.520	
11,200.0	7,109.0	7,105.0	7,105.0	70.0	141.8	89.53	-780.7	-818.0	3,271.6	3,063.1	208.54	15.688	
11,220.4	7,108.8	7,104.8	7,104.8	70.4	141.8	89.53	-780.7	-818.0	3,286.7	3,077.8	208.91	15.733	
11,300.0	7,108.2	7,104.2	7,104.2	71.8	141.8	89.51	-780.7	-818.0	3,346.0	3,135.6	210.36	15.906	
11,318.9	7,108.1	7,104.1	7,104.1	72.1	141.8	89.51	-780.7	-818.0	3,360.2	3,149.5	210.71	15.947	
11,400.0	7,107.5	7,103.5	7,103.5	73.6	141.7	89.49	-780.7	-818.0	3,421.7	3,209.5	212.19	16.126	
11,417.3	7,107.3	7,103.3	7,103.3	73.9	141.7	89.49	-780.7	-818.0	3,434.9	3,222.4	212.50	16.164	
11,500.0	7,106.7	7,102.7	7,102.7	75.3	141.7	89.47	-780.7	-818.0	3,498.6	3,284.6	214.02	16.347	
11,515.7	7,106.6	7,102.6	7,102.6	75.6	141.7	89.47	-780.7	-818.0	3,510.8	3,296.5	214.30	16.382	
11,600.0	7,106.0	7,102.0	7,102.0	77.1	141.7	89.45	-780.7	-818.0	3,576.6	3,360.8	215.85	16.570	
11,614.1	7,105.9	7,101.9	7,101.9	77.4	141.7	89.45	-780.7	-818.0	3,587.8	3,371.6	216.11	16.602	
11,700.0	7,105.2	7,101.2	7,101.2	78.9	141.7	89.43	-780.7	-818.0	3,655.7	3,438.0	217.68	16.794	
11,712.6	7,105.1	7,101.1	7,101.1	79.2	141.7	89.43	-780.7	-818.0	3,665.8	3,447.8	217.92	16.822	
11,800.0	7,104.5	7,100.5	7,100.5	80.7	141.7	89.41	-780.7	-818.0	3,735.8	3,516.3	219.52	17.018	
11,811.0	7,104.4	7,100.4	7,100.4	80.9	141.7	89.41	-780.7	-818.0	3,744.7	3,525.0	219.73	17.043	
11,860.2	7,104.0	7,100.0	7,100.0	81.8	141.7	89.40	-780.7	-818.0	3,784.6	3,563.9	220.63	17.153	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-158.16	-2,113.7	-847.3	2,277.2				
98.4	98.4	96.4	96.4	0.1	0.2	-158.16	-2,113.7	-847.3	2,277.2	2,276.9	0.25	9,048.859	
100.0	100.0	98.0	98.0	0.1	0.2	-158.16	-2,113.7	-847.3	2,277.2	2,276.9	0.26	8,890.032	
196.8	196.8	194.8	194.8	0.3	2.6	-158.16	-2,113.7	-847.3	2,277.2	2,274.3	2.94	775.658	
200.0	200.0	198.0	198.0	0.3	2.7	-158.16	-2,113.7	-847.3	2,277.2	2,274.2	3.02	752.903	
295.3	295.3	293.3	293.3	0.5	4.7	-158.16	-2,113.7	-847.3	2,277.2	2,272.0	5.22	436.366	
300.0	300.0	298.0	298.0	0.5	4.8	-158.16	-2,113.7	-847.3	2,277.2	2,271.9	5.33	427.495	
393.7	393.7	391.7	391.7	0.7	6.7	-158.16	-2,113.7	-847.3	2,277.2	2,269.7	7.44	305.920	
400.0	400.0	398.0	398.0	0.8	6.8	-158.16	-2,113.7	-847.3	2,277.2	2,269.6	7.59	300.182	
492.1	492.1	490.1	490.1	1.0	8.7	-158.16	-2,113.7	-847.3	2,277.2	2,267.5	9.66	235.798	
500.0	500.0	498.0	498.0	1.0	8.8	-158.16	-2,113.7	-847.3	2,277.2	2,267.4	9.83	231.553	
590.5	590.5	588.5	588.5	1.2	10.7	-158.16	-2,113.7	-847.3	2,277.2	2,265.3	11.87	191.908	
600.0	600.0	598.0	598.0	1.2	10.9	-158.16	-2,113.7	-847.3	2,277.2	2,265.1	12.08	188.540	
689.0	689.0	687.0	687.0	1.4	12.7	-158.16	-2,113.7	-847.3	2,277.2	2,263.1	14.07	161.823	
700.0	700.0	698.0	698.0	1.4	12.9	-158.16	-2,113.7	-847.3	2,277.2	2,262.9	14.32	159.030	
787.4	787.4	785.4	785.4	1.6	14.6	-158.16	-2,113.7	-847.3	2,277.2	2,260.9	16.28	139.905	
800.0	800.0	798.0	798.0	1.7	14.9	-158.16	-2,113.7	-847.3	2,277.2	2,260.6	16.56	137.521	
885.8	885.8	883.8	883.8	1.9	16.6	-158.16	-2,113.7	-847.3	2,277.2	2,258.7	18.48	123.223	
900.0	900.0	898.0	898.0	1.9	16.9	-158.16	-2,113.7	-847.3	2,277.2	2,258.4	18.80	121.143	
984.2	984.2	982.2	982.2	2.1	18.6	-158.16	-2,113.7	-847.3	2,277.2	2,256.5	20.68	110.099	
1,000.0	1,000.0	998.0	998.0	2.1	18.9	-158.16	-2,113.7	-847.3	2,277.2	2,256.2	21.04	108.254	
1,082.7	1,082.7	1,080.7	1,080.7	2.3	20.6	-158.16	-2,113.7	-847.3	2,277.2	2,254.3	22.89	99.503	
1,100.0	1,100.0	1,098.0	1,098.0	2.3	20.9	-158.16	-2,113.7	-847.3	2,277.2	2,253.9	23.27	97.846	
1,181.1	1,181.1	1,179.1	1,179.1	2.5	22.6	-158.16	-2,113.7	-847.3	2,277.2	2,252.1	25.09	90.769	
1,200.0	1,200.0	1,198.0	1,198.0	2.6	23.0	-158.16	-2,113.7	-847.3	2,277.2	2,251.7	25.51	89.264	
1,279.5	1,279.5	1,277.5	1,277.5	2.7	24.6	-158.16	-2,113.7	-847.3	2,277.2	2,249.9	27.29	83.445	
1,300.0	1,300.0	1,298.0	1,298.0	2.8	25.0	-158.16	-2,113.7	-847.3	2,277.2	2,249.4	27.75	82.068	
1,377.9	1,377.9	1,375.9	1,375.9	3.0	26.5	-158.16	-2,113.7	-847.3	2,277.2	2,247.7	29.49	77.216	
1,400.0	1,400.0	1,398.0	1,398.0	3.0	27.0	-158.16	-2,113.7	-847.3	2,277.2	2,247.2	29.98	75.946	
1,476.4	1,476.4	1,474.4	1,474.4	3.2	28.5	-158.16	-2,113.7	-847.3	2,277.2	2,245.5	31.69	71.852	
1,500.0	1,500.0	1,498.0	1,498.0	3.2	29.0	-158.16	-2,113.7	-847.3	2,277.2	2,245.0	32.22	70.674	
1,550.0	1,550.0	1,548.0	1,548.0	3.3	30.0	-158.16	-2,113.7	-847.3	2,277.2	2,243.9	33.34	68.303	
1,574.8	1,574.8	1,572.8	1,572.8	3.4	30.5	143.63	-2,113.7	-847.3	2,277.3	2,243.4	33.89	67.193	
1,600.0	1,600.0	1,598.0	1,598.0	3.5	31.0	143.63	-2,113.7	-847.3	2,277.5	2,243.1	34.45	66.109	
1,673.2	1,673.2	1,671.2	1,671.2	3.6	32.5	143.64	-2,113.7	-847.3	2,279.3	2,243.3	36.06	63.205	
1,700.0	1,699.9	1,697.9	1,697.9	3.7	33.0	143.65	-2,113.7	-847.3	2,280.4	2,243.7	36.65	62.225	
1,771.6	1,771.4	1,769.4	1,769.4	3.8	34.4	143.67	-2,113.7	-847.3	2,284.1	2,245.9	38.20	59.793	
1,800.0	1,799.7	1,797.7	1,797.7	3.9	35.0	143.68	-2,113.7	-847.3	2,286.0	2,247.2	38.81	58.903	
1,870.1	1,869.4	1,867.4	1,867.4	4.0	36.4	143.72	-2,113.7	-847.3	2,291.6	2,251.3	40.30	56.859	
1,900.0	1,899.1	1,897.1	1,897.1	4.1	37.0	143.74	-2,113.7	-847.3	2,294.4	2,253.5	40.93	56.053	
1,968.5	1,967.0	1,965.0	1,965.0	4.3	38.4	143.78	-2,113.7	-847.3	2,301.8	2,259.5	42.36	54.333	
2,000.0	1,998.2	1,996.2	1,996.2	4.4	39.0	143.81	-2,113.7	-847.3	2,305.7	2,262.7	43.01	53.603	
2,066.9	2,064.1	2,062.1	2,062.1	4.5	40.3	143.86	-2,113.7	-847.3	2,314.8	2,270.4	44.38	52.155	
2,100.0	2,096.6	2,094.6	2,094.6	4.6	41.0	143.89	-2,113.7	-847.3	2,319.8	2,274.7	45.05	51.495	
2,165.3	2,160.6	2,158.6	2,158.6	4.8	42.3	143.95	-2,113.7	-847.3	2,330.5	2,284.2	46.35	50.276	
2,200.0	2,194.4	2,192.4	2,192.4	4.9	43.0	143.99	-2,113.7	-847.3	2,336.7	2,289.7	47.03	49.682	
2,263.8	2,256.4	2,254.4	2,254.4	5.2	44.2	144.06	-2,113.7	-847.3	2,349.0	2,300.7	48.28	48.658	
2,300.0	2,291.5	2,289.5	2,289.5	5.3	44.9	144.10	-2,113.7	-847.3	2,356.5	2,307.5	48.97	48.125	
2,362.2	2,351.4	2,349.4	2,349.4	5.5	46.1	144.17	-2,113.7	-847.3	2,370.2	2,320.1	50.14	47.269	
2,400.0	2,387.6	2,385.6	2,385.6	5.7	46.8	144.21	-2,113.7	-847.3	2,379.1	2,328.3	50.84	46.793	
2,460.6	2,445.4	2,443.4	2,443.4	6.0	48.0	144.28	-2,113.7	-847.3	2,394.3	2,342.3	51.96	46.080	
2,500.0	2,482.7	2,480.7	2,480.7	6.2	48.8	144.33	-2,113.7	-847.3	2,404.6	2,352.0	52.67	45.658	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,536.3	2,536.3	6.5	49.9	144.40	-2,113.7	-847.3	2,421.0	2,367.3	53.72	45.069	
2,600.0	2,576.6	2,574.6	2,574.6	6.7	50.6	144.44	-2,113.7	-847.3	2,433.0	2,378.6	54.43	44.700	
2,657.5	2,630.1	2,628.1	2,628.1	7.0	51.7	144.51	-2,113.7	-847.3	2,450.6	2,395.2	55.42	44.218	
2,700.0	2,669.4	2,667.4	2,667.4	7.3	52.5	144.56	-2,113.7	-847.3	2,464.3	2,408.1	56.13	43.900	
2,755.9	2,720.6	2,718.6	2,718.6	7.6	53.5	144.62	-2,113.7	-847.3	2,483.0	2,425.9	57.06	43.514	
2,776.7	2,739.5	2,737.5	2,737.5	7.8	53.9	144.64	-2,113.7	-847.3	2,490.2	2,432.8	57.40	43.384	
2,800.0	2,760.8	2,758.8	2,758.8	7.9	54.3	144.77	-2,113.7	-847.3	2,498.3	2,440.4	57.89	43.154	
2,854.3	2,810.2	2,808.2	2,808.2	8.3	55.3	145.05	-2,113.7	-847.3	2,517.3	2,458.3	59.05	42.632	
2,900.0	2,851.7	2,849.7	2,849.7	8.7	56.2	145.29	-2,113.7	-847.3	2,533.3	2,473.3	60.02	42.211	
2,952.7	2,899.7	2,897.7	2,897.7	9.1	57.1	145.57	-2,113.7	-847.3	2,551.9	2,490.8	61.14	41.738	
3,000.0	2,942.7	2,940.7	2,940.7	9.4	58.0	145.81	-2,113.7	-847.3	2,568.6	2,506.4	62.15	41.331	
3,051.2	2,989.3	2,987.3	2,987.3	9.8	58.9	146.06	-2,113.7	-847.3	2,586.7	2,523.4	63.24	40.902	
3,100.0	3,033.7	3,031.7	3,031.7	10.2	59.8	146.31	-2,113.7	-847.3	2,604.0	2,539.7	64.28	40.509	
3,149.6	3,078.8	3,076.8	3,076.8	10.5	60.7	146.55	-2,113.7	-847.3	2,621.6	2,556.3	65.34	40.120	
3,200.0	3,124.6	3,122.6	3,122.6	10.9	61.7	146.79	-2,113.7	-847.3	2,639.6	2,573.1	66.42	39.740	
3,248.0	3,168.3	3,166.3	3,166.3	11.3	62.5	147.02	-2,113.7	-847.3	2,656.7	2,589.3	67.45	39.388	
3,300.0	3,215.6	3,213.6	3,213.6	11.7	63.5	147.27	-2,113.7	-847.3	2,675.3	2,606.8	68.56	39.022	
3,346.4	3,257.9	3,255.9	3,255.9	12.1	64.3	147.48	-2,113.7	-847.3	2,692.0	2,622.4	69.55	38.703	
3,400.0	3,306.6	3,304.6	3,304.6	12.5	65.3	147.73	-2,113.7	-847.3	2,711.3	2,640.6	70.70	38.349	
3,444.9	3,347.4	3,345.4	3,345.4	12.9	66.1	147.93	-2,113.7	-847.3	2,727.4	2,655.8	71.66	38.061	
3,500.0	3,397.6	3,395.6	3,395.6	13.3	67.2	148.18	-2,113.7	-847.3	2,747.3	2,674.5	72.84	37.719	
3,543.3	3,436.9	3,434.9	3,434.9	13.7	67.9	148.37	-2,113.7	-847.3	2,763.0	2,689.2	73.76	37.458	
3,600.0	3,488.5	3,486.5	3,486.5	14.1	69.0	148.62	-2,113.7	-847.3	2,783.6	2,708.6	74.97	37.127	
3,641.7	3,526.5	3,524.5	3,524.5	14.5	69.7	148.80	-2,113.7	-847.3	2,798.7	2,722.9	75.87	36.891	
3,700.0	3,579.5	3,577.5	3,577.5	15.0	70.8	149.05	-2,113.7	-847.3	2,820.0	2,742.8	77.11	36.571	
3,740.1	3,616.0	3,614.0	3,614.0	15.3	71.5	149.22	-2,113.7	-847.3	2,834.6	2,756.6	77.96	36.357	
3,800.0	3,670.5	3,668.5	3,668.5	15.8	72.6	149.47	-2,113.7	-847.3	2,856.5	2,777.2	79.24	36.049	
3,838.6	3,705.6	3,703.6	3,703.6	16.1	73.3	149.63	-2,113.7	-847.3	2,870.6	2,790.5	80.06	35.855	
3,900.0	3,761.4	3,759.4	3,759.4	16.6	74.5	149.88	-2,113.7	-847.3	2,893.1	2,811.8	81.37	35.556	
3,937.0	3,795.1	3,793.1	3,793.1	16.9	75.1	150.03	-2,113.7	-847.3	2,906.7	2,824.6	82.16	35.381	
4,000.0	3,852.4	3,850.4	3,850.4	17.4	76.3	150.28	-2,113.7	-847.3	2,929.9	2,846.4	83.49	35.092	
4,035.4	3,884.6	3,882.6	3,882.6	17.7	76.9	150.41	-2,113.7	-847.3	2,943.0	2,858.7	84.25	34.933	
4,100.0	3,943.4	3,941.4	3,941.4	18.3	78.1	150.67	-2,113.7	-847.3	2,966.8	2,881.2	85.62	34.653	
4,133.8	3,974.2	3,972.2	3,972.2	18.6	78.8	150.79	-2,113.7	-847.3	2,979.3	2,893.0	86.33	34.510	
4,200.0	4,034.4	4,032.4	4,032.4	19.1	80.0	151.05	-2,113.7	-847.3	3,003.9	2,916.1	87.73	34.238	
4,232.3	4,063.7	4,061.7	4,061.7	19.4	80.6	151.17	-2,113.7	-847.3	3,015.8	2,927.4	88.42	34.109	
4,300.0	4,125.3	4,123.3	4,123.3	19.9	81.8	151.42	-2,113.7	-847.3	3,041.0	2,951.2	89.85	33.846	
4,330.7	4,153.3	4,151.3	4,151.3	20.2	82.4	151.53	-2,113.7	-847.3	3,052.4	2,961.9	90.50	33.729	
4,400.0	4,216.3	4,214.3	4,214.3	20.8	83.6	151.78	-2,113.7	-847.3	3,078.3	2,986.3	91.96	33.473	
4,429.1	4,242.8	4,240.8	4,240.8	21.0	84.2	151.88	-2,113.7	-847.3	3,089.1	2,996.6	92.58	33.369	
4,500.0	4,307.3	4,305.3	4,305.3	21.6	85.4	152.13	-2,113.7	-847.3	3,115.6	3,021.6	94.07	33.120	
4,527.5	4,332.3	4,330.3	4,330.3	21.9	86.0	152.23	-2,113.7	-847.3	3,125.9	3,031.3	94.65	33.026	
4,600.0	4,398.2	4,396.2	4,396.2	22.5	87.3	152.48	-2,113.7	-847.3	3,153.1	3,056.9	96.18	32.785	
4,626.0	4,421.9	4,419.9	4,419.9	22.7	87.8	152.57	-2,113.7	-847.3	3,162.8	3,066.1	96.72	32.700	
4,700.0	4,489.2	4,487.2	4,487.2	23.3	89.1	152.82	-2,113.7	-847.3	3,190.7	3,092.4	98.28	32.466	
4,724.4	4,511.4	4,509.4	4,509.4	23.5	89.6	152.90	-2,113.7	-847.3	3,199.8	3,101.1	98.79	32.390	
4,800.0	4,580.2	4,578.2	4,578.2	24.2	90.9	153.15	-2,113.7	-847.3	3,228.3	3,128.0	100.38	32.162	
4,822.8	4,601.0	4,599.0	4,599.0	24.4	91.4	153.22	-2,113.7	-847.3	3,236.9	3,136.1	100.86	32.095	
4,900.0	4,671.2	4,669.2	4,669.2	25.0	92.8	153.47	-2,113.7	-847.3	3,266.1	3,163.6	102.47	31.873	
4,921.2	4,690.5	4,688.5	4,688.5	25.2	93.2	153.54	-2,113.7	-847.3	3,274.1	3,171.2	102.92	31.813	
5,000.0	4,762.1	4,760.1	4,760.1	25.9	94.6	153.79	-2,113.7	-847.3	3,303.9	3,199.4	104.57	31.597	
5,019.7	4,780.0	4,778.0	4,778.0	26.0	95.0	153.85	-2,113.7	-847.3	3,311.4	3,206.4	104.98	31.544	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,851.1	4,851.1	26.7	96.4	154.10	-2,113.7	-847.3	3,341.9	3,235.2	106.66	31.333	
5,118.1	4,869.6	4,867.6	4,867.6	26.9	96.8	154.15	-2,113.7	-847.3	3,348.8	3,241.7	107.03	31.287	
5,200.0	4,944.1	4,942.1	4,942.1	27.6	98.3	154.40	-2,113.7	-847.3	3,379.9	3,271.2	108.74	31.082	
5,216.5	4,959.1	4,957.1	4,957.1	27.7	98.6	154.45	-2,113.7	-847.3	3,386.2	3,277.1	109.09	31.041	
5,300.0	5,035.0	5,033.0	5,033.0	28.4	100.1	154.70	-2,113.7	-847.3	3,418.0	3,307.2	110.83	30.841	
5,314.9	5,048.6	5,046.6	5,046.6	28.6	100.4	154.74	-2,113.7	-847.3	3,423.7	3,312.6	111.14	30.806	
5,400.0	5,126.0	5,124.0	5,124.0	29.3	101.9	154.99	-2,113.7	-847.3	3,456.2	3,343.3	112.91	30.611	
5,413.4	5,138.2	5,136.2	5,136.2	29.4	102.2	155.02	-2,113.7	-847.3	3,461.3	3,348.1	113.19	30.580	
5,479.4	5,198.3	5,196.3	5,196.3	30.0	103.4	155.21	-2,113.7	-847.3	3,486.6	3,372.0	114.56	30.434	
5,500.0	5,217.0	5,215.0	5,215.0	30.1	103.7	155.34	-2,113.7	-847.3	3,494.4	3,379.2	115.21	30.331	
5,511.8	5,227.8	5,225.8	5,225.8	30.2	104.0	155.41	-2,113.7	-847.3	3,498.8	3,383.2	115.57	30.274	
5,600.0	5,309.0	5,307.0	5,307.0	30.8	105.6	155.92	-2,113.7	-847.3	3,530.6	3,412.3	118.31	29.843	
5,610.2	5,318.5	5,316.5	5,316.5	30.8	105.8	155.98	-2,113.7	-847.3	3,534.2	3,415.6	118.62	29.794	
5,700.0	5,402.3	5,400.3	5,400.3	31.4	107.5	156.44	-2,113.7	-847.3	3,564.0	3,442.6	121.38	29.362	
5,708.6	5,410.4	5,408.4	5,408.4	31.4	107.6	156.48	-2,113.7	-847.3	3,566.7	3,445.1	121.64	29.321	
5,800.0	5,496.7	5,494.7	5,494.7	31.9	109.4	156.90	-2,113.7	-847.3	3,594.3	3,469.9	124.41	28.890	
5,807.1	5,503.5	5,501.5	5,501.5	31.9	109.5	156.93	-2,113.7	-847.3	3,596.3	3,471.7	124.63	28.857	
5,900.0	5,592.3	5,590.3	5,590.3	32.4	111.3	157.30	-2,113.7	-847.3	3,621.6	3,494.2	127.39	28.429	
5,905.5	5,597.6	5,595.6	5,595.6	32.4	111.4	157.32	-2,113.7	-847.3	3,623.0	3,495.5	127.55	28.404	
6,000.0	5,688.8	5,686.8	5,686.8	32.9	113.2	157.65	-2,113.7	-847.3	3,645.8	3,515.5	130.30	27.980	
6,003.9	5,692.6	5,690.6	5,690.6	32.9	113.3	157.66	-2,113.7	-847.3	3,646.7	3,516.3	130.41	27.962	
6,100.0	5,786.2	5,784.2	5,784.2	33.3	115.2	157.94	-2,113.7	-847.3	3,666.9	3,533.8	133.13	27.544	
6,102.3	5,788.5	5,786.5	5,786.5	33.3	115.2	157.95	-2,113.7	-847.3	3,667.4	3,534.2	133.20	27.534	
6,200.0	5,884.3	5,882.3	5,882.3	33.6	117.2	158.19	-2,113.7	-847.3	3,684.8	3,549.0	135.86	27.122	
6,200.8	5,885.1	5,883.1	5,883.1	33.6	117.2	158.19	-2,113.7	-847.3	3,685.0	3,549.1	135.88	27.119	
6,299.2	5,982.3	5,980.3	5,980.3	33.9	119.1	158.39	-2,113.7	-847.3	3,699.5	3,561.0	138.47	26.717	
6,300.0	5,983.1	5,981.1	5,981.1	33.9	119.1	158.39	-2,113.7	-847.3	3,699.6	3,561.1	138.49	26.714	
6,397.6	6,079.9	6,077.9	6,077.9	34.1	121.1	158.55	-2,113.7	-847.3	3,710.9	3,570.0	140.94	26.330	
6,400.0	6,082.3	6,080.3	6,080.3	34.1	121.1	158.55	-2,113.7	-847.3	3,711.1	3,570.1	141.00	26.321	
6,496.0	6,177.9	6,175.9	6,175.9	34.3	123.1	158.66	-2,113.7	-847.3	3,719.2	3,575.9	143.28	25.957	
6,500.0	6,181.9	6,179.9	6,179.9	34.3	123.1	158.66	-2,113.7	-847.3	3,719.5	3,576.1	143.38	25.942	
6,594.5	6,276.2	6,274.2	6,274.2	34.5	125.0	158.72	-2,113.7	-847.3	3,724.3	3,578.8	145.49	25.598	
6,600.0	6,281.7	6,279.7	6,279.7	34.5	125.2	158.73	-2,113.7	-847.3	3,724.5	3,578.9	145.62	25.578	
6,692.9	6,374.6	6,372.6	6,372.6	34.6	127.0	158.75	-2,113.7	-847.3	3,726.3	3,578.8	147.56	25.252	
6,706.1	6,387.8	6,385.8	6,385.8	34.6	127.3	-143.03	-2,113.7	-847.3	3,726.4	3,578.5	147.83	25.207	
6,736.1	6,417.8	6,415.8	6,415.8	34.6	127.9	-143.03	-2,113.7	-847.3	3,726.4	3,577.9	148.47	25.098	
6,750.0	6,431.7	6,429.7	6,429.7	34.6	128.2	36.98	-2,113.7	-847.3	3,726.3	3,577.6	148.69	25.060	
6,791.3	6,473.0	6,471.0	6,471.0	34.6	129.0	37.07	-2,113.7	-847.3	3,724.7	3,575.6	149.10	24.981	
6,800.0	6,481.6	6,479.6	6,479.6	34.6	129.2	37.11	-2,113.7	-847.3	3,724.1	3,575.0	149.14	24.971	
6,850.0	6,531.2	6,529.2	6,529.2	34.6	130.2	37.40	-2,113.7	-847.3	3,719.1	3,570.1	149.06	24.951	
6,889.7	6,570.3	6,568.3	6,568.3	34.6	131.0	37.76	-2,113.7	-847.3	3,713.3	3,564.6	148.63	24.983	
6,900.0	6,580.3	6,578.3	6,578.3	34.6	131.2	37.87	-2,113.7	-847.3	3,711.5	3,563.0	148.47	24.998	
6,950.0	6,628.5	6,626.5	6,626.5	34.6	132.1	38.52	-2,113.7	-847.3	3,701.1	3,553.7	147.43	25.105	
6,988.2	6,664.7	6,662.7	6,662.7	34.5	132.9	39.14	-2,113.7	-847.3	3,691.4	3,545.0	146.36	25.222	
7,000.0	6,675.8	6,673.8	6,673.8	34.5	133.1	39.36	-2,113.7	-847.3	3,688.1	3,542.1	145.98	25.264	
7,050.0	6,721.8	6,719.8	6,719.8	34.4	134.0	40.39	-2,113.7	-847.3	3,672.5	3,528.3	144.24	25.461	
7,086.6	6,754.5	6,752.5	6,752.5	34.3	134.7	41.27	-2,113.7	-847.3	3,659.5	3,516.7	142.85	25.619	
7,100.0	6,766.2	6,764.2	6,764.2	34.2	134.9	41.62	-2,113.7	-847.3	3,654.5	3,512.2	142.32	25.678	
7,150.0	6,809.0	6,807.0	6,807.0	34.1	135.8	43.08	-2,113.7	-847.3	3,634.1	3,493.7	140.38	25.888	
7,185.0	6,837.9	6,835.9	6,835.9	34.0	136.3	44.24	-2,113.7	-847.3	3,618.5	3,479.4	139.10	26.013	
7,200.0	6,849.9	6,847.9	6,847.9	33.9	136.6	44.78	-2,113.7	-847.3	3,611.5	3,472.9	138.60	26.057	
7,250.0	6,888.7	6,886.7	6,886.7	33.8	137.4	46.72	-2,113.7	-847.3	3,586.8	3,449.7	137.19	26.145	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1

Offset Site Error: 0.0 usft

Survey Program: 0-INC

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	6,911.4	6,911.4	33.6	137.9	48.18	-2,113.7	-847.3	3,569.2	3,432.7	136.57	26.136	
7,300.0	6,925.2	6,923.2	6,923.2	33.6	138.1	48.94	-2,113.7	-847.3	3,560.2	3,423.9	136.37	26.107	
7,350.0	6,959.2	6,957.2	6,957.2	33.4	138.8	51.43	-2,113.7	-847.3	3,531.8	3,395.5	136.33	25.907	
7,381.9	6,979.6	6,977.6	6,977.6	33.3	139.2	53.17	-2,113.7	-847.3	3,512.9	3,376.1	136.78	25.684	
7,400.0	6,990.6	6,988.6	6,988.6	33.2	139.4	54.22	-2,113.7	-847.3	3,501.9	3,364.7	137.20	25.524	
7,450.0	7,019.2	7,017.2	7,017.2	33.0	140.0	57.30	-2,113.7	-847.3	3,470.4	3,331.4	139.03	24.962	
7,480.3	7,035.1	7,033.1	7,033.1	32.8	140.3	59.30	-2,113.7	-847.3	3,450.8	3,310.2	140.58	24.547	
7,500.0	7,044.9	7,042.9	7,042.9	32.8	140.5	60.67	-2,113.7	-847.3	3,437.8	3,296.1	141.74	24.254	
7,550.0	7,067.5	7,065.5	7,065.5	32.6	141.0	64.30	-2,113.7	-847.3	3,404.1	3,259.0	145.12	23.457	
7,578.7	7,079.1	7,077.1	7,077.1	32.4	141.2	66.51	-2,113.7	-847.3	3,384.4	3,237.1	147.26	22.982	
7,600.0	7,086.9	7,084.9	7,084.9	32.3	141.3	68.18	-2,113.7	-847.3	3,369.6	3,220.7	148.88	22.633	
7,650.0	7,103.1	7,101.1	7,101.1	32.1	141.7	72.25	-2,113.7	-847.3	3,334.4	3,181.8	152.65	21.843	
7,677.1	7,110.5	7,108.5	7,108.5	32.0	141.8	74.52	-2,113.7	-847.3	3,315.1	3,160.5	154.58	21.445	
7,700.0	7,116.0	7,114.0	7,114.0	32.0	141.9	76.45	-2,113.7	-847.3	3,298.8	3,142.7	156.09	21.135	
7,750.0	7,125.4	7,123.4	7,123.4	31.8	142.1	80.71	-2,113.7	-847.3	3,262.9	3,104.1	158.88	20.538	
7,775.6	7,128.9	7,126.9	7,126.9	31.7	142.2	82.89	-2,113.7	-847.3	3,244.6	3,084.6	159.99	20.280	
7,800.0	7,131.4	7,129.4	7,129.4	31.6	142.2	84.96	-2,113.7	-847.3	3,227.1	3,066.2	160.82	20.066	
7,850.0	7,133.9	7,131.9	7,131.9	31.5	142.3	89.10	-2,113.7	-847.3	3,191.3	3,029.5	161.85	19.718	
7,866.5	7,134.0	7,132.0	7,132.0	31.4	142.3	90.43	-2,113.7	-847.3	3,179.6	3,017.6	161.99	19.629	
7,874.0	7,133.9	7,131.9	7,131.9	31.4	142.3	90.43	-2,113.7	-847.3	3,174.3	3,012.3	161.99	19.596	
7,900.0	7,133.7	7,131.7	7,131.7	31.4	142.3	90.43	-2,113.7	-847.3	3,155.9	2,993.9	161.99	19.482	
7,972.4	7,133.2	7,131.2	7,131.2	31.2	142.3	90.41	-2,113.7	-847.3	3,105.4	2,943.3	162.08	19.159	
8,000.0	7,133.0	7,131.0	7,131.0	31.2	142.3	90.41	-2,113.7	-847.3	3,086.3	2,924.2	162.12	19.038	
8,070.8	7,132.4	7,130.4	7,130.4	31.1	142.3	90.39	-2,113.7	-847.3	3,038.1	2,875.7	162.34	18.715	
8,100.0	7,132.2	7,130.2	7,130.2	31.1	142.3	90.39	-2,113.7	-847.3	3,018.4	2,856.0	162.43	18.584	
8,169.3	7,131.7	7,129.7	7,129.7	31.1	142.2	90.37	-2,113.7	-847.3	2,972.5	2,809.7	162.76	18.263	
8,200.0	7,131.5	7,129.5	7,129.5	31.1	142.2	90.37	-2,113.7	-847.3	2,952.4	2,789.5	162.91	18.123	
8,267.7	7,131.0	7,129.0	7,129.0	31.2	142.2	90.36	-2,113.7	-847.3	2,908.8	2,745.4	163.35	17.808	
8,300.0	7,130.7	7,128.7	7,128.7	31.2	142.2	90.35	-2,113.7	-847.3	2,888.3	2,724.7	163.55	17.660	
8,366.1	7,130.2	7,128.2	7,128.2	31.4	142.2	90.34	-2,113.7	-847.3	2,847.0	2,683.0	164.08	17.352	
8,400.0	7,130.0	7,128.0	7,128.0	31.5	142.2	90.33	-2,113.7	-847.3	2,826.3	2,661.9	164.35	17.197	
8,464.5	7,129.5	7,127.5	7,127.5	31.7	142.2	90.32	-2,113.7	-847.3	2,787.4	2,622.5	164.94	16.899	
8,500.0	7,129.2	7,127.2	7,127.2	31.9	142.2	90.31	-2,113.7	-847.3	2,766.5	2,601.2	165.27	16.739	
8,563.0	7,128.7	7,126.7	7,126.7	32.2	142.2	90.30	-2,113.7	-847.3	2,730.0	2,564.1	165.92	16.454	
8,600.0	7,128.5	7,126.5	7,126.5	32.4	142.2	90.29	-2,113.7	-847.3	2,709.1	2,542.7	166.31	16.289	
8,661.4	7,128.0	7,126.0	7,126.0	32.8	142.2	90.28	-2,113.7	-847.3	2,675.0	2,508.0	167.01	16.017	
8,700.0	7,127.7	7,125.7	7,125.7	33.1	142.2	90.27	-2,113.7	-847.3	2,654.2	2,486.7	167.45	15.850	
8,759.8	7,127.3	7,125.3	7,125.3	33.5	142.2	90.26	-2,113.7	-847.3	2,622.6	2,454.4	168.19	15.593	
8,800.0	7,127.0	7,125.0	7,125.0	33.9	142.2	90.25	-2,113.7	-847.3	2,602.0	2,433.3	168.68	15.425	
8,858.2	7,126.5	7,124.5	7,124.5	34.4	142.1	90.24	-2,113.7	-847.3	2,572.8	2,403.4	169.44	15.184	
8,900.0	7,126.2	7,124.2	7,124.2	34.8	142.1	90.23	-2,113.7	-847.3	2,552.6	2,382.6	169.99	15.016	
8,956.7	7,125.8	7,123.8	7,123.8	35.4	142.1	90.22	-2,113.7	-847.3	2,526.0	2,355.2	170.77	14.792	
9,000.0	7,125.5	7,123.5	7,123.5	35.8	142.1	90.22	-2,113.7	-847.3	2,506.3	2,334.9	171.36	14.626	
9,055.1	7,125.1	7,123.1	7,123.1	36.5	142.1	90.20	-2,113.7	-847.3	2,482.1	2,309.9	172.15	14.418	
9,100.0	7,124.7	7,122.7	7,122.7	37.0	142.1	90.20	-2,113.7	-847.3	2,463.1	2,290.3	172.79	14.255	
9,153.5	7,124.3	7,122.3	7,122.3	37.6	142.1	90.19	-2,113.7	-847.3	2,441.4	2,267.8	173.58	14.065	
9,200.0	7,124.0	7,122.0	7,122.0	38.2	142.1	90.18	-2,113.7	-847.3	2,423.3	2,249.1	174.27	13.905	
9,251.9	7,123.6	7,121.6	7,121.6	38.8	142.1	90.17	-2,113.7	-847.3	2,404.0	2,229.0	175.06	13.732	
9,300.0	7,123.2	7,121.2	7,121.2	39.5	142.1	90.16	-2,113.7	-847.3	2,387.1	2,211.3	175.80	13.579	
9,350.4	7,122.8	7,120.8	7,120.8	40.1	142.1	90.15	-2,113.7	-847.3	2,370.2	2,193.6	176.58	13.423	
9,400.0	7,122.5	7,120.5	7,120.5	40.8	142.1	90.14	-2,113.7	-847.3	2,354.5	2,177.1	177.36	13.276	
9,448.8	7,122.1	7,120.1	7,120.1	41.5	142.1	90.13	-2,113.7	-847.3	2,340.0	2,161.9	178.13	13.136	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ 23-30 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-INC — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,500.0	7,121.7	7,119.7	7,119.7	42.2	142.0	90.12	-2,113.7	-847.3	2,325.8	2,146.8	178.95	12.997	
9,547.2	7,121.4	7,119.4	7,119.4	42.9	142.0	90.11	-2,113.7	-847.3	2,313.6	2,133.9	179.71	12.874	
9,600.0	7,121.0	7,119.0	7,119.0	43.7	142.0	90.10	-2,113.7	-847.3	2,301.0	2,120.5	180.57	12.743	
9,645.6	7,120.6	7,118.6	7,118.6	44.3	142.0	90.09	-2,113.7	-847.3	2,291.1	2,109.8	181.32	12.636	
9,700.0	7,120.2	7,118.2	7,118.2	45.1	142.0	90.08	-2,113.7	-847.3	2,280.4	2,098.2	182.22	12.515	
9,744.1	7,119.9	7,117.9	7,117.9	45.8	142.0	90.07	-2,113.7	-847.3	2,272.7	2,089.7	182.95	12.422	
9,800.0	7,119.5	7,117.5	7,117.5	46.6	142.0	90.06	-2,113.7	-847.3	2,264.1	2,080.2	183.89	12.312	
9,842.5	7,119.1	7,117.1	7,117.1	47.3	142.0	90.05	-2,113.7	-847.3	2,258.4	2,073.8	184.60	12.234	
9,900.0	7,118.7	7,116.7	7,116.7	48.2	142.0	90.04	-2,113.7	-847.3	2,252.0	2,066.4	185.57	12.135	
9,940.9	7,118.4	7,116.4	7,116.4	48.8	142.0	90.03	-2,113.7	-847.3	2,248.3	2,062.1	186.27	12.070	
10,000.0	7,118.0	7,116.0	7,116.0	49.8	142.0	90.02	-2,113.7	-847.3	2,244.4	2,057.1	187.28	11.984	
10,039.3	7,117.7	7,115.7	7,115.7	50.4	142.0	90.02	-2,113.7	-847.3	2,242.6	2,054.6	187.96	11.931	
10,100.0	7,117.2	7,115.2	7,115.2	51.4	142.0	90.00	-2,113.7	-847.3	2,241.1	2,052.1	189.00	11.858	
10,122.1	7,117.0	7,115.0	7,115.0	51.7	142.0	90.00	-2,113.7	-847.3	2,241.0	2,051.6	189.38	11.833	CC
10,137.8	7,116.9	7,114.9	7,114.9	52.0	142.0	90.00	-2,113.7	-847.3	2,241.1	2,051.4	189.65	11.817	ES
10,200.0	7,116.5	7,114.5	7,114.5	53.0	141.9	89.99	-2,113.7	-847.3	2,242.4	2,051.6	190.73	11.757	
10,236.2	7,116.2	7,114.2	7,114.2	53.6	141.9	89.98	-2,113.7	-847.3	2,243.9	2,052.6	191.37	11.726	
10,300.0	7,115.7	7,113.7	7,113.7	54.6	141.9	89.97	-2,113.7	-847.3	2,248.1	2,055.6	192.48	11.680	
10,334.6	7,115.5	7,113.5	7,113.5	55.2	141.9	89.96	-2,113.7	-847.3	2,251.1	2,058.0	193.09	11.658	
10,400.0	7,115.0	7,113.0	7,113.0	56.3	141.9	89.95	-2,113.7	-847.3	2,258.2	2,064.0	194.24	11.626	
10,433.0	7,114.7	7,112.7	7,112.7	56.8	141.9	89.94	-2,113.7	-847.3	2,262.5	2,067.7	194.82	11.613	
10,500.0	7,114.2	7,112.2	7,112.2	58.0	141.9	89.93	-2,113.7	-847.3	2,272.7	2,076.7	196.01	11.595	
10,531.5	7,114.0	7,112.0	7,112.0	58.5	141.9	89.92	-2,113.7	-847.3	2,278.1	2,081.5	196.56	11.590	
10,600.0	7,113.5	7,111.5	7,111.5	59.7	141.9	89.91	-2,113.7	-847.3	2,291.4	2,093.6	197.78	11.586	SF
10,629.9	7,113.2	7,111.2	7,111.2	60.2	141.9	89.90	-2,113.7	-847.3	2,297.8	2,099.5	198.32	11.587	
10,700.0	7,112.7	7,110.7	7,110.7	61.4	141.9	89.89	-2,113.7	-847.3	2,314.3	2,114.8	199.57	11.597	
10,728.3	7,112.5	7,110.5	7,110.5	61.8	141.9	89.88	-2,113.7	-847.3	2,321.6	2,121.5	200.07	11.604	
10,800.0	7,112.0	7,110.0	7,110.0	63.1	141.9	89.87	-2,113.7	-847.3	2,341.3	2,139.9	201.36	11.627	
10,826.7	7,111.8	7,109.8	7,109.8	63.5	141.8	89.86	-2,113.7	-847.3	2,349.2	2,147.3	201.84	11.639	
10,900.0	7,111.2	7,109.2	7,109.2	64.8	141.8	89.85	-2,113.7	-847.3	2,372.2	2,169.0	203.16	11.677	
10,925.2	7,111.0	7,109.0	7,109.0	65.2	141.8	89.85	-2,113.7	-847.3	2,380.6	2,176.9	203.61	11.692	
11,000.0	7,110.5	7,108.5	7,108.5	66.5	141.8	89.83	-2,113.7	-847.3	2,406.8	2,201.9	204.96	11.743	
11,023.6	7,110.3	7,108.3	7,108.3	66.9	141.8	89.83	-2,113.7	-847.3	2,415.5	2,210.1	205.39	11.761	
11,100.0	7,109.7	7,107.7	7,107.7	68.3	141.8	89.81	-2,113.7	-847.3	2,445.1	2,238.3	206.77	11.825	
11,122.0	7,109.5	7,107.5	7,107.5	68.7	141.8	89.81	-2,113.7	-847.3	2,454.0	2,246.8	207.17	11.845	
11,200.0	7,109.0	7,107.0	7,107.0	70.0	141.8	89.79	-2,113.7	-847.3	2,486.8	2,278.2	208.59	11.922	
11,220.4	7,108.8	7,106.8	7,106.8	70.4	141.8	89.79	-2,113.7	-847.3	2,495.7	2,286.7	208.96	11.943	
11,300.0	7,108.2	7,106.2	7,106.2	71.8	141.8	89.77	-2,113.7	-847.3	2,531.7	2,321.3	210.41	12.032	
11,318.9	7,108.1	7,106.1	7,106.1	72.1	141.8	89.77	-2,113.7	-847.3	2,540.5	2,329.8	210.76	12.054	
11,400.0	7,107.5	7,105.5	7,105.5	73.6	141.8	89.75	-2,113.7	-847.3	2,579.7	2,367.5	212.24	12.155	
11,417.3	7,107.3	7,105.3	7,105.3	73.9	141.8	89.75	-2,113.7	-847.3	2,588.4	2,375.8	212.55	12.177	
11,500.0	7,106.7	7,104.7	7,104.7	75.3	141.7	89.74	-2,113.7	-847.3	2,630.7	2,416.6	214.07	12.289	
11,515.7	7,106.6	7,104.6	7,104.6	75.6	141.7	89.73	-2,113.7	-847.3	2,639.0	2,424.6	214.35	12.311	
11,600.0	7,106.0	7,104.0	7,104.0	77.1	141.7	89.72	-2,113.7	-847.3	2,684.4	2,468.5	215.90	12.434	
11,614.1	7,105.9	7,103.9	7,103.9	77.4	141.7	89.71	-2,113.7	-847.3	2,692.2	2,476.1	216.16	12.455	
11,700.0	7,105.2	7,103.2	7,103.2	78.9	141.7	89.70	-2,113.7	-847.3	2,740.8	2,523.0	217.73	12.588	
11,712.6	7,105.1	7,103.1	7,103.1	79.2	141.7	89.69	-2,113.7	-847.3	2,748.0	2,530.0	217.97	12.608	
11,800.0	7,104.5	7,102.5	7,102.5	80.7	141.7	89.68	-2,113.7	-847.3	2,799.5	2,579.9	219.57	12.750	
11,811.0	7,104.4	7,102.4	7,102.4	80.9	141.7	89.68	-2,113.7	-847.3	2,806.1	2,586.3	219.78	12.768	
11,860.2	7,104.0	7,102.0	7,102.0	81.8	141.7	89.67	-2,113.7	-847.3	2,836.0	2,615.4	220.68	12.851	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	177.39	-1,232.4	56.1	1,234.0				
98.4	98.4	68.7	68.7	0.1	0.0	177.39	-1,232.5	56.1	1,233.8	1,233.7	0.11	N/A	CC
100.0	100.0	70.2	70.2	0.1	0.0	177.39	-1,232.5	56.1	1,233.8	1,233.7	0.12	N/A	
196.8	196.8	164.9	164.9	0.3	0.1	177.39	-1,232.7	56.1	1,234.0	1,233.5	0.45	2,723.064	
200.0	200.0	168.0	168.0	0.3	0.2	177.39	-1,232.7	56.1	1,234.0	1,233.5	0.47	2,651.730	
295.3	295.3	263.6	263.6	0.5	0.3	177.40	-1,233.1	56.0	1,234.3	1,233.6	0.79	1,571.841	
300.0	300.0	268.4	268.4	0.5	0.3	177.40	-1,233.1	56.0	1,234.4	1,233.6	0.80	1,543.269	
393.7	393.7	361.7	361.7	0.7	0.3	177.41	-1,233.3	55.8	1,234.6	1,233.5	1.08	1,145.544	ES
400.0	400.0	367.9	367.9	0.8	0.3	177.41	-1,233.4	55.7	1,234.6	1,233.5	1.10	1,126.401	
492.1	492.1	459.2	459.1	1.0	0.4	177.43	-1,233.7	55.4	1,235.0	1,233.6	1.36	909.965	
500.0	500.0	467.0	467.0	1.0	0.4	177.43	-1,233.8	55.3	1,235.0	1,233.6	1.38	895.485	
590.5	590.5	554.7	554.7	1.2	0.5	177.47	-1,234.2	54.6	1,235.5	1,233.8	1.63	758.757	
600.0	600.0	563.7	563.7	1.2	0.5	177.47	-1,234.3	54.5	1,235.5	1,233.9	1.65	746.973	
689.0	689.0	652.1	652.1	1.4	0.5	177.52	-1,235.0	53.6	1,236.2	1,234.3	1.90	651.984	
700.0	700.0	663.3	663.3	1.4	0.5	177.52	-1,235.1	53.5	1,236.3	1,234.3	1.93	641.895	
787.4	787.4	750.5	750.5	1.6	0.6	177.57	-1,235.7	52.5	1,236.9	1,234.7	2.16	572.542	
800.0	800.0	762.9	762.9	1.7	0.6	177.57	-1,235.8	52.4	1,236.9	1,234.8	2.19	563.845	
885.8	885.8	846.7	846.7	1.9	0.6	177.61	-1,236.5	51.6	1,237.6	1,235.2	2.42	511.304	
900.0	900.0	860.5	860.5	1.9	0.6	177.62	-1,236.7	51.4	1,237.8	1,235.3	2.46	503.601	
984.2	984.2	942.3	942.2	2.1	0.7	177.68	-1,237.5	50.2	1,238.6	1,236.0	2.68	462.400	
1,000.0	1,000.0	957.5	957.5	2.1	0.7	177.69	-1,237.7	49.9	1,238.8	1,236.1	2.72	455.469	
1,082.7	1,082.7	1,037.8	1,037.8	2.3	0.7	177.76	-1,238.8	48.5	1,239.9	1,236.9	2.94	422.431	
1,100.0	1,100.0	1,054.7	1,054.6	2.3	0.7	177.77	-1,239.1	48.2	1,240.1	1,237.1	2.98	416.148	
1,181.1	1,181.1	1,134.0	1,133.9	2.5	0.7	177.83	-1,240.3	46.9	1,241.3	1,238.1	3.19	389.174	
1,200.0	1,200.0	1,152.6	1,152.5	2.6	0.8	177.85	-1,240.6	46.6	1,241.6	1,238.4	3.24	383.413	
1,279.5	1,279.5	1,229.7	1,229.6	2.7	0.8	177.91	-1,241.9	45.3	1,242.9	1,239.5	3.44	361.059	
1,300.0	1,300.0	1,249.2	1,249.1	2.8	0.8	177.93	-1,242.3	45.0	1,243.3	1,239.8	3.49	355.766	
1,377.9	1,377.9	1,325.0	1,324.8	3.0	0.8	177.99	-1,243.8	43.6	1,244.8	1,241.1	3.69	337.004	
1,400.0	1,400.0	1,347.4	1,347.2	3.0	0.8	178.01	-1,244.3	43.2	1,245.3	1,241.5	3.75	332.048	
1,476.4	1,476.4	1,424.9	1,424.7	3.2	0.9	178.08	-1,245.8	41.7	1,246.8	1,242.8	3.95	315.999	
1,500.0	1,500.0	1,448.7	1,448.5	3.2	0.9	178.11	-1,246.3	41.2	1,247.2	1,243.2	4.01	311.367	
1,550.0	1,550.0	1,499.3	1,499.1	3.3	0.9	178.14	-1,247.3	40.4	1,248.1	1,244.0	4.13	302.007	
1,574.8	1,574.8	1,522.8	1,522.6	3.4	0.9	119.94	-1,247.7	40.0	1,248.7	1,244.4	4.25	293.638	
1,600.0	1,600.0	1,546.6	1,546.4	3.5	0.9	119.96	-1,248.2	39.6	1,249.3	1,245.0	4.32	289.432	
1,673.2	1,673.2	1,619.4	1,619.1	3.6	1.0	120.07	-1,249.8	38.2	1,252.0	1,247.5	4.50	278.208	
1,700.0	1,699.9	1,650.6	1,650.3	3.7	1.0	120.14	-1,250.5	37.5	1,253.2	1,248.6	4.57	274.341	
1,771.6	1,771.4	1,730.1	1,729.8	3.8	1.0	120.38	-1,251.6	35.5	1,256.5	1,251.7	4.75	264.481	
1,800.0	1,799.7	1,759.3	1,759.0	3.9	1.0	120.49	-1,251.9	34.6	1,257.9	1,253.1	4.82	260.900	
1,870.1	1,869.4	1,835.9	1,835.5	4.0	1.0	120.83	-1,252.6	32.1	1,262.1	1,257.1	5.00	252.280	
1,900.0	1,899.1	1,871.0	1,870.6	4.1	1.0	121.01	-1,252.7	30.9	1,264.0	1,258.9	5.08	248.819	
1,968.5	1,967.0	1,941.9	1,941.5	4.3	1.1	121.42	-1,252.5	28.2	1,268.6	1,263.4	5.26	241.018	
2,000.0	1,998.2	1,972.0	1,971.5	4.4	1.1	121.61	-1,252.5	27.0	1,271.1	1,265.7	5.35	237.682	
2,066.9	2,064.1	2,036.2	2,035.7	4.5	1.1	122.03	-1,252.5	24.6	1,277.0	1,271.5	5.54	230.481	
2,100.0	2,096.6	2,068.0	2,067.4	4.6	1.1	122.25	-1,252.5	23.3	1,280.4	1,274.7	5.64	227.154	
2,165.3	2,160.6	2,131.9	2,131.3	4.8	1.1	122.73	-1,252.5	20.7	1,287.6	1,281.8	5.84	220.365	
2,200.0	2,194.4	2,166.4	2,165.8	4.9	1.1	123.00	-1,252.5	19.3	1,291.9	1,285.9	5.95	217.030	
2,263.8	2,256.4	2,225.7	2,225.1	5.2	1.2	123.48	-1,252.4	17.1	1,300.3	1,294.1	6.17	210.595	
2,300.0	2,291.5	2,256.6	2,256.0	5.3	1.2	123.72	-1,252.5	16.0	1,305.6	1,299.3	6.30	207.264	
2,362.2	2,351.4	2,310.4	2,309.7	5.5	1.2	124.16	-1,252.9	14.4	1,315.8	1,309.2	6.54	201.189	
2,400.0	2,387.6	2,345.3	2,344.6	5.7	1.2	124.45	-1,253.2	13.4	1,322.5	1,315.8	6.69	197.720	
2,460.6	2,445.4	2,400.0	2,399.3	6.0	1.2	124.92	-1,253.7	11.9	1,334.0	1,327.0	6.95	191.888	
2,500.0	2,482.7	2,435.9	2,435.2	6.2	1.2	125.23	-1,254.1	10.9	1,342.0	1,334.9	7.12	188.433	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,487.8	2,487.0	6.5	1.3	125.69	-1,254.8	9.6	1,354.9	1,347.5	7.40	182.983	
2,600.0	2,576.6	2,523.9	2,523.1	6.7	1.3	126.01	-1,255.4	8.6	1,364.4	1,356.8	7.60	179.537	
2,657.5	2,630.1	2,574.6	2,573.8	7.0	1.3	126.47	-1,256.2	7.3	1,378.7	1,370.8	7.90	174.440	
2,700.0	2,669.4	2,612.0	2,611.2	7.3	1.3	126.82	-1,256.9	6.3	1,389.8	1,381.7	8.13	171.026	
2,755.9	2,720.6	2,661.5	2,660.6	7.6	1.3	127.28	-1,257.8	5.0	1,405.3	1,396.9	8.45	166.406	
2,776.7	2,739.5	2,679.7	2,678.8	7.8	1.3	127.45	-1,258.2	4.5	1,411.3	1,402.7	8.56	164.818	
2,800.0	2,760.8	2,700.0	2,699.1	7.9	1.3	127.75	-1,258.5	3.9	1,418.1	1,409.4	8.70	163.054	
2,854.3	2,810.2	2,746.5	2,745.6	8.3	1.4	128.44	-1,259.5	2.6	1,434.2	1,425.2	9.02	159.081	
2,900.0	2,851.7	2,785.5	2,784.5	8.7	1.4	129.00	-1,260.3	1.5	1,447.9	1,438.7	9.28	156.035	
2,952.7	2,899.7	2,831.2	2,830.2	9.1	1.4	129.65	-1,261.4	0.1	1,464.1	1,454.5	9.59	152.640	
3,000.0	2,942.7	2,872.4	2,871.4	9.4	1.4	130.23	-1,262.3	-1.1	1,478.7	1,468.9	9.87	149.859	
3,051.2	2,989.3	2,919.2	2,918.1	9.8	1.4	130.88	-1,263.4	-2.6	1,494.8	1,484.6	10.17	146.989	
3,100.0	3,033.7	2,967.3	2,966.2	10.2	1.4	131.53	-1,264.5	-4.0	1,510.2	1,499.8	10.45	144.497	
3,149.6	3,078.8	3,015.5	3,014.4	10.5	1.5	132.16	-1,265.4	-5.4	1,525.9	1,515.2	10.74	142.073	
3,200.0	3,124.6	3,062.9	3,061.7	10.9	1.5	132.78	-1,266.2	-6.7	1,541.9	1,530.9	11.03	139.811	
3,248.0	3,168.3	3,109.2	3,108.1	11.3	1.5	133.37	-1,266.8	-8.2	1,557.3	1,546.0	11.30	137.766	
3,300.0	3,215.6	3,165.8	3,164.6	11.7	1.5	134.08	-1,267.4	-9.9	1,573.8	1,562.2	11.59	135.768	
3,346.4	3,257.9	3,217.7	3,216.5	12.1	1.5	134.71	-1,267.7	-11.2	1,588.5	1,576.6	11.85	134.085	
3,400.0	3,306.6	3,280.1	3,278.9	12.5	1.5	135.46	-1,267.5	-12.7	1,605.2	1,593.0	12.13	132.323	
3,444.9	3,347.4	3,327.3	3,326.1	12.9	1.6	136.01	-1,267.1	-13.8	1,619.0	1,606.6	12.37	130.846	
3,500.0	3,397.6	3,381.3	3,380.1	13.3	1.6	136.62	-1,266.4	-14.8	1,636.0	1,623.3	12.67	129.143	
3,543.3	3,436.9	3,421.6	3,420.3	13.7	1.6	137.07	-1,265.9	-15.6	1,649.4	1,636.5	12.90	127.856	
3,600.0	3,488.5	3,472.2	3,470.9	14.1	1.6	137.63	-1,265.3	-16.4	1,667.0	1,653.8	13.21	126.239	
3,641.7	3,526.5	3,509.1	3,507.9	14.5	1.6	138.02	-1,264.9	-17.0	1,680.2	1,666.7	13.43	125.101	
3,700.0	3,579.5	3,559.8	3,558.5	15.0	1.6	138.55	-1,264.3	-17.8	1,698.7	1,684.9	13.74	123.600	
3,740.1	3,616.0	3,594.6	3,593.3	15.3	1.6	138.92	-1,264.0	-18.4	1,711.6	1,697.6	13.96	122.620	
3,800.0	3,670.5	3,646.5	3,645.2	15.8	1.6	139.44	-1,263.5	-19.3	1,731.0	1,716.7	14.28	121.243	
3,838.6	3,705.6	3,679.9	3,678.5	16.1	1.6	139.78	-1,263.3	-19.8	1,743.6	1,729.1	14.48	120.399	
3,900.0	3,761.4	3,733.1	3,731.8	16.6	1.7	140.30	-1,263.0	-20.6	1,763.9	1,749.1	14.81	119.135	
3,937.0	3,795.1	3,765.2	3,763.9	16.9	1.7	140.61	-1,262.9	-21.1	1,776.2	1,761.2	15.00	118.413	
4,000.0	3,852.4	3,820.0	3,818.7	17.4	1.7	141.12	-1,262.6	-22.0	1,797.4	1,782.1	15.33	117.268	
4,035.4	3,884.6	3,850.9	3,849.6	17.7	1.7	141.41	-1,262.5	-22.5	1,809.4	1,793.9	15.51	116.655	
4,100.0	3,943.4	3,907.5	3,906.1	18.3	1.7	141.93	-1,262.4	-23.6	1,831.5	1,815.6	15.84	115.604	
4,133.8	3,974.2	3,937.8	3,936.5	18.6	1.7	142.21	-1,262.3	-24.1	1,843.1	1,827.1	16.01	115.087	
4,200.0	4,034.4	3,997.1	3,995.7	19.1	1.7	142.74	-1,262.2	-25.3	1,866.0	1,849.6	16.35	114.139	
4,232.3	4,063.7	4,029.6	4,028.2	19.4	1.7	143.02	-1,262.0	-26.0	1,877.2	1,860.7	16.50	113.735	
4,300.0	4,125.3	4,098.5	4,097.1	19.9	1.8	143.63	-1,261.5	-27.6	1,900.6	1,883.8	16.83	112.935	
4,330.7	4,153.3	4,129.1	4,127.7	20.2	1.8	143.90	-1,261.1	-28.4	1,911.2	1,894.2	16.97	112.593	
4,400.0	4,216.3	4,198.2	4,196.8	20.8	1.8	144.50	-1,260.0	-30.2	1,935.0	1,917.7	17.30	111.874	
4,429.1	4,242.8	4,225.3	4,223.9	21.0	1.8	144.73	-1,259.6	-30.9	1,945.1	1,927.6	17.43	111.568	
4,500.0	4,307.3	4,291.0	4,289.5	21.6	1.8	145.27	-1,258.4	-32.5	1,969.6	1,951.8	17.77	110.863	
4,527.5	4,332.3	4,318.2	4,316.7	21.9	1.8	145.50	-1,257.9	-33.2	1,979.1	1,961.2	17.89	110.613	
4,600.0	4,398.2	4,392.5	4,391.0	22.5	1.8	146.09	-1,256.5	-34.7	2,004.1	1,985.9	18.22	110.000	
4,626.0	4,421.9	4,415.2	4,413.7	22.7	1.8	146.26	-1,256.1	-35.1	2,013.0	1,994.7	18.34	109.760	
4,700.0	4,489.2	4,475.6	4,474.0	23.3	1.9	146.72	-1,255.0	-36.0	2,038.8	2,020.1	18.69	109.085	
4,724.4	4,511.4	4,500.0	4,498.4	23.5	1.9	146.90	-1,254.7	-36.4	2,047.4	2,028.6	18.80	108.901	
4,800.0	4,580.2	4,566.4	4,564.8	24.2	1.9	147.38	-1,253.8	-37.3	2,074.0	2,054.9	19.15	108.300	
4,822.8	4,601.0	4,588.1	4,586.5	24.4	1.9	147.53	-1,253.4	-37.7	2,082.1	2,062.8	19.25	108.135	
4,900.0	4,671.2	4,684.7	4,683.1	25.0	1.9	148.20	-1,251.7	-38.5	2,109.0	2,089.5	19.57	107.765	
4,921.2	4,690.5	4,708.6	4,707.0	25.2	1.9	148.36	-1,251.1	-38.5	2,116.3	2,096.7	19.66	107.641	
5,000.0	4,762.1	4,778.3	4,776.6	25.9	1.9	148.81	-1,249.5	-38.5	2,143.4	2,123.3	20.01	107.101	
5,019.7	4,780.0	4,795.7	4,794.0	26.0	1.9	148.92	-1,249.1	-38.5	2,150.1	2,130.0	20.10	106.972	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,867.4	4,865.8	26.7	1.9	149.37	-1,247.6	-38.4	2,178.0	2,157.5	20.46	106.454	
5,118.1	4,869.6	4,883.6	4,882.0	26.9	1.9	149.47	-1,247.2	-38.4	2,184.3	2,163.7	20.54	106.342	
5,200.0	4,944.1	4,944.4	4,942.7	27.6	1.9	149.84	-1,246.1	-38.4	2,213.1	2,192.1	20.92	105.790	
5,216.5	4,959.1	4,955.9	4,954.2	27.7	1.9	149.91	-1,246.0	-38.4	2,219.0	2,198.0	21.00	105.682	
5,300.0	5,035.0	5,017.2	5,015.5	28.4	1.9	150.28	-1,245.3	-38.7	2,249.1	2,227.8	21.38	105.186	
5,314.9	5,048.6	5,030.1	5,028.4	28.6	1.9	150.35	-1,245.2	-38.7	2,254.6	2,233.2	21.45	105.108	
5,400.0	5,126.0	5,100.0	5,098.3	29.3	1.9	150.75	-1,244.9	-39.0	2,285.8	2,264.0	21.84	104.674	
5,413.4	5,138.2	5,114.7	5,113.0	29.4	1.9	150.83	-1,244.8	-39.1	2,290.7	2,268.9	21.90	104.624	
5,479.4	5,198.3	5,169.8	5,168.2	30.0	2.0	151.14	-1,244.7	-39.3	2,315.2	2,293.0	22.19	104.322	
5,500.0	5,217.0	5,187.0	5,185.4	30.1	2.0	151.31	-1,244.6	-39.4	2,322.8	2,300.6	22.24	104.426	
5,511.8	5,227.8	5,200.0	5,198.3	30.2	2.0	151.42	-1,244.6	-39.5	2,327.1	2,304.9	22.26	104.531	
5,600.0	5,309.0	5,272.3	5,270.6	30.8	2.0	152.10	-1,244.6	-40.0	2,358.3	2,335.9	22.43	105.137	
5,610.2	5,318.5	5,281.1	5,279.4	30.8	2.0	152.17	-1,244.6	-40.0	2,361.8	2,339.3	22.45	105.213	
5,700.0	5,402.3	5,355.1	5,353.4	31.4	2.0	152.79	-1,244.7	-40.7	2,391.3	2,368.7	22.60	105.808	
5,708.6	5,410.4	5,362.2	5,360.5	31.4	2.0	152.84	-1,244.7	-40.8	2,394.1	2,371.4	22.61	105.869	
5,800.0	5,496.7	5,442.6	5,440.9	31.9	2.0	153.41	-1,245.2	-41.6	2,421.9	2,399.1	22.75	106.465	
5,807.1	5,503.5	5,449.3	5,447.6	31.9	2.0	153.46	-1,245.3	-41.7	2,423.9	2,401.2	22.76	106.516	
5,900.0	5,592.3	5,527.9	5,526.2	32.4	2.1	153.96	-1,245.8	-42.6	2,449.7	2,426.8	22.87	107.091	
5,905.5	5,597.6	5,531.7	5,530.1	32.4	2.1	153.98	-1,245.9	-42.7	2,451.2	2,428.3	22.88	107.126	
6,000.0	5,688.8	5,600.0	5,598.3	32.9	2.1	154.39	-1,246.9	-43.7	2,475.3	2,452.4	22.99	107.682	
6,003.9	5,692.6	5,600.0	5,598.3	32.9	2.1	154.40	-1,246.9	-43.7	2,476.3	2,453.3	22.99	107.705	
6,100.0	5,786.2	5,664.9	5,663.2	33.3	2.1	154.76	-1,248.5	-45.0	2,499.1	2,476.0	23.08	108.269	
6,102.3	5,788.5	5,666.5	5,664.7	33.3	2.1	154.77	-1,248.6	-45.1	2,499.6	2,476.5	23.08	108.284	
6,200.0	5,884.3	5,771.9	5,770.1	33.6	2.1	155.17	-1,251.4	-48.5	2,520.6	2,497.4	23.14	108.909	
6,200.8	5,885.1	5,773.1	5,771.3	33.6	2.1	155.18	-1,251.4	-48.5	2,520.7	2,497.6	23.14	108.914	
6,299.2	5,982.3	5,941.3	5,939.4	33.9	2.2	155.60	-1,253.1	-51.4	2,536.6	2,513.4	23.17	109.469	
6,300.0	5,983.1	5,942.2	5,940.3	33.9	2.2	155.60	-1,253.1	-51.4	2,536.7	2,513.5	23.17	109.472	
6,397.6	6,079.9	6,043.1	6,041.2	34.1	2.2	155.83	-1,253.3	-51.9	2,548.2	2,525.0	23.20	109.814	
6,400.0	6,082.3	6,045.3	6,043.4	34.1	2.2	155.83	-1,253.3	-51.9	2,548.4	2,525.2	23.21	109.820	
6,496.0	6,177.9	6,137.0	6,135.1	34.3	2.2	155.97	-1,253.7	-52.2	2,556.8	2,533.6	23.23	110.053	
6,500.0	6,181.9	6,141.0	6,139.1	34.3	2.3	155.98	-1,253.7	-52.2	2,557.1	2,533.9	23.23	110.058	
6,594.5	6,276.2	6,238.2	6,236.3	34.5	2.3	156.06	-1,254.3	-52.2	2,562.4	2,539.1	23.26	110.176	
6,600.0	6,281.7	6,244.0	6,242.1	34.5	2.3	156.07	-1,254.4	-52.2	2,562.6	2,539.4	23.26	110.177	
6,692.9	6,374.6	6,335.2	6,333.4	34.6	2.3	156.09	-1,255.0	-52.0	2,564.8	2,541.5	23.28	110.190	
6,706.1	6,387.8	6,347.0	6,345.2	34.6	2.3	-145.69	-1,255.1	-52.0	2,564.9	2,541.6	23.28	110.178	
6,736.1	6,417.8	6,373.8	6,372.0	34.6	2.3	-145.70	-1,255.3	-51.9	2,565.1	2,541.7	23.32	109.974	
6,750.0	6,431.7	6,386.3	6,384.4	34.6	2.3	34.31	-1,255.4	-51.9	2,565.1	2,541.8	23.28	110.167	
6,791.3	6,473.0	6,426.7	6,424.8	34.6	2.3	34.38	-1,255.9	-51.9	2,563.7	2,540.6	23.13	110.848	
6,800.0	6,481.6	6,435.6	6,433.7	34.6	2.3	34.42	-1,255.9	-51.9	2,563.2	2,540.1	23.09	111.013	
6,850.0	6,531.2	6,486.6	6,484.7	34.6	2.3	34.70	-1,256.5	-51.8	2,558.5	2,535.6	22.83	112.081	
6,889.7	6,570.3	6,528.3	6,526.5	34.6	2.3	35.07	-1,256.8	-51.7	2,552.6	2,530.1	22.57	113.116	
6,900.0	6,580.3	6,539.2	6,537.3	34.6	2.3	35.18	-1,256.9	-51.7	2,550.9	2,528.4	22.49	113.419	
6,950.0	6,628.5	6,591.7	6,589.8	34.6	2.3	35.86	-1,257.3	-51.7	2,540.4	2,518.3	22.08	115.078	
6,988.2	6,664.7	6,623.3	6,621.4	34.5	2.3	36.48	-1,257.5	-51.7	2,530.5	2,508.8	21.71	116.557	
7,000.0	6,675.8	6,632.4	6,630.5	34.5	2.3	36.69	-1,257.5	-51.7	2,527.2	2,505.6	21.59	117.063	
7,050.0	6,721.8	6,670.1	6,668.2	34.4	2.3	37.70	-1,257.8	-51.8	2,511.5	2,490.5	21.03	119.402	
7,086.6	6,754.5	6,700.0	6,698.1	34.3	2.3	38.59	-1,258.2	-51.9	2,498.5	2,477.9	20.59	121.336	
7,100.0	6,766.2	6,700.0	6,698.1	34.2	2.3	38.86	-1,258.2	-51.9	2,493.4	2,473.0	20.43	122.036	
7,150.0	6,809.0	6,742.9	6,741.0	34.1	2.3	40.35	-1,258.7	-52.3	2,473.1	2,453.3	19.79	124.972	
7,185.0	6,837.9	6,767.2	6,765.3	34.0	2.3	41.49	-1,259.0	-52.5	2,457.5	2,438.1	19.35	127.023	
7,200.0	6,849.9	6,777.4	6,775.5	33.9	2.3	42.02	-1,259.2	-52.6	2,450.5	2,431.3	19.16	127.897	
7,250.0	6,888.7	6,814.7	6,812.8	33.8	2.4	44.00	-1,259.8	-53.0	2,425.9	2,407.3	18.59	130.520	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	6,844.7	6,842.8	33.6	2.4	45.56	-1,260.3	-53.3	2,408.3	2,390.0	18.27	131.831	
7,300.0	6,925.2	6,859.1	6,857.2	33.6	2.4	46.39	-1,260.5	-53.5	2,399.2	2,381.1	18.13	132.308	
7,350.0	6,959.2	6,900.4	6,898.5	33.4	2.4	49.11	-1,261.1	-53.8	2,370.7	2,352.8	17.87	132.654	
7,381.9	6,979.6	6,923.4	6,921.5	33.3	2.4	50.98	-1,261.4	-53.9	2,351.5	2,333.7	17.83	131.910	
7,400.0	6,990.6	6,935.9	6,934.0	33.2	2.4	52.11	-1,261.5	-54.0	2,340.4	2,322.5	17.84	131.181	
7,450.0	7,019.2	6,968.2	6,966.3	33.0	2.4	55.44	-1,261.8	-54.1	2,308.6	2,290.6	18.05	127.892	
7,480.3	7,035.1	6,986.1	6,984.2	32.8	2.4	57.62	-1,262.0	-54.2	2,288.8	2,270.5	18.29	125.158	
7,500.0	7,044.9	6,997.1	6,995.1	32.8	2.4	59.09	-1,262.1	-54.3	2,275.6	2,257.2	18.47	123.223	
7,550.0	7,067.5	7,019.5	7,017.6	32.6	2.4	62.94	-1,262.2	-54.5	2,241.6	2,222.6	19.01	117.944	
7,578.7	7,079.1	7,030.8	7,028.9	32.4	2.4	65.25	-1,262.3	-54.5	2,221.7	2,202.4	19.35	114.833	
7,600.0	7,086.9	7,038.5	7,036.6	32.3	2.4	67.01	-1,262.4	-54.6	2,206.9	2,187.3	19.59	112.626	
7,650.0	7,103.1	7,054.4	7,052.5	32.1	2.4	71.25	-1,262.5	-54.7	2,171.6	2,151.4	20.16	107.695	
7,677.1	7,110.5	7,061.7	7,059.8	32.0	2.4	73.60	-1,262.5	-54.7	2,152.3	2,131.8	20.45	105.231	
7,700.0	7,116.0	7,067.1	7,065.2	32.0	2.4	75.59	-1,262.6	-54.8	2,136.0	2,115.3	20.67	103.344	
7,750.0	7,125.4	7,076.5	7,074.6	31.8	2.4	79.92	-1,262.7	-54.9	2,100.3	2,079.2	21.10	99.549	
7,775.6	7,128.9	7,080.1	7,078.1	31.7	2.4	82.11	-1,262.7	-54.9	2,082.0	2,060.7	21.30	97.746	
7,800.0	7,131.4	7,082.6	7,080.7	31.6	2.4	84.17	-1,262.7	-54.9	2,064.7	2,043.2	21.48	96.141	
7,850.0	7,133.9	7,085.4	7,083.5	31.5	2.4	88.24	-1,262.7	-54.9	2,029.4	2,007.6	21.84	92.912	
7,866.5	7,134.0	7,085.6	7,083.7	31.4	2.4	89.54	-1,262.7	-54.9	2,017.9	1,996.0	21.97	91.859	
7,874.0	7,133.9	7,085.6	7,083.7	31.4	2.4	89.54	-1,262.7	-54.9	2,012.7	1,990.7	21.97	91.617	
7,900.0	7,133.7	7,085.6	7,083.7	31.4	2.4	89.54	-1,262.7	-54.9	1,994.7	1,972.8	21.97	90.785	
7,972.4	7,133.2	7,085.6	7,083.7	31.2	2.4	89.54	-1,262.7	-54.9	1,945.7	1,923.6	22.07	88.150	
8,000.0	7,133.0	7,085.6	7,083.7	31.2	2.4	89.54	-1,262.7	-54.9	1,927.4	1,905.3	22.11	87.170	
8,070.8	7,132.4	7,085.6	7,083.7	31.1	2.4	89.53	-1,262.7	-54.9	1,881.4	1,859.1	22.34	84.222	
8,100.0	7,132.2	7,085.6	7,083.7	31.1	2.4	89.53	-1,262.7	-54.9	1,862.9	1,840.5	22.43	83.047	
8,169.3	7,131.7	7,085.6	7,083.7	31.1	2.4	89.53	-1,262.7	-54.9	1,820.2	1,797.4	22.78	79.915	
8,200.0	7,131.5	7,085.6	7,083.7	31.1	2.4	89.53	-1,262.7	-54.9	1,801.7	1,778.8	22.93	78.579	
8,267.7	7,131.0	7,085.6	7,083.7	31.2	2.4	89.53	-1,262.7	-54.9	1,762.3	1,738.9	23.38	75.392	
8,300.0	7,130.7	7,085.6	7,083.7	31.2	2.4	89.53	-1,262.7	-54.9	1,744.1	1,720.5	23.59	73.940	
8,366.1	7,130.2	7,085.6	7,083.7	31.4	2.4	89.53	-1,262.7	-54.9	1,708.2	1,684.1	24.12	70.813	
8,400.0	7,130.0	7,085.6	7,083.7	31.5	2.4	89.53	-1,262.7	-54.9	1,690.5	1,666.1	24.40	69.293	
8,464.5	7,129.5	7,085.6	7,083.7	31.7	2.4	89.53	-1,262.7	-54.9	1,658.1	1,633.1	25.00	66.318	
8,500.0	7,129.2	7,085.6	7,083.7	31.9	2.4	89.53	-1,262.7	-54.9	1,641.2	1,615.9	25.34	64.776	
8,563.0	7,128.7	7,085.6	7,083.7	32.2	2.4	89.53	-1,262.7	-54.9	1,612.6	1,586.6	26.00	62.017	
8,600.0	7,128.5	7,085.6	7,083.7	32.4	2.4	89.53	-1,262.7	-54.9	1,596.6	1,570.2	26.39	60.494	
8,661.4	7,128.0	7,085.6	7,083.7	32.8	2.4	89.53	-1,262.7	-54.9	1,571.8	1,544.7	27.10	57.990	
8,700.0	7,127.7	7,085.6	7,083.7	33.1	2.4	89.53	-1,262.7	-54.9	1,557.2	1,529.7	27.55	56.519	
8,759.8	7,127.3	7,085.6	7,083.7	33.5	2.4	89.53	-1,262.7	-54.9	1,536.3	1,508.0	28.30	54.288	
8,800.0	7,127.0	7,085.6	7,083.7	33.9	2.4	89.53	-1,262.7	-54.9	1,523.4	1,494.6	28.80	52.895	
8,858.2	7,126.5	7,085.6	7,083.7	34.4	2.4	89.53	-1,262.7	-54.9	1,506.4	1,476.8	29.57	50.940	
8,900.0	7,126.2	7,085.6	7,083.6	34.8	2.4	89.53	-1,262.7	-54.9	1,495.5	1,465.4	30.13	49.643	
8,956.7	7,125.8	7,085.6	7,083.6	35.4	2.4	89.53	-1,262.7	-54.9	1,482.4	1,451.5	30.91	47.954	
9,000.0	7,125.5	7,085.6	7,083.6	35.8	2.4	89.53	-1,262.7	-54.9	1,473.9	1,442.3	31.52	46.765	
9,055.1	7,125.1	7,085.6	7,083.6	36.5	2.4	89.53	-1,262.7	-54.9	1,464.7	1,432.4	32.31	45.327	
9,100.0	7,124.7	7,085.6	7,083.6	37.0	2.4	89.53	-1,262.7	-54.9	1,458.8	1,425.8	32.96	44.252	
9,153.5	7,124.3	7,085.6	7,083.6	37.6	2.4	89.53	-1,262.7	-54.9	1,453.5	1,419.7	33.77	43.044	
9,200.0	7,124.0	7,085.6	7,083.6	38.2	2.4	89.53	-1,262.7	-54.9	1,450.4	1,416.0	34.46	42.087	
9,251.9	7,123.6	7,085.6	7,083.6	38.8	2.4	89.53	-1,262.7	-54.9	1,448.8	1,413.5	35.26	41.085	
9,271.2	7,123.4	7,085.6	7,083.6	39.1	2.4	89.53	-1,262.7	-54.9	1,448.7	1,413.1	35.56	40.738	
9,300.0	7,123.2	7,085.6	7,083.6	39.5	2.4	89.53	-1,262.7	-54.9	1,449.0	1,413.0	36.00	40.245	
9,350.4	7,122.8	7,085.6	7,083.6	40.1	2.4	89.53	-1,262.7	-54.9	1,450.8	1,414.0	36.80	39.426	
9,400.0	7,122.5	7,085.6	7,083.6	40.8	2.4	89.53	-1,262.7	-54.9	1,454.4	1,416.8	37.58	38.699	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-32 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	7,085.6	7,083.6	41.5	2.4	89.53	-1,262.7	-54.9	1,459.5	1,421.2	38.37	38.040	
9,500.0	7,121.7	7,085.6	7,083.6	42.2	2.4	89.53	-1,262.7	-54.9	1,466.6	1,427.4	39.19	37.421	
9,547.2	7,121.4	7,085.6	7,083.6	42.9	2.4	89.53	-1,262.7	-54.9	1,474.7	1,434.8	39.97	36.899	
9,600.0	7,121.0	7,085.6	7,083.6	43.7	2.4	89.53	-1,262.7	-54.9	1,485.5	1,444.7	40.83	36.381	
9,645.6	7,120.6	7,085.6	7,083.6	44.3	2.4	89.53	-1,262.7	-54.9	1,496.3	1,454.7	41.59	35.975	
9,700.0	7,120.2	7,085.6	7,083.6	45.1	2.4	89.53	-1,262.7	-54.9	1,510.8	1,468.3	42.50	35.551	
9,744.1	7,119.9	7,085.5	7,083.6	45.8	2.4	89.53	-1,262.7	-54.9	1,523.9	1,480.7	43.24	35.243	
9,800.0	7,119.5	7,085.5	7,083.6	46.6	2.4	89.53	-1,262.7	-54.9	1,542.2	1,498.0	44.18	34.904	
9,842.5	7,119.1	7,085.5	7,083.6	47.3	2.4	89.53	-1,262.7	-54.9	1,557.2	1,512.3	44.91	34.677	
9,900.0	7,118.7	7,085.5	7,083.6	48.2	2.4	89.53	-1,262.7	-54.9	1,579.2	1,533.4	45.89	34.415	
9,940.9	7,118.4	7,085.5	7,083.6	48.8	2.4	89.53	-1,262.7	-54.9	1,596.0	1,549.4	46.59	34.254	
10,000.0	7,118.0	7,085.5	7,083.6	49.8	2.4	89.53	-1,262.7	-54.9	1,621.7	1,574.0	47.61	34.061	
10,039.3	7,117.7	7,085.5	7,083.6	50.4	2.4	89.53	-1,262.7	-54.9	1,639.7	1,591.4	48.29	33.952	
10,100.0	7,117.2	7,085.5	7,083.6	51.4	2.4	89.53	-1,262.7	-54.9	1,669.0	1,619.6	49.35	33.820	
10,137.8	7,116.9	7,085.5	7,083.6	52.0	2.4	89.53	-1,262.7	-54.9	1,688.1	1,638.1	50.01	33.754	
10,200.0	7,116.5	7,085.5	7,083.6	53.0	2.4	89.53	-1,262.7	-54.9	1,720.8	1,669.7	51.10	33.675	
10,236.2	7,116.2	7,085.5	7,083.6	53.6	2.4	89.53	-1,262.7	-54.9	1,740.6	1,688.9	51.74	33.643	
10,300.0	7,115.7	7,085.5	7,083.6	54.6	2.4	89.53	-1,262.7	-54.9	1,776.8	1,723.9	52.86	33.610	
10,334.6	7,115.5	7,085.5	7,083.6	55.2	2.4	89.53	-1,262.7	-54.9	1,797.1	1,743.6	53.48	33.603 SF	
10,400.0	7,115.0	7,085.5	7,083.6	56.3	2.4	89.53	-1,262.7	-54.9	1,836.5	1,781.9	54.64	33.611	
10,433.0	7,114.7	7,085.5	7,083.6	56.8	2.4	89.53	-1,262.7	-54.9	1,857.0	1,801.8	55.23	33.623	
10,500.0	7,114.2	7,085.5	7,083.6	58.0	2.4	89.53	-1,262.7	-54.9	1,899.6	1,843.2	56.42	33.666	
10,531.5	7,114.0	7,085.5	7,083.6	58.5	2.4	89.53	-1,262.7	-54.9	1,920.1	1,863.1	56.99	33.693	
10,600.0	7,113.5	7,085.5	7,083.6	59.7	2.4	89.53	-1,262.7	-54.9	1,965.8	1,907.6	58.22	33.766	
10,629.9	7,113.2	7,085.5	7,083.6	60.2	2.4	89.53	-1,262.7	-54.9	1,986.1	1,927.4	58.76	33.802	
10,700.0	7,112.7	7,085.5	7,083.6	61.4	2.4	89.53	-1,262.7	-54.9	2,034.7	1,974.7	60.02	33.900	
10,728.3	7,112.5	7,085.5	7,083.6	61.8	2.4	89.53	-1,262.7	-54.9	2,054.7	1,994.2	60.53	33.943	
10,800.0	7,112.0	7,085.5	7,083.6	63.1	2.4	89.53	-1,262.7	-54.9	2,106.1	2,044.3	61.83	34.063	
10,826.7	7,111.8	7,085.5	7,083.6	63.5	2.4	89.53	-1,262.7	-54.9	2,125.6	2,063.3	62.32	34.111	
10,900.0	7,111.2	7,085.5	7,083.6	64.8	2.4	89.53	-1,262.7	-54.9	2,179.8	2,116.2	63.65	34.249	
10,925.2	7,111.0	7,085.5	7,083.6	65.2	2.4	89.53	-1,262.7	-54.9	2,198.7	2,134.6	64.10	34.298	
11,000.0	7,110.5	7,085.5	7,083.6	66.5	2.4	89.53	-1,262.7	-54.9	2,255.5	2,190.0	65.47	34.452	
11,023.6	7,110.3	7,085.5	7,083.6	66.9	2.4	89.53	-1,262.7	-54.9	2,273.6	2,207.7	65.90	34.501	
11,100.0	7,109.7	7,085.5	7,083.6	68.3	2.4	89.53	-1,262.7	-54.9	2,333.0	2,265.7	67.30	34.668	
11,122.0	7,109.5	7,085.5	7,083.6	68.7	2.4	89.53	-1,262.7	-54.9	2,350.3	2,282.6	67.70	34.717	
11,200.0	7,109.0	7,085.5	7,083.6	70.0	2.4	89.53	-1,262.7	-54.9	2,412.2	2,343.1	69.13	34.894	
11,220.4	7,108.8	7,085.5	7,083.6	70.4	2.4	89.53	-1,262.7	-54.9	2,428.6	2,359.1	69.51	34.941	
11,300.0	7,108.2	7,085.5	7,083.6	71.8	2.4	89.53	-1,262.7	-54.9	2,492.9	2,421.9	70.97	35.127	
11,318.9	7,108.1	7,085.5	7,083.6	72.1	2.4	89.53	-1,262.7	-54.9	2,508.3	2,437.0	71.32	35.172	
11,400.0	7,107.5	7,085.5	7,083.6	73.6	2.4	89.53	-1,262.7	-54.9	2,574.9	2,502.1	72.81	35.365	
11,417.3	7,107.3	7,085.5	7,083.6	73.9	2.4	89.53	-1,262.7	-54.9	2,589.3	2,516.1	73.13	35.406	
11,500.0	7,106.7	7,085.5	7,083.6	75.3	2.4	89.53	-1,262.7	-54.9	2,658.2	2,583.5	74.66	35.606	
11,515.7	7,106.6	7,085.5	7,083.6	75.6	2.4	89.53	-1,262.7	-54.9	2,671.4	2,596.5	74.95	35.644	
11,600.0	7,106.0	7,085.5	7,083.6	77.1	2.4	89.53	-1,262.7	-54.9	2,742.6	2,666.1	76.51	35.848	
11,614.1	7,105.9	7,085.5	7,083.6	77.4	2.4	89.53	-1,262.7	-54.9	2,754.6	2,677.8	76.77	35.882	
11,700.0	7,105.2	7,085.5	7,083.6	78.9	2.4	89.53	-1,262.7	-54.9	2,828.0	2,749.6	78.36	36.089	
11,712.6	7,105.1	7,085.5	7,083.6	79.2	2.4	89.53	-1,262.7	-54.9	2,838.8	2,760.2	78.59	36.120	
11,800.0	7,104.5	7,085.5	7,083.6	80.7	2.4	89.53	-1,262.7	-54.9	2,914.3	2,834.1	80.22	36.330	
11,811.0	7,104.4	7,085.5	7,083.6	80.9	2.4	89.53	-1,262.7	-54.9	2,923.9	2,843.5	80.42	36.357	
11,860.2	7,104.0	7,085.5	7,083.5	81.8	2.4	89.53	-1,262.7	-54.9	2,966.8	2,885.4	81.34	36.475	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	170.69	-2,368.7	388.4	2,400.4				
98.4	98.4	74.1	74.1	0.1	0.0	170.69	-2,368.8	388.3	2,400.5	2,400.4	0.11	N/A	
100.0	100.0	75.5	75.5	0.1	0.0	170.69	-2,368.8	388.3	2,400.5	2,400.4	0.11	N/A	
196.8	196.8	177.7	177.7	0.3	0.2	170.70	-2,369.2	388.1	2,400.8	2,400.3	0.45	5,294.177	
200.0	200.0	181.2	181.2	0.3	0.2	170.70	-2,369.2	388.1	2,400.8	2,400.3	0.47	5,151.591	
295.3	295.3	276.3	276.3	0.5	0.3	170.71	-2,369.4	387.6	2,400.9	2,400.1	0.78	3,075.673	
300.0	300.0	280.9	280.9	0.5	0.3	170.71	-2,369.4	387.6	2,400.9	2,400.1	0.80	3,018.044	
393.7	393.7	370.7	370.7	0.7	0.3	170.71	-2,369.6	387.5	2,401.1	2,400.0	1.06	2,259.215	
400.0	400.0	376.7	376.7	0.8	0.3	170.71	-2,369.6	387.5	2,401.1	2,400.0	1.08	2,222.715	
492.1	492.1	464.6	464.6	1.0	0.4	170.71	-2,370.0	387.5	2,401.5	2,400.1	1.34	1,794.624	
500.0	500.0	472.1	472.1	1.0	0.4	170.71	-2,370.0	387.5	2,401.5	2,400.1	1.36	1,765.464	
590.5	590.5	564.2	564.2	1.2	0.4	170.71	-2,370.4	387.6	2,402.0	2,400.3	1.61	1,489.818	
600.0	600.0	574.1	574.1	1.2	0.4	170.71	-2,370.5	387.6	2,402.0	2,400.4	1.64	1,466.039	
689.0	689.0	666.8	666.7	1.4	0.5	170.72	-2,370.8	387.5	2,402.3	2,400.4	1.88	1,278.393	
700.0	700.0	678.2	678.2	1.4	0.5	170.72	-2,370.9	387.5	2,402.3	2,400.4	1.91	1,258.619	
787.4	787.4	763.1	763.1	1.6	0.5	170.72	-2,371.1	387.3	2,402.5	2,400.4	2.13	1,126.911	
800.0	800.0	775.1	775.1	1.7	0.5	170.72	-2,371.2	387.3	2,402.6	2,400.4	2.16	1,110.426	
885.8	885.8	862.9	862.9	1.9	0.6	170.72	-2,371.5	387.5	2,402.9	2,400.5	2.39	1,006.350	
900.0	900.0	877.9	877.9	1.9	0.6	170.72	-2,371.5	387.5	2,402.9	2,400.5	2.43	990.773	
984.2	984.2	961.8	961.8	2.1	0.6	170.72	-2,371.7	387.7	2,403.1	2,400.5	2.65	908.174	
1,000.0	1,000.0	977.2	977.2	2.1	0.6	170.72	-2,371.7	387.7	2,403.2	2,400.5	2.69	894.305	
1,082.7	1,082.7	1,057.9	1,057.9	2.3	0.6	170.72	-2,372.0	387.7	2,403.5	2,400.6	2.90	829.814	
1,100.0	1,100.0	1,074.8	1,074.8	2.3	0.7	170.72	-2,372.0	387.7	2,403.5	2,400.6	2.94	817.613	
1,181.1	1,181.1	1,160.5	1,160.5	2.5	0.7	170.73	-2,372.4	387.3	2,403.8	2,400.6	3.15	763.704	
1,200.0	1,200.0	1,181.2	1,181.2	2.6	0.7	170.73	-2,372.4	387.2	2,403.8	2,400.6	3.20	752.022	
1,279.5	1,279.5	1,257.5	1,257.4	2.7	0.7	170.74	-2,372.6	386.9	2,403.9	2,400.5	3.40	707.909	
1,300.0	1,300.0	1,276.3	1,276.3	2.8	0.7	170.74	-2,372.6	386.9	2,404.0	2,400.5	3.45	697.484	
1,377.9	1,377.9	1,354.1	1,354.1	3.0	0.8	170.74	-2,372.9	386.7	2,404.3	2,400.6	3.64	659.774	
1,400.0	1,400.0	1,376.9	1,376.9	3.0	0.8	170.75	-2,373.0	386.7	2,404.3	2,400.6	3.70	649.742	
1,476.4	1,476.4	1,453.5	1,453.5	3.2	0.8	170.75	-2,373.3	386.4	2,404.5	2,400.7	3.90	617.300	
1,500.0	1,500.0	1,476.8	1,476.8	3.2	0.8	170.76	-2,373.4	386.3	2,404.6	2,400.7	3.96	607.926	
1,550.0	1,550.0	1,527.9	1,527.9	3.3	0.8	170.76	-2,373.6	386.0	2,404.8	2,400.7	4.08	588.977	
1,574.8	1,574.8	1,553.9	1,553.9	3.4	0.8	112.55	-2,373.7	385.9	2,404.9	2,400.6	4.21	571.087	
1,600.0	1,600.0	1,580.4	1,580.4	3.5	0.8	112.56	-2,373.7	385.7	2,405.0	2,400.8	4.27	562.673	
1,673.2	1,673.2	1,658.3	1,658.3	3.6	0.9	112.60	-2,373.8	385.3	2,405.9	2,401.5	4.45	540.397	
1,700.0	1,699.9	1,686.9	1,686.9	3.7	0.9	112.63	-2,373.9	385.1	2,406.4	2,401.9	4.52	532.768	
1,771.6	1,771.4	1,753.5	1,753.5	3.8	0.9	112.71	-2,373.9	384.4	2,408.1	2,403.5	4.69	513.315	
1,800.0	1,799.7	1,779.0	1,779.0	3.9	0.9	112.74	-2,374.0	384.1	2,409.1	2,404.3	4.76	506.084	
1,870.1	1,869.4	1,852.6	1,852.6	4.0	0.9	112.88	-2,374.3	383.1	2,411.9	2,407.0	4.94	488.248	
1,900.0	1,899.1	1,886.2	1,886.2	4.1	0.9	112.95	-2,374.3	382.7	2,413.3	2,408.3	5.02	480.966	
1,968.5	1,967.0	1,948.1	1,948.0	4.3	1.0	113.08	-2,374.5	381.7	2,416.9	2,411.7	5.20	464.627	
2,000.0	1,998.2	1,975.0	1,974.9	4.4	1.0	113.15	-2,374.6	381.3	2,418.8	2,413.5	5.29	457.561	
2,066.9	2,064.1	2,041.2	2,041.1	4.5	1.0	113.33	-2,375.0	380.1	2,423.6	2,418.1	5.48	441.969	
2,100.0	2,096.6	2,077.4	2,077.3	4.6	1.0	113.45	-2,375.2	379.5	2,426.1	2,420.5	5.58	434.596	
2,165.3	2,160.6	2,141.0	2,140.9	4.8	1.0	113.65	-2,375.4	378.3	2,431.5	2,425.7	5.79	419.639	
2,200.0	2,194.4	2,172.7	2,172.6	4.9	1.0	113.76	-2,375.5	377.8	2,434.7	2,428.8	5.91	412.218	
2,263.8	2,256.4	2,228.8	2,228.8	5.2	1.1	113.95	-2,375.8	376.8	2,441.1	2,435.0	6.14	397.787	
2,300.0	2,291.5	2,259.5	2,259.5	5.3	1.1	114.05	-2,376.1	376.3	2,445.2	2,438.9	6.27	390.086	
2,362.2	2,351.4	2,314.0	2,313.9	5.5	1.1	114.25	-2,376.6	375.4	2,452.8	2,446.2	6.52	376.108	
2,400.0	2,387.6	2,351.2	2,351.1	5.7	1.1	114.41	-2,377.0	374.7	2,457.7	2,451.0	6.68	368.033	
2,460.6	2,445.4	2,410.4	2,410.3	6.0	1.1	114.67	-2,377.6	373.3	2,466.1	2,459.2	6.96	354.452	
2,500.0	2,482.7	2,448.7	2,448.6	6.2	1.1	114.84	-2,378.0	372.5	2,471.9	2,464.8	7.14	346.288	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,500.0	2,499.8	6.5	1.2	115.06	-2,378.5	371.4	2,481.1	2,473.7	7.44	333.449	
2,600.0	2,576.6	2,538.6	2,538.4	6.7	1.2	115.24	-2,378.8	370.6	2,487.9	2,480.3	7.65	325.107	
2,657.5	2,630.1	2,585.3	2,585.2	7.0	1.2	115.44	-2,379.4	369.6	2,498.1	2,490.2	7.98	312.948	
2,700.0	2,669.4	2,625.2	2,625.0	7.3	1.2	115.63	-2,379.9	368.7	2,506.2	2,497.9	8.23	304.603	
2,755.9	2,720.6	2,682.7	2,682.5	7.6	1.2	115.94	-2,380.6	367.4	2,517.2	2,508.6	8.58	293.343	
2,776.7	2,739.5	2,700.0	2,699.8	7.8	1.2	116.02	-2,380.8	367.0	2,521.4	2,512.7	8.71	289.427	
2,800.0	2,760.8	2,720.6	2,720.4	7.9	1.2	116.21	-2,381.0	366.5	2,526.2	2,517.4	8.86	285.026	
2,854.3	2,810.2	2,761.9	2,761.7	8.3	1.3	116.59	-2,381.5	365.6	2,537.7	2,528.4	9.22	275.164	
2,900.0	2,851.7	2,800.0	2,799.7	8.7	1.3	116.93	-2,382.1	364.7	2,547.5	2,538.0	9.52	267.490	
2,952.7	2,899.7	2,842.7	2,842.4	9.1	1.3	117.31	-2,382.8	363.7	2,559.2	2,549.3	9.88	258.945	
3,000.0	2,942.7	2,884.5	2,884.2	9.4	1.3	117.69	-2,383.5	362.7	2,569.7	2,559.5	10.20	251.839	
3,051.2	2,989.3	2,932.3	2,932.0	9.8	1.3	118.11	-2,384.3	361.6	2,581.3	2,570.7	10.56	244.520	
3,100.0	3,033.7	2,979.1	2,978.8	10.2	1.3	118.53	-2,385.1	360.3	2,592.4	2,581.5	10.89	238.045	
3,149.6	3,078.8	3,032.8	3,032.4	10.5	1.4	119.00	-2,385.8	358.9	2,603.8	2,592.5	11.23	231.818	
3,200.0	3,124.6	3,092.2	3,091.8	10.9	1.4	119.52	-2,386.3	357.3	2,615.2	2,603.6	11.57	225.941	
3,248.0	3,168.3	3,145.2	3,144.8	11.3	1.4	119.98	-2,386.6	355.9	2,626.1	2,614.2	11.90	220.635	
3,300.0	3,215.6	3,201.7	3,201.3	11.7	1.4	120.47	-2,386.6	354.2	2,637.8	2,625.5	12.25	215.251	
3,346.4	3,257.9	3,250.5	3,250.0	12.1	1.4	120.88	-2,386.5	352.8	2,648.2	2,635.6	12.57	210.682	
3,400.0	3,306.6	3,306.6	3,306.1	12.5	1.4	121.35	-2,386.2	351.4	2,660.2	2,647.3	12.93	205.698	
3,444.9	3,347.4	3,351.7	3,351.2	12.9	1.5	121.73	-2,385.9	350.3	2,670.4	2,657.1	13.24	201.721	
3,500.0	3,397.6	3,408.8	3,408.3	13.3	1.5	122.20	-2,385.3	348.8	2,682.8	2,669.2	13.61	197.142	
3,543.3	3,436.9	3,462.3	3,461.8	13.7	1.5	122.65	-2,384.6	347.2	2,692.5	2,678.7	13.90	193.765	
3,600.0	3,488.5	3,525.7	3,525.2	14.1	1.5	123.17	-2,383.3	345.0	2,705.1	2,690.9	14.27	189.562	
3,641.7	3,526.5	3,566.8	3,566.2	14.5	1.5	123.51	-2,382.4	343.6	2,714.4	2,699.9	14.55	186.578	
3,700.0	3,579.5	3,618.1	3,617.4	15.0	1.5	123.94	-2,381.2	341.7	2,727.5	2,712.6	14.94	182.588	
3,740.1	3,616.0	3,647.7	3,647.0	15.3	1.5	124.18	-2,380.5	340.7	2,736.7	2,721.5	15.21	179.918	
3,800.0	3,670.5	3,700.0	3,699.3	15.8	1.5	124.60	-2,379.6	338.8	2,750.7	2,735.1	15.61	176.198	
3,838.6	3,705.6	3,723.4	3,722.7	16.1	1.5	124.79	-2,379.2	338.0	2,759.9	2,744.0	15.87	173.850	
3,900.0	3,761.4	3,776.0	3,775.2	16.6	1.6	125.21	-2,378.5	336.1	2,774.7	2,758.4	16.29	170.375	
3,937.0	3,795.1	3,807.4	3,806.6	16.9	1.6	125.46	-2,378.0	335.0	2,783.7	2,767.2	16.53	168.375	
4,000.0	3,852.4	3,859.2	3,858.3	17.4	1.6	125.87	-2,377.4	333.2	2,799.4	2,782.4	16.95	165.136	
4,035.4	3,884.6	3,888.3	3,887.5	17.7	1.6	126.09	-2,377.0	332.2	2,808.3	2,791.1	17.19	163.394	
4,100.0	3,943.4	3,945.8	3,944.9	18.3	1.6	126.53	-2,376.4	330.4	2,824.7	2,807.1	17.61	160.396	
4,133.8	3,974.2	3,976.6	3,975.7	18.6	1.6	126.77	-2,376.1	329.4	2,833.4	2,815.6	17.83	158.893	
4,200.0	4,034.4	4,040.1	4,039.2	19.1	1.6	127.25	-2,375.4	327.5	2,850.5	2,832.2	18.26	156.120	
4,232.3	4,063.7	4,072.3	4,071.3	19.4	1.6	127.48	-2,375.1	326.7	2,858.8	2,840.4	18.46	154.827	
4,300.0	4,125.3	4,139.4	4,138.4	19.9	1.7	127.97	-2,374.3	325.4	2,876.4	2,857.5	18.89	152.233	
4,330.7	4,153.3	4,169.7	4,168.7	20.2	1.7	128.18	-2,373.9	325.0	2,884.4	2,865.3	19.09	151.103	
4,400.0	4,216.3	4,242.2	4,241.2	20.8	1.7	128.68	-2,372.9	324.2	2,902.5	2,882.9	19.52	148.683	
4,429.1	4,242.8	4,273.9	4,272.9	21.0	1.7	128.90	-2,372.3	323.8	2,910.0	2,890.3	19.70	147.712	
4,500.0	4,307.3	4,339.0	4,338.0	21.6	1.7	129.35	-2,371.1	323.0	2,928.4	2,908.3	20.14	145.374	
4,527.5	4,332.3	4,361.9	4,360.9	21.9	1.7	129.50	-2,370.7	322.8	2,935.7	2,915.4	20.32	144.486	
4,600.0	4,398.2	4,419.5	4,418.4	22.5	1.7	129.89	-2,369.7	322.0	2,954.9	2,934.2	20.78	142.230	
4,626.0	4,421.9	4,438.5	4,437.5	22.7	1.7	130.02	-2,369.4	321.7	2,961.9	2,941.0	20.94	141.439	
4,700.0	4,489.2	4,500.0	4,499.0	23.3	1.7	130.43	-2,368.8	320.8	2,982.2	2,960.8	21.41	139.318	
4,724.4	4,511.4	4,500.0	4,499.0	23.5	1.7	130.43	-2,368.8	320.8	2,989.0	2,967.5	21.57	138.550	
4,800.0	4,580.2	4,561.6	4,560.6	24.2	1.7	130.83	-2,368.5	320.0	3,010.4	2,988.4	22.05	136.527	
4,822.8	4,601.0	4,577.3	4,576.2	24.4	1.7	130.93	-2,368.5	319.8	3,017.0	2,994.8	22.20	135.929	
4,900.0	4,671.2	4,637.1	4,636.1	25.0	1.8	131.31	-2,368.7	319.3	3,039.6	3,016.9	22.68	134.003	
4,921.2	4,690.5	4,655.1	4,654.0	25.2	1.8	131.42	-2,368.7	319.1	3,045.9	3,023.1	22.82	133.496	
5,000.0	4,762.1	4,724.2	4,723.1	25.9	1.8	131.85	-2,369.2	318.7	3,069.3	3,046.0	23.30	131.710	
5,019.7	4,780.0	4,742.8	4,741.7	26.0	1.8	131.97	-2,369.3	318.5	3,075.2	3,051.8	23.42	131.285	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,818.6	4,817.5	26.7	1.8	132.43	-2,369.7	318.0	3,099.3	3,075.4	23.91	129.618	
5,118.1	4,869.6	4,835.6	4,834.5	26.9	1.8	132.53	-2,369.7	317.8	3,104.7	3,080.7	24.02	129.255	
5,200.0	4,944.1	4,912.2	4,911.1	27.6	1.9	132.99	-2,370.1	317.3	3,129.5	3,104.9	24.51	127.671	
5,216.5	4,959.1	4,927.2	4,926.1	27.7	1.9	133.08	-2,370.1	317.2	3,134.5	3,109.8	24.61	127.360	
5,300.0	5,035.0	5,003.1	5,002.1	28.4	1.9	133.53	-2,370.4	316.6	3,159.8	3,134.7	25.11	125.847	
5,314.9	5,048.6	5,017.6	5,016.5	28.6	1.9	133.61	-2,370.4	316.5	3,164.4	3,139.2	25.20	125.589	
5,400.0	5,126.0	5,099.9	5,098.8	29.3	1.9	134.09	-2,370.6	315.8	3,190.4	3,164.7	25.69	124.170	
5,413.4	5,138.2	5,111.9	5,110.8	29.4	1.9	134.16	-2,370.7	315.7	3,194.5	3,168.7	25.77	123.950	
5,479.4	5,198.3	5,171.0	5,169.9	30.0	1.9	134.49	-2,370.8	315.3	3,214.8	3,188.7	26.16	122.892	
5,500.0	5,217.0	5,189.4	5,188.3	30.1	1.9	134.69	-2,370.8	315.2	3,221.1	3,194.9	26.23	122.784	
5,511.8	5,227.8	5,200.0	5,198.9	30.2	1.9	134.80	-2,370.8	315.1	3,224.7	3,198.4	26.27	122.770	
5,600.0	5,309.0	5,285.3	5,284.3	30.8	2.0	135.63	-2,370.9	314.4	3,250.5	3,223.9	26.50	122.647	
5,610.2	5,318.5	5,295.3	5,294.2	30.8	2.0	135.72	-2,370.9	314.4	3,253.3	3,226.8	26.53	122.645	
5,700.0	5,402.3	5,384.4	5,383.3	31.4	2.0	136.48	-2,370.9	313.7	3,277.4	3,250.7	26.73	122.591	
5,708.6	5,410.4	5,393.0	5,391.9	31.4	2.0	136.55	-2,370.9	313.6	3,279.6	3,252.9	26.75	122.596	
5,800.0	5,496.7	5,466.6	5,465.5	31.9	2.0	137.17	-2,370.9	313.0	3,302.2	3,275.2	26.95	122.530	
5,807.1	5,503.5	5,472.2	5,471.1	31.9	2.0	137.22	-2,370.9	312.9	3,303.9	3,276.9	26.96	122.533	
5,900.0	5,592.3	5,553.2	5,552.1	32.4	2.1	137.81	-2,371.2	312.1	3,325.0	3,297.8	27.13	122.535	
5,905.5	5,597.6	5,558.3	5,557.2	32.4	2.1	137.84	-2,371.2	312.0	3,326.1	3,299.0	27.14	122.541	
6,000.0	5,688.8	5,636.5	5,635.4	32.9	2.1	138.36	-2,371.5	310.8	3,345.5	3,318.2	27.29	122.576	
6,003.9	5,692.6	5,639.5	5,638.4	32.9	2.1	138.38	-2,371.5	310.8	3,346.3	3,319.0	27.30	122.581	
6,100.0	5,786.2	5,716.7	5,715.6	33.3	2.1	138.85	-2,372.3	309.3	3,364.2	3,336.8	27.43	122.665	
6,102.3	5,788.5	5,719.4	5,718.3	33.3	2.1	138.86	-2,372.3	309.2	3,364.6	3,337.2	27.43	122.671	
6,200.0	5,884.3	5,823.9	5,822.8	33.6	2.2	139.32	-2,373.2	307.1	3,380.3	3,352.8	27.52	122.811	
6,200.8	5,885.1	5,824.6	5,823.5	33.6	2.2	139.33	-2,373.2	307.1	3,380.4	3,352.9	27.52	122.812	
6,299.2	5,982.3	5,913.3	5,912.1	33.9	2.2	139.68	-2,374.0	305.4	3,393.8	3,366.2	27.61	122.927	
6,300.0	5,983.1	5,914.0	5,912.9	33.9	2.2	139.68	-2,374.0	305.4	3,393.9	3,366.3	27.61	122.927	
6,397.6	6,079.9	6,000.0	5,998.8	34.1	2.2	139.97	-2,375.0	303.7	3,404.8	3,377.2	27.68	123.029	
6,400.0	6,082.3	6,000.0	5,998.8	34.1	2.2	139.97	-2,375.0	303.7	3,405.1	3,377.4	27.68	123.028	
6,496.0	6,177.9	6,086.6	6,085.4	34.3	2.2	140.18	-2,376.3	302.1	3,413.7	3,385.9	27.73	123.103	
6,500.0	6,181.9	6,089.9	6,088.7	34.3	2.2	140.19	-2,376.4	302.1	3,414.0	3,386.2	27.73	123.102	
6,594.5	6,276.2	6,188.4	6,187.2	34.5	2.3	140.34	-2,378.2	300.8	3,420.1	3,392.3	27.78	123.118	
6,600.0	6,281.7	6,194.3	6,193.1	34.5	2.3	140.34	-2,378.3	300.7	3,420.4	3,392.6	27.78	123.113	
6,692.9	6,374.6	6,285.8	6,284.6	34.6	2.3	140.43	-2,379.8	299.0	3,423.9	3,396.0	27.82	123.093	
6,706.1	6,387.8	6,298.8	6,297.5	34.6	2.3	-161.35	-2,380.0	298.7	3,424.2	3,396.3	27.82	123.077	
6,736.1	6,417.8	6,332.2	6,330.9	34.6	2.3	-161.34	-2,380.5	297.9	3,424.8	3,396.9	27.86	122.938	
6,750.0	6,431.7	6,347.8	6,346.5	34.6	2.3	18.67	-2,380.7	297.5	3,425.0	3,397.1	27.83	123.088	
6,791.3	6,473.0	6,394.0	6,392.7	34.6	2.3	18.72	-2,381.3	296.4	3,423.9	3,396.2	27.70	123.624	
6,800.0	6,481.6	6,400.0	6,398.7	34.6	2.3	18.74	-2,381.4	296.3	3,423.4	3,395.7	27.66	123.753	
6,850.0	6,531.2	6,445.6	6,444.3	34.6	2.3	18.91	-2,381.9	295.2	3,418.5	3,391.0	27.43	124.603	
6,889.7	6,570.3	6,479.3	6,478.0	34.6	2.4	19.12	-2,382.4	294.3	3,412.3	3,385.1	27.20	125.455	
6,900.0	6,580.3	6,487.9	6,486.6	34.6	2.4	19.18	-2,382.5	294.1	3,410.4	3,383.3	27.13	125.710	
6,950.0	6,628.5	6,535.4	6,534.0	34.6	2.4	19.58	-2,383.2	292.8	3,399.2	3,372.5	26.73	127.170	
6,988.2	6,664.7	6,572.7	6,571.3	34.5	2.4	19.96	-2,383.8	291.7	3,388.5	3,362.2	26.35	128.576	
7,000.0	6,675.8	6,584.1	6,582.7	34.5	2.4	20.10	-2,384.0	291.4	3,384.8	3,358.6	26.22	129.076	
7,050.0	6,721.8	6,631.7	6,630.3	34.4	2.4	20.76	-2,384.6	290.0	3,367.3	3,341.7	25.60	131.515	
7,086.6	6,754.5	6,665.7	6,664.3	34.3	2.4	21.34	-2,385.1	289.0	3,352.6	3,327.5	25.08	133.685	
7,100.0	6,766.2	6,678.0	6,676.5	34.2	2.4	21.57	-2,385.2	288.7	3,346.8	3,321.9	24.87	134.578	
7,150.0	6,809.0	6,720.2	6,718.7	34.1	2.4	22.55	-2,385.8	287.4	3,323.4	3,299.4	24.02	138.358	
7,185.0	6,837.9	6,747.1	6,745.7	34.0	2.5	23.34	-2,386.1	286.6	3,305.3	3,282.0	23.36	141.472	
7,200.0	6,849.9	6,758.4	6,756.9	33.9	2.5	23.70	-2,386.3	286.2	3,297.2	3,274.2	23.07	142.945	
7,250.0	6,888.7	6,794.7	6,793.2	33.8	2.5	25.09	-2,386.8	285.1	3,268.5	3,246.4	22.02	148.421	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	6,825.4	6,823.9	33.6	2.5	26.21	-2,387.2	284.1	3,247.8	3,226.6	21.28	152.610	
7,300.0	6,925.2	6,841.2	6,839.6	33.6	2.5	26.83	-2,387.4	283.6	3,237.2	3,216.3	20.90	154.856	
7,350.0	6,959.2	6,886.4	6,884.8	33.4	2.5	28.93	-2,387.9	282.3	3,203.5	3,183.8	19.76	162.092	
7,381.9	6,979.6	6,915.9	6,914.3	33.3	2.5	30.51	-2,388.1	281.6	3,180.9	3,161.8	19.06	166.905	
7,400.0	6,990.6	6,933.3	6,931.7	33.2	2.5	31.52	-2,388.3	281.2	3,167.6	3,148.9	18.67	169.657	
7,450.0	7,019.2	6,978.1	6,976.5	33.0	2.5	34.66	-2,388.5	280.4	3,129.5	3,111.8	17.74	176.402	
7,480.3	7,035.1	7,000.0	6,998.4	32.8	2.5	36.82	-2,388.5	280.1	3,105.6	3,088.2	17.33	179.251	
7,500.0	7,044.9	7,010.8	7,009.2	32.8	2.5	38.32	-2,388.6	279.9	3,089.6	3,072.5	17.12	180.425	
7,550.0	7,067.5	7,032.0	7,030.4	32.6	2.5	42.56	-2,388.6	279.6	3,048.3	3,031.3	16.95	179.843	
7,578.7	7,079.1	7,042.9	7,041.3	32.4	2.5	45.37	-2,388.6	279.5	3,023.9	3,006.8	17.09	176.980	
7,600.0	7,086.9	7,050.3	7,048.7	32.3	2.6	47.64	-2,388.6	279.4	3,005.6	2,988.3	17.28	173.900	
7,650.0	7,103.1	7,065.4	7,063.9	32.1	2.6	53.68	-2,388.7	279.1	2,961.8	2,943.8	18.05	164.075	
7,677.1	7,110.5	7,072.4	7,070.8	32.0	2.6	57.38	-2,388.7	279.0	2,937.7	2,919.1	18.59	158.023	
7,700.0	7,116.0	7,077.5	7,075.9	32.0	2.6	60.74	-2,388.7	278.9	2,917.2	2,898.2	19.06	153.055	
7,750.0	7,125.4	7,086.4	7,084.8	31.8	2.6	68.77	-2,388.7	278.8	2,872.0	2,851.9	20.08	143.017	
7,775.6	7,128.9	7,089.7	7,088.1	31.7	2.6	73.19	-2,388.7	278.7	2,848.7	2,828.1	20.56	138.541	
7,800.0	7,131.4	7,092.1	7,090.5	31.6	2.6	77.56	-2,388.7	278.7	2,826.4	2,805.4	20.98	134.746	
7,850.0	7,133.9	7,094.6	7,093.0	31.5	2.6	86.70	-2,388.7	278.6	2,780.6	2,758.8	21.81	127.494	
7,866.5	7,134.0	7,094.6	7,093.1	31.4	2.6	89.70	-2,388.7	278.6	2,765.5	2,743.4	22.11	125.100	
7,874.0	7,133.9	7,094.6	7,093.0	31.4	2.6	89.69	-2,388.7	278.6	2,758.6	2,736.5	22.11	124.784	
7,900.0	7,133.7	7,094.5	7,092.9	31.4	2.6	89.69	-2,388.7	278.6	2,734.9	2,712.8	22.11	123.693	
7,972.4	7,133.2	7,094.1	7,092.5	31.2	2.6	89.67	-2,388.7	278.6	2,668.9	2,646.7	22.21	120.174	
8,000.0	7,133.0	7,093.9	7,092.4	31.2	2.6	89.66	-2,388.7	278.6	2,643.9	2,621.6	22.25	118.846	
8,070.8	7,132.4	7,093.6	7,092.0	31.1	2.6	89.64	-2,388.7	278.6	2,579.8	2,557.3	22.47	114.799	
8,100.0	7,132.2	7,093.4	7,091.8	31.1	2.6	89.63	-2,388.7	278.6	2,553.6	2,531.0	22.57	113.163	
8,169.3	7,131.7	7,093.1	7,091.5	31.1	2.6	89.61	-2,388.7	278.6	2,491.4	2,468.5	22.91	108.760	
8,200.0	7,131.5	7,092.9	7,091.3	31.1	2.6	89.61	-2,388.7	278.6	2,464.0	2,440.9	23.06	106.855	
8,267.7	7,131.0	7,092.5	7,090.9	31.2	2.6	89.59	-2,388.7	278.6	2,403.8	2,380.3	23.50	102.275	
8,300.0	7,130.7	7,092.4	7,090.8	31.2	2.6	89.58	-2,388.7	278.7	2,375.2	2,351.5	23.72	100.156	
8,366.1	7,130.2	7,092.0	7,090.4	31.4	2.6	89.56	-2,388.7	278.7	2,317.1	2,292.8	24.25	95.560	
8,400.0	7,130.0	7,091.8	7,090.2	31.5	2.6	89.55	-2,388.7	278.7	2,287.4	2,262.9	24.52	93.290	
8,464.5	7,129.5	7,091.5	7,089.9	31.7	2.6	89.53	-2,388.7	278.7	2,231.3	2,206.2	25.12	88.811	
8,500.0	7,129.2	7,091.3	7,089.7	31.9	2.6	89.52	-2,388.7	278.7	2,200.7	2,175.2	25.46	86.449	
8,563.0	7,128.7	7,091.0	7,089.4	32.2	2.6	89.51	-2,388.7	278.7	2,146.6	2,120.5	26.12	82.184	
8,600.0	7,128.5	7,090.8	7,089.2	32.4	2.6	89.50	-2,388.7	278.7	2,115.0	2,088.5	26.51	79.784	
8,661.4	7,128.0	7,090.5	7,088.9	32.8	2.6	89.48	-2,388.7	278.7	2,063.1	2,035.9	27.22	75.797	
8,700.0	7,127.7	7,090.3	7,088.7	33.1	2.6	89.47	-2,388.7	278.7	2,030.8	2,003.1	27.67	73.404	
8,759.8	7,127.3	7,089.9	7,088.3	33.5	2.6	89.45	-2,388.7	278.7	1,981.0	1,952.6	28.41	69.730	
8,800.0	7,127.0	7,089.7	7,088.1	33.9	2.6	89.44	-2,388.7	278.7	1,948.0	1,919.0	28.91	67.380	
8,858.2	7,126.5	7,089.4	7,087.8	34.4	2.6	89.43	-2,388.7	278.7	1,900.5	1,870.8	29.68	64.033	
8,900.0	7,126.2	7,089.2	7,087.6	34.8	2.6	89.42	-2,388.7	278.7	1,866.8	1,836.6	30.23	61.752	
8,956.7	7,125.8	7,088.9	7,087.3	35.4	2.6	89.40	-2,388.7	278.7	1,821.7	1,790.7	31.02	58.730	
9,000.0	7,125.5	7,088.7	7,087.1	35.8	2.6	89.39	-2,388.7	278.7	1,787.6	1,756.0	31.62	56.536	
9,055.1	7,125.1	7,088.4	7,086.8	36.5	2.6	89.37	-2,388.7	278.7	1,744.9	1,712.5	32.42	53.829	
9,100.0	7,124.7	7,088.1	7,086.5	37.0	2.6	89.36	-2,388.7	278.7	1,710.6	1,677.5	33.06	51.736	
9,153.5	7,124.3	7,087.9	7,086.3	37.6	2.6	89.35	-2,388.7	278.7	1,670.4	1,636.5	33.86	49.325	
9,200.0	7,124.0	7,087.6	7,086.0	38.2	2.6	89.33	-2,388.7	278.7	1,636.1	1,601.5	34.56	47.341	
9,251.9	7,123.6	7,087.3	7,085.7	38.8	2.6	89.32	-2,388.7	278.7	1,598.4	1,563.1	35.36	45.207	
9,300.0	7,123.2	7,087.1	7,085.5	39.5	2.6	89.31	-2,388.7	278.7	1,564.4	1,528.3	36.10	43.338	
9,350.4	7,122.8	7,086.8	7,085.2	40.1	2.6	89.29	-2,388.7	278.8	1,529.5	1,492.6	36.89	41.459	
9,400.0	7,122.5	7,086.6	7,085.0	40.8	2.6	89.28	-2,388.7	278.8	1,495.9	1,458.3	37.67	39.709	
9,448.8	7,122.1	7,086.3	7,084.7	41.5	2.6	89.27	-2,388.7	278.8	1,463.9	1,425.4	38.46	38.065	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - EXIST VERT SHULTZ FARM 30-33 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

Survey Program: 100-GYD_CT — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,500.0	7,121.7	7,086.0	7,084.4	42.2	2.6	89.25	-2,388.7	278.8	1,431.2	1,391.9	39.28	36.436	
9,547.2	7,121.4	7,085.8	7,084.2	42.9	2.6	89.24	-2,388.7	278.8	1,402.1	1,362.0	40.05	35.006	
9,600.0	7,121.0	7,085.5	7,083.9	43.7	2.6	89.22	-2,388.7	278.8	1,370.7	1,329.8	40.92	33.501	
9,645.6	7,120.6	7,085.3	7,083.7	44.3	2.6	89.21	-2,388.7	278.8	1,344.7	1,303.0	41.67	32.267	
9,700.0	7,120.2	7,085.0	7,083.4	45.1	2.6	89.20	-2,388.7	278.8	1,315.1	1,272.5	42.58	30.887	
9,744.1	7,119.9	7,084.7	7,083.1	45.8	2.6	89.19	-2,388.7	278.8	1,292.3	1,248.9	43.32	29.831	
9,800.0	7,119.5	7,084.4	7,082.8	46.6	2.6	89.17	-2,388.7	278.8	1,264.9	1,220.7	44.26	28.579	
9,842.5	7,119.1	7,084.2	7,082.6	47.3	2.6	89.16	-2,388.7	278.8	1,245.4	1,200.4	44.98	27.686	
9,900.0	7,118.7	7,083.9	7,082.3	48.2	2.6	89.14	-2,388.7	278.8	1,220.9	1,174.9	45.96	26.562	
9,940.9	7,118.4	7,083.7	7,082.1	48.8	2.6	89.13	-2,388.7	278.8	1,204.8	1,158.1	46.67	25.817	
10,000.0	7,118.0	7,083.4	7,081.8	49.8	2.6	89.12	-2,388.7	278.8	1,183.7	1,136.0	47.68	24.824	
10,039.3	7,117.7	7,083.2	7,081.6	50.4	2.6	89.11	-2,388.7	278.8	1,171.1	1,122.7	48.37	24.213	
10,100.0	7,117.2	7,082.8	7,081.2	51.4	2.6	89.09	-2,388.7	278.8	1,154.0	1,104.6	49.42	23.351	
10,137.8	7,116.9	7,082.6	7,081.0	52.0	2.6	89.08	-2,388.7	278.8	1,144.8	1,094.7	50.08	22.860	
10,200.0	7,116.5	7,082.3	7,080.7	53.0	2.6	89.06	-2,388.7	278.8	1,132.3	1,081.2	51.17	22.130	
10,236.2	7,116.2	7,082.1	7,080.5	53.6	2.6	89.05	-2,388.7	278.8	1,126.6	1,074.8	51.80	21.747	
10,300.0	7,115.7	7,081.8	7,080.2	54.6	2.6	89.03	-2,388.7	278.8	1,119.3	1,066.3	52.93	21.147	
10,334.6	7,115.5	7,081.6	7,080.0	55.2	2.6	89.02	-2,388.7	278.8	1,116.8	1,063.2	53.54	20.858	
10,397.3	7,115.0	7,081.3	7,079.7	56.2	2.6	89.01	-2,388.7	278.8	1,115.0	1,060.4	54.65	20.402	CC
10,400.0	7,115.0	7,081.2	7,079.7	56.3	2.6	89.01	-2,388.7	278.8	1,115.0	1,060.3	54.70	20.384	
10,433.0	7,114.7	7,081.1	7,079.5	56.8	2.6	89.00	-2,388.7	278.9	1,115.6	1,060.3	55.29	20.177	ES
10,500.0	7,114.2	7,080.7	7,079.1	58.0	2.6	88.98	-2,388.7	278.9	1,119.7	1,063.3	56.48	19.825	
10,531.5	7,114.0	7,080.6	7,079.0	58.5	2.6	88.97	-2,388.7	278.9	1,123.1	1,066.0	57.05	19.687	
10,600.0	7,113.5	7,080.2	7,078.6	59.7	2.6	88.95	-2,388.7	278.9	1,133.3	1,075.0	58.27	19.448	
10,629.9	7,113.2	7,080.0	7,078.4	60.2	2.6	88.94	-2,388.7	278.9	1,139.0	1,080.2	58.81	19.367	
10,700.0	7,112.7	7,079.7	7,078.1	61.4	2.6	88.92	-2,388.7	278.9	1,155.4	1,095.3	60.07	19.233	
10,728.3	7,112.5	7,079.5	7,077.9	61.8	2.6	88.92	-2,388.7	278.9	1,163.1	1,102.5	60.58	19.198	
10,800.0	7,112.0	7,079.1	7,077.5	63.1	2.6	88.90	-2,388.7	278.9	1,185.5	1,123.6	61.88	19.158	SF
10,826.7	7,111.8	7,079.0	7,077.4	63.5	2.6	88.89	-2,388.7	278.9	1,194.9	1,132.5	62.36	19.159	
10,900.0	7,111.2	7,078.6	7,077.0	64.8	2.6	88.87	-2,388.7	278.9	1,223.1	1,159.4	63.69	19.203	
10,925.2	7,111.0	7,078.5	7,076.9	65.2	2.6	88.86	-2,388.7	278.9	1,233.7	1,169.5	64.15	19.231	
11,000.0	7,110.5	7,078.1	7,076.5	66.5	2.6	88.84	-2,388.7	278.9	1,267.5	1,202.0	65.51	19.347	
11,023.6	7,110.3	7,077.9	7,076.3	66.9	2.6	88.84	-2,388.7	278.9	1,278.9	1,212.9	65.94	19.394	
11,100.0	7,109.7	7,077.5	7,075.9	68.3	2.6	88.82	-2,388.7	278.9	1,318.0	1,250.6	67.34	19.573	
11,122.0	7,109.5	7,077.4	7,075.8	68.7	2.6	88.81	-2,388.7	278.9	1,329.8	1,262.1	67.74	19.632	
11,200.0	7,109.0	7,077.0	7,075.4	70.0	2.6	88.79	-2,388.7	278.9	1,373.9	1,304.7	69.17	19.863	
11,220.4	7,108.8	7,076.9	7,075.3	70.4	2.6	88.78	-2,388.7	278.9	1,385.9	1,316.4	69.54	19.929	
11,300.0	7,108.2	7,076.5	7,074.9	71.8	2.6	88.76	-2,388.7	278.9	1,434.6	1,363.6	71.00	20.205	
11,318.9	7,108.1	7,076.4	7,074.8	72.1	2.6	88.76	-2,388.7	278.9	1,446.6	1,375.2	71.35	20.274	
11,400.0	7,107.5	7,075.9	7,074.3	73.6	2.6	88.73	-2,388.7	278.9	1,499.6	1,426.7	72.84	20.586	
11,417.3	7,107.3	7,075.8	7,074.2	73.9	2.6	88.73	-2,388.7	278.9	1,511.2	1,438.0	73.16	20.656	
11,500.0	7,106.7	7,075.4	7,073.8	75.3	2.6	88.71	-2,388.7	278.9	1,568.2	1,493.5	74.69	20.997	
11,515.7	7,106.6	7,075.3	7,073.7	75.6	2.6	88.70	-2,388.7	278.9	1,579.3	1,504.3	74.98	21.064	
11,600.0	7,106.0	7,074.9	7,073.3	77.1	2.6	88.68	-2,388.7	279.0	1,640.0	1,563.5	76.53	21.429	
11,614.1	7,105.9	7,074.8	7,073.2	77.4	2.6	88.67	-2,388.7	279.0	1,650.4	1,573.7	76.79	21.492	
11,700.0	7,105.2	7,074.3	7,072.7	78.9	2.6	88.65	-2,388.7	279.0	1,714.7	1,636.3	78.38	21.876	
11,712.6	7,105.1	7,074.3	7,072.7	79.2	2.6	88.65	-2,388.7	279.0	1,724.3	1,645.7	78.62	21.933	
11,800.0	7,104.5	7,073.8	7,072.2	80.7	2.6	88.62	-2,388.7	279.0	1,791.9	1,711.6	80.24	22.332	
11,811.0	7,104.4	7,073.7	7,072.1	80.9	2.6	88.62	-2,388.7	279.0	1,800.5	1,720.1	80.44	22.383	
11,860.2	7,104.0	7,073.5	7,071.9	81.8	2.6	88.61	-2,388.7	279.0	1,839.4	1,758.1	81.35	22.610	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-88.38	2.6	-90.1	90.1				
98.4	98.4	99.4	99.4	0.1	0.1	-88.38	2.6	-90.1	90.1	90.0	0.17	527.780	
100.0	100.0	101.0	101.0	0.1	0.1	-88.38	2.6	-90.1	90.1	90.0	0.18	514.187	
196.8	196.8	197.8	197.8	0.3	0.3	-88.38	2.6	-90.1	90.1	89.5	0.61	147.614	
200.0	200.0	201.0	201.0	0.3	0.3	-88.38	2.6	-90.1	90.1	89.5	0.62	144.268	
295.3	295.3	296.3	296.3	0.5	0.5	-88.38	2.6	-90.1	90.1	89.1	1.05	85.597	
300.0	300.0	301.0	301.0	0.5	0.5	-88.38	2.6	-90.1	90.1	89.1	1.07	83.905	
393.7	393.7	394.7	394.7	0.7	0.7	-88.38	2.6	-90.1	90.1	88.7	1.50	60.274	
400.0	400.0	401.0	401.0	0.8	0.8	-88.38	2.6	-90.1	90.1	88.6	1.52	59.154	
492.1	492.1	493.1	493.1	1.0	1.0	-88.38	2.6	-90.1	90.1	88.2	1.94	46.514	
500.0	500.0	501.0	501.0	1.0	1.0	-88.38	2.6	-90.1	90.1	88.2	1.97	45.680	
590.5	590.5	591.5	591.5	1.2	1.2	-88.38	2.6	-90.1	90.1	87.8	2.38	37.869	
600.0	600.0	601.0	601.0	1.2	1.2	-88.38	2.6	-90.1	90.1	87.7	2.42	37.205	
689.0	689.0	690.0	690.0	1.4	1.4	-88.38	2.6	-90.1	90.1	87.3	2.82	31.933	
700.0	700.0	701.0	701.0	1.4	1.4	-88.38	2.6	-90.1	90.1	87.3	2.87	31.382	
787.4	787.4	788.4	788.4	1.6	1.6	-88.38	2.6	-90.1	90.1	86.9	3.27	27.606	
800.0	800.0	801.0	801.0	1.7	1.7	-88.38	2.6	-90.1	90.1	86.8	3.32	27.136	
885.8	885.8	886.8	886.8	1.9	1.9	-88.38	2.6	-90.1	90.1	86.4	3.71	24.312	
900.0	900.0	901.0	901.0	1.9	1.9	-88.38	2.6	-90.1	90.1	86.4	3.77	23.901	
984.2	984.2	985.2	985.2	2.1	2.1	-88.38	2.6	-90.1	90.1	86.0	4.15	21.720	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-88.38	2.6	-90.1	90.1	85.9	4.22	21.356	
1,082.7	1,082.7	1,083.7	1,083.7	2.3	2.3	-88.38	2.6	-90.1	90.1	85.6	4.59	19.628	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-88.38	2.6	-90.1	90.1	85.5	4.67	19.301	
1,181.1	1,181.1	1,182.1	1,182.1	2.5	2.5	-88.38	2.6	-90.1	90.1	85.1	5.04	17.903	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-88.38	2.6	-90.1	90.1	85.0	5.12	17.606	
1,279.5	1,279.5	1,280.5	1,280.5	2.7	2.7	-88.38	2.6	-90.1	90.1	84.7	5.48	16.457	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-88.38	2.6	-90.1	90.1	84.6	5.57	16.185	
1,377.9	1,377.9	1,378.9	1,378.9	3.0	3.0	-88.38	2.6	-90.1	90.1	84.2	5.92	15.227	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-88.38	2.6	-90.1	90.1	84.1	6.02	14.976	
1,476.4	1,476.4	1,477.4	1,477.4	3.2	3.2	-88.38	2.6	-90.1	90.1	83.8	6.36	14.168	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	-88.38	2.6	-90.1	90.1	83.7	6.47	13.936	
1,550.0	1,550.0	1,551.0	1,551.0	3.3	3.3	-88.38	2.6	-90.1	90.1	83.5	6.69	13.468	CC
1,574.8	1,574.8	1,575.8	1,575.8	3.4	3.4	-146.63	2.6	-90.1	90.2	83.4	6.80	13.264	ES
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-146.75	2.6	-90.1	90.5	83.6	6.91	13.090	
1,673.2	1,673.2	1,674.2	1,674.2	3.6	3.6	-147.48	2.6	-90.1	92.4	85.1	7.23	12.774	
1,700.0	1,699.9	1,700.9	1,700.9	3.7	3.7	-147.89	2.6	-90.1	93.4	86.1	7.35	12.721	
1,771.6	1,771.4	1,772.4	1,772.4	3.8	3.8	-149.30	2.6	-90.1	97.4	89.8	7.65	12.729	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	3.9	-149.96	2.6	-90.1	99.4	91.7	7.77	12.792	
1,870.1	1,869.4	1,870.4	1,870.4	4.0	4.1	-151.80	2.6	-90.1	105.5	97.4	8.07	13.077	
1,900.0	1,899.1	1,900.1	1,900.1	4.1	4.1	-152.64	2.6	-90.1	108.6	100.4	8.19	13.256	
1,968.5	1,967.0	1,968.0	1,968.0	4.3	4.3	-154.63	2.6	-90.1	116.8	108.4	8.48	13.780	
2,000.0	1,998.2	1,999.2	1,999.2	4.4	4.4	-155.55	2.6	-90.1	121.2	112.5	8.61	14.077	
2,066.9	2,064.1	2,065.1	2,065.1	4.5	4.5	-157.50	2.6	-90.1	131.5	122.6	8.88	14.807	
2,100.0	2,096.6	2,097.6	2,097.6	4.6	4.6	-158.43	2.6	-90.1	137.2	128.2	9.01	15.222	
2,165.3	2,160.6	2,161.8	2,161.8	4.8	4.7	-160.20	2.6	-90.1	149.6	140.3	9.27	16.126	
2,200.0	2,194.4	2,196.0	2,196.0	4.9	4.8	-160.97	2.9	-90.1	156.7	147.2	9.41	16.648	
2,263.8	2,256.4	2,259.1	2,259.0	5.2	4.9	-161.98	4.6	-90.1	170.6	160.9	9.66	17.649	
2,300.0	2,291.5	2,294.8	2,294.8	5.3	5.0	-162.35	6.2	-90.1	178.9	169.1	9.80	18.248	
2,362.2	2,351.4	2,356.2	2,356.0	5.5	5.2	-162.68	10.0	-90.1	194.0	183.9	10.05	19.298	
2,400.0	2,387.6	2,393.5	2,393.2	5.7	5.2	-162.73	12.9	-90.1	203.6	193.4	10.20	19.963	
2,460.6	2,445.4	2,453.1	2,452.5	6.0	5.4	-162.60	18.6	-90.0	219.7	209.2	10.44	21.042	
2,500.0	2,482.7	2,491.7	2,490.9	6.2	5.5	-162.40	22.9	-90.0	230.6	220.0	10.60	21.753	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,549.5	2,548.2	6.5	5.6	-161.97	30.4	-90.0	247.6	236.8	10.85	22.824	
2,600.0	2,576.6	2,589.4	2,587.7	6.7	5.7	-161.60	36.2	-90.0	259.9	248.9	11.02	23.582	
2,657.5	2,630.1	2,645.3	2,642.8	7.0	5.8	-160.98	45.3	-89.9	277.9	266.6	11.28	24.626	
2,700.0	2,669.4	2,686.5	2,683.3	7.3	5.9	-160.46	52.6	-89.9	291.7	280.2	11.48	25.410	
2,755.9	2,720.6	2,740.4	2,736.2	7.6	6.1	-159.73	63.2	-89.9	310.4	298.7	11.76	26.409	
2,776.7	2,739.5	2,760.3	2,755.7	7.8	6.1	-159.45	67.3	-89.8	317.6	305.8	11.86	26.781	
2,800.0	2,760.8	2,782.7	2,777.6	7.9	6.2	-159.17	72.1	-89.8	325.7	313.7	12.01	27.131	
2,854.3	2,810.2	2,834.9	2,828.4	8.3	6.4	-158.47	84.0	-89.8	344.5	332.1	12.36	27.861	
2,900.0	2,851.7	2,878.7	2,870.9	8.7	6.5	-157.82	94.7	-89.7	360.1	347.5	12.68	28.411	
2,952.7	2,899.7	2,928.4	2,918.9	9.1	6.7	-157.06	107.4	-89.7	378.2	365.1	13.06	28.966	
3,000.0	2,942.7	2,972.6	2,961.6	9.4	6.8	-156.44	118.7	-89.6	394.3	380.9	13.40	29.424	
3,051.2	2,989.3	3,020.5	3,008.0	9.8	7.0	-155.82	130.9	-89.6	411.9	398.1	13.79	29.871	
3,100.0	3,033.7	3,066.2	3,052.1	10.2	7.1	-155.28	142.5	-89.5	428.7	414.6	14.17	30.261	
3,149.6	3,078.8	3,112.6	3,097.0	10.5	7.3	-154.77	154.4	-89.5	445.8	431.3	14.56	30.620	
3,200.0	3,124.6	3,159.7	3,142.6	10.9	7.5	-154.30	166.4	-89.4	463.2	448.3	14.97	30.951	
3,248.0	3,168.3	3,204.7	3,186.1	11.3	7.7	-153.87	177.8	-89.4	479.8	464.5	15.36	31.239	
3,300.0	3,215.6	3,253.3	3,233.1	11.7	7.9	-153.45	190.3	-89.3	497.8	482.0	15.79	31.520	
3,346.4	3,257.9	3,296.8	3,275.1	12.1	8.0	-153.09	201.3	-89.3	513.9	497.8	16.19	31.750	
3,400.0	3,306.6	3,346.9	3,323.6	12.5	8.2	-152.71	214.1	-89.2	532.5	515.9	16.65	31.989	
3,444.9	3,347.4	3,388.9	3,364.2	12.9	8.4	-152.40	224.8	-89.2	548.1	531.1	17.04	32.172	
3,500.0	3,397.6	3,440.5	3,414.1	13.3	8.6	-152.06	238.0	-89.1	567.3	549.8	17.52	32.376	
3,543.3	3,436.9	3,481.0	3,453.2	13.7	8.8	-151.80	248.3	-89.1	582.4	564.5	17.91	32.522	
3,600.0	3,488.5	3,534.1	3,504.6	14.1	9.0	-151.48	261.8	-89.0	602.1	583.7	18.42	32.697	
3,641.7	3,526.5	3,573.1	3,542.3	14.5	9.2	-151.26	271.8	-89.0	616.7	597.9	18.79	32.813	
3,700.0	3,579.5	3,627.6	3,595.0	15.0	9.4	-150.97	285.7	-88.9	637.0	617.7	19.33	32.962	
3,740.1	3,616.0	3,665.2	3,631.4	15.3	9.6	-150.78	295.3	-88.9	651.0	631.3	19.69	33.055	
3,800.0	3,670.5	3,721.2	3,685.5	15.8	9.8	-150.51	309.6	-88.8	671.9	651.7	20.25	33.183	
3,838.6	3,705.6	3,757.3	3,720.4	16.1	10.0	-150.34	318.8	-88.8	685.4	664.8	20.61	33.256	
3,900.0	3,761.4	3,814.8	3,776.0	16.6	10.3	-150.10	333.4	-88.7	706.9	685.7	21.18	33.366	
3,937.0	3,795.1	3,849.4	3,809.5	16.9	10.4	-149.95	342.3	-88.7	719.8	698.3	21.53	33.424	
4,000.0	3,852.4	3,908.4	3,866.5	17.4	10.7	-149.72	357.3	-88.6	741.8	719.7	22.13	33.518	
4,035.4	3,884.6	3,941.5	3,898.5	17.7	10.8	-149.60	365.8	-88.6	754.2	731.8	22.47	33.565	
4,100.0	3,943.4	4,001.9	3,957.0	18.3	11.1	-149.38	381.2	-88.5	776.8	753.7	23.09	33.646	
4,133.8	3,974.2	4,033.6	3,987.6	18.6	11.3	-149.27	389.3	-88.5	788.7	765.3	23.41	33.683	
4,200.0	4,034.4	4,095.5	4,047.5	19.1	11.6	-149.07	405.0	-88.4	811.8	787.8	24.05	33.752	
4,232.3	4,063.7	4,125.7	4,076.7	19.4	11.7	-148.97	412.7	-88.4	823.2	798.8	24.37	33.781	
4,300.0	4,125.3	4,189.1	4,137.9	19.9	12.0	-148.78	428.9	-88.3	846.9	821.9	25.03	33.840	
4,330.7	4,153.3	4,217.8	4,165.7	20.2	12.1	-148.70	436.2	-88.3	857.6	832.3	25.33	33.864	
4,400.0	4,216.3	4,282.7	4,228.4	20.8	12.4	-148.52	452.8	-88.2	881.9	855.9	26.01	33.913	
4,429.1	4,242.8	4,309.9	4,254.8	21.0	12.6	-148.44	459.7	-88.2	892.2	865.9	26.29	33.932	
4,500.0	4,307.3	4,376.3	4,318.9	21.6	12.9	-148.27	476.6	-88.1	917.0	890.0	26.99	33.975	
4,527.5	4,332.3	4,402.0	4,343.8	21.9	13.0	-148.21	483.2	-88.1	926.7	899.4	27.26	33.990	
4,600.0	4,398.2	4,469.8	4,409.4	22.5	13.3	-148.05	500.5	-88.0	952.1	924.1	27.98	34.026	
4,626.0	4,421.9	4,494.2	4,432.9	22.7	13.5	-147.99	506.7	-88.0	961.2	933.0	28.24	34.038	
4,700.0	4,489.2	4,563.4	4,499.9	23.3	13.8	-147.84	524.4	-87.9	987.2	958.2	28.98	34.068	
4,724.4	4,511.4	4,586.3	4,522.0	23.5	13.9	-147.79	530.2	-87.9	995.8	966.5	29.22	34.077	
4,800.0	4,580.2	4,657.0	4,590.4	24.2	14.3	-147.64	548.2	-87.8	1,022.3	992.3	29.98	34.103	
4,822.8	4,601.0	4,678.4	4,611.0	24.4	14.4	-147.60	553.7	-87.8	1,030.3	1,000.1	30.21	34.110	
4,900.0	4,671.2	4,750.6	4,680.9	25.0	14.7	-147.46	572.1	-87.7	1,057.4	1,026.5	30.98	34.131	
4,921.2	4,690.5	4,770.5	4,700.1	25.2	14.8	-147.43	577.2	-87.7	1,064.9	1,033.7	31.19	34.137	
5,000.0	4,762.1	4,844.2	4,771.3	25.9	15.2	-147.29	596.0	-87.6	1,092.6	1,060.6	31.99	34.155	
5,019.7	4,780.0	4,862.6	4,789.1	26.0	15.3	-147.26	600.7	-87.6	1,099.5	1,067.3	32.19	34.159	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,937.7	4,861.8	26.7	15.6	-147.13	619.8	-87.5	1,127.7	1,094.7	33.00	34.173	
5,118.1	4,869.6	4,954.7	4,878.2	26.9	15.7	-147.10	624.2	-87.5	1,134.1	1,100.9	33.18	34.176	
5,200.0	4,944.1	5,031.3	4,952.3	27.6	16.1	-146.98	643.7	-87.4	1,162.8	1,128.8	34.01	34.188	
5,216.5	4,959.1	5,046.8	4,967.3	27.7	16.2	-146.96	647.6	-87.4	1,168.6	1,134.5	34.18	34.190	
5,300.0	5,035.0	5,124.9	5,042.8	28.4	16.6	-146.84	667.6	-87.3	1,198.0	1,163.0	35.03	34.199	
5,314.9	5,048.6	5,138.9	5,056.3	28.6	16.6	-146.82	671.1	-87.3	1,203.2	1,168.1	35.18	34.201	
5,400.0	5,126.0	5,218.5	5,133.3	29.3	17.0	-146.71	691.4	-87.2	1,233.1	1,197.1	36.05	34.208	
5,413.4	5,138.2	5,231.0	5,145.4	29.4	17.1	-146.69	694.6	-87.2	1,237.8	1,201.7	36.19	34.209	
5,479.4	5,198.3	5,292.8	5,205.1	30.0	17.4	-146.61	710.4	-87.1	1,261.1	1,224.2	36.86	34.213	
5,500.0	5,217.0	5,312.1	5,223.8	30.1	17.5	-146.66	715.3	-87.1	1,268.2	1,231.2	37.08	34.205	
5,511.8	5,227.8	5,323.1	5,234.5	30.2	17.6	-146.69	718.1	-87.1	1,272.3	1,235.1	37.20	34.205	
5,600.0	5,309.0	5,406.3	5,314.9	30.8	18.0	-146.87	739.3	-87.0	1,301.5	1,263.4	38.10	34.160	
5,610.2	5,318.5	5,416.0	5,324.3	30.8	18.0	-146.88	741.8	-87.0	1,304.7	1,266.5	38.20	34.153	
5,700.0	5,402.3	5,501.4	5,406.8	31.4	18.4	-146.96	763.6	-86.9	1,332.0	1,292.8	39.11	34.054	
5,708.6	5,410.4	5,509.6	5,414.8	31.4	18.5	-146.96	765.7	-86.9	1,334.5	1,295.3	39.20	34.043	
5,800.0	5,496.7	5,597.2	5,499.4	31.9	18.9	-146.94	788.0	-86.8	1,359.7	1,319.6	40.12	33.892	
5,807.1	5,503.5	5,604.0	5,506.0	31.9	19.0	-146.93	789.7	-86.8	1,361.5	1,321.3	40.19	33.880	
5,900.0	5,592.3	5,693.5	5,592.6	32.4	19.4	-146.82	812.6	-86.7	1,384.6	1,343.5	41.11	33.683	
5,905.5	5,597.6	5,698.9	5,597.8	32.4	19.4	-146.81	813.9	-86.7	1,385.9	1,344.8	41.16	33.671	
6,000.0	5,688.8	5,790.6	5,686.6	32.9	19.9	-146.62	837.0	-86.6	1,406.8	1,364.8	42.05	33.456	
6,003.9	5,692.6	5,794.5	5,690.3	32.9	19.9	-146.61	837.9	-86.6	1,407.6	1,365.5	42.08	33.448	
6,100.0	5,786.2	5,888.9	5,782.4	33.3	20.2	-146.44	858.9	-86.5	1,426.2	1,383.3	42.84	33.289	
6,102.3	5,788.5	5,891.2	5,784.6	33.3	20.2	-146.43	859.4	-86.5	1,426.6	1,383.7	42.86	33.286	
6,200.0	5,884.3	5,988.1	5,879.8	33.6	20.6	-146.29	877.7	-86.4	1,442.7	1,399.2	43.54	33.136	
6,200.8	5,885.1	5,988.9	5,880.6	33.6	20.6	-146.28	877.9	-86.4	1,442.8	1,399.3	43.54	33.135	
6,299.2	5,982.3	6,087.4	5,977.9	33.9	20.9	-146.17	893.2	-86.3	1,456.2	1,412.1	44.13	32.995	
6,300.0	5,983.1	6,088.2	5,978.7	33.9	20.9	-146.17	893.3	-86.3	1,456.3	1,412.2	44.14	32.993	
6,397.6	6,079.9	6,186.6	6,076.3	34.1	21.1	-146.08	905.2	-86.3	1,466.7	1,422.1	44.63	32.865	
6,400.0	6,082.3	6,189.0	6,078.7	34.1	21.1	-146.08	905.4	-86.3	1,467.0	1,422.3	44.64	32.861	
6,496.0	6,177.9	6,286.3	6,175.6	34.3	21.3	-146.03	913.8	-86.2	1,474.4	1,429.4	45.03	32.745	
6,500.0	6,181.9	6,290.3	6,179.6	34.3	21.3	-146.03	914.1	-86.2	1,474.6	1,429.6	45.04	32.740	
6,594.5	6,276.2	6,386.3	6,275.5	34.5	21.5	-146.00	919.0	-86.2	1,479.2	1,433.8	45.32	32.635	
6,600.0	6,281.7	6,391.9	6,281.1	34.5	21.5	-146.00	919.2	-86.2	1,479.3	1,434.0	45.34	32.628	
6,692.9	6,374.6	6,486.4	6,375.6	34.6	21.6	-146.01	920.7	-86.2	1,481.0	1,435.5	45.52	32.532	
6,706.1	6,387.8	6,499.6	6,388.8	34.6	21.7	-87.79	920.7	-86.2	1,481.0	1,435.5	45.55	32.516	
6,736.1	6,417.8	6,530.9	6,420.1	34.6	21.7	-87.80	920.5	-86.2	1,481.0	1,435.4	45.62	32.467	
6,750.0	6,431.7	6,546.0	6,435.2	34.6	21.7	92.19	920.0	-86.2	1,481.0	1,435.3	45.64	32.448	
6,791.3	6,473.0	6,590.8	6,479.9	34.6	21.7	92.15	916.6	-86.2	1,480.9	1,435.3	45.67	32.430	
6,800.0	6,481.6	6,600.2	6,489.2	34.6	21.7	92.14	915.5	-86.2	1,480.9	1,435.3	45.67	32.428	
6,850.0	6,531.2	6,654.3	6,542.6	34.6	21.7	92.07	907.1	-86.2	1,480.9	1,435.3	45.60	32.474	
6,889.7	6,570.3	6,697.2	6,584.4	34.6	21.6	92.01	897.5	-86.2	1,480.8	1,435.3	45.48	32.558	
6,900.0	6,580.3	6,708.2	6,595.1	34.6	21.6	92.00	894.6	-86.2	1,480.8	1,435.4	45.45	32.584	
6,950.0	6,628.5	6,762.0	6,646.3	34.6	21.5	91.91	878.3	-86.2	1,480.7	1,435.5	45.21	32.754	
6,988.2	6,664.7	6,802.9	6,684.4	34.5	21.4	91.84	863.4	-86.2	1,480.7	1,435.7	44.97	32.924	
7,000.0	6,675.8	6,815.5	6,696.0	34.5	21.3	91.82	858.4	-86.2	1,480.7	1,435.8	44.89	32.982	
7,050.0	6,721.8	6,868.9	6,743.8	34.4	21.1	91.71	834.8	-86.2	1,480.6	1,436.1	44.51	33.265	
7,086.6	6,754.5	6,907.7	6,777.5	34.3	21.0	91.63	815.4	-86.2	1,480.5	1,436.3	44.19	33.505	
7,100.0	6,766.2	6,921.9	6,789.5	34.2	20.9	91.60	807.9	-86.2	1,480.5	1,436.4	44.06	33.598	
7,150.0	6,809.0	6,974.8	6,833.0	34.1	20.7	91.48	777.8	-86.2	1,480.4	1,436.8	43.57	33.978	
7,185.0	6,837.9	7,011.6	6,861.9	34.0	20.5	91.39	755.0	-86.2	1,480.3	1,437.1	43.20	34.269	
7,200.0	6,849.9	7,027.4	6,873.9	33.9	20.4	91.35	744.8	-86.2	1,480.3	1,437.3	43.04	34.397	
7,250.0	6,888.7	7,079.7	6,912.0	33.8	20.2	91.21	709.1	-86.2	1,480.2	1,437.8	42.47	34.850	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	7,114.5	6,936.0	33.6	20.0	91.12	683.8	-86.2	1,480.2	1,438.1	42.09	35.169	
7,300.0	6,925.2	7,131.7	6,947.3	33.6	19.9	91.07	670.8	-86.2	1,480.2	1,438.3	41.90	35.328	
7,350.0	6,959.2	7,183.4	6,979.6	33.4	19.6	90.93	630.4	-86.2	1,480.1	1,438.8	41.32	35.822	
7,381.9	6,979.6	7,216.2	6,998.5	33.3	19.5	90.83	603.6	-86.2	1,480.1	1,439.1	40.95	36.140	
7,400.0	6,990.6	7,234.9	7,008.6	33.2	19.4	90.78	588.0	-86.2	1,480.0	1,439.3	40.75	36.320	
7,450.0	7,019.2	7,286.0	7,034.5	33.0	19.1	90.62	543.9	-86.2	1,480.0	1,439.8	40.20	36.812	
7,480.3	7,035.1	7,316.8	7,048.5	32.8	19.0	90.53	516.4	-86.2	1,480.0	1,440.1	39.89	37.099	
7,500.0	7,044.9	7,336.8	7,057.0	32.8	18.9	90.47	498.3	-86.2	1,480.0	1,440.3	39.70	37.283	
7,550.0	7,067.5	7,387.4	7,076.0	32.6	18.7	90.31	451.5	-86.2	1,479.9	1,440.7	39.23	37.721	
7,578.7	7,079.1	7,416.3	7,085.5	32.4	18.6	90.22	424.2	-86.2	1,479.9	1,440.9	39.00	37.949	
7,600.0	7,086.9	7,437.6	7,091.7	32.3	18.5	90.15	403.8	-86.2	1,479.9	1,441.1	38.83	38.113	
7,646.9	7,102.2	7,484.5	7,103.3	32.2	18.4	90.00	358.3	-86.2	1,479.9	1,441.4	38.51	38.426	
7,650.0	7,103.1	7,487.6	7,103.9	32.1	18.4	89.99	355.3	-86.2	1,479.9	1,441.4	38.49	38.446	
7,677.1	7,110.5	7,514.6	7,109.1	32.0	18.4	89.91	328.8	-86.2	1,479.9	1,441.6	38.35	38.593	
7,700.0	7,116.0	7,537.3	7,112.7	32.0	18.3	89.83	306.4	-86.2	1,479.9	1,441.7	38.23	38.709	
7,750.0	7,125.4	7,586.7	7,118.0	31.8	18.3	89.68	257.3	-86.2	1,479.9	1,441.9	38.05	38.894	
7,775.6	7,128.9	7,611.8	7,119.5	31.7	18.3	89.60	232.2	-86.2	1,479.9	1,442.0	37.99	38.953	
7,800.0	7,131.4	7,635.8	7,120.0	31.6	18.3	89.52	208.3	-86.2	1,480.0	1,442.0	37.95	38.998	
7,850.0	7,133.9	7,685.6	7,119.9	31.5	18.3	89.42	158.4	-86.2	1,480.0	1,442.0	37.95	38.999	
7,866.5	7,134.0	7,702.1	7,119.8	31.4	18.4	89.41	142.0	-86.2	1,480.0	1,442.0	37.97	38.981	
7,874.0	7,133.9	7,709.6	7,119.8	31.4	18.4	89.42	134.4	-86.2	1,480.0	1,442.0	37.99	38.959	
7,900.0	7,133.7	7,735.6	7,119.8	31.4	18.5	89.42	108.4	-86.2	1,480.0	1,441.9	38.06	38.883	
7,972.4	7,133.2	7,808.0	7,119.6	31.2	18.7	89.43	36.0	-86.2	1,480.0	1,441.6	38.38	38.566	
8,000.0	7,133.0	7,835.6	7,119.5	31.2	18.8	89.44	8.4	-86.2	1,480.0	1,441.4	38.54	38.400	
8,070.8	7,132.4	7,906.5	7,119.3	31.1	19.1	89.45	-62.4	-86.2	1,480.0	1,440.9	39.11	37.842	
8,100.0	7,132.2	7,935.6	7,119.3	31.1	19.3	89.46	-91.6	-86.2	1,480.0	1,440.6	39.39	37.573	
8,169.3	7,131.7	8,004.9	7,119.1	31.1	19.8	89.47	-160.8	-86.2	1,480.0	1,439.8	40.19	36.829	
8,200.0	7,131.5	8,035.6	7,119.0	31.1	20.0	89.48	-191.6	-86.2	1,480.0	1,439.4	40.58	36.467	
8,267.7	7,131.0	8,103.3	7,118.9	31.2	20.6	89.49	-259.3	-86.2	1,480.0	1,438.4	41.58	35.596	
8,300.0	7,130.7	8,135.6	7,118.8	31.2	20.9	89.50	-291.6	-86.2	1,480.0	1,437.9	42.09	35.158	
8,366.1	7,130.2	8,201.7	7,118.6	31.4	21.5	89.51	-357.7	-86.2	1,480.0	1,436.7	43.26	34.215	
8,400.0	7,130.0	8,235.6	7,118.5	31.5	21.9	89.52	-391.6	-86.2	1,480.0	1,436.1	43.89	33.719	
8,464.5	7,129.5	8,300.2	7,118.4	31.7	22.5	89.53	-456.1	-86.2	1,480.0	1,434.8	45.19	32.752	
8,500.0	7,129.2	8,335.6	7,118.3	31.9	23.0	89.54	-491.6	-86.2	1,480.0	1,434.0	45.94	32.217	
8,563.0	7,128.7	8,398.6	7,118.1	32.2	23.7	89.55	-554.5	-86.2	1,480.0	1,432.6	47.34	31.260	
8,600.0	7,128.5	8,435.6	7,118.0	32.4	24.2	89.56	-591.6	-86.2	1,480.0	1,431.8	48.20	30.702	
8,661.4	7,128.0	8,497.0	7,117.9	32.8	24.9	89.57	-653.0	-86.2	1,480.0	1,430.3	49.69	29.781	
8,700.0	7,127.7	8,535.6	7,117.8	33.1	25.5	89.58	-691.5	-86.2	1,480.0	1,429.3	50.66	29.214	
8,759.8	7,127.3	8,595.4	7,117.7	33.5	26.3	89.59	-751.4	-86.2	1,480.0	1,427.7	52.21	28.345	
8,800.0	7,127.0	8,635.6	7,117.6	33.9	26.8	89.60	-791.5	-86.2	1,479.9	1,426.7	53.28	27.777	
8,858.2	7,126.5	8,693.9	7,117.4	34.4	27.7	89.61	-849.8	-86.2	1,479.9	1,425.1	54.88	26.969	
8,900.0	7,126.2	8,735.6	7,117.3	34.8	28.3	89.62	-891.5	-86.2	1,479.9	1,423.9	56.04	26.408	
8,956.7	7,125.8	8,792.3	7,117.2	35.4	29.1	89.63	-948.2	-86.2	1,479.9	1,422.3	57.67	25.664	
9,000.0	7,125.5	8,835.6	7,117.1	35.8	29.8	89.64	-991.5	-86.2	1,479.9	1,421.0	58.92	25.116	
9,055.1	7,125.1	8,890.7	7,116.9	36.5	30.6	89.65	-1,046.6	-86.2	1,479.9	1,419.4	60.56	24.437	
9,100.0	7,124.7	8,935.6	7,116.8	37.0	31.3	89.66	-1,091.5	-86.2	1,479.9	1,418.0	61.91	23.904	
9,153.5	7,124.3	8,989.1	7,116.7	37.6	32.1	89.67	-1,145.1	-86.2	1,479.9	1,416.4	63.55	23.288	
9,200.0	7,124.0	9,035.6	7,116.6	38.2	32.9	89.67	-1,191.5	-86.2	1,479.9	1,414.9	64.99	22.773	
9,251.9	7,123.6	9,087.5	7,116.4	38.8	33.7	89.68	-1,243.5	-86.2	1,479.9	1,413.3	66.62	22.214	
9,300.0	7,123.2	9,135.6	7,116.3	39.5	34.5	89.69	-1,291.5	-86.2	1,479.9	1,411.8	68.14	21.718	
9,350.4	7,122.8	9,186.0	7,116.2	40.1	35.3	89.70	-1,341.9	-86.2	1,479.9	1,410.2	69.76	21.214	
9,400.0	7,122.5	9,235.6	7,116.1	40.8	36.1	89.71	-1,391.5	-86.2	1,479.9	1,408.6	71.36	20.738	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-223 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	9,284.4	7,115.9	41.5	36.9	89.72	-1,440.3	-86.2	1,479.9	1,407.0	72.96	20.284	
9,500.0	7,121.7	9,335.6	7,115.8	42.2	37.8	89.73	-1,491.5	-86.2	1,479.9	1,405.3	74.65	19.826	
9,547.2	7,121.4	9,382.8	7,115.7	42.9	38.6	89.74	-1,538.8	-86.2	1,479.9	1,403.7	76.22	19.418	
9,600.0	7,121.0	9,435.6	7,115.6	43.7	39.5	89.75	-1,591.5	-86.2	1,479.9	1,402.0	77.98	18.979	
9,645.6	7,120.6	9,481.2	7,115.5	44.3	40.3	89.76	-1,637.2	-86.2	1,479.9	1,400.4	79.52	18.612	
9,700.0	7,120.2	9,535.6	7,115.3	45.1	41.2	89.77	-1,691.5	-86.2	1,479.9	1,398.6	81.36	18.191	
9,744.1	7,119.9	9,579.7	7,115.2	45.8	41.9	89.78	-1,735.6	-86.2	1,479.9	1,397.1	82.86	17.861	
9,800.0	7,119.5	9,635.6	7,115.1	46.6	42.9	89.79	-1,791.5	-86.2	1,479.9	1,395.2	84.77	17.458	
9,842.5	7,119.1	9,678.1	7,115.0	47.3	43.7	89.80	-1,834.0	-86.2	1,479.9	1,393.7	86.24	17.161	
9,900.0	7,118.7	9,735.6	7,114.8	48.2	44.7	89.81	-1,891.5	-86.2	1,479.9	1,391.7	88.22	16.775	
9,940.9	7,118.4	9,776.5	7,114.7	48.8	45.4	89.82	-1,932.5	-86.2	1,479.9	1,390.3	89.65	16.508	
10,000.0	7,118.0	9,835.6	7,114.6	49.8	46.4	89.83	-1,991.5	-86.2	1,479.9	1,388.2	91.71	16.137	
10,039.3	7,117.7	9,874.9	7,114.5	50.4	47.1	89.84	-2,030.9	-86.2	1,479.9	1,386.8	93.09	15.898	
10,100.0	7,117.2	9,935.6	7,114.3	51.4	48.2	89.85	-2,091.5	-86.2	1,479.9	1,384.7	95.22	15.542	
10,137.8	7,116.9	9,973.4	7,114.2	52.0	48.9	89.86	-2,129.3	-86.2	1,479.9	1,383.4	96.55	15.328	
10,200.0	7,116.5	10,035.6	7,114.1	53.0	50.0	89.87	-2,191.5	-86.2	1,479.9	1,381.2	98.75	14.986	
10,236.2	7,116.2	10,071.8	7,114.0	53.6	50.6	89.88	-2,227.7	-86.2	1,479.9	1,379.9	100.04	14.793	
10,300.0	7,115.7	10,135.6	7,113.8	54.6	51.8	89.89	-2,291.5	-86.2	1,479.9	1,377.6	102.31	14.465	
10,334.6	7,115.5	10,170.2	7,113.7	55.2	52.4	89.89	-2,326.2	-86.2	1,479.9	1,376.4	103.55	14.292	
10,400.0	7,115.0	10,235.6	7,113.6	56.3	53.6	89.91	-2,391.5	-86.2	1,479.9	1,374.0	105.89	13.976	
10,433.0	7,114.7	10,268.6	7,113.5	56.8	54.2	89.91	-2,424.6	-86.2	1,479.9	1,372.8	107.08	13.821	
10,500.0	7,114.2	10,335.6	7,113.3	58.0	55.4	89.93	-2,491.5	-86.2	1,479.9	1,370.4	109.48	13.517	
10,531.5	7,114.0	10,367.1	7,113.2	58.5	55.9	89.93	-2,523.0	-86.2	1,479.9	1,369.3	110.62	13.378	
10,600.0	7,113.5	10,435.6	7,113.1	59.7	57.2	89.95	-2,591.5	-86.2	1,479.9	1,366.8	113.10	13.085	
10,629.9	7,113.2	10,465.5	7,113.0	60.2	57.7	89.95	-2,621.4	-86.2	1,479.9	1,365.7	114.18	12.961	
10,700.0	7,112.7	10,535.6	7,112.8	61.4	59.0	89.97	-2,691.5	-86.2	1,479.9	1,363.2	116.72	12.679	
10,728.3	7,112.5	10,563.9	7,112.8	61.8	59.5	89.97	-2,719.8	-86.2	1,479.9	1,362.2	117.75	12.568	
10,800.0	7,112.0	10,635.6	7,112.6	63.1	60.8	89.99	-2,791.5	-86.2	1,479.9	1,359.6	120.36	12.295	
10,800.9	7,112.0	10,636.5	7,112.6	63.1	60.9	89.99	-2,792.4	-86.2	1,479.9	1,359.5	120.40	12.292	
10,826.7	7,111.8	10,662.3	7,112.5	63.5	61.3	89.99	-2,818.3	-86.2	1,479.9	1,358.6	121.34	12.196	
10,900.0	7,111.2	10,735.6	7,112.3	64.8	62.7	90.00	-2,891.5	-86.2	1,479.9	1,355.9	124.02	11.933	
10,925.2	7,111.0	10,760.8	7,112.3	65.2	63.1	90.01	-2,916.7	-86.2	1,479.9	1,355.0	124.94	11.845	
11,000.0	7,110.5	10,835.6	7,112.1	66.5	64.5	90.02	-2,991.5	-86.2	1,479.9	1,352.2	127.68	11.591	
11,023.6	7,110.3	10,859.2	7,112.0	66.9	65.0	90.03	-3,015.1	-86.2	1,479.9	1,351.4	128.55	11.513	
11,100.0	7,109.7	10,935.6	7,111.8	68.3	66.4	90.04	-3,091.5	-86.2	1,479.9	1,348.6	131.35	11.267	
11,122.0	7,109.5	10,957.6	7,111.8	68.7	66.8	90.05	-3,113.5	-86.2	1,479.9	1,347.8	132.16	11.198	
11,200.0	7,109.0	11,035.6	7,111.6	70.0	68.2	90.06	-3,191.5	-86.2	1,479.9	1,344.9	135.04	10.960	
11,220.4	7,108.8	11,056.0	7,111.5	70.4	68.6	90.07	-3,212.0	-86.2	1,479.9	1,344.1	135.79	10.899	
11,300.0	7,108.2	11,135.6	7,111.3	71.8	70.1	90.08	-3,291.5	-86.2	1,479.9	1,341.2	138.73	10.668	
11,318.9	7,108.1	11,154.4	7,111.3	72.1	70.4	90.09	-3,310.4	-86.2	1,479.9	1,340.5	139.42	10.614	
11,400.0	7,107.5	11,235.6	7,111.1	73.6	71.9	90.10	-3,391.5	-86.2	1,479.9	1,337.5	142.43	10.391	
11,417.3	7,107.3	11,252.9	7,111.0	73.9	72.2	90.10	-3,408.8	-86.2	1,479.9	1,336.9	143.07	10.344	
11,500.0	7,106.7	11,335.6	7,110.8	75.3	73.8	90.12	-3,491.5	-86.2	1,479.9	1,333.8	146.13	10.127	
11,515.7	7,106.6	11,351.3	7,110.8	75.6	74.1	90.12	-3,507.2	-86.2	1,479.9	1,333.2	146.72	10.087	
11,600.0	7,106.0	11,435.6	7,110.6	77.1	75.6	90.14	-3,591.5	-86.2	1,479.9	1,330.1	149.85	9.876	
11,614.1	7,105.9	11,449.7	7,110.5	77.4	75.9	90.14	-3,605.7	-86.2	1,479.9	1,329.5	150.37	9.842	
11,700.0	7,105.2	11,535.6	7,110.3	78.9	77.5	90.16	-3,691.5	-86.2	1,479.9	1,326.4	153.57	9.637	
11,712.6	7,105.1	11,548.1	7,110.3	79.2	77.7	90.16	-3,704.1	-86.2	1,479.9	1,325.9	154.04	9.608	
11,800.0	7,104.5	11,635.6	7,110.0	80.7	79.4	90.18	-3,791.5	-86.2	1,479.9	1,322.6	157.29	9.409	
11,811.0	7,104.4	11,646.6	7,110.0	80.9	79.6	90.18	-3,802.5	-86.2	1,479.9	1,322.2	157.70	9.384	
11,860.2	7,104.0	11,655.0	7,110.0	81.8	79.7	90.18	-3,811.0	-86.2	1,480.5	1,321.7	158.78	9.324	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-88.33	2.2	-75.0	75.1				
98.4	98.4	99.4	99.4	0.1	0.1	-88.33	2.2	-75.0	75.1	74.9	0.17	439.554	
100.0	100.0	101.0	101.0	0.1	0.1	-88.33	2.2	-75.0	75.1	74.9	0.18	428.234	
196.8	196.8	197.8	197.8	0.3	0.3	-88.33	2.2	-75.0	75.1	74.5	0.61	122.938	
200.0	200.0	201.0	201.0	0.3	0.3	-88.33	2.2	-75.0	75.1	74.5	0.62	120.152	
295.3	295.3	296.3	296.3	0.5	0.5	-88.33	2.2	-75.0	75.1	74.0	1.05	71.289	
300.0	300.0	301.0	301.0	0.5	0.5	-88.33	2.2	-75.0	75.1	74.0	1.07	69.879	
393.7	393.7	394.7	394.7	0.7	0.7	-88.33	2.2	-75.0	75.1	73.6	1.50	50.199	
400.0	400.0	401.0	401.0	0.8	0.8	-88.33	2.2	-75.0	75.1	73.6	1.52	49.266	
492.1	492.1	493.1	493.1	1.0	1.0	-88.33	2.2	-75.0	75.1	73.1	1.94	38.739	
500.0	500.0	501.0	501.0	1.0	1.0	-88.33	2.2	-75.0	75.1	73.1	1.97	38.044	
590.5	590.5	591.5	591.5	1.2	1.2	-88.33	2.2	-75.0	75.1	72.7	2.38	31.538	
600.0	600.0	601.0	601.0	1.2	1.2	-88.33	2.2	-75.0	75.1	72.7	2.42	30.985	
689.0	689.0	690.0	690.0	1.4	1.4	-88.33	2.2	-75.0	75.1	72.3	2.82	26.595	
700.0	700.0	701.0	701.0	1.4	1.4	-88.33	2.2	-75.0	75.1	72.2	2.87	26.136	
787.4	787.4	788.4	788.4	1.6	1.6	-88.33	2.2	-75.0	75.1	71.8	3.27	22.992	
800.0	800.0	801.0	801.0	1.7	1.7	-88.33	2.2	-75.0	75.1	71.8	3.32	22.600	
885.8	885.8	886.8	886.8	1.9	1.9	-88.33	2.2	-75.0	75.1	71.4	3.71	20.248	
900.0	900.0	901.0	901.0	1.9	1.9	-88.33	2.2	-75.0	75.1	71.3	3.77	19.906	
984.2	984.2	985.2	985.2	2.1	2.1	-88.33	2.2	-75.0	75.1	70.9	4.15	18.090	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-88.33	2.2	-75.0	75.1	70.9	4.22	17.786	
1,082.7	1,082.7	1,083.7	1,083.7	2.3	2.3	-88.33	2.2	-75.0	75.1	70.5	4.59	16.347	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-88.33	2.2	-75.0	75.1	70.4	4.67	16.074	
1,181.1	1,181.1	1,182.1	1,182.1	2.5	2.5	-88.33	2.2	-75.0	75.1	70.0	5.04	14.910	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-88.33	2.2	-75.0	75.1	70.0	5.12	14.663	
1,279.5	1,279.5	1,280.5	1,280.5	2.7	2.7	-88.33	2.2	-75.0	75.1	69.6	5.48	13.706	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-88.33	2.2	-75.0	75.1	69.5	5.57	13.480	
1,377.9	1,377.9	1,378.9	1,378.9	3.0	3.0	-88.33	2.2	-75.0	75.1	69.2	5.92	12.682	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-88.33	2.2	-75.0	75.1	69.1	6.02	12.473	
1,476.4	1,476.4	1,477.4	1,477.4	3.2	3.2	-88.33	2.2	-75.0	75.1	68.7	6.36	11.800	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	-88.33	2.2	-75.0	75.1	68.6	6.47	11.606	
1,550.0	1,550.0	1,551.0	1,551.0	3.3	3.3	-88.33	2.2	-75.0	75.1	68.4	6.69	11.216	CC
1,574.8	1,574.8	1,575.8	1,575.8	3.4	3.4	-146.59	2.2	-75.0	75.2	68.4	6.80	11.049	ES
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-146.73	2.2	-75.0	75.4	68.5	6.91	10.911	
1,673.2	1,673.2	1,674.2	1,674.2	3.6	3.6	-147.61	2.2	-75.0	77.3	70.1	7.23	10.690	
1,700.0	1,699.9	1,700.9	1,700.9	3.7	3.7	-148.10	2.2	-75.0	78.4	71.0	7.35	10.670	
1,771.6	1,771.4	1,772.4	1,772.4	3.8	3.8	-149.76	2.2	-75.0	82.4	74.7	7.65	10.763	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	3.9	-150.54	2.2	-75.0	84.4	76.6	7.77	10.857	
1,870.1	1,869.4	1,870.4	1,870.4	4.0	4.1	-152.65	2.2	-75.0	90.5	82.4	8.07	11.219	
1,900.0	1,899.1	1,900.1	1,900.1	4.1	4.1	-153.60	2.2	-75.0	93.6	85.4	8.19	11.429	
1,968.5	1,967.0	1,968.0	1,968.0	4.3	4.3	-155.82	2.2	-75.0	101.9	93.5	8.48	12.025	
2,000.0	1,998.2	1,999.2	1,999.2	4.4	4.4	-156.83	2.2	-75.0	106.3	97.7	8.61	12.353	
2,066.9	2,064.1	2,065.4	2,065.4	4.5	4.5	-158.91	2.2	-75.0	116.7	107.8	8.88	13.146	
2,100.0	2,096.6	2,098.6	2,098.6	4.6	4.6	-159.77	2.6	-74.9	122.3	113.3	9.01	13.573	
2,165.3	2,160.6	2,164.2	2,164.1	4.8	4.7	-160.96	4.4	-74.5	133.9	124.6	9.27	14.440	
2,200.0	2,194.4	2,199.0	2,198.9	4.9	4.8	-161.37	5.9	-74.0	140.4	131.0	9.41	14.918	
2,263.8	2,256.4	2,263.1	2,262.9	5.2	4.9	-161.78	9.8	-73.0	152.8	143.1	9.67	15.806	
2,300.0	2,291.5	2,299.6	2,299.2	5.3	5.0	-161.85	12.7	-72.2	160.1	150.3	9.81	16.325	
2,362.2	2,351.4	2,362.1	2,361.5	5.5	5.2	-161.73	18.6	-70.6	173.2	163.1	10.06	17.211	
2,400.0	2,387.6	2,400.2	2,399.3	5.7	5.3	-161.54	22.8	-69.5	181.4	171.2	10.21	17.763	
2,460.6	2,445.4	2,461.1	2,459.7	6.0	5.4	-161.09	30.6	-67.4	195.1	184.7	10.47	18.639	
2,500.0	2,482.7	2,500.7	2,498.9	6.2	5.5	-160.70	36.4	-65.9	204.3	193.7	10.64	19.208	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,560.0	2,557.3	6.5	5.6	-160.02	45.9	-63.3	218.6	207.7	10.91	20.043	
2,600.0	2,576.6	2,601.1	2,597.7	6.7	5.8	-159.49	53.2	-61.4	228.9	217.8	11.10	20.628	
2,657.5	2,630.1	2,658.7	2,654.2	7.0	5.9	-158.68	64.4	-58.4	243.7	232.4	11.39	21.410	
2,700.0	2,669.4	2,701.3	2,695.7	7.3	6.0	-158.03	73.4	-56.0	255.1	243.5	11.60	21.991	
2,755.9	2,720.6	2,757.2	2,750.0	7.6	6.2	-157.15	86.1	-52.6	270.5	258.6	11.91	22.710	
2,776.7	2,739.5	2,777.3	2,769.5	7.8	6.3	-156.82	90.8	-51.3	276.4	264.4	12.03	22.978	
2,800.0	2,760.8	2,799.6	2,791.1	7.9	6.3	-156.54	96.1	-49.9	283.1	270.9	12.19	23.230	
2,854.3	2,810.2	2,851.5	2,841.5	8.3	6.5	-155.92	108.5	-46.5	298.7	286.2	12.57	23.765	
2,900.0	2,851.7	2,895.2	2,883.8	8.7	6.7	-155.45	118.9	-43.8	311.9	299.0	12.90	24.184	
2,952.7	2,899.7	2,945.7	2,932.7	9.1	6.8	-154.95	130.9	-40.5	327.1	313.8	13.29	24.614	
3,000.0	2,942.7	2,990.8	2,976.5	9.4	7.0	-154.54	141.6	-37.7	340.7	327.1	13.64	24.974	
3,051.2	2,989.3	3,039.8	3,023.9	9.8	7.2	-154.13	153.3	-34.5	355.5	341.5	14.04	25.321	
3,100.0	3,033.7	3,086.5	3,069.2	10.2	7.4	-153.77	164.4	-31.6	369.6	355.2	14.42	25.629	
3,149.6	3,078.8	3,133.9	3,115.1	10.5	7.6	-153.44	175.7	-28.5	384.0	369.2	14.82	25.908	
3,200.0	3,124.6	3,182.1	3,161.8	10.9	7.7	-153.12	187.1	-25.5	398.6	383.4	15.23	26.171	
3,248.0	3,168.3	3,228.0	3,206.3	11.3	7.9	-152.84	198.1	-22.5	412.5	396.9	15.63	26.396	
3,300.0	3,215.6	3,277.7	3,254.5	11.7	8.1	-152.55	209.9	-19.4	427.6	411.5	16.06	26.621	
3,346.4	3,257.9	3,322.1	3,297.6	12.1	8.3	-152.32	220.4	-16.5	441.1	424.6	16.46	26.802	
3,400.0	3,306.6	3,373.3	3,347.2	12.5	8.5	-152.06	232.6	-13.3	456.6	439.7	16.92	26.994	
3,444.9	3,347.4	3,416.2	3,388.8	12.9	8.7	-151.86	242.8	-10.5	469.7	452.3	17.30	27.140	
3,500.0	3,397.6	3,469.0	3,439.9	13.3	8.9	-151.62	255.4	-7.2	485.7	467.9	17.79	27.306	
3,543.3	3,436.9	3,510.4	3,480.0	13.7	9.1	-151.45	265.2	-4.5	498.3	480.1	18.17	27.424	
3,600.0	3,488.5	3,564.6	3,532.6	14.1	9.3	-151.24	278.1	-1.1	514.8	496.1	18.67	27.565	
3,641.7	3,526.5	3,604.5	3,571.2	14.5	9.5	-151.09	287.6	1.5	526.9	507.9	19.05	27.661	
3,700.0	3,579.5	3,660.2	3,625.2	15.0	9.8	-150.89	300.9	5.0	543.9	524.3	19.58	27.783	
3,740.1	3,616.0	3,698.6	3,662.4	15.3	9.9	-150.77	310.0	7.5	555.6	535.6	19.94	27.861	
3,800.0	3,670.5	3,755.8	3,717.9	15.8	10.2	-150.58	323.6	11.1	573.0	552.5	20.49	27.966	
3,838.6	3,705.6	3,792.7	3,753.7	16.1	10.3	-150.47	332.4	13.5	584.2	563.4	20.84	28.029	
3,900.0	3,761.4	3,851.4	3,810.6	16.6	10.6	-150.30	346.3	17.2	602.1	580.7	21.41	28.120	
3,937.0	3,795.1	3,886.8	3,844.9	16.9	10.8	-150.21	354.8	19.5	612.9	591.1	21.76	28.171	
4,000.0	3,852.4	3,947.1	3,903.3	17.4	11.0	-150.05	369.1	23.3	631.3	608.9	22.35	28.250	
4,035.4	3,884.6	3,980.9	3,936.1	17.7	11.2	-149.97	377.1	25.5	641.6	618.9	22.68	28.291	
4,100.0	3,943.4	4,042.7	3,995.9	18.3	11.5	-149.82	391.8	29.4	660.4	637.1	23.29	28.360	
4,133.8	3,974.2	4,075.1	4,027.3	18.6	11.6	-149.74	399.5	31.5	670.3	646.7	23.61	28.393	
4,200.0	4,034.4	4,138.3	4,088.6	19.1	11.9	-149.61	414.6	35.5	689.6	665.3	24.24	28.453	
4,232.3	4,063.7	4,169.2	4,118.5	19.4	12.1	-149.54	421.9	37.5	699.0	674.4	24.54	28.480	
4,300.0	4,125.3	4,233.9	4,181.3	19.9	12.4	-149.41	437.3	41.6	718.7	693.6	25.19	28.532	
4,330.7	4,153.3	4,263.3	4,209.8	20.2	12.5	-149.36	444.3	43.5	727.7	702.2	25.49	28.554	
4,400.0	4,216.3	4,329.6	4,274.0	20.8	12.8	-149.23	460.1	47.7	747.9	721.8	26.15	28.599	
4,429.1	4,242.8	4,357.4	4,301.0	21.0	12.9	-149.18	466.7	49.5	756.4	730.0	26.43	28.617	
4,500.0	4,307.3	4,425.2	4,366.7	21.6	13.3	-149.07	482.8	53.8	777.1	750.0	27.12	28.656	
4,527.5	4,332.3	4,451.5	4,392.2	21.9	13.4	-149.02	489.1	55.5	785.2	757.8	27.39	28.670	
4,600.0	4,398.2	4,520.8	4,459.3	22.5	13.7	-148.91	505.6	59.9	806.3	778.2	28.09	28.705	
4,626.0	4,421.9	4,545.6	4,483.4	22.7	13.8	-148.87	511.5	61.5	813.9	785.5	28.34	28.716	
4,700.0	4,489.2	4,616.4	4,552.0	23.3	14.2	-148.77	528.3	66.0	835.5	806.4	29.06	28.746	
4,724.4	4,511.4	4,639.8	4,574.6	23.5	14.3	-148.74	533.8	67.5	842.6	813.3	29.30	28.755	
4,800.0	4,580.2	4,712.0	4,644.7	24.2	14.6	-148.64	551.0	72.1	864.7	834.7	30.04	28.781	
4,822.8	4,601.0	4,733.9	4,665.8	24.4	14.7	-148.61	556.2	73.5	871.4	841.1	30.27	28.788	
4,900.0	4,671.2	4,807.7	4,737.4	25.0	15.1	-148.51	573.8	78.2	893.9	862.9	31.03	28.811	
4,921.2	4,690.5	4,828.0	4,757.1	25.2	15.2	-148.48	578.6	79.5	900.1	868.9	31.24	28.816	
5,000.0	4,762.1	4,903.3	4,830.0	25.9	15.6	-148.39	596.5	84.3	923.1	891.1	32.01	28.836	
5,019.7	4,780.0	4,922.1	4,848.3	26.0	15.6	-148.37	601.0	85.5	928.9	896.7	32.21	28.840	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	4,998.9	4,922.7	26.7	16.0	-148.28	619.3	90.4	952.3	919.3	33.00	28.857	
5,118.1	4,869.6	5,016.2	4,939.5	26.9	16.1	-148.26	623.4	91.5	957.6	924.4	33.18	28.860	
5,200.0	4,944.1	5,094.5	5,015.4	27.6	16.5	-148.18	642.0	96.5	981.5	947.5	33.99	28.874	
5,216.5	4,959.1	5,110.3	5,030.7	27.7	16.6	-148.16	645.8	97.5	986.4	952.2	34.16	28.877	
5,300.0	5,035.0	5,190.2	5,108.1	28.4	16.9	-148.08	664.8	102.6	1,010.8	975.8	34.99	28.889	
5,314.9	5,048.6	5,204.5	5,121.9	28.6	17.0	-148.07	668.2	103.5	1,015.1	980.0	35.14	28.891	
5,400.0	5,126.0	5,285.8	5,200.8	29.3	17.4	-147.99	687.5	108.7	1,040.0	1,004.0	35.98	28.901	
5,413.4	5,138.2	5,298.6	5,213.2	29.4	17.5	-147.98	690.6	109.5	1,043.9	1,007.8	36.12	28.903	
5,479.4	5,198.3	5,361.7	5,274.4	30.0	17.8	-147.92	705.6	113.5	1,063.2	1,026.4	36.78	28.909	
5,500.0	5,217.0	5,381.4	5,293.5	30.1	17.9	-147.97	710.3	114.8	1,069.1	1,032.1	36.99	28.904	
5,511.8	5,227.8	5,392.7	5,304.4	30.2	17.9	-147.99	712.9	115.5	1,072.5	1,035.4	37.11	28.904	
5,600.0	5,309.0	5,477.6	5,386.7	30.8	18.4	-148.11	733.1	120.9	1,096.4	1,058.4	37.99	28.860	
5,610.2	5,318.5	5,487.5	5,396.2	30.8	18.4	-148.12	735.5	121.6	1,099.0	1,060.9	38.09	28.853	
5,700.0	5,402.3	5,574.5	5,480.6	31.4	18.8	-148.14	756.2	127.1	1,120.7	1,081.7	38.99	28.746	
5,708.6	5,410.4	5,582.9	5,488.7	31.4	18.9	-148.13	758.2	127.6	1,122.7	1,083.6	39.07	28.734	
5,800.0	5,496.7	5,671.9	5,575.0	31.9	19.3	-148.04	779.4	133.3	1,142.2	1,102.3	39.98	28.569	
5,807.1	5,503.5	5,678.8	5,581.7	31.9	19.3	-148.03	781.0	133.8	1,143.7	1,103.6	40.05	28.555	
5,900.0	5,592.3	5,769.8	5,669.9	32.4	19.8	-147.83	802.6	139.6	1,160.9	1,119.9	40.97	28.334	
5,905.5	5,597.6	5,775.2	5,675.1	32.4	19.8	-147.82	803.9	139.9	1,161.8	1,120.8	41.02	28.321	
6,000.0	5,688.8	5,867.9	5,764.9	32.9	20.3	-147.52	826.0	145.8	1,176.7	1,134.8	41.95	28.050	
6,003.9	5,692.6	5,871.4	5,768.3	32.9	20.3	-147.51	826.8	146.0	1,177.3	1,135.3	41.98	28.042	
6,100.0	5,786.2	5,957.1	5,851.7	33.3	20.6	-147.22	845.8	151.1	1,190.1	1,147.4	42.75	27.842	
6,102.3	5,788.5	5,959.2	5,853.7	33.3	20.6	-147.21	846.3	151.3	1,190.4	1,147.6	42.76	27.838	
6,200.0	5,884.3	6,046.7	5,939.6	33.6	20.9	-146.95	863.2	155.8	1,201.5	1,158.0	43.44	27.656	
6,200.8	5,885.1	6,047.4	5,940.2	33.6	20.9	-146.95	863.3	155.8	1,201.5	1,158.1	43.45	27.655	
6,299.2	5,982.3	6,136.1	6,027.7	33.9	21.2	-146.72	877.8	159.7	1,210.6	1,166.6	44.05	27.485	
6,300.0	5,983.1	6,136.8	6,028.4	33.9	21.2	-146.72	877.9	159.7	1,210.7	1,166.7	44.05	27.484	
6,397.6	6,079.9	6,225.2	6,115.9	34.1	21.4	-146.52	889.7	162.9	1,217.7	1,173.1	44.56	27.327	
6,400.0	6,082.3	6,227.3	6,118.0	34.1	21.4	-146.51	890.0	163.0	1,217.8	1,173.3	44.57	27.323	
6,496.0	6,177.9	6,314.6	6,204.7	34.3	21.7	-146.34	899.0	165.4	1,222.7	1,177.7	44.99	27.179	
6,500.0	6,181.9	6,318.2	6,208.3	34.3	21.7	-146.34	899.3	165.5	1,222.8	1,177.8	45.00	27.174	
6,594.5	6,276.2	6,400.0	6,289.9	34.5	21.8	-146.20	905.4	167.1	1,225.6	1,180.3	45.31	27.047	
6,600.0	6,281.7	6,409.2	6,299.1	34.5	21.9	-146.18	905.9	167.3	1,225.7	1,180.3	45.34	27.034	
6,692.9	6,374.6	6,493.9	6,383.7	34.6	22.0	-146.07	909.6	168.2	1,226.3	1,180.8	45.57	26.914	
6,706.1	6,387.8	6,506.0	6,395.8	34.6	22.0	-87.83	909.9	168.3	1,226.3	1,180.7	45.59	26.896	
6,736.1	6,417.8	6,533.4	6,423.1	34.6	22.0	-87.81	910.4	168.5	1,226.1	1,180.5	45.67	26.846	
6,750.0	6,431.7	6,546.1	6,435.8	34.6	22.1	92.21	910.6	168.5	1,226.1	1,180.4	45.71	26.822	
6,764.3	6,446.0	6,559.1	6,448.9	34.6	22.1	92.23	910.7	168.5	1,226.1	1,180.3	45.75	26.801	
6,791.3	6,473.0	6,584.2	6,474.0	34.6	22.1	92.30	910.8	168.6	1,226.1	1,180.3	45.82	26.760	
6,800.0	6,481.6	6,592.9	6,482.6	34.6	22.1	92.33	910.8	168.6	1,226.2	1,180.3	45.85	26.745	
6,850.0	6,531.2	6,645.3	6,535.0	34.6	22.2	92.58	909.9	168.6	1,226.4	1,180.4	45.97	26.677	
6,889.7	6,570.3	6,688.3	6,577.9	34.6	22.2	92.77	906.4	168.6	1,226.6	1,180.6	46.00	26.663	
6,900.0	6,580.3	6,699.4	6,588.9	34.6	22.2	92.82	905.1	168.6	1,226.6	1,180.6	46.01	26.660	
6,950.0	6,628.5	6,754.0	6,642.7	34.6	22.2	93.06	896.2	168.6	1,226.9	1,181.0	45.95	26.700	
6,988.2	6,664.7	6,795.9	6,683.6	34.5	22.1	93.22	886.5	168.6	1,227.1	1,181.3	45.84	26.770	
7,000.0	6,675.8	6,809.0	6,696.2	34.5	22.1	93.27	883.1	168.6	1,227.2	1,181.4	45.80	26.796	
7,050.0	6,721.8	6,864.4	6,748.8	34.4	22.0	93.47	865.7	168.6	1,227.4	1,181.9	45.55	26.946	
7,086.6	6,754.5	6,905.2	6,786.6	34.3	21.8	93.61	850.4	168.6	1,227.6	1,182.3	45.32	27.090	
7,100.0	6,766.2	6,920.2	6,800.3	34.2	21.8	93.66	844.2	168.6	1,227.7	1,182.4	45.22	27.149	
7,150.0	6,809.0	6,976.4	6,850.3	34.1	21.6	93.82	818.6	168.6	1,227.9	1,183.1	44.81	27.402	
7,185.0	6,837.9	7,016.0	6,884.2	34.0	21.4	93.92	798.3	168.6	1,228.0	1,183.6	44.48	27.610	
7,200.0	6,849.9	7,032.9	6,898.4	33.9	21.4	93.96	789.0	168.6	1,228.1	1,183.8	44.33	27.704	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	7,089.7	6,944.2	33.8	21.1	94.08	755.5	168.6	1,228.3	1,184.5	43.79	28.049	
7,283.4	6,913.4	7,127.8	6,973.4	33.6	20.9	94.15	731.0	168.6	1,228.4	1,185.0	43.40	28.303	
7,300.0	6,925.2	7,146.7	6,987.4	33.6	20.8	94.18	718.3	168.6	1,228.4	1,185.2	43.20	28.432	
7,350.0	6,959.2	7,203.9	7,027.6	33.4	20.5	94.26	677.6	168.6	1,228.5	1,185.9	42.59	28.846	
7,381.9	6,979.6	7,240.4	7,051.5	33.3	20.3	94.29	650.0	168.6	1,228.6	1,186.4	42.19	29.122	
7,400.0	6,990.6	7,261.2	7,064.5	33.2	20.2	94.31	633.8	168.6	1,228.6	1,186.7	41.96	29.281	
7,450.0	7,019.2	7,318.7	7,097.9	33.0	19.9	94.33	587.1	168.6	1,228.7	1,187.3	41.33	29.725	
7,480.3	7,035.1	7,353.5	7,116.2	32.8	19.7	94.34	557.5	168.6	1,228.7	1,187.7	40.96	29.994	
7,500.0	7,044.9	7,376.1	7,127.4	32.8	19.6	94.34	537.8	168.6	1,228.7	1,187.9	40.73	30.166	
7,550.0	7,067.5	7,433.5	7,152.9	32.6	19.4	94.31	486.4	168.6	1,228.6	1,188.5	40.17	30.588	
7,578.7	7,079.1	7,466.5	7,165.6	32.4	19.2	94.29	455.9	168.6	1,228.6	1,188.7	39.87	30.814	
7,600.0	7,086.9	7,490.9	7,174.1	32.3	19.1	94.27	433.1	168.6	1,228.5	1,188.9	39.66	30.976	
7,650.0	7,103.1	7,548.1	7,191.0	32.1	18.9	94.19	378.4	168.6	1,228.4	1,189.2	39.23	31.316	
7,677.1	7,110.5	7,579.1	7,198.3	32.0	18.8	94.15	348.3	168.6	1,228.4	1,189.3	39.04	31.467	
7,700.0	7,116.0	7,605.2	7,203.4	32.0	18.7	94.10	322.8	168.6	1,228.3	1,189.4	38.88	31.589	
7,750.0	7,125.4	7,662.0	7,211.4	31.8	18.6	93.98	266.5	168.6	1,228.1	1,189.5	38.64	31.785	
7,775.6	7,128.9	7,690.9	7,213.7	31.7	18.6	93.91	237.7	168.6	1,228.0	1,189.5	38.55	31.851	
7,800.0	7,131.4	7,718.5	7,214.8	31.6	18.5	93.84	210.1	168.6	1,227.9	1,189.4	38.49	31.899	
7,850.0	7,133.9	7,771.1	7,214.6	31.5	18.5	93.72	157.5	168.6	1,227.7	1,189.3	38.46	31.921	
7,866.5	7,134.0	7,787.6	7,214.4	31.4	18.5	93.71	141.0	168.6	1,227.7	1,189.2	38.47	31.913	
7,874.0	7,133.9	7,795.1	7,214.4	31.4	18.6	93.71	133.5	168.6	1,227.7	1,189.2	38.48	31.902	
7,900.0	7,133.7	7,821.1	7,214.1	31.4	18.6	93.71	107.5	168.6	1,227.7	1,189.2	38.56	31.838	
7,972.4	7,133.2	7,893.5	7,213.3	31.2	18.8	93.69	35.1	168.6	1,227.7	1,188.8	38.88	31.573	
8,000.0	7,133.0	7,921.1	7,213.0	31.2	18.9	93.69	7.5	168.6	1,227.7	1,188.6	39.05	31.441	
8,070.8	7,132.4	7,992.0	7,212.2	31.1	19.2	93.68	-63.3	168.6	1,227.7	1,188.0	39.62	30.984	
8,100.0	7,132.2	8,021.1	7,211.8	31.1	19.4	93.67	-92.5	168.6	1,227.7	1,187.8	39.90	30.771	
8,169.3	7,131.7	8,090.4	7,211.1	31.1	19.8	93.66	-161.7	168.6	1,227.6	1,187.0	40.70	30.165	
8,200.0	7,131.5	8,121.1	7,210.7	31.1	20.0	93.65	-192.5	168.6	1,227.6	1,186.6	41.09	29.879	
8,267.7	7,131.0	8,188.8	7,210.0	31.2	20.6	93.64	-260.2	168.6	1,227.6	1,185.5	42.08	29.171	
8,300.0	7,130.7	8,221.1	7,209.6	31.2	20.9	93.64	-292.5	168.6	1,227.6	1,185.0	42.59	28.825	
8,366.1	7,130.2	8,287.2	7,208.9	31.4	21.5	93.63	-358.6	168.6	1,227.6	1,183.9	43.75	28.059	
8,400.0	7,130.0	8,321.1	7,208.5	31.5	21.9	93.62	-392.5	168.6	1,227.6	1,183.2	44.37	27.667	
8,464.5	7,129.5	8,385.7	7,207.8	31.7	22.6	93.61	-457.0	168.6	1,227.6	1,181.9	45.67	26.881	
8,500.0	7,129.2	8,421.1	7,207.4	31.9	23.0	93.60	-492.4	168.6	1,227.6	1,181.2	46.40	26.455	
8,563.0	7,128.7	8,484.1	7,206.7	32.2	23.7	93.59	-555.4	168.6	1,227.6	1,179.8	47.81	25.678	
8,600.0	7,128.5	8,521.1	7,206.2	32.4	24.2	93.59	-592.4	168.6	1,227.6	1,178.9	48.65	25.232	
8,661.4	7,128.0	8,582.5	7,205.6	32.8	25.0	93.58	-653.8	168.6	1,227.5	1,177.4	50.14	24.484	
8,700.0	7,127.7	8,621.1	7,205.1	33.1	25.5	93.57	-692.4	168.6	1,227.5	1,176.4	51.09	24.028	
8,759.8	7,127.3	8,680.9	7,204.5	33.5	26.3	93.56	-752.3	168.6	1,227.5	1,174.9	52.63	23.322	
8,800.0	7,127.0	8,721.1	7,204.0	33.9	26.9	93.55	-792.4	168.6	1,227.5	1,173.8	53.69	22.864	
8,858.2	7,126.5	8,779.4	7,203.4	34.4	27.7	93.54	-850.7	168.6	1,227.5	1,172.2	55.28	22.206	
8,900.0	7,126.2	8,821.1	7,202.9	34.8	28.3	93.53	-892.4	168.6	1,227.5	1,171.1	56.43	21.753	
8,956.7	7,125.8	8,877.8	7,202.2	35.4	29.1	93.52	-949.1	168.6	1,227.5	1,169.4	58.04	21.147	
9,000.0	7,125.5	8,921.1	7,201.8	35.8	29.8	93.52	-992.4	168.6	1,227.5	1,168.2	59.29	20.703	
9,055.1	7,125.1	8,976.2	7,201.1	36.5	30.6	93.51	-1,047.5	168.6	1,227.4	1,166.5	60.92	20.149	
9,100.0	7,124.7	9,021.1	7,200.6	37.0	31.3	93.50	-1,092.4	168.6	1,227.4	1,165.2	62.26	19.716	
9,153.5	7,124.3	9,074.6	7,200.0	37.6	32.1	93.49	-1,145.9	168.5	1,227.4	1,163.5	63.89	19.212	
9,200.0	7,124.0	9,121.1	7,199.5	38.2	32.9	93.48	-1,192.4	168.5	1,227.4	1,162.1	65.31	18.793	
9,251.9	7,123.6	9,173.1	7,198.9	38.8	33.7	93.47	-1,244.3	168.5	1,227.4	1,160.5	66.94	18.336	
9,300.0	7,123.2	9,221.1	7,198.4	39.5	34.5	93.47	-1,292.4	168.5	1,227.4	1,158.9	68.45	17.931	
9,350.4	7,122.8	9,271.5	7,197.8	40.1	35.3	93.46	-1,342.8	168.5	1,227.4	1,157.3	70.06	17.519	
9,400.0	7,122.5	9,321.1	7,197.3	40.8	36.1	93.45	-1,392.4	168.5	1,227.4	1,155.7	71.65	17.129	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-323 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	9,369.9	7,196.7	41.5	36.9	93.44	-1,441.2	168.5	1,227.4	1,154.1	73.24	16.757	
9,500.0	7,121.7	9,421.1	7,196.2	42.2	37.8	93.43	-1,492.4	168.5	1,227.4	1,152.4	74.92	16.383	
9,547.2	7,121.4	9,468.3	7,195.6	42.9	38.6	93.42	-1,539.6	168.5	1,227.3	1,150.9	76.48	16.048	
9,600.0	7,121.0	9,521.1	7,195.0	43.7	39.5	93.41	-1,592.4	168.5	1,227.3	1,149.1	78.23	15.689	
9,645.6	7,120.6	9,566.8	7,194.5	44.3	40.3	93.41	-1,638.0	168.5	1,227.3	1,147.6	79.76	15.387	
9,700.0	7,120.2	9,621.1	7,193.9	45.1	41.2	93.40	-1,692.4	168.5	1,227.3	1,145.7	81.59	15.042	
9,744.1	7,119.9	9,665.2	7,193.4	45.8	41.9	93.39	-1,736.4	168.5	1,227.3	1,144.2	83.09	14.771	
9,800.0	7,119.5	9,721.1	7,192.8	46.6	42.9	93.38	-1,792.4	168.5	1,227.3	1,142.3	84.99	14.440	
9,842.5	7,119.1	9,763.6	7,192.3	47.3	43.6	93.37	-1,834.9	168.5	1,227.3	1,140.8	86.45	14.196	
9,900.0	7,118.7	9,821.1	7,191.7	48.2	44.6	93.36	-1,892.3	168.5	1,227.3	1,138.8	88.43	13.879	
9,940.9	7,118.4	9,862.0	7,191.2	48.8	45.4	93.35	-1,933.3	168.5	1,227.3	1,137.4	89.85	13.659	
10,000.0	7,118.0	9,921.1	7,190.5	49.8	46.4	93.34	-1,992.3	168.5	1,227.2	1,135.3	91.90	13.355	
10,039.3	7,117.7	9,960.5	7,190.1	50.4	47.1	93.34	-2,031.7	168.5	1,227.2	1,134.0	93.27	13.158	
10,100.0	7,117.2	10,021.1	7,189.4	51.4	48.2	93.33	-2,092.3	168.5	1,227.2	1,131.8	95.39	12.865	
10,137.8	7,116.9	10,058.9	7,189.0	52.0	48.8	93.32	-2,130.1	168.5	1,227.2	1,130.5	96.72	12.688	
10,200.0	7,116.5	10,121.1	7,188.3	53.0	49.9	93.31	-2,192.3	168.5	1,227.2	1,128.3	98.92	12.407	
10,236.2	7,116.2	10,157.3	7,187.9	53.6	50.6	93.30	-2,228.5	168.5	1,227.2	1,127.0	100.20	12.248	
10,300.0	7,115.7	10,221.1	7,187.2	54.6	51.7	93.29	-2,292.3	168.5	1,227.2	1,124.7	102.46	11.977	
10,334.6	7,115.5	10,255.7	7,186.8	55.2	52.4	93.29	-2,326.9	168.5	1,227.2	1,123.5	103.69	11.835	
10,400.0	7,115.0	10,321.1	7,186.1	56.3	53.5	93.27	-2,392.3	168.5	1,227.2	1,121.1	106.02	11.574	
10,433.0	7,114.7	10,354.1	7,185.7	56.8	54.1	93.27	-2,425.4	168.5	1,227.2	1,119.9	107.21	11.447	
10,500.0	7,114.2	10,421.1	7,184.9	58.0	55.3	93.26	-2,492.3	168.5	1,227.1	1,117.5	109.61	11.196	
10,531.5	7,114.0	10,452.6	7,184.6	58.5	55.9	93.25	-2,523.8	168.5	1,227.1	1,116.4	110.74	11.081	
10,600.0	7,113.5	10,521.1	7,183.8	59.7	57.1	93.24	-2,592.3	168.5	1,227.1	1,113.9	113.21	10.840	
10,629.9	7,113.2	10,551.0	7,183.5	60.2	57.7	93.23	-2,622.2	168.5	1,227.1	1,112.8	114.29	10.737	
10,700.0	7,112.7	10,621.1	7,182.7	61.4	59.0	93.22	-2,692.3	168.5	1,227.1	1,110.3	116.82	10.504	
10,728.3	7,112.5	10,649.4	7,182.4	61.8	59.5	93.22	-2,720.6	168.5	1,227.1	1,109.2	117.85	10.412	
10,800.0	7,112.0	10,721.1	7,181.6	63.1	60.8	93.20	-2,792.3	168.5	1,227.1	1,106.6	120.45	10.187	
10,826.7	7,111.8	10,747.8	7,181.3	63.5	61.3	93.20	-2,819.0	168.5	1,227.1	1,105.7	121.42	10.106	
10,900.0	7,111.2	10,821.1	7,180.4	64.8	62.6	93.19	-2,892.3	168.5	1,227.1	1,103.0	124.09	9.888	
10,925.2	7,111.0	10,846.3	7,180.1	65.2	63.1	93.18	-2,917.4	168.5	1,227.1	1,102.0	125.01	9.816	
11,000.0	7,110.5	10,921.1	7,179.3	66.5	64.5	93.17	-2,992.3	168.5	1,227.0	1,099.3	127.74	9.606	
11,023.6	7,110.3	10,944.7	7,179.0	66.9	64.9	93.17	-3,015.9	168.5	1,227.0	1,098.4	128.61	9.541	
11,100.0	7,109.7	11,021.1	7,178.2	68.3	66.3	93.15	-3,092.3	168.5	1,227.0	1,095.6	131.41	9.338	
11,122.0	7,109.5	11,043.1	7,177.9	68.7	66.7	93.15	-3,114.3	168.5	1,227.0	1,094.8	132.22	9.280	
11,200.0	7,109.0	11,121.1	7,177.1	70.0	68.1	93.13	-3,192.3	168.5	1,227.0	1,091.9	135.08	9.084	
11,220.4	7,108.8	11,141.5	7,176.8	70.4	68.5	93.13	-3,212.7	168.5	1,227.0	1,091.2	135.83	9.033	
11,300.0	7,108.2	11,221.1	7,175.9	71.8	70.0	93.12	-3,292.2	168.5	1,227.0	1,088.2	138.76	8.842	
11,318.9	7,108.1	11,240.0	7,175.7	72.1	70.3	93.11	-3,311.1	168.5	1,227.0	1,087.5	139.46	8.798	
11,400.0	7,107.5	11,321.1	7,174.8	73.6	71.8	93.10	-3,392.2	168.5	1,227.0	1,084.5	142.45	8.613	
11,417.3	7,107.3	11,338.4	7,174.6	73.9	72.2	93.10	-3,409.5	168.5	1,227.0	1,083.9	143.09	8.575	
11,500.0	7,106.7	11,421.1	7,173.7	75.3	73.7	93.08	-3,492.2	168.5	1,226.9	1,080.8	146.15	8.395	
11,515.7	7,106.6	11,436.8	7,173.5	75.6	74.0	93.08	-3,508.0	168.5	1,226.9	1,080.2	146.73	8.362	
11,600.0	7,106.0	11,521.1	7,172.5	77.1	75.6	93.06	-3,592.2	168.5	1,226.9	1,077.1	149.85	8.187	
11,614.1	7,105.9	11,535.2	7,172.4	77.4	75.8	93.06	-3,606.4	168.5	1,226.9	1,076.5	150.38	8.159	
11,700.0	7,105.2	11,621.1	7,171.4	78.9	77.4	93.05	-3,692.2	168.5	1,226.9	1,073.3	153.57	7.989	
11,712.6	7,105.1	11,633.7	7,171.3	79.2	77.7	93.04	-3,704.8	168.5	1,226.9	1,072.9	154.03	7.965	
11,800.0	7,104.5	11,721.1	7,170.3	80.7	79.3	93.03	-3,792.2	168.5	1,226.9	1,069.6	157.28	7.801	
11,811.0	7,104.4	11,732.1	7,170.2	80.9	79.5	93.03	-3,803.2	168.5	1,226.9	1,069.2	157.69	7.780	
11,817.9	7,104.3	11,739.0	7,170.1	81.0	79.6	93.03	-3,810.1	168.5	1,226.9	1,068.9	157.95	7.768	
11,860.2	7,104.0	11,747.1	7,170.0	81.8	79.8	93.03	-3,818.3	168.5	1,227.4	1,068.5	158.89	7.725	SF

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-88.41	2.9	-104.9	104.9				
98.4	98.4	99.4	99.4	0.1	0.1	-88.41	2.9	-104.9	104.9	104.8	0.17	614.372	
100.0	100.0	101.0	101.0	0.1	0.1	-88.41	2.9	-104.9	104.9	104.8	0.18	598.549	
196.8	196.8	197.8	197.8	0.3	0.3	-88.41	2.9	-104.9	104.9	104.3	0.61	171.832	
200.0	200.0	201.0	201.0	0.3	0.3	-88.41	2.9	-104.9	104.9	104.3	0.62	167.938	
295.3	295.3	296.3	296.3	0.5	0.5	-88.41	2.9	-104.9	104.9	103.9	1.05	99.641	
300.0	300.0	301.0	301.0	0.5	0.5	-88.41	2.9	-104.9	104.9	103.9	1.07	97.671	
393.7	393.7	394.7	394.7	0.7	0.7	-88.41	2.9	-104.9	104.9	103.4	1.50	70.164	
400.0	400.0	401.0	401.0	0.8	0.8	-88.41	2.9	-104.9	104.9	103.4	1.52	68.860	
492.1	492.1	493.1	493.1	1.0	1.0	-88.41	2.9	-104.9	104.9	103.0	1.94	54.145	
500.0	500.0	501.0	501.0	1.0	1.0	-88.41	2.9	-104.9	104.9	103.0	1.97	53.174	
590.5	590.5	591.5	591.5	1.2	1.2	-88.41	2.9	-104.9	104.9	102.6	2.38	44.082	
600.0	600.0	601.0	601.0	1.2	1.2	-88.41	2.9	-104.9	104.9	102.5	2.42	43.309	
689.0	689.0	690.0	690.0	1.4	1.4	-88.41	2.9	-104.9	104.9	102.1	2.82	37.173	
700.0	700.0	701.0	701.0	1.4	1.4	-88.41	2.9	-104.9	104.9	102.1	2.87	36.531	
787.4	787.4	788.4	788.4	1.6	1.6	-88.41	2.9	-104.9	104.9	101.7	3.27	32.136	
800.0	800.0	801.0	801.0	1.7	1.7	-88.41	2.9	-104.9	104.9	101.6	3.32	31.588	
885.8	885.8	886.8	886.8	1.9	1.9	-88.41	2.9	-104.9	104.9	101.2	3.71	28.301	
900.0	900.0	901.0	901.0	1.9	1.9	-88.41	2.9	-104.9	104.9	101.2	3.77	27.823	
984.2	984.2	985.2	985.2	2.1	2.1	-88.41	2.9	-104.9	104.9	100.8	4.15	25.284	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-88.41	2.9	-104.9	104.9	100.7	4.22	24.860	
1,082.7	1,082.7	1,083.7	1,083.7	2.3	2.3	-88.41	2.9	-104.9	104.9	100.3	4.59	22.848	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-88.41	2.9	-104.9	104.9	100.3	4.67	22.467	
1,181.1	1,181.1	1,182.1	1,182.1	2.5	2.5	-88.41	2.9	-104.9	104.9	99.9	5.04	20.841	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-88.41	2.9	-104.9	104.9	99.8	5.12	20.495	
1,279.5	1,279.5	1,280.5	1,280.5	2.7	2.7	-88.41	2.9	-104.9	104.9	99.5	5.48	19.157	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-88.41	2.9	-104.9	104.9	99.4	5.57	18.841	
1,377.9	1,377.9	1,378.9	1,378.9	3.0	3.0	-88.41	2.9	-104.9	104.9	99.0	5.92	17.725	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-88.41	2.9	-104.9	104.9	98.9	6.02	17.433	
1,436.7	1,436.7	1,437.7	1,437.7	3.1	3.1	-88.41	2.9	-104.9	104.9	98.8	6.18	16.968	CC
1,476.4	1,476.4	1,477.1	1,477.1	3.2	3.2	-88.34	3.0	-104.9	105.0	98.6	6.36	16.500	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-88.18	3.3	-105.0	105.1	98.6	6.47	16.248	ES
1,550.0	1,550.0	1,550.0	1,549.9	3.3	3.3	-87.50	4.6	-105.3	105.4	98.7	6.69	15.758	
1,574.8	1,574.8	1,574.5	1,574.4	3.4	3.4	-145.25	5.5	-105.6	105.8	99.0	6.80	15.564	
1,600.0	1,600.0	1,599.4	1,599.3	3.5	3.5	-144.73	6.7	-105.9	106.4	99.5	6.91	15.408	
1,673.2	1,673.2	1,671.6	1,671.4	3.6	3.6	-143.02	11.2	-107.0	109.7	102.5	7.22	15.193	
1,700.0	1,699.9	1,697.9	1,697.6	3.7	3.7	-142.34	13.3	-107.5	111.5	104.2	7.34	15.196	
1,771.6	1,771.4	1,768.2	1,767.5	3.8	3.8	-140.44	20.0	-109.3	117.7	110.0	7.65	15.385	
1,800.0	1,799.7	1,795.9	1,795.1	3.9	3.9	-139.67	23.1	-110.0	120.7	112.9	7.77	15.534	
1,870.1	1,869.4	1,864.1	1,862.7	4.0	4.1	-137.79	31.9	-112.3	129.7	121.6	8.08	16.043	
1,900.0	1,899.1	1,893.1	1,891.3	4.1	4.1	-137.01	36.1	-113.3	134.1	125.9	8.21	16.326	
1,968.5	1,967.0	1,959.1	1,956.4	4.3	4.3	-135.29	46.6	-116.0	145.7	137.2	8.53	17.076	
2,000.0	1,998.2	1,989.2	1,986.1	4.4	4.4	-134.55	51.9	-117.4	151.7	143.0	8.68	17.479	
2,066.9	2,064.1	2,053.0	2,048.6	4.5	4.6	-133.06	64.2	-120.5	165.7	156.7	9.00	18.404	
2,100.0	2,096.6	2,085.2	2,080.0	4.6	4.7	-132.43	70.7	-122.2	173.2	164.1	9.17	18.889	
2,165.3	2,160.6	2,148.6	2,142.1	4.8	4.9	-131.54	83.4	-125.4	188.8	179.3	9.51	19.847	
2,200.0	2,194.4	2,182.1	2,174.9	4.9	5.0	-131.24	90.2	-127.1	197.5	187.8	9.70	20.368	
2,263.8	2,256.4	2,243.7	2,235.1	5.2	5.2	-130.95	102.6	-130.3	214.1	204.1	10.05	21.307	
2,300.0	2,291.5	2,278.6	2,269.2	5.3	5.3	-130.90	109.6	-132.1	224.0	213.8	10.25	21.850	
2,362.2	2,351.4	2,338.2	2,327.5	5.5	5.5	-130.98	121.6	-135.1	241.6	231.0	10.62	22.755	
2,400.0	2,387.6	2,374.3	2,362.9	5.7	5.7	-131.12	128.9	-137.0	252.7	241.9	10.84	23.317	
2,460.6	2,445.4	2,432.0	2,419.3	6.0	5.9	-131.45	140.5	-139.9	271.2	260.0	11.21	24.193	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,500.0	2,482.7	2,469.3	2,455.7	6.2	6.0	-131.72	148.0	-141.9	283.7	272.2	11.46	24.762	
2,559.0	2,538.3	2,524.9	2,510.2	6.5	6.2	-132.19	159.2	-144.7	303.1	291.2	11.84	25.596	
2,600.0	2,576.6	2,563.3	2,547.7	6.7	6.4	-132.56	167.0	-146.7	317.0	304.9	12.11	26.185	
2,657.5	2,630.1	2,616.9	2,600.2	7.0	6.6	-133.11	177.8	-149.4	337.2	324.7	12.50	26.984	
2,700.0	2,669.4	2,656.3	2,638.7	7.3	6.7	-133.53	185.7	-151.5	352.7	339.9	12.78	27.589	
2,755.9	2,720.6	2,707.9	2,689.1	7.6	6.9	-134.11	196.1	-154.1	373.7	360.5	13.18	28.363	
2,776.7	2,739.5	2,726.9	2,707.8	7.8	7.0	-134.33	199.9	-155.1	381.7	368.4	13.32	28.656	
2,800.0	2,760.8	2,748.3	2,728.6	7.9	7.1	-134.71	204.2	-156.2	390.8	377.3	13.50	28.947	
2,854.3	2,810.2	2,798.0	2,777.3	8.3	7.3	-135.53	214.2	-158.7	412.0	398.0	13.92	29.588	
2,900.0	2,851.7	2,839.8	2,818.2	8.7	7.4	-136.16	222.7	-160.9	429.8	415.5	14.28	30.097	
2,952.7	2,899.7	2,888.2	2,865.5	9.1	7.6	-136.82	232.4	-163.4	450.5	435.8	14.70	30.644	
3,000.0	2,942.7	2,931.4	2,907.8	9.4	7.8	-137.36	241.1	-165.6	469.0	453.9	15.08	31.108	
3,051.2	2,989.3	2,978.3	2,953.6	9.8	8.0	-137.90	250.5	-168.0	489.1	473.6	15.49	31.575	
3,100.0	3,033.7	3,023.0	2,997.4	10.2	8.2	-138.38	259.5	-170.3	508.4	492.5	15.89	32.000	
3,149.6	3,078.8	3,068.4	3,041.8	10.5	8.4	-138.83	268.7	-172.6	527.9	511.6	16.29	32.401	
3,200.0	3,124.6	3,114.6	3,087.0	10.9	8.6	-139.25	278.0	-175.0	547.8	531.1	16.71	32.791	
3,248.0	3,168.3	3,158.6	3,130.0	11.3	8.7	-139.63	286.8	-177.2	566.8	549.7	17.11	33.137	
3,300.0	3,215.6	3,206.2	3,176.5	11.7	8.9	-140.01	296.4	-179.7	587.4	569.9	17.54	33.496	
3,346.4	3,257.9	3,248.7	3,218.2	12.1	9.1	-140.33	305.0	-181.9	605.8	587.9	17.93	33.796	
3,400.0	3,306.6	3,297.7	3,266.1	12.5	9.3	-140.67	314.9	-184.4	627.0	608.7	18.37	34.128	
3,444.9	3,347.4	3,338.8	3,306.3	12.9	9.5	-140.94	323.1	-186.5	644.9	626.1	18.75	34.389	
3,500.0	3,397.6	3,389.3	3,355.7	13.3	9.7	-141.26	333.3	-189.1	666.8	647.5	19.22	34.696	
3,543.3	3,436.9	3,429.0	3,394.5	13.7	9.9	-141.49	341.3	-191.1	684.0	664.4	19.58	34.923	
3,600.0	3,488.5	3,480.9	3,445.3	14.1	10.1	-141.78	351.8	-193.8	706.5	686.4	20.07	35.209	
3,641.7	3,526.5	3,519.1	3,482.7	14.5	10.2	-141.98	359.4	-195.7	723.1	702.7	20.42	35.408	
3,700.0	3,579.5	3,572.5	3,534.9	15.0	10.5	-142.24	370.2	-198.5	746.3	725.4	20.92	35.675	
3,740.1	3,616.0	3,609.2	3,570.8	15.3	10.6	-142.41	377.6	-200.4	762.3	741.0	21.26	35.849	
3,800.0	3,670.5	3,664.1	3,624.4	15.8	10.9	-142.66	388.6	-203.2	786.2	764.4	21.78	36.099	
3,838.6	3,705.6	3,699.4	3,659.0	16.1	11.0	-142.81	395.8	-205.0	801.5	779.4	22.11	36.252	
3,900.0	3,761.4	3,755.6	3,714.0	16.6	11.2	-143.03	407.1	-207.9	826.0	803.4	22.64	36.486	
3,937.0	3,795.1	3,789.5	3,747.2	16.9	11.4	-143.16	413.9	-209.6	840.8	817.8	22.96	36.621	
4,000.0	3,852.4	3,847.2	3,803.6	17.4	11.6	-143.37	425.5	-212.6	865.9	842.4	23.50	36.841	
4,035.4	3,884.6	3,879.7	3,835.3	17.7	11.8	-143.49	432.1	-214.2	880.1	856.3	23.81	36.960	
4,100.0	3,943.4	3,938.8	3,893.2	18.3	12.0	-143.69	444.0	-217.3	905.8	881.5	24.37	37.168	
4,133.8	3,974.2	3,969.8	3,923.5	18.6	12.2	-143.78	450.2	-218.9	919.4	894.7	24.67	37.272	
4,200.0	4,034.4	4,030.4	3,982.8	19.1	12.4	-143.97	462.4	-222.0	945.8	920.5	25.24	37.469	
4,232.3	4,063.7	4,059.9	4,011.7	19.4	12.5	-144.06	468.4	-223.5	958.7	933.2	25.52	37.561	
4,300.0	4,125.3	4,122.0	4,072.3	19.9	12.8	-144.23	480.9	-226.7	985.8	959.6	26.11	37.747	
4,330.7	4,153.3	4,150.1	4,099.8	20.2	12.9	-144.31	486.5	-228.1	998.0	971.6	26.38	37.828	
4,400.0	4,216.3	4,213.5	4,161.9	20.8	13.2	-144.48	499.3	-231.4	1,025.7	998.7	26.99	38.005	
4,429.1	4,242.8	4,240.2	4,188.0	21.0	13.3	-144.54	504.7	-232.7	1,037.4	1,010.1	27.24	38.076	
4,500.0	4,307.3	4,305.1	4,251.5	21.6	13.6	-144.70	517.7	-236.1	1,065.7	1,037.9	27.87	38.245	
4,527.5	4,332.3	4,330.3	4,276.2	21.9	13.7	-144.76	522.8	-237.4	1,076.7	1,048.6	28.11	38.308	
4,600.0	4,398.2	4,396.7	4,341.1	22.5	14.0	-144.91	536.2	-240.8	1,105.7	1,077.0	28.74	38.468	
4,626.0	4,421.9	4,420.5	4,364.3	22.7	14.1	-144.96	541.0	-242.0	1,116.1	1,087.1	28.97	38.523	
4,700.0	4,489.2	4,488.3	4,430.7	23.3	14.4	-145.10	554.6	-245.5	1,145.7	1,116.1	29.62	38.676	
4,724.4	4,511.4	4,510.6	4,452.5	23.5	14.5	-145.14	559.1	-246.6	1,155.5	1,125.7	29.84	38.725	
4,800.0	4,580.2	4,579.8	4,520.2	24.2	14.8	-145.28	573.1	-250.2	1,185.8	1,155.3	30.51	38.871	
4,822.8	4,601.0	4,600.7	4,540.7	24.4	14.9	-145.32	577.3	-251.2	1,194.9	1,164.2	30.71	38.914	
4,900.0	4,671.2	4,671.4	4,609.8	25.0	15.2	-145.45	591.5	-254.9	1,225.8	1,194.4	31.39	39.054	
4,921.2	4,690.5	4,690.9	4,628.8	25.2	15.3	-145.48	595.4	-255.9	1,234.3	1,202.7	31.58	39.091	
5,000.0	4,762.1	4,763.0	4,699.4	25.9	15.6	-145.61	610.0	-259.6	1,265.8	1,233.6	32.27	39.225	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,781.0	4,717.0	26.0	15.7	-145.64	613.6	-260.5	1,273.7	1,241.3	32.45	39.257	
5,100.0	4,853.1	4,854.6	4,789.0	26.7	16.0	-145.75	628.4	-264.2	1,305.9	1,272.7	33.16	39.386	
5,118.1	4,869.6	4,871.2	4,805.2	26.9	16.1	-145.78	631.7	-265.1	1,313.1	1,279.8	33.32	39.414	
5,200.0	4,944.1	4,946.2	4,878.5	27.6	16.4	-145.89	646.8	-268.9	1,345.9	1,311.9	34.04	39.538	
5,216.5	4,959.1	4,961.3	4,893.4	27.7	16.5	-145.92	649.9	-269.7	1,352.6	1,318.4	34.19	39.562	
5,300.0	5,035.0	5,037.7	4,968.1	28.4	16.8	-146.02	665.3	-273.6	1,386.0	1,351.1	34.93	39.681	
5,314.9	5,048.6	5,051.4	4,981.5	28.6	16.9	-146.04	668.0	-274.3	1,392.0	1,356.9	35.06	39.701	
5,400.0	5,126.0	5,129.3	5,057.7	29.3	17.2	-146.15	683.7	-278.3	1,426.1	1,390.3	35.82	39.816	
5,413.4	5,138.2	5,141.6	5,069.7	29.4	17.3	-146.16	686.2	-279.0	1,431.4	1,395.5	35.94	39.833	
5,479.4	5,198.3	5,202.0	5,128.8	30.0	17.5	-146.24	698.4	-282.1	1,457.9	1,421.4	36.52	39.918	
5,500.0	5,217.0	5,220.9	5,147.3	30.1	17.6	-146.36	702.2	-283.0	1,466.1	1,429.4	36.72	39.930	
5,511.8	5,227.8	5,231.8	5,157.9	30.2	17.6	-146.43	704.4	-283.6	1,470.7	1,433.9	36.82	39.942	
5,600.0	5,309.0	5,313.3	5,237.7	30.8	18.0	-146.87	720.8	-287.8	1,504.3	1,466.7	37.62	39.989	
5,610.2	5,318.5	5,322.8	5,247.0	30.8	18.0	-146.92	722.7	-288.3	1,508.0	1,470.3	37.71	39.993	
5,700.0	5,402.3	5,406.8	5,329.2	31.4	18.4	-147.26	739.6	-292.6	1,539.8	1,501.3	38.51	39.987	
5,708.6	5,410.4	5,415.0	5,337.1	31.4	18.5	-147.29	741.3	-293.0	1,542.7	1,504.1	38.58	39.986	
5,800.0	5,496.7	5,501.3	5,421.5	31.9	18.8	-147.54	758.6	-297.4	1,572.5	1,533.1	39.38	39.932	
5,807.1	5,503.5	5,508.0	5,428.1	31.9	18.9	-147.55	760.0	-297.8	1,574.7	1,535.2	39.44	39.927	
5,900.0	5,592.3	5,596.6	5,514.8	32.4	19.3	-147.71	777.8	-302.3	1,602.4	1,562.2	40.23	39.828	
5,905.5	5,597.6	5,601.9	5,519.9	32.4	19.3	-147.72	778.9	-302.6	1,604.0	1,563.7	40.28	39.822	
6,000.0	5,688.8	5,692.7	5,608.7	32.9	19.7	-147.79	797.2	-307.2	1,629.5	1,588.4	41.06	39.683	
6,003.9	5,692.6	5,696.4	5,612.4	32.9	19.7	-147.79	797.9	-307.4	1,630.5	1,589.4	41.09	39.677	
6,100.0	5,786.2	5,789.3	5,703.3	33.3	20.1	-147.77	816.7	-312.2	1,653.8	1,611.9	41.87	39.499	
6,102.3	5,788.5	5,791.6	5,705.5	33.3	20.1	-147.77	817.1	-312.3	1,654.3	1,612.4	41.89	39.495	
6,200.0	5,884.3	5,886.5	5,798.4	33.6	20.5	-147.66	836.2	-317.2	1,675.3	1,632.6	42.65	39.282	
6,200.8	5,885.1	5,887.3	5,799.1	33.6	20.5	-147.66	836.4	-317.2	1,675.4	1,632.8	42.65	39.281	
6,299.2	5,982.3	5,983.3	5,893.0	33.9	21.0	-147.47	855.7	-322.2	1,693.8	1,650.4	43.39	39.037	
6,300.0	5,983.1	5,984.1	5,893.8	33.9	21.0	-147.47	855.9	-322.2	1,693.9	1,650.5	43.39	39.035	
6,397.6	6,079.9	6,084.5	5,992.1	34.1	21.4	-147.18	875.9	-327.3	1,709.4	1,665.2	44.10	38.758	
6,400.0	6,082.3	6,087.3	5,994.8	34.1	21.4	-147.17	876.5	-327.4	1,709.7	1,665.6	44.12	38.750	
6,496.0	6,177.9	6,199.9	6,105.6	34.3	21.8	-146.84	895.8	-332.4	1,721.5	1,676.7	44.73	38.490	
6,500.0	6,181.9	6,204.6	6,110.2	34.3	21.8	-146.83	896.5	-332.5	1,721.9	1,677.1	44.75	38.480	
6,594.5	6,276.2	6,316.7	6,221.3	34.5	22.1	-146.54	911.3	-336.3	1,729.8	1,684.5	45.23	38.243	
6,600.0	6,281.7	6,323.3	6,227.9	34.5	22.1	-146.52	912.1	-336.5	1,730.1	1,684.9	45.26	38.230	
6,692.9	6,374.6	6,434.5	6,338.6	34.6	22.3	-146.27	922.3	-339.1	1,734.2	1,688.6	45.63	38.009	
6,706.1	6,387.8	6,450.4	6,354.4	34.6	22.4	-88.02	923.5	-339.4	1,734.5	1,688.8	45.67	37.977	
6,736.1	6,417.8	6,486.4	6,390.4	34.6	22.4	-87.94	925.7	-340.0	1,735.0	1,689.3	45.79	37.888	
6,750.0	6,431.7	6,503.2	6,407.1	34.6	22.5	92.07	926.6	-340.2	1,735.3	1,689.4	45.85	37.851	
6,791.3	6,473.0	6,552.9	6,456.7	34.6	22.5	92.17	928.7	-340.8	1,735.9	1,689.9	45.97	37.760	
6,800.0	6,481.6	6,563.3	6,467.1	34.6	22.6	92.20	929.1	-340.8	1,736.0	1,690.0	46.00	37.739	
6,850.0	6,531.2	6,623.2	6,527.0	34.6	22.6	92.44	930.3	-341.2	1,736.5	1,690.4	46.13	37.643	
6,889.7	6,570.3	6,667.4	6,571.3	34.6	22.7	92.69	930.4	-341.2	1,736.9	1,690.7	46.20	37.593	
6,900.0	6,580.3	6,677.4	6,581.3	34.6	22.7	92.75	930.4	-341.2	1,737.0	1,690.8	46.22	37.582	
6,950.0	6,628.5	6,728.8	6,632.7	34.6	22.8	93.13	930.1	-341.2	1,737.7	1,691.4	46.27	37.556	
6,988.2	6,664.7	6,771.9	6,675.7	34.5	22.8	93.45	927.4	-341.2	1,738.3	1,692.0	46.26	37.576	
7,000.0	6,675.8	6,785.4	6,689.1	34.5	22.8	93.55	926.0	-341.2	1,738.5	1,692.2	46.25	37.588	
7,050.0	6,721.8	6,843.3	6,746.3	34.4	22.8	93.96	917.3	-341.2	1,739.3	1,693.2	46.13	37.701	
7,086.6	6,754.5	6,886.6	6,788.6	34.3	22.7	94.25	907.7	-341.2	1,739.9	1,694.0	45.98	37.840	
7,100.0	6,766.2	6,902.7	6,804.0	34.2	22.7	94.35	903.6	-341.2	1,740.2	1,694.3	45.92	37.896	
7,150.0	6,809.0	6,963.4	6,861.7	34.1	22.5	94.72	884.7	-341.2	1,741.1	1,695.5	45.61	38.175	
7,185.0	6,837.9	7,006.7	6,901.8	34.0	22.4	94.97	868.2	-341.2	1,741.7	1,696.4	45.34	38.418	
7,200.0	6,849.9	7,025.4	6,918.8	33.9	22.4	95.08	860.3	-341.2	1,742.0	1,696.8	45.21	38.534	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	7,088.9	6,974.7	33.8	22.1	95.40	830.5	-341.2	1,742.9	1,698.2	44.73	38.969	
7,283.4	6,913.4	7,132.1	7,011.2	33.6	22.0	95.60	807.4	-341.2	1,743.5	1,699.1	44.36	39.303	
7,300.0	6,925.2	7,153.6	7,028.9	33.6	21.9	95.70	795.0	-341.2	1,743.7	1,699.6	44.17	39.476	
7,350.0	6,959.2	7,219.6	7,080.5	33.4	21.6	95.96	754.0	-341.2	1,744.5	1,701.0	43.56	40.048	
7,381.9	6,979.6	7,262.2	7,111.8	33.3	21.4	96.11	725.1	-341.2	1,745.0	1,701.8	43.15	40.440	
7,400.0	6,990.6	7,286.6	7,128.9	33.2	21.2	96.19	707.7	-341.2	1,745.2	1,702.3	42.91	40.670	
7,450.0	7,019.2	7,354.5	7,173.3	33.0	20.9	96.37	656.3	-341.2	1,745.8	1,703.5	42.25	41.323	
7,480.3	7,035.1	7,396.1	7,198.0	32.8	20.7	96.46	622.9	-341.2	1,746.1	1,704.2	41.85	41.724	
7,500.0	7,044.9	7,423.2	7,213.0	32.8	20.5	96.51	600.3	-341.2	1,746.2	1,704.6	41.59	41.985	
7,550.0	7,067.5	7,492.5	7,247.5	32.6	20.2	96.61	540.2	-341.2	1,746.5	1,705.5	40.97	42.629	
7,578.7	7,079.1	7,532.4	7,264.7	32.4	20.0	96.64	504.2	-341.2	1,746.6	1,706.0	40.64	42.975	
7,600.0	7,086.9	7,562.1	7,276.1	32.3	19.9	96.65	476.8	-341.2	1,746.6	1,706.2	40.41	43.223	
7,650.0	7,103.1	7,631.8	7,298.5	32.1	19.7	96.64	410.9	-341.2	1,746.6	1,706.7	39.94	43.735	
7,677.1	7,110.5	7,669.6	7,307.9	32.0	19.6	96.62	374.3	-341.2	1,746.6	1,706.8	39.73	43.965	
7,700.0	7,116.0	7,701.3	7,314.3	32.0	19.5	96.59	343.2	-341.2	1,746.5	1,706.9	39.56	44.144	
7,750.0	7,125.4	7,770.5	7,323.4	31.8	19.3	96.49	274.6	-341.2	1,746.1	1,706.8	39.32	44.410	
7,775.6	7,128.9	7,805.6	7,325.5	31.7	19.3	96.42	239.5	-341.2	1,745.9	1,706.7	39.24	44.492	
7,800.0	7,131.4	7,837.1	7,326.0	31.6	19.3	96.34	208.1	-341.2	1,745.7	1,706.5	39.19	44.539	
7,850.0	7,133.9	7,887.0	7,325.9	31.5	19.3	96.28	158.1	-341.2	1,745.4	1,706.2	39.18	44.543	
7,862.1	7,134.0	7,899.1	7,325.9	31.4	19.3	96.28	146.1	-341.2	1,745.4	1,706.2	39.19	44.535	
7,866.5	7,134.0	7,903.5	7,325.9	31.4	19.3	96.28	141.7	-341.2	1,745.4	1,706.2	39.20	44.526	
7,874.0	7,133.9	7,911.0	7,325.9	31.4	19.3	96.28	134.1	-341.2	1,745.4	1,706.1	39.22	44.498	
7,900.0	7,133.7	7,937.0	7,325.8	31.4	19.4	96.29	108.1	-341.2	1,745.4	1,706.1	39.31	44.401	
7,972.4	7,133.2	8,009.5	7,325.7	31.2	19.5	96.30	35.7	-341.2	1,745.4	1,705.8	39.65	44.019	
8,000.0	7,133.0	8,037.0	7,325.7	31.2	19.7	96.31	8.1	-341.2	1,745.5	1,705.6	39.83	43.827	
8,070.8	7,132.4	8,107.9	7,325.6	31.1	20.0	96.32	-62.7	-341.2	1,745.5	1,705.1	40.41	43.194	
8,100.0	7,132.2	8,137.0	7,325.6	31.1	20.1	96.33	-91.9	-341.2	1,745.5	1,704.8	40.70	42.892	
8,169.3	7,131.7	8,206.3	7,325.5	31.1	20.6	96.34	-161.1	-341.2	1,745.6	1,704.1	41.50	42.064	
8,200.0	7,131.5	8,237.0	7,325.4	31.1	20.8	96.35	-191.9	-341.2	1,745.6	1,703.7	41.90	41.664	
8,267.7	7,131.0	8,304.7	7,325.3	31.2	21.4	96.36	-259.6	-341.2	1,745.6	1,702.8	42.89	40.703	
8,300.0	7,130.7	8,337.0	7,325.3	31.2	21.7	96.37	-291.9	-341.2	1,745.7	1,702.3	43.40	40.221	
8,366.1	7,130.2	8,403.2	7,325.2	31.4	22.3	96.38	-358.0	-341.2	1,745.7	1,701.2	44.55	39.184	
8,400.0	7,130.0	8,437.0	7,325.1	31.5	22.6	96.39	-391.9	-341.2	1,745.7	1,700.6	45.18	38.640	
8,464.5	7,129.5	8,501.6	7,325.1	31.7	23.3	96.40	-456.4	-341.2	1,745.8	1,699.3	46.46	37.576	
8,500.0	7,129.2	8,537.0	7,325.0	31.9	23.7	96.41	-491.9	-341.2	1,745.8	1,698.6	47.20	36.987	
8,563.0	7,128.7	8,600.0	7,324.9	32.2	24.5	96.42	-554.8	-341.2	1,745.8	1,697.3	48.58	35.934	
8,600.0	7,128.5	8,637.0	7,324.9	32.4	24.9	96.43	-591.9	-341.2	1,745.9	1,696.4	49.43	35.318	
8,661.4	7,128.0	8,698.4	7,324.8	32.8	25.7	96.44	-653.3	-341.2	1,745.9	1,695.0	50.90	34.301	
8,700.0	7,127.7	8,737.0	7,324.7	33.1	26.2	96.45	-691.9	-341.2	1,745.9	1,694.1	51.85	33.672	
8,759.8	7,127.3	8,796.8	7,324.6	33.5	27.0	96.46	-751.7	-341.2	1,746.0	1,692.6	53.38	32.709	
8,800.0	7,127.0	8,837.0	7,324.6	33.9	27.6	96.47	-791.8	-341.2	1,746.0	1,691.6	54.43	32.077	
8,858.2	7,126.5	8,895.3	7,324.5	34.4	28.4	96.48	-850.1	-341.2	1,746.0	1,690.0	56.00	31.178	
8,900.0	7,126.2	8,937.0	7,324.4	34.8	29.0	96.48	-891.8	-341.2	1,746.1	1,688.9	57.15	30.553	
8,956.7	7,125.8	8,993.7	7,324.3	35.4	29.8	96.50	-948.5	-341.2	1,746.1	1,687.4	58.75	29.722	
9,000.0	7,125.5	9,037.0	7,324.3	35.8	30.5	96.50	-991.8	-341.2	1,746.1	1,686.2	59.99	29.108	
9,055.1	7,125.1	9,092.1	7,324.2	36.5	31.3	96.52	-1,046.9	-341.2	1,746.2	1,684.6	61.60	28.347	
9,100.0	7,124.7	9,137.0	7,324.1	37.0	32.0	96.52	-1,091.8	-341.2	1,746.2	1,683.3	62.93	27.749	
9,153.5	7,124.3	9,190.5	7,324.1	37.6	32.8	96.53	-1,145.4	-341.2	1,746.3	1,681.7	64.55	27.055	
9,200.0	7,124.0	9,237.0	7,324.0	38.2	33.5	96.54	-1,191.8	-341.2	1,746.3	1,680.3	65.96	26.474	
9,251.9	7,123.6	9,289.0	7,323.9	38.8	34.4	96.55	-1,243.8	-341.2	1,746.3	1,678.7	67.57	25.844	
9,300.0	7,123.2	9,337.0	7,323.8	39.5	35.1	96.56	-1,291.8	-341.2	1,746.4	1,677.3	69.07	25.283	
9,350.4	7,122.8	9,387.4	7,323.8	40.1	36.0	96.57	-1,342.2	-341.2	1,746.4	1,675.7	70.67	24.713	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30M-403 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,400.0	7,122.5	9,437.0	7,323.7	40.8	36.8	96.58	-1,391.8	-341.2	1,746.4	1,674.2	72.25	24.172	
9,448.8	7,122.1	9,485.8	7,323.6	41.5	37.6	96.59	-1,440.6	-341.2	1,746.5	1,672.6	73.82	23.657	
9,500.0	7,121.7	9,537.0	7,323.5	42.2	38.4	96.60	-1,491.8	-341.2	1,746.5	1,671.0	75.49	23.136	
9,547.2	7,121.4	9,584.2	7,323.5	42.9	39.2	96.61	-1,539.1	-341.2	1,746.5	1,669.5	77.04	22.672	
9,600.0	7,121.0	9,637.0	7,323.4	43.7	40.1	96.62	-1,591.8	-341.2	1,746.6	1,667.8	78.78	22.171	
9,645.6	7,120.6	9,682.7	7,323.3	44.3	40.9	96.63	-1,637.5	-341.2	1,746.6	1,666.3	80.29	21.752	
9,700.0	7,120.2	9,737.0	7,323.2	45.1	41.8	96.64	-1,691.8	-341.2	1,746.6	1,664.5	82.11	21.272	
9,744.1	7,119.9	9,781.1	7,323.2	45.8	42.5	96.65	-1,735.9	-341.2	1,746.7	1,663.1	83.60	20.894	
9,800.0	7,119.5	9,837.0	7,323.1	46.6	43.5	96.66	-1,791.8	-341.2	1,746.7	1,661.2	85.49	20.433	
9,842.5	7,119.1	9,879.5	7,323.0	47.3	44.2	96.67	-1,834.3	-341.2	1,746.7	1,659.8	86.93	20.093	
9,900.0	7,118.7	9,937.0	7,323.0	48.2	45.2	96.68	-1,891.8	-341.2	1,746.8	1,657.9	88.90	19.650	
9,940.9	7,118.4	9,977.9	7,322.9	48.8	46.0	96.69	-1,932.8	-341.2	1,746.8	1,656.5	90.30	19.344	
10,000.0	7,118.0	10,037.0	7,322.8	49.8	47.0	96.70	-1,991.8	-341.2	1,746.8	1,654.5	92.34	18.918	
10,039.3	7,117.7	10,076.4	7,322.7	50.4	47.7	96.71	-2,031.2	-341.2	1,746.9	1,653.2	93.70	18.643	
10,100.0	7,117.2	10,137.0	7,322.7	51.4	48.7	96.72	-2,091.8	-341.2	1,746.9	1,651.1	95.81	18.233	
10,137.8	7,116.9	10,174.8	7,322.6	52.0	49.4	96.73	-2,129.6	-341.2	1,746.9	1,649.8	97.13	17.986	
10,200.0	7,116.5	10,237.0	7,322.5	53.0	50.5	96.74	-2,191.8	-341.2	1,747.0	1,647.7	99.30	17.592	
10,236.2	7,116.2	10,273.2	7,322.4	53.6	51.2	96.75	-2,228.0	-341.2	1,747.0	1,646.4	100.58	17.370	
10,300.0	7,115.7	10,337.0	7,322.3	54.6	52.3	96.76	-2,291.8	-341.2	1,747.1	1,644.2	102.82	16.991	
10,334.6	7,115.5	10,371.6	7,322.3	55.2	52.9	96.77	-2,326.4	-341.2	1,747.1	1,643.0	104.05	16.791	
10,400.0	7,115.0	10,437.0	7,322.2	56.3	54.1	96.78	-2,391.8	-341.2	1,747.1	1,640.8	106.36	16.426	
10,433.0	7,114.7	10,470.0	7,322.1	56.8	54.7	96.79	-2,424.9	-341.2	1,747.2	1,639.6	107.54	16.247	
10,500.0	7,114.2	10,537.0	7,322.0	58.0	55.9	96.80	-2,491.8	-341.2	1,747.2	1,637.3	109.92	15.895	
10,531.5	7,114.0	10,568.5	7,322.0	58.5	56.5	96.80	-2,523.3	-341.2	1,747.2	1,636.2	111.04	15.735	
10,600.0	7,113.5	10,637.0	7,321.9	59.7	57.7	96.82	-2,591.8	-341.2	1,747.3	1,633.8	113.49	15.395	
10,629.9	7,113.2	10,666.9	7,321.8	60.2	58.2	96.82	-2,621.7	-341.2	1,747.3	1,632.7	114.57	15.252	
10,700.0	7,112.7	10,737.0	7,321.7	61.4	59.5	96.84	-2,691.8	-341.2	1,747.4	1,630.3	117.08	14.924	
10,728.3	7,112.5	10,765.3	7,321.7	61.8	60.0	96.84	-2,720.1	-341.2	1,747.4	1,629.3	118.10	14.796	
10,800.0	7,112.0	10,837.0	7,321.6	63.1	61.3	96.86	-2,791.8	-341.2	1,747.4	1,626.7	120.68	14.479	
10,826.7	7,111.8	10,863.7	7,321.5	63.5	61.8	96.86	-2,818.6	-341.2	1,747.4	1,625.8	121.65	14.364	
10,900.0	7,111.2	10,937.0	7,321.4	64.8	63.2	96.88	-2,891.8	-341.2	1,747.5	1,623.2	124.30	14.059	
10,925.2	7,111.0	10,962.2	7,321.4	65.2	63.6	96.88	-2,917.0	-341.2	1,747.5	1,622.3	125.21	13.956	
11,000.0	7,110.5	11,037.0	7,321.3	66.5	65.0	96.90	-2,991.8	-341.2	1,747.6	1,619.6	127.93	13.661	
11,023.6	7,110.3	11,060.6	7,321.2	66.9	65.4	96.90	-3,015.4	-341.2	1,747.6	1,618.8	128.78	13.570	
11,100.0	7,109.7	11,137.0	7,321.1	68.3	66.8	96.91	-3,091.8	-341.2	1,747.6	1,616.1	131.56	13.284	
11,122.0	7,109.5	11,159.0	7,321.1	68.7	67.2	96.92	-3,113.8	-341.2	1,747.7	1,615.3	132.36	13.203	
11,200.0	7,109.0	11,237.0	7,321.0	70.0	68.7	96.93	-3,191.8	-341.2	1,747.7	1,612.5	135.21	12.926	
11,220.4	7,108.8	11,257.4	7,320.9	70.4	69.0	96.94	-3,212.3	-341.2	1,747.7	1,611.8	135.96	12.855	
11,300.0	7,108.2	11,337.0	7,320.8	71.8	70.5	96.95	-3,291.8	-341.2	1,747.8	1,608.9	138.86	12.586	
11,318.9	7,108.1	11,355.9	7,320.8	72.1	70.9	96.96	-3,310.7	-341.2	1,747.8	1,608.2	139.55	12.524	
11,400.0	7,107.5	11,437.0	7,320.7	73.6	72.4	96.97	-3,391.8	-341.2	1,747.9	1,605.3	142.53	12.263	
11,417.3	7,107.3	11,454.3	7,320.6	73.9	72.7	96.98	-3,409.1	-341.2	1,747.9	1,604.7	143.16	12.209	
11,500.0	7,106.7	11,537.0	7,320.5	75.3	74.2	96.99	-3,491.8	-341.2	1,747.9	1,601.7	146.20	11.956	
11,515.7	7,106.6	11,552.7	7,320.5	75.6	74.5	97.00	-3,507.5	-341.2	1,747.9	1,601.2	146.78	11.909	
11,600.0	7,106.0	11,637.0	7,320.3	77.1	76.1	97.01	-3,591.8	-341.2	1,748.0	1,598.1	149.87	11.663	
11,614.1	7,105.9	11,651.1	7,320.3	77.4	76.3	97.01	-3,606.0	-341.2	1,748.0	1,597.6	150.40	11.623	
11,700.0	7,105.2	11,737.0	7,320.2	78.9	77.9	97.03	-3,691.8	-341.2	1,748.1	1,594.5	153.56	11.384	
11,712.6	7,105.1	11,749.6	7,320.2	79.2	78.2	97.03	-3,704.4	-341.2	1,748.1	1,594.1	154.02	11.350	
11,800.0	7,104.5	11,837.0	7,320.0	80.7	79.7	97.05	-3,791.8	-341.2	1,748.2	1,591.1	157.11	11.127	
11,811.0	7,104.4	11,848.0	7,320.0	80.9	79.8	97.05	-3,802.8	-341.2	1,748.2	1,590.7	157.47	11.102	
11,860.2	7,104.0	11,849.6	7,320.0	81.8	79.8	97.05	-3,804.4	-341.2	1,748.9	1,590.5	158.40	11.041	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-88.61	0.7	-30.1	30.1				
98.4	98.4	98.4	98.4	0.1	0.1	-88.61	0.7	-30.1	30.1	30.0	0.17	177.351	
100.0	100.0	100.0	100.0	0.1	0.1	-88.61	0.7	-30.1	30.1	30.0	0.17	174.140	
196.8	196.8	196.8	196.8	0.3	0.3	-88.61	0.7	-30.1	30.1	29.5	0.61	49.534	
200.0	200.0	200.0	200.0	0.3	0.3	-88.61	0.7	-30.1	30.1	29.5	0.62	48.407	
295.3	295.3	295.3	295.3	0.5	0.5	-88.61	0.7	-30.1	30.1	29.1	1.05	28.679	
300.0	300.0	300.0	300.0	0.5	0.5	-88.61	0.7	-30.1	30.1	29.1	1.07	28.111	
393.7	393.7	393.7	393.7	0.7	0.7	-88.61	0.7	-30.1	30.1	28.6	1.49	20.182	
400.0	400.0	400.0	400.0	0.8	0.8	-88.61	0.7	-30.1	30.1	28.6	1.52	19.806	
492.1	492.1	492.1	492.1	1.0	1.0	-88.61	0.7	-30.1	30.1	28.2	1.94	15.569	
500.0	500.0	500.0	500.0	1.0	1.0	-88.61	0.7	-30.1	30.1	28.2	1.97	15.289	
590.5	590.5	590.5	590.5	1.2	1.2	-88.61	0.7	-30.1	30.1	27.8	2.38	12.673	
600.0	600.0	600.0	600.0	1.2	1.2	-88.61	0.7	-30.1	30.1	27.7	2.42	12.450	
689.0	689.0	689.0	689.0	1.4	1.4	-88.61	0.7	-30.1	30.1	27.3	2.82	10.685	
700.0	700.0	700.0	700.0	1.4	1.4	-88.61	0.7	-30.1	30.1	27.3	2.87	10.500	
787.4	787.4	787.4	787.4	1.6	1.6	-88.61	0.7	-30.1	30.1	26.9	3.26	9.236	
800.0	800.0	800.0	800.0	1.7	1.7	-88.61	0.7	-30.1	30.1	26.8	3.32	9.078	
885.8	885.8	885.8	885.8	1.9	1.9	-88.61	0.7	-30.1	30.1	26.4	3.71	8.133	
900.0	900.0	900.0	900.0	1.9	1.9	-88.61	0.7	-30.1	30.1	26.4	3.77	7.996	
984.2	984.2	984.2	984.2	2.1	2.1	-88.61	0.7	-30.1	30.1	26.0	4.15	7.266	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-88.61	0.7	-30.1	30.1	25.9	4.22	7.144	
1,082.7	1,082.7	1,082.7	1,082.7	2.3	2.3	-88.61	0.7	-30.1	30.1	25.5	4.59	6.565	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-88.61	0.7	-30.1	30.1	25.5	4.67	6.456	
1,181.1	1,181.1	1,181.1	1,181.1	2.5	2.5	-88.61	0.7	-30.1	30.1	25.1	5.03	5.988	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-88.61	0.7	-30.1	30.1	25.0	5.12	5.889	
1,279.5	1,279.5	1,279.5	1,279.5	2.7	2.7	-88.61	0.7	-30.1	30.1	24.7	5.48	5.504	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-88.61	0.7	-30.1	30.1	24.6	5.57	5.413	
1,377.9	1,377.9	1,377.9	1,377.9	3.0	3.0	-88.61	0.7	-30.1	30.1	24.2	5.92	5.093	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-88.61	0.7	-30.1	30.1	24.1	6.02	5.009	
1,476.4	1,476.4	1,476.4	1,476.4	3.2	3.2	-88.61	0.7	-30.1	30.1	23.8	6.36	4.739	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-88.61	0.7	-30.1	30.1	23.7	6.47	4.661	
1,550.0	1,550.0	1,550.0	1,550.0	3.3	3.3	-88.61	0.7	-30.1	30.1	23.4	6.69	4.504	CC
1,574.8	1,574.8	1,574.8	1,574.8	3.4	3.4	-146.94	0.7	-30.1	30.2	23.4	6.80	4.445	ES
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-147.28	0.7	-30.1	30.5	23.6	6.91	4.413	
1,673.2	1,673.2	1,673.2	1,673.2	3.6	3.6	-149.38	0.7	-30.1	32.4	25.2	7.23	4.481	
1,700.0	1,699.9	1,699.9	1,699.9	3.7	3.7	-150.48	0.7	-30.1	33.5	26.2	7.34	4.561	
1,771.6	1,771.4	1,771.6	1,771.6	3.8	3.8	-153.85	0.8	-30.1	37.5	29.9	7.65	4.909	
1,800.0	1,799.7	1,800.2	1,800.2	3.9	3.9	-155.00	1.1	-29.8	39.4	31.6	7.77	5.071	
1,870.1	1,869.4	1,870.9	1,870.9	4.0	4.1	-157.01	2.6	-28.4	44.2	36.1	8.06	5.480	
1,900.0	1,899.1	1,901.1	1,901.0	4.1	4.1	-157.58	3.7	-27.5	46.3	38.1	8.18	5.658	
1,968.5	1,967.0	1,970.3	1,970.1	4.3	4.3	-158.37	7.0	-24.5	51.3	42.8	8.46	6.064	
2,000.0	1,998.2	2,002.2	2,001.9	4.4	4.4	-158.54	9.0	-22.7	53.7	45.1	8.59	6.252	
2,066.9	2,064.1	2,070.0	2,069.3	4.5	4.5	-158.55	14.0	-18.2	58.9	50.0	8.86	6.646	
2,100.0	2,096.6	2,103.5	2,102.6	4.6	4.6	-158.41	16.9	-15.6	61.5	52.6	9.00	6.842	
2,165.3	2,160.6	2,169.8	2,168.3	4.8	4.7	-157.92	23.5	-9.6	66.9	57.7	9.27	7.220	
2,200.0	2,194.4	2,205.0	2,203.1	4.9	4.8	-157.57	27.5	-6.0	69.9	60.4	9.41	7.421	
2,263.8	2,256.4	2,269.8	2,267.0	5.2	5.0	-156.77	35.7	1.3	75.4	65.7	9.69	7.779	
2,300.0	2,291.5	2,306.7	2,303.2	5.3	5.1	-156.25	40.8	5.9	78.6	68.8	9.85	7.982	
2,362.2	2,351.4	2,370.0	2,365.1	5.5	5.3	-155.26	50.4	14.6	84.4	74.2	10.15	8.314	
2,400.0	2,387.6	2,408.5	2,402.7	5.7	5.4	-154.61	56.7	20.3	87.9	77.6	10.33	8.516	
2,460.6	2,445.4	2,470.2	2,462.7	6.0	5.6	-153.51	67.7	30.1	93.8	83.2	10.64	8.819	
2,500.0	2,482.7	2,510.4	2,501.5	6.2	5.8	-152.76	75.3	37.0	97.8	86.9	10.85	9.008	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,570.6	2,559.5	6.5	6.0	-151.61	87.5	48.0	103.8	92.6	11.20	9.270	
2,600.0	2,576.6	2,612.4	2,599.5	6.7	6.1	-150.80	96.5	56.1	108.2	96.7	11.45	9.446	
2,657.5	2,630.1	2,671.1	2,655.3	7.0	6.4	-149.63	109.8	68.1	114.4	102.6	11.84	9.662	
2,700.0	2,669.4	2,714.6	2,696.5	7.3	6.6	-148.76	120.3	77.5	119.2	107.1	12.15	9.813	
2,755.9	2,720.6	2,771.1	2,749.6	7.6	6.9	-147.65	134.5	90.3	125.7	113.1	12.58	9.990	
2,776.7	2,739.5	2,791.7	2,769.0	7.8	7.0	-147.31	139.7	95.0	128.3	115.6	12.75	10.067	
2,800.0	2,760.8	2,814.8	2,790.7	7.9	7.1	-147.00	145.6	100.3	131.3	118.4	12.95	10.137	
2,854.3	2,810.2	2,868.7	2,841.3	8.3	7.4	-146.31	159.3	112.6	138.3	124.9	13.45	10.283	
2,900.0	2,851.7	2,913.9	2,883.9	8.7	7.6	-145.79	170.8	123.0	144.2	130.4	13.88	10.393	
2,952.7	2,899.7	2,966.2	2,933.0	9.1	7.9	-145.24	184.1	135.0	151.1	136.7	14.39	10.499	
3,000.0	2,942.7	3,013.1	2,977.0	9.4	8.2	-144.79	196.0	145.7	157.2	142.3	14.85	10.585	
3,051.2	2,989.3	3,063.8	3,024.7	9.8	8.5	-144.33	208.9	157.3	163.8	148.5	15.37	10.662	
3,100.0	3,033.7	3,112.2	3,070.1	10.2	8.7	-143.93	221.2	168.4	170.2	154.3	15.86	10.728	
3,149.6	3,078.8	3,161.3	3,116.3	10.5	9.0	-143.56	233.7	179.6	176.6	160.3	16.38	10.783	
3,200.0	3,124.6	3,211.3	3,163.3	10.9	9.3	-143.20	246.4	191.0	183.2	166.3	16.91	10.833	
3,248.0	3,168.3	3,258.9	3,208.0	11.3	9.6	-142.89	258.5	201.9	189.5	172.1	17.43	10.872	
3,300.0	3,215.6	3,310.4	3,256.4	11.7	9.9	-142.57	271.6	213.7	196.3	178.3	17.99	10.910	
3,346.4	3,257.9	3,356.5	3,299.7	12.1	10.2	-142.30	283.3	224.3	202.4	183.9	18.50	10.937	
3,400.0	3,306.6	3,409.5	3,349.6	12.5	10.5	-142.01	296.8	236.4	209.4	190.3	19.09	10.965	
3,444.9	3,347.4	3,454.0	3,391.4	12.9	10.8	-141.79	308.1	246.6	215.2	195.6	19.60	10.984	
3,500.0	3,397.6	3,508.7	3,442.7	13.3	11.2	-141.52	321.9	259.1	222.5	202.2	20.22	11.004	
3,543.3	3,436.9	3,551.6	3,483.1	13.7	11.4	-141.33	332.9	268.9	228.1	207.4	20.71	11.016	
3,600.0	3,488.5	3,607.8	3,535.9	14.1	11.8	-141.09	347.1	281.8	235.6	214.2	21.36	11.031	
3,641.7	3,526.5	3,649.1	3,574.7	14.5	12.0	-140.92	357.7	291.2	241.0	219.2	21.84	11.038	
3,700.0	3,579.5	3,706.9	3,629.0	15.0	12.4	-140.70	372.3	304.5	248.7	226.2	22.51	11.047	
3,740.1	3,616.0	3,746.7	3,666.4	15.3	12.7	-140.55	382.5	313.6	254.0	231.0	22.98	11.052	
3,800.0	3,670.5	3,810.4	3,726.3	15.8	13.1	-140.43	398.2	328.6	261.3	237.7	23.66	11.044	
3,838.6	3,705.6	3,851.7	3,765.1	16.1	13.3	-140.45	407.8	338.9	265.6	241.5	24.08	11.030	
3,900.0	3,761.4	3,915.2	3,824.8	16.6	13.7	-140.62	421.9	355.4	271.5	246.8	24.71	10.990	
3,937.0	3,795.1	3,952.0	3,859.4	16.9	13.9	-140.73	430.0	365.0	275.0	249.9	25.09	10.962	
4,000.0	3,852.4	4,014.8	3,918.3	17.4	14.3	-140.91	443.8	381.5	281.0	255.3	25.74	10.917	
4,035.4	3,884.6	4,050.0	3,951.5	17.7	14.6	-141.01	451.6	390.7	284.4	258.3	26.11	10.893	
4,100.0	3,943.4	4,114.3	4,011.9	18.3	15.0	-141.18	465.7	407.5	290.5	263.7	26.77	10.850	
4,133.8	3,974.2	4,148.0	4,043.5	18.6	15.2	-141.27	473.1	416.3	293.7	266.6	27.12	10.828	
4,200.0	4,034.4	4,213.8	4,105.4	19.1	15.6	-141.44	487.6	433.6	300.0	272.2	27.81	10.787	
4,232.3	4,063.7	4,246.0	4,135.6	19.4	15.9	-141.52	494.7	442.0	303.0	274.9	28.14	10.768	
4,300.0	4,125.3	4,313.4	4,198.9	19.9	16.3	-141.68	509.5	459.6	309.5	280.6	28.85	10.729	
4,330.7	4,153.3	4,343.9	4,227.7	20.2	16.5	-141.75	516.2	467.6	312.4	283.2	29.16	10.712	
4,400.0	4,216.3	4,412.9	4,292.5	20.8	17.0	-141.90	531.4	485.7	319.0	289.1	29.88	10.674	
4,429.1	4,242.8	4,441.9	4,319.7	21.0	17.2	-141.97	537.8	493.3	321.7	291.6	30.19	10.659	
4,500.0	4,307.3	4,512.5	4,386.0	21.6	17.6	-142.12	553.3	511.8	328.5	297.6	30.92	10.623	
4,527.5	4,332.3	4,539.9	4,411.8	21.9	17.8	-142.17	559.3	519.0	331.1	299.9	31.21	10.610	
4,600.0	4,398.2	4,612.0	4,479.6	22.5	18.3	-142.32	575.2	537.8	338.0	306.0	31.96	10.576	
4,626.0	4,421.9	4,637.9	4,503.9	22.7	18.5	-142.37	580.9	544.6	340.5	308.2	32.23	10.564	
4,700.0	4,489.2	4,711.5	4,573.1	23.3	19.0	-142.51	597.1	563.9	347.5	314.5	33.00	10.531	
4,724.4	4,511.4	4,735.8	4,595.9	23.5	19.1	-142.55	602.4	570.3	349.8	316.6	33.25	10.520	
4,800.0	4,580.2	4,811.1	4,666.6	24.2	19.6	-142.68	619.0	590.0	357.0	323.0	34.04	10.489	
4,822.8	4,601.0	4,833.8	4,688.0	24.4	19.8	-142.72	624.0	595.9	359.2	324.9	34.28	10.480	
4,900.0	4,671.2	4,910.6	4,760.2	25.0	20.3	-142.85	640.9	616.0	366.6	331.5	35.08	10.449	
4,921.2	4,690.5	4,931.8	4,780.0	25.2	20.5	-142.89	645.5	621.6	368.6	333.3	35.30	10.441	
5,000.0	4,762.1	5,010.2	4,853.7	25.9	21.0	-143.02	662.8	642.1	376.1	340.0	36.12	10.412	
5,019.7	4,780.0	5,029.7	4,872.1	26.0	21.1	-143.05	667.1	647.2	378.0	341.6	36.32	10.405	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	5,109.7	4,947.2	26.7	21.7	-143.17	684.7	668.2	385.6	348.4	37.16	10.377	
5,118.1	4,869.6	5,127.7	4,964.2	26.9	21.8	-143.20	688.6	672.9	387.3	350.0	37.35	10.371	
5,200.0	4,944.1	5,209.2	5,040.8	27.6	22.4	-143.32	706.6	694.2	395.1	356.9	38.20	10.344	
5,216.5	4,959.1	5,225.7	5,056.2	27.7	22.5	-143.34	710.2	698.5	396.7	358.3	38.37	10.338	
5,300.0	5,035.0	5,308.8	5,134.3	28.4	23.0	-143.45	728.5	720.3	404.7	365.4	39.24	10.312	
5,314.9	5,048.6	5,323.7	5,148.3	28.6	23.1	-143.47	731.7	724.2	406.1	366.7	39.40	10.308	
5,400.0	5,126.0	5,408.3	5,227.9	29.3	23.7	-143.59	750.3	746.4	414.2	373.9	40.28	10.282	
5,413.4	5,138.2	5,421.6	5,240.4	29.4	23.8	-143.60	753.3	749.8	415.5	375.1	40.42	10.279	
5,479.4	5,198.3	5,487.4	5,302.1	30.0	24.3	-143.69	767.7	767.1	421.8	380.7	41.11	10.260	
5,500.0	5,217.0	5,504.2	5,318.0	30.1	24.4	-143.73	771.4	771.5	423.7	382.4	41.31	10.257	
5,511.8	5,227.8	5,518.1	5,331.1	30.2	24.5	-143.75	774.5	775.1	424.7	383.3	41.43	10.252	
5,600.0	5,309.0	5,600.0	5,408.5	30.8	24.9	-143.91	791.5	795.4	432.5	390.2	42.23	10.240	
5,610.2	5,318.5	5,606.6	5,414.8	30.8	25.0	-143.93	792.9	797.0	433.3	391.0	42.30	10.243	
5,700.0	5,402.3	5,687.2	5,491.8	31.4	25.4	-144.09	808.1	815.2	440.7	397.7	43.00	10.247	
5,708.6	5,410.4	5,695.0	5,499.3	31.4	25.4	-144.11	809.5	816.8	441.4	398.3	43.07	10.248	
5,800.0	5,496.7	5,776.9	5,578.2	31.9	25.8	-144.27	823.5	833.4	448.3	404.6	43.71	10.257	
5,807.1	5,503.5	5,783.2	5,584.4	31.9	25.8	-144.29	824.5	834.6	448.8	405.1	43.76	10.258	
5,900.0	5,592.3	5,866.4	5,665.2	32.4	26.1	-144.46	837.1	849.6	455.4	411.1	44.33	10.272	
5,905.5	5,597.6	5,871.3	5,670.0	32.4	26.1	-144.47	837.8	850.4	455.8	411.4	44.37	10.273	
6,000.0	5,688.8	5,955.8	5,752.7	32.9	26.4	-144.65	848.9	863.7	461.9	417.0	44.88	10.292	
6,003.9	5,692.6	5,959.3	5,756.1	32.9	26.5	-144.66	849.3	864.2	462.2	417.3	44.90	10.293	
6,100.0	5,786.2	6,045.0	5,840.6	33.3	26.7	-144.84	858.9	875.6	467.9	422.5	45.35	10.317	
6,102.3	5,788.5	6,047.1	5,842.7	33.3	26.7	-144.85	859.1	875.9	468.0	422.6	45.36	10.317	
6,200.0	5,884.3	6,134.2	5,928.8	33.6	27.0	-145.04	867.2	885.5	473.2	427.5	45.74	10.346	
6,200.8	5,885.1	6,134.9	5,929.5	33.6	27.0	-145.04	867.3	885.5	473.3	427.5	45.74	10.347	
6,299.2	5,982.3	6,222.6	6,016.6	33.9	27.2	-145.24	873.6	893.1	477.9	431.9	46.04	10.380	
6,300.0	5,983.1	6,223.3	6,017.3	33.9	27.2	-145.24	873.7	893.2	478.0	431.9	46.05	10.381	
6,397.6	6,079.9	6,310.1	6,103.9	34.1	27.4	-145.43	878.3	898.7	482.1	435.8	46.27	10.419	
6,400.0	6,082.3	6,312.2	6,106.0	34.1	27.4	-145.44	878.4	898.8	482.2	435.9	46.27	10.420	
6,496.0	6,177.9	6,400.0	6,193.6	34.3	27.5	-145.64	881.3	902.3	485.6	439.2	46.42	10.461	
6,500.0	6,181.9	6,400.0	6,193.6	34.3	27.5	-145.64	881.3	902.3	485.8	439.3	46.42	10.463	
6,594.5	6,276.2	6,485.0	6,278.6	34.5	27.6	-145.84	882.5	903.7	488.6	442.1	46.49	10.509	
6,600.0	6,281.7	6,489.9	6,283.5	34.5	27.6	-145.85	882.5	903.7	488.7	442.3	46.49	10.512	
6,692.9	6,374.6	6,581.0	6,374.6	34.6	27.7	-145.99	882.5	903.7	490.3	443.8	46.55	10.534	
6,706.1	6,387.8	6,594.2	6,387.8	34.6	27.7	-87.78	882.5	903.7	490.3	443.8	46.56	10.532	
6,736.1	6,417.8	6,624.4	6,418.0	34.6	27.8	-87.78	882.5	903.7	490.3	443.7	46.63	10.516	
6,750.0	6,431.7	6,638.7	6,432.2	34.6	27.8	92.21	882.2	903.7	490.3	443.7	46.65	10.511	
6,791.3	6,473.0	6,681.1	6,474.6	34.6	27.8	92.16	879.8	903.7	490.3	443.7	46.67	10.506	
6,800.0	6,481.6	6,690.0	6,483.5	34.6	27.8	92.15	878.9	903.7	490.3	443.6	46.67	10.505	
6,850.0	6,531.2	6,741.3	6,534.3	34.6	27.8	92.08	872.0	903.7	490.3	443.7	46.60	10.520	
6,889.7	6,570.3	6,782.0	6,574.2	34.6	27.7	92.02	863.9	903.7	490.3	443.8	46.48	10.548	
6,900.0	6,580.3	6,792.5	6,584.4	34.6	27.7	92.00	861.4	903.7	490.3	443.8	46.45	10.556	
6,950.0	6,628.5	6,843.7	6,633.6	34.6	27.7	91.91	847.3	903.7	490.2	444.0	46.21	10.610	
6,988.2	6,664.7	6,882.8	6,670.4	34.5	27.6	91.83	834.2	903.7	490.2	444.3	45.96	10.666	
7,000.0	6,675.8	6,894.8	6,681.6	34.5	27.5	91.81	829.8	903.7	490.2	444.3	45.89	10.684	
7,050.0	6,721.8	6,945.9	6,728.2	34.4	27.4	91.70	808.9	903.7	490.2	444.7	45.49	10.775	
7,086.6	6,754.5	6,983.2	6,761.2	34.3	27.3	91.62	791.5	903.7	490.2	445.0	45.16	10.854	
7,100.0	6,766.2	6,996.9	6,773.1	34.2	27.2	91.58	784.7	903.7	490.2	445.1	45.04	10.884	
7,150.0	6,809.0	7,047.8	6,816.1	34.1	27.1	91.46	757.5	903.7	490.1	445.6	44.53	11.008	
7,185.0	6,837.9	7,083.4	6,845.0	34.0	26.9	91.37	736.7	903.7	490.1	446.0	44.14	11.104	
7,200.0	6,849.9	7,098.6	6,857.0	33.9	26.9	91.33	727.3	903.7	490.1	446.1	43.97	11.146	
7,250.0	6,888.7	7,149.4	6,895.6	33.8	26.6	91.19	694.4	903.7	490.1	446.7	43.38	11.296	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	7,183.3	6,920.1	33.6	26.5	91.10	670.9	903.7	490.1	447.1	42.98	11.403	
7,300.0	6,925.2	7,200.1	6,931.7	33.6	26.4	91.05	658.9	903.7	490.1	447.3	42.78	11.457	
7,350.0	6,959.2	7,250.6	6,965.2	33.4	26.2	90.90	621.0	903.7	490.0	447.9	42.16	11.624	
7,381.9	6,979.6	7,282.8	6,985.0	33.3	26.0	90.80	595.7	903.7	490.0	448.3	41.77	11.732	
7,400.0	6,990.6	7,301.1	6,995.8	33.2	25.9	90.75	580.9	903.7	490.0	448.5	41.55	11.795	
7,450.0	7,019.2	7,351.5	7,023.5	33.0	25.6	90.59	538.8	903.7	490.0	449.1	40.95	11.966	
7,480.3	7,035.1	7,382.0	7,038.8	32.8	25.5	90.49	512.4	903.7	490.0	449.4	40.61	12.066	
7,500.0	7,044.9	7,401.8	7,048.1	32.8	25.4	90.43	495.0	903.7	490.0	449.6	40.39	12.132	
7,550.0	7,067.5	7,452.0	7,069.6	32.6	25.1	90.27	449.6	903.7	490.0	450.1	39.87	12.291	
7,578.7	7,079.1	7,480.8	7,080.4	32.4	25.0	90.17	422.9	903.7	490.0	450.4	39.60	12.375	
7,600.0	7,086.9	7,502.1	7,087.8	32.3	24.9	90.11	402.9	903.7	490.0	450.6	39.40	12.437	
7,631.6	7,097.5	7,533.7	7,097.6	32.2	24.7	90.00	372.9	903.7	490.0	450.8	39.14	12.518	
7,650.0	7,103.1	7,552.1	7,102.6	32.1	24.6	89.94	355.2	903.7	490.0	451.0	38.99	12.565	
7,677.1	7,110.5	7,579.2	7,109.3	32.0	24.5	89.85	328.9	903.7	490.0	451.2	38.81	12.624	
7,700.0	7,116.0	7,602.0	7,114.1	32.0	24.4	89.78	306.7	903.7	490.0	451.3	38.66	12.673	
7,750.0	7,125.4	7,651.8	7,122.2	31.8	24.2	89.62	257.5	903.7	490.0	451.6	38.41	12.756	
7,775.6	7,128.9	7,677.2	7,125.0	31.7	24.1	89.54	232.3	903.7	490.0	451.7	38.32	12.785	
7,800.0	7,131.4	7,701.5	7,126.8	31.6	24.0	89.46	208.1	903.7	490.0	451.8	38.24	12.813	
7,850.0	7,133.9	7,751.1	7,128.0	31.5	23.8	89.31	158.4	903.7	490.0	451.9	38.15	12.844	
7,866.5	7,134.0	7,767.6	7,127.9	31.4	23.7	89.29	142.0	903.7	490.0	451.9	38.10	12.860	
7,874.0	7,133.9	7,775.1	7,127.9	31.4	23.7	89.29	134.4	903.7	490.0	451.9	38.08	12.866	
7,900.0	7,133.7	7,801.1	7,127.7	31.4	23.6	89.30	108.4	903.7	490.0	452.0	38.02	12.888	
7,972.4	7,133.2	7,873.5	7,127.4	31.2	23.4	89.33	36.0	903.7	490.0	452.2	37.83	12.954	
8,000.0	7,133.0	7,901.1	7,127.3	31.2	23.4	89.34	8.4	903.7	490.0	452.3	37.76	12.978	
8,070.8	7,132.4	7,972.0	7,127.0	31.1	23.3	89.36	-62.4	903.7	490.0	452.2	37.84	12.951	
8,100.0	7,132.2	8,001.1	7,126.8	31.1	23.3	89.37	-91.6	903.7	490.0	452.1	37.87	12.938	
8,169.3	7,131.7	8,070.4	7,126.5	31.1	23.4	89.39	-160.8	903.7	490.0	451.8	38.22	12.822	
8,200.0	7,131.5	8,101.1	7,126.4	31.1	23.5	89.40	-191.6	903.7	490.0	451.6	38.37	12.770	
8,267.7	7,131.0	8,168.8	7,126.1	31.2	23.6	89.43	-259.3	903.7	490.0	451.0	38.96	12.578	
8,300.0	7,130.7	8,201.1	7,125.9	31.2	23.8	89.44	-291.6	903.7	490.0	450.8	39.24	12.487	
8,366.1	7,130.2	8,267.2	7,125.6	31.4	24.1	89.46	-357.7	903.7	490.0	450.0	40.04	12.237	
8,400.0	7,130.0	8,301.1	7,125.5	31.5	24.2	89.47	-391.6	903.7	490.0	449.5	40.46	12.112	
8,464.5	7,129.5	8,365.7	7,125.2	31.7	24.6	89.50	-456.1	903.7	490.0	448.6	41.44	11.823	
8,500.0	7,129.2	8,401.1	7,125.0	31.9	24.8	89.51	-491.6	903.7	490.0	448.0	41.99	11.669	
8,563.0	7,128.7	8,464.1	7,124.7	32.2	25.3	89.53	-554.5	903.7	490.0	446.9	43.14	11.359	
8,600.0	7,128.5	8,501.1	7,124.6	32.4	25.6	89.54	-591.6	903.7	490.0	446.2	43.81	11.184	
8,661.4	7,128.0	8,562.5	7,124.3	32.8	26.1	89.57	-653.0	903.7	490.0	444.9	45.08	10.868	
8,700.0	7,127.7	8,601.1	7,124.1	33.1	26.4	89.58	-691.6	903.7	490.0	444.1	45.89	10.678	
8,759.8	7,127.3	8,660.9	7,123.8	33.5	26.9	89.60	-751.4	903.7	490.0	442.7	47.26	10.368	
8,800.0	7,127.0	8,701.1	7,123.7	33.9	27.3	89.61	-791.6	903.7	490.0	441.8	48.18	10.169	
8,858.2	7,126.5	8,759.4	7,123.4	34.4	27.9	89.63	-849.8	903.7	490.0	440.4	49.63	9.873	
8,900.0	7,126.2	8,801.1	7,123.2	34.8	28.3	89.65	-891.6	903.7	490.0	439.3	50.67	9.670	
8,956.7	7,125.8	8,857.8	7,123.0	35.4	28.9	89.67	-948.2	903.7	490.0	437.8	52.17	9.392	
9,000.0	7,125.5	8,901.1	7,122.8	35.8	29.4	89.68	-991.6	903.7	490.0	436.7	53.32	9.189	
9,055.1	7,125.1	8,956.2	7,122.5	36.5	30.0	89.70	-1,046.7	903.7	490.0	435.1	54.86	8.932	
9,100.0	7,124.7	9,001.1	7,122.3	37.0	30.5	89.72	-1,091.6	903.7	490.0	433.9	56.11	8.732	
9,153.5	7,124.3	9,054.6	7,122.1	37.6	31.2	89.74	-1,145.1	903.7	490.0	432.3	57.67	8.496	
9,200.0	7,124.0	9,101.1	7,121.9	38.2	31.7	89.75	-1,191.6	903.7	490.0	431.0	59.02	8.301	
9,251.9	7,123.6	9,153.1	7,121.6	38.8	32.4	89.77	-1,243.5	903.7	490.0	429.4	60.59	8.087	
9,300.0	7,123.2	9,201.1	7,121.4	39.5	33.0	89.79	-1,291.6	903.7	490.0	427.9	62.04	7.898	
9,350.4	7,122.8	9,251.5	7,121.2	40.1	33.7	89.81	-1,341.9	903.7	490.0	426.4	63.60	7.704	
9,400.0	7,122.5	9,301.1	7,121.0	40.8	34.4	89.82	-1,391.6	903.7	490.0	424.8	65.14	7.522	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-203 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	9,349.9	7,120.7	41.5	35.0	89.84	-1,440.4	903.7	490.0	423.3	66.69	7.347	
9,500.0	7,121.7	9,401.1	7,120.5	42.2	35.7	89.86	-1,491.6	903.7	490.0	421.7	68.32	7.172	
9,547.2	7,121.4	9,448.3	7,120.3	42.9	36.4	89.88	-1,538.8	903.7	490.0	420.1	69.85	7.014	
9,600.0	7,121.0	9,501.1	7,120.1	43.7	37.2	89.89	-1,591.6	903.7	490.0	418.4	71.57	6.846	
9,645.6	7,120.6	9,546.8	7,119.9	44.3	37.8	89.91	-1,637.2	903.7	490.0	416.9	73.07	6.705	
9,700.0	7,120.2	9,601.1	7,119.6	45.1	38.6	89.93	-1,691.6	903.7	490.0	415.1	74.87	6.544	
9,744.1	7,119.9	9,645.2	7,119.4	45.8	39.3	89.94	-1,735.6	903.7	490.0	413.6	76.35	6.418	
9,800.0	7,119.5	9,701.1	7,119.2	46.6	40.1	89.96	-1,791.6	903.7	490.0	411.8	78.22	6.264	
9,842.5	7,119.1	9,743.6	7,119.0	47.3	40.8	89.98	-1,834.1	903.7	490.0	410.3	79.67	6.150	
9,900.0	7,118.7	9,801.1	7,118.7	48.2	41.7	90.00	-1,891.6	903.7	490.0	408.4	81.62	6.003	
9,940.9	7,118.4	9,842.0	7,118.5	48.8	42.3	90.01	-1,932.5	903.7	490.0	406.9	83.02	5.902	
10,000.0	7,118.0	9,901.1	7,118.3	49.8	43.2	90.03	-1,991.5	903.7	490.0	404.9	85.05	5.761	
10,039.3	7,117.7	9,940.5	7,118.1	50.4	43.9	90.05	-2,030.9	903.7	490.0	403.6	86.42	5.670	
10,100.0	7,117.2	10,001.1	7,117.8	51.4	44.8	90.07	-2,091.5	903.7	490.0	401.4	88.52	5.535	
10,137.8	7,116.9	10,038.9	7,117.6	52.0	45.4	90.08	-2,129.3	903.7	490.0	400.1	89.84	5.454	
10,200.0	7,116.5	10,101.1	7,117.4	53.0	46.5	90.11	-2,191.5	903.7	490.0	397.9	92.02	5.324	
10,236.2	7,116.2	10,137.3	7,117.2	53.6	47.0	90.12	-2,227.7	903.7	490.0	396.7	93.30	5.252	
10,300.0	7,115.7	10,201.1	7,116.9	54.6	48.1	90.14	-2,291.5	903.7	490.0	394.4	95.55	5.128	
10,334.6	7,115.5	10,235.7	7,116.8	55.2	48.7	90.15	-2,326.2	903.7	490.0	393.2	96.78	5.063	
10,400.0	7,115.0	10,301.1	7,116.5	56.3	49.8	90.18	-2,391.5	903.7	490.0	390.9	99.10	4.944	
10,427.6	7,114.8	10,328.7	7,116.3	56.7	50.2	90.19	-2,419.2	903.7	490.0	389.9	100.08	4.896	
10,433.0	7,114.7	10,334.2	7,116.3	56.8	50.3	90.19	-2,424.6	903.7	490.0	389.7	100.28	4.886	
10,500.0	7,114.2	10,401.1	7,116.0	58.0	51.4	90.21	-2,491.5	903.7	490.0	387.3	102.67	4.772	
10,531.5	7,114.0	10,432.6	7,115.9	58.5	52.0	90.22	-2,523.0	903.7	490.0	386.2	103.80	4.720	
10,600.0	7,113.5	10,501.1	7,115.6	59.7	53.1	90.25	-2,591.5	903.7	490.0	383.7	106.26	4.611	
10,629.9	7,113.2	10,531.0	7,115.4	60.2	53.6	90.26	-2,621.4	903.7	490.0	382.6	107.34	4.565	
10,700.0	7,112.7	10,601.1	7,115.1	61.4	54.8	90.28	-2,691.5	903.7	490.0	380.1	109.87	4.460	
10,728.3	7,112.5	10,629.4	7,115.0	61.8	55.3	90.29	-2,719.9	903.7	490.0	379.1	110.89	4.418	
10,800.0	7,112.0	10,701.1	7,114.7	63.1	56.6	90.32	-2,791.5	903.7	490.0	376.5	113.49	4.317	
10,826.7	7,111.8	10,727.9	7,114.6	63.5	57.0	90.33	-2,818.3	903.7	490.0	375.5	114.46	4.281	
10,900.0	7,111.2	10,801.1	7,114.2	64.8	58.3	90.35	-2,891.5	903.7	490.0	372.8	117.12	4.183	
10,925.2	7,111.0	10,826.3	7,114.1	65.2	58.7	90.36	-2,916.7	903.7	490.0	371.9	118.04	4.151	
11,000.0	7,110.5	10,901.1	7,113.8	66.5	60.0	90.39	-2,991.5	903.7	490.0	369.2	120.77	4.057	
11,023.6	7,110.3	10,924.7	7,113.7	66.9	60.4	90.40	-3,015.1	903.7	490.0	368.3	121.64	4.028	
11,100.0	7,109.7	11,001.1	7,113.3	68.3	61.8	90.42	-3,091.5	903.7	490.0	365.5	124.44	3.938	
11,122.0	7,109.5	11,023.1	7,113.2	68.7	62.2	90.43	-3,113.6	903.7	490.0	364.7	125.25	3.912	
11,200.0	7,109.0	11,101.1	7,112.9	70.0	63.5	90.46	-3,191.5	903.7	490.0	361.9	128.11	3.825	
11,220.4	7,108.8	11,121.6	7,112.8	70.4	63.9	90.47	-3,212.0	903.7	490.0	361.1	128.86	3.802	
11,300.0	7,108.2	11,201.1	7,112.4	71.8	65.3	90.49	-3,291.5	903.7	490.0	358.2	131.79	3.718	
11,318.9	7,108.1	11,220.0	7,112.4	72.1	65.7	90.50	-3,310.4	903.7	490.0	357.5	132.49	3.698	
11,400.0	7,107.5	11,301.1	7,112.0	73.6	67.1	90.53	-3,391.5	903.7	490.0	354.5	135.48	3.617	
11,417.3	7,107.3	11,318.4	7,111.9	73.9	67.4	90.54	-3,408.8	903.7	490.0	353.9	136.12	3.600	
11,500.0	7,106.7	11,401.1	7,111.5	75.3	68.9	90.57	-3,491.5	903.7	490.0	350.8	139.18	3.520	
11,515.7	7,106.6	11,416.8	7,111.5	75.6	69.2	90.57	-3,507.3	903.7	490.0	350.2	139.76	3.506	
11,600.0	7,106.0	11,501.1	7,111.1	77.1	70.7	90.60	-3,591.5	903.7	490.0	347.1	142.89	3.429	
11,614.1	7,105.9	11,515.3	7,111.0	77.4	70.9	90.61	-3,605.7	903.7	490.0	346.6	143.41	3.417	
11,700.0	7,105.2	11,601.1	7,110.7	78.9	72.5	90.64	-3,691.5	903.7	490.0	343.4	146.60	3.342	
11,712.6	7,105.1	11,613.7	7,110.6	79.2	72.7	90.64	-3,704.1	903.7	490.0	342.9	147.07	3.332	
11,800.0	7,104.5	11,701.1	7,110.2	80.7	74.3	90.67	-3,791.5	903.8	490.0	339.7	150.32	3.260	
11,811.0	7,104.4	11,712.1	7,110.2	80.9	74.5	90.68	-3,802.5	903.8	490.0	339.3	150.73	3.251	
11,831.4	7,104.2	11,732.5	7,110.1	81.3	74.9	90.68	-3,822.9	903.8	490.0	338.5	151.49	3.234	
11,860.2	7,104.0	11,747.9	7,110.0	81.8	75.1	90.69	-3,838.3	903.8	490.2	337.9	152.31	3.218	SF

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-88.61	1.5	-60.0	60.0				
98.4	98.4	99.4	99.4	0.1	0.1	-88.61	1.5	-60.0	60.0	59.8	0.17	351.271	
100.0	100.0	101.0	101.0	0.1	0.1	-88.61	1.5	-60.0	60.0	59.8	0.18	342.224	
196.8	196.8	197.8	197.8	0.3	0.3	-88.61	1.5	-60.0	60.0	59.4	0.61	98.246	
200.0	200.0	201.0	201.0	0.3	0.3	-88.61	1.5	-60.0	60.0	59.4	0.62	96.020	
295.3	295.3	296.3	296.3	0.5	0.5	-88.61	1.5	-60.0	60.0	58.9	1.05	56.970	
300.0	300.0	301.0	301.0	0.5	0.5	-88.61	1.5	-60.0	60.0	58.9	1.07	55.844	
393.7	393.7	394.7	394.7	0.7	0.7	-88.61	1.5	-60.0	60.0	58.5	1.50	40.116	
400.0	400.0	401.0	401.0	0.8	0.8	-88.61	1.5	-60.0	60.0	58.5	1.52	39.371	
492.1	492.1	493.1	493.1	1.0	1.0	-88.61	1.5	-60.0	60.0	58.1	1.94	30.958	
500.0	500.0	501.0	501.0	1.0	1.0	-88.61	1.5	-60.0	60.0	58.0	1.97	30.403	
590.5	590.5	591.5	591.5	1.2	1.2	-88.61	1.5	-60.0	60.0	57.6	2.38	25.204	
600.0	600.0	601.0	601.0	1.2	1.2	-88.61	1.5	-60.0	60.0	57.6	2.42	24.762	
689.0	689.0	690.0	690.0	1.4	1.4	-88.61	1.5	-60.0	60.0	57.2	2.82	21.254	
700.0	700.0	701.0	701.0	1.4	1.4	-88.61	1.5	-60.0	60.0	57.1	2.87	20.887	
787.4	787.4	788.4	788.4	1.6	1.6	-88.61	1.5	-60.0	60.0	56.7	3.27	18.374	
800.0	800.0	801.0	801.0	1.7	1.7	-88.61	1.5	-60.0	60.0	56.7	3.32	18.061	
885.8	885.8	886.8	886.8	1.9	1.9	-88.61	1.5	-60.0	60.0	56.3	3.71	16.181	
900.0	900.0	901.0	901.0	1.9	1.9	-88.61	1.5	-60.0	60.0	56.2	3.77	15.908	
984.2	984.2	985.2	985.2	2.1	2.1	-88.61	1.5	-60.0	60.0	55.8	4.15	14.456	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-88.61	1.5	-60.0	60.0	55.8	4.22	14.214	
1,082.7	1,082.7	1,083.7	1,083.7	2.3	2.3	-88.61	1.5	-60.0	60.0	55.4	4.59	13.064	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-88.61	1.5	-60.0	60.0	55.3	4.67	12.846	
1,181.1	1,181.1	1,182.1	1,182.1	2.5	2.5	-88.61	1.5	-60.0	60.0	55.0	5.04	11.916	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-88.61	1.5	-60.0	60.0	54.9	5.12	11.718	
1,279.5	1,279.5	1,280.5	1,280.5	2.7	2.7	-88.61	1.5	-60.0	60.0	54.5	5.48	10.953	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-88.61	1.5	-60.0	60.0	54.4	5.57	10.772	
1,377.9	1,377.9	1,378.9	1,378.9	3.0	3.0	-88.61	1.5	-60.0	60.0	54.1	5.92	10.135	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-88.61	1.5	-60.0	60.0	54.0	6.02	9.968	
1,476.4	1,476.4	1,477.4	1,477.4	3.2	3.2	-88.61	1.5	-60.0	60.0	53.6	6.36	9.430	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	-88.61	1.5	-60.0	60.0	53.5	6.47	9.275	
1,550.0	1,550.0	1,551.0	1,551.0	3.3	3.3	-88.61	1.5	-60.0	60.0	53.3	6.69	8.964	CC
1,574.8	1,574.8	1,575.8	1,575.8	3.4	3.4	-146.89	1.5	-60.0	60.1	53.3	6.80	8.832	ES
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-147.05	1.5	-60.0	60.4	53.4	6.91	8.730	
1,673.2	1,673.2	1,674.2	1,674.2	3.6	3.6	-148.14	1.5	-60.0	62.2	55.0	7.23	8.606	
1,700.0	1,699.9	1,700.9	1,700.9	3.7	3.7	-148.74	1.5	-60.0	63.3	56.0	7.35	8.620	
1,771.6	1,771.4	1,772.4	1,772.4	3.8	3.8	-150.75	1.5	-60.0	67.3	59.7	7.65	8.799	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	3.9	-151.67	1.5	-60.0	69.4	61.6	7.77	8.927	
1,870.1	1,869.4	1,870.4	1,870.4	4.0	4.1	-154.12	1.5	-60.0	75.6	67.5	8.07	9.369	
1,900.0	1,899.1	1,900.1	1,900.1	4.1	4.1	-155.20	1.5	-60.0	78.7	70.6	8.19	9.613	
1,968.5	1,967.0	1,968.4	1,968.4	4.3	4.3	-157.64	1.5	-60.0	87.1	78.6	8.48	10.279	
2,000.0	1,998.2	2,000.1	2,000.1	4.4	4.4	-158.58	1.8	-59.8	91.3	82.7	8.60	10.613	
2,066.9	2,064.1	2,067.8	2,067.8	4.5	4.5	-160.00	3.6	-58.9	100.6	91.7	8.88	11.337	
2,100.0	2,096.6	2,101.3	2,101.2	4.6	4.6	-160.47	5.0	-58.1	105.4	96.4	9.01	11.703	
2,165.3	2,160.6	2,167.6	2,167.3	4.8	4.7	-161.03	8.8	-56.1	115.2	105.9	9.27	12.425	
2,200.0	2,194.4	2,202.7	2,202.4	4.9	4.8	-161.15	11.3	-54.8	120.6	111.1	9.41	12.814	
2,263.8	2,256.4	2,267.6	2,266.9	5.2	5.0	-161.12	17.0	-51.8	130.7	121.1	9.67	13.521	
2,300.0	2,291.5	2,304.4	2,303.5	5.3	5.0	-160.98	20.8	-49.8	136.7	126.9	9.81	13.927	
2,362.2	2,351.4	2,367.8	2,366.3	5.5	5.2	-160.57	28.4	-45.8	147.2	137.1	10.08	14.607	
2,400.0	2,387.6	2,406.3	2,404.4	5.7	5.3	-160.23	33.5	-43.1	153.8	143.5	10.24	15.025	
2,460.6	2,445.4	2,468.1	2,465.3	6.0	5.4	-159.57	42.8	-38.2	164.6	154.1	10.50	15.674	
2,500.0	2,482.7	2,508.3	2,504.8	6.2	5.6	-159.07	49.4	-34.7	171.9	161.2	10.68	16.087	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,568.6	2,563.8	6.5	5.7	-158.25	60.3	-29.0	183.0	172.1	10.97	16.684	
2,600.0	2,576.6	2,610.5	2,604.6	6.7	5.8	-157.64	68.5	-24.7	191.0	179.8	11.18	17.092	
2,657.5	2,630.1	2,669.2	2,661.6	7.0	6.0	-156.73	80.9	-18.1	202.5	191.0	11.49	17.625	
2,700.0	2,669.4	2,712.6	2,703.6	7.3	6.2	-156.02	90.7	-13.0	211.3	199.5	11.73	18.015	
2,755.9	2,720.6	2,768.0	2,757.0	7.6	6.4	-155.14	103.9	-6.1	223.2	211.2	12.06	18.504	
2,776.7	2,739.5	2,788.2	2,776.4	7.8	6.4	-154.86	108.7	-3.5	227.9	215.7	12.19	18.700	
2,800.0	2,760.8	2,810.9	2,798.3	7.9	6.5	-154.61	114.1	-0.7	233.3	220.9	12.36	18.877	
2,854.3	2,810.2	2,863.7	2,849.2	8.3	6.7	-154.08	126.7	6.0	245.7	233.0	12.76	19.257	
2,900.0	2,851.7	2,908.1	2,891.9	8.7	6.9	-153.67	137.3	11.5	256.2	243.1	13.10	19.552	
2,952.7	2,899.7	2,959.4	2,941.3	9.1	7.1	-153.23	149.5	18.0	268.3	254.8	13.52	19.853	
3,000.0	2,942.7	3,005.4	2,985.6	9.4	7.3	-152.88	160.4	23.7	279.2	265.3	13.89	20.104	
3,051.2	2,989.3	3,055.1	3,033.5	9.8	7.5	-152.52	172.3	30.0	291.0	276.7	14.31	20.341	
3,100.0	3,033.7	3,102.6	3,079.3	10.2	7.7	-152.20	183.6	35.9	302.3	287.6	14.71	20.553	
3,149.6	3,078.8	3,150.9	3,125.7	10.5	7.9	-151.91	195.1	42.0	313.7	298.6	15.13	20.740	
3,200.0	3,124.6	3,199.9	3,172.9	10.9	8.1	-151.63	206.8	48.1	325.4	309.8	15.55	20.918	
3,248.0	3,168.3	3,246.6	3,217.9	11.3	8.4	-151.38	217.9	54.0	336.5	320.5	15.97	21.066	
3,300.0	3,215.6	3,297.1	3,266.6	11.7	8.6	-151.13	229.9	60.3	348.5	332.1	16.43	21.216	
3,346.4	3,257.9	3,342.3	3,310.1	12.1	8.8	-150.92	240.7	66.0	359.2	342.4	16.84	21.333	
3,400.0	3,306.6	3,394.4	3,360.2	12.5	9.0	-150.69	253.1	72.5	371.6	354.3	17.32	21.459	
3,444.9	3,347.4	3,438.0	3,402.3	12.9	9.2	-150.51	263.5	78.0	382.0	364.3	17.73	21.551	
3,500.0	3,397.6	3,491.6	3,453.9	13.3	9.5	-150.31	276.3	84.7	394.8	376.5	18.23	21.657	
3,543.3	3,436.9	3,533.7	3,494.4	13.7	9.7	-150.15	286.3	90.0	404.8	386.2	18.63	21.731	
3,600.0	3,488.5	3,588.9	3,547.6	14.1	10.0	-149.96	299.4	96.9	417.9	398.8	19.15	21.820	
3,641.7	3,526.5	3,629.4	3,586.6	14.5	10.2	-149.83	309.1	102.0	427.6	408.1	19.55	21.879	
3,700.0	3,579.5	3,686.1	3,641.2	15.0	10.4	-149.66	322.6	109.1	441.1	421.0	20.09	21.954	
3,740.1	3,616.0	3,725.2	3,678.8	15.3	10.6	-149.54	331.9	114.0	450.4	430.0	20.47	22.000	
3,800.0	3,670.5	3,783.4	3,734.9	15.8	10.9	-149.38	345.8	121.3	464.3	443.3	21.04	22.064	
3,838.6	3,705.6	3,820.9	3,771.0	16.1	11.1	-149.28	354.7	126.0	473.3	451.9	21.41	22.101	
3,900.0	3,761.4	3,880.6	3,828.5	16.6	11.4	-149.13	368.9	133.5	487.5	465.5	22.01	22.154	
3,937.0	3,795.1	3,916.6	3,863.2	16.9	11.6	-149.04	377.5	138.0	496.1	473.7	22.36	22.183	
4,000.0	3,852.4	3,977.9	3,922.2	17.4	11.9	-148.90	392.1	145.7	510.7	487.8	22.98	22.229	
4,035.4	3,884.6	4,012.3	3,955.4	17.7	12.1	-148.83	400.3	150.0	519.0	495.6	23.32	22.252	
4,100.0	3,943.4	4,075.1	4,015.8	18.3	12.4	-148.70	415.3	157.9	534.0	510.0	23.96	22.290	
4,133.8	3,974.2	4,108.0	4,047.5	18.6	12.5	-148.63	423.1	162.0	541.8	517.5	24.29	22.308	
4,200.0	4,034.4	4,172.4	4,109.5	19.1	12.9	-148.51	438.4	170.1	557.2	532.2	24.94	22.340	
4,232.3	4,063.7	4,203.8	4,139.7	19.4	13.0	-148.45	445.9	174.0	564.7	539.4	25.26	22.354	
4,300.0	4,125.3	4,269.6	4,203.2	19.9	13.4	-148.33	461.6	182.3	580.4	554.5	25.93	22.381	
4,330.7	4,153.3	4,299.5	4,231.9	20.2	13.5	-148.28	468.7	186.0	587.5	561.3	26.24	22.392	
4,400.0	4,216.3	4,366.9	4,296.8	20.8	13.9	-148.17	484.8	194.5	603.6	576.7	26.93	22.415	
4,429.1	4,242.8	4,395.2	4,324.1	21.0	14.0	-148.12	491.5	198.0	610.4	583.2	27.22	22.423	
4,500.0	4,307.3	4,464.1	4,390.5	21.6	14.4	-148.02	507.9	206.7	626.9	598.9	27.93	22.442	
4,527.5	4,332.3	4,490.9	4,416.3	21.9	14.5	-147.98	514.3	210.1	633.3	605.1	28.21	22.448	
4,600.0	4,398.2	4,561.4	4,484.1	22.5	14.9	-147.88	531.1	218.9	650.1	621.2	28.94	22.464	
4,626.0	4,421.9	4,586.6	4,508.5	22.7	15.0	-147.85	537.1	222.1	656.2	627.0	29.20	22.469	
4,700.0	4,489.2	4,658.6	4,577.8	23.3	15.4	-147.75	554.3	231.1	673.4	643.4	29.95	22.481	
4,724.4	4,511.4	4,682.3	4,600.7	23.5	15.5	-147.72	559.9	234.1	679.0	648.8	30.20	22.485	
4,800.0	4,580.2	4,755.9	4,671.5	24.2	15.9	-147.63	577.4	243.3	696.6	665.7	30.97	22.495	
4,822.8	4,601.0	4,778.1	4,692.8	24.4	16.0	-147.60	582.7	246.1	701.9	670.7	31.20	22.497	
4,900.0	4,671.2	4,853.1	4,765.1	25.0	16.4	-147.52	600.6	255.5	719.9	687.9	31.99	22.505	
4,921.2	4,690.5	4,873.8	4,785.0	25.2	16.5	-147.49	605.5	258.1	724.8	692.6	32.20	22.507	
5,000.0	4,762.1	4,950.4	4,858.8	25.9	16.9	-147.41	623.8	267.7	743.1	710.1	33.01	22.513	
5,019.7	4,780.0	4,969.5	4,877.2	26.0	17.0	-147.39	628.3	270.1	747.7	714.5	33.21	22.514	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	5,047.6	4,952.4	26.7	17.4	-147.31	646.9	279.9	766.4	732.3	34.03	22.519	
5,118.1	4,869.6	5,065.2	4,969.4	26.9	17.5	-147.29	651.1	282.1	770.6	736.4	34.22	22.519	
5,200.0	4,944.1	5,144.9	5,046.1	27.6	18.0	-147.22	670.1	292.1	789.6	754.6	35.06	22.522	
5,216.5	4,959.1	5,160.9	5,061.6	27.7	18.0	-147.20	673.9	294.1	793.5	758.3	35.23	22.523	
5,300.0	5,035.0	5,242.1	5,139.8	28.4	18.5	-147.13	693.3	304.3	812.9	776.8	36.09	22.524	
5,314.9	5,048.6	5,256.7	5,153.8	28.6	18.6	-147.12	696.7	306.1	816.4	780.1	36.24	22.524	
5,400.0	5,126.0	5,339.4	5,233.4	29.3	19.0	-147.05	716.5	316.5	836.2	799.0	37.12	22.525	
5,413.4	5,138.2	5,352.4	5,245.9	29.4	19.1	-147.04	719.6	318.1	839.3	802.0	37.26	22.525	
5,479.4	5,198.3	5,416.6	5,307.8	30.0	19.4	-146.98	734.9	326.2	854.6	816.7	37.94	22.524	
5,500.0	5,217.0	5,436.6	5,327.1	30.1	19.5	-147.02	739.6	328.7	859.4	821.2	38.16	22.520	
5,511.8	5,227.8	5,448.1	5,338.2	30.2	19.6	-147.03	742.4	330.1	862.0	823.7	38.28	22.519	
5,600.0	5,309.0	5,534.3	5,421.2	30.8	20.0	-147.09	762.9	340.9	880.6	841.4	39.19	22.470	
5,610.2	5,318.5	5,544.3	5,430.8	30.8	20.1	-147.09	765.3	342.2	882.6	843.3	39.30	22.461	
5,700.0	5,402.3	5,632.5	5,515.7	31.4	20.6	-147.01	786.3	353.2	899.0	858.8	40.23	22.345	
5,708.6	5,410.4	5,641.0	5,523.9	31.4	20.6	-147.00	788.3	354.3	900.5	860.1	40.32	22.331	
5,800.0	5,496.7	5,730.0	5,609.6	31.9	21.1	-146.80	809.5	365.5	914.6	873.3	41.28	22.157	
5,807.1	5,503.5	5,736.1	5,615.5	31.9	21.1	-146.79	810.9	366.2	915.6	874.2	41.34	22.148	
5,900.0	5,592.3	5,816.3	5,693.1	32.4	21.5	-146.60	828.8	375.6	928.0	885.9	42.15	22.017	
5,905.5	5,597.6	5,821.0	5,697.7	32.4	21.5	-146.59	829.7	376.1	928.7	886.5	42.19	22.011	
6,000.0	5,688.8	5,900.0	5,774.7	32.9	21.8	-146.44	845.3	384.3	940.0	897.1	42.90	21.911	
6,003.9	5,692.6	5,900.0	5,774.7	32.9	21.8	-146.45	845.3	384.3	940.5	897.6	42.91	21.916	
6,100.0	5,786.2	5,989.3	5,862.3	33.3	22.1	-146.30	860.6	392.4	950.5	906.9	43.59	21.806	
6,102.3	5,788.5	5,991.4	5,864.3	33.3	22.1	-146.29	860.9	392.5	950.7	907.1	43.60	21.804	
6,200.0	5,884.3	6,076.1	5,947.9	33.6	22.3	-146.19	873.2	399.0	959.4	915.2	44.17	21.719	
6,200.8	5,885.1	6,076.8	5,948.6	33.6	22.3	-146.19	873.3	399.0	959.5	915.3	44.18	21.718	
6,299.2	5,982.3	6,162.3	6,033.4	33.9	22.6	-146.10	883.4	404.4	966.7	922.1	44.67	21.642	
6,300.0	5,983.1	6,163.0	6,034.0	33.9	22.6	-146.10	883.5	404.4	966.8	922.1	44.67	21.641	
6,397.6	6,079.9	6,247.9	6,118.5	34.1	22.8	-146.05	891.3	408.5	972.5	927.4	45.08	21.574	
6,400.0	6,082.3	6,250.0	6,120.6	34.1	22.8	-146.04	891.4	408.6	972.6	927.5	45.09	21.573	
6,496.0	6,177.9	6,333.6	6,204.0	34.3	22.9	-146.01	896.9	411.5	976.7	931.3	45.40	21.515	
6,500.0	6,181.9	6,337.0	6,207.4	34.3	22.9	-146.01	897.1	411.6	976.9	931.5	45.41	21.513	
6,594.5	6,276.2	6,419.3	6,289.6	34.5	23.1	-146.00	900.3	413.2	979.4	933.8	45.63	21.463	
6,600.0	6,281.7	6,424.2	6,294.4	34.5	23.1	-146.00	900.4	413.3	979.5	933.9	45.64	21.460	
6,692.9	6,374.6	6,505.3	6,375.6	34.6	23.2	-146.01	901.4	413.8	980.6	934.8	45.79	21.417	
6,706.1	6,387.8	6,518.5	6,388.8	34.6	23.2	-87.79	901.4	413.8	980.6	934.8	45.80	21.409	
6,736.1	6,417.8	6,549.4	6,419.6	34.6	23.2	-87.80	901.2	413.8	980.6	934.7	45.87	21.377	
6,750.0	6,431.7	6,564.0	6,434.3	34.6	23.3	92.18	900.7	413.8	980.6	934.7	45.89	21.369	
6,791.3	6,473.0	6,607.6	6,477.7	34.6	23.3	92.12	897.5	413.8	980.6	934.6	45.90	21.361	
6,800.0	6,481.6	6,616.7	6,486.8	34.6	23.3	92.11	896.5	413.8	980.5	934.6	45.90	21.362	
6,850.0	6,531.2	6,669.3	6,538.8	34.6	23.2	92.03	888.5	413.8	980.5	934.7	45.82	21.397	
6,889.7	6,570.3	6,711.0	6,579.5	34.6	23.2	91.95	879.5	413.8	980.4	934.7	45.70	21.455	
6,900.0	6,580.3	6,721.8	6,589.9	34.6	23.2	91.93	876.8	413.8	980.4	934.8	45.66	21.473	
6,950.0	6,628.5	6,774.1	6,639.9	34.6	23.1	91.83	861.3	413.8	980.4	935.0	45.41	21.589	
6,988.2	6,664.7	6,813.9	6,677.1	34.5	23.0	91.74	847.2	413.8	980.3	935.2	45.17	21.704	
7,000.0	6,675.8	6,826.3	6,688.4	34.5	22.9	91.71	842.4	413.8	980.3	935.2	45.09	21.743	
7,050.0	6,721.8	6,878.3	6,735.4	34.4	22.8	91.59	820.0	413.8	980.3	935.6	44.69	21.933	
7,086.6	6,754.5	6,916.2	6,768.5	34.3	22.6	91.50	801.5	413.8	980.2	935.8	44.36	22.095	
7,100.0	6,766.2	6,930.1	6,780.4	34.2	22.6	91.46	794.3	413.8	980.2	936.0	44.24	22.157	
7,150.0	6,809.0	6,981.8	6,823.4	34.1	22.3	91.33	765.6	413.8	980.1	936.4	43.73	22.411	
7,185.0	6,837.9	7,017.9	6,852.1	34.0	22.2	91.23	743.7	413.8	980.1	936.7	43.35	22.607	
7,200.0	6,849.9	7,033.3	6,864.0	33.9	22.1	91.18	734.0	413.8	980.1	936.9	43.19	22.693	
7,250.0	6,888.7	7,084.6	6,902.1	33.8	21.9	91.03	699.6	413.8	980.0	937.4	42.61	22.998	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,283.4	6,913.4	7,118.8	6,926.0	33.6	21.7	90.93	675.3	413.8	980.0	937.8	42.22	23.212	
7,300.0	6,925.2	7,135.7	6,937.5	33.6	21.6	90.88	662.8	413.8	980.0	938.0	42.02	23.320	
7,350.0	6,959.2	7,186.6	6,970.0	33.4	21.3	90.72	623.7	413.8	980.0	938.5	41.43	23.654	
7,381.9	6,979.6	7,218.9	6,989.3	33.3	21.1	90.62	597.7	413.8	979.9	938.9	41.05	23.870	
7,400.0	6,990.6	7,237.3	6,999.6	33.2	21.0	90.56	582.5	413.8	979.9	939.1	40.84	23.993	
7,450.0	7,019.2	7,287.8	7,026.2	33.0	20.8	90.40	539.6	413.8	979.9	939.6	40.28	24.328	
7,480.3	7,035.1	7,318.3	7,040.7	32.8	20.6	90.30	512.8	413.8	979.9	939.9	39.95	24.525	
7,500.0	7,044.9	7,338.1	7,049.5	32.8	20.5	90.23	495.0	413.8	979.9	940.1	39.75	24.652	
7,550.0	7,067.5	7,388.2	7,069.6	32.6	20.2	90.07	449.1	413.8	979.9	940.6	39.26	24.956	
7,569.8	7,075.6	7,408.0	7,076.6	32.5	20.1	90.00	430.6	413.8	979.9	940.8	39.09	25.067	
7,578.7	7,079.1	7,416.9	7,079.6	32.4	20.1	89.97	422.3	413.8	979.9	940.9	39.01	25.116	
7,600.0	7,086.9	7,438.1	7,086.3	32.3	20.0	89.90	402.1	413.8	979.9	941.0	38.84	25.231	
7,650.0	7,103.1	7,487.8	7,099.7	32.1	19.7	89.74	354.3	413.8	979.9	941.4	38.48	25.468	
7,677.1	7,110.5	7,514.7	7,105.6	32.0	19.6	89.65	328.0	413.8	979.9	941.6	38.32	25.575	
7,700.0	7,116.0	7,537.3	7,109.8	32.0	19.5	89.57	305.8	413.8	979.9	941.7	38.19	25.659	
7,750.0	7,125.4	7,586.6	7,116.4	31.8	19.3	89.41	256.9	413.8	979.9	941.9	37.98	25.800	
7,775.6	7,128.9	7,611.8	7,118.5	31.7	19.2	89.33	231.9	413.8	979.9	942.0	37.91	25.847	
7,800.0	7,131.4	7,635.8	7,119.6	31.6	19.2	89.25	207.9	413.8	980.0	942.1	37.86	25.885	
7,850.0	7,133.9	7,685.3	7,119.9	31.5	19.0	89.12	158.4	413.8	980.0	942.2	37.82	25.910	
7,866.5	7,134.0	7,701.7	7,119.9	31.4	19.0	89.12	142.0	413.8	980.0	942.2	37.84	25.902	
7,874.0	7,133.9	7,709.3	7,119.9	31.4	18.9	89.12	134.4	413.8	980.0	942.1	37.85	25.890	
7,900.0	7,133.7	7,735.3	7,119.8	31.4	18.9	89.13	108.4	413.8	980.0	942.1	37.91	25.848	
7,972.4	7,133.2	7,807.7	7,119.6	31.2	18.8	89.15	36.0	413.8	980.0	941.8	38.19	25.661	
8,000.0	7,133.0	7,835.3	7,119.6	31.2	18.8	89.16	8.4	413.8	980.0	941.6	38.34	25.559	
8,070.8	7,132.4	7,906.1	7,119.4	31.1	19.0	89.18	-62.4	413.8	980.0	941.1	38.88	25.208	
8,100.0	7,132.2	7,935.3	7,119.3	31.1	19.1	89.19	-91.6	413.8	980.0	940.8	39.14	25.035	
8,169.3	7,131.7	8,004.5	7,119.2	31.1	19.6	89.21	-160.8	413.8	980.0	940.1	39.91	24.554	
8,200.0	7,131.5	8,035.3	7,119.1	31.1	19.8	89.22	-191.6	413.8	980.0	939.7	40.30	24.318	
8,267.7	7,131.0	8,102.9	7,118.9	31.2	20.4	89.24	-259.3	413.8	980.0	938.7	41.27	23.747	
8,300.0	7,130.7	8,135.2	7,118.8	31.2	20.7	89.25	-291.6	413.8	980.0	938.2	41.77	23.459	
8,366.1	7,130.2	8,201.4	7,118.7	31.4	21.4	89.27	-357.7	413.8	980.0	937.0	42.91	22.836	
8,400.0	7,130.0	8,235.2	7,118.6	31.5	21.8	89.28	-391.6	413.8	980.0	936.4	43.54	22.508	
8,464.5	7,129.5	8,299.8	7,118.4	31.7	22.5	89.29	-456.1	413.8	980.0	935.1	44.82	21.865	
8,500.0	7,129.2	8,335.2	7,118.3	31.9	22.9	89.31	-491.6	413.8	980.0	934.4	45.56	21.509	
8,563.0	7,128.7	8,398.2	7,118.2	32.2	23.7	89.32	-554.5	413.8	980.0	933.0	46.95	20.871	
8,600.0	7,128.5	8,435.2	7,118.1	32.4	24.1	89.33	-591.6	413.8	979.9	932.1	47.81	20.499	
8,661.4	7,128.0	8,496.6	7,117.9	32.8	24.9	89.35	-653.0	413.8	979.9	930.7	49.28	19.883	
8,700.0	7,127.7	8,535.2	7,117.8	33.1	25.4	89.36	-691.5	413.8	979.9	929.7	50.24	19.504	
8,759.8	7,127.3	8,595.1	7,117.7	33.5	26.3	89.38	-751.4	413.8	979.9	928.2	51.79	18.922	
8,800.0	7,127.0	8,635.2	7,117.6	33.9	26.8	89.39	-791.5	413.8	979.9	927.1	52.85	18.542	
8,858.2	7,126.5	8,693.5	7,117.5	34.4	27.6	89.41	-849.8	413.8	979.9	925.5	54.44	18.001	
8,900.0	7,126.2	8,735.2	7,117.4	34.8	28.3	89.42	-891.5	413.8	979.9	924.3	55.60	17.625	
8,956.7	7,125.8	8,791.9	7,117.2	35.4	29.1	89.44	-948.2	413.8	979.9	922.7	57.22	17.126	
9,000.0	7,125.5	8,835.2	7,117.1	35.8	29.7	89.45	-991.5	413.8	979.9	921.5	58.47	16.759	
9,055.1	7,125.1	8,890.3	7,117.0	36.5	30.6	89.47	-1,046.6	413.8	979.9	919.8	60.11	16.303	
9,100.0	7,124.7	8,935.2	7,116.9	37.0	31.3	89.48	-1,091.5	413.8	979.9	918.5	61.45	15.946	
9,153.5	7,124.3	8,988.8	7,116.7	37.6	32.1	89.50	-1,145.1	413.8	979.9	916.8	63.09	15.533	
9,200.0	7,124.0	9,035.2	7,116.6	38.2	32.8	89.51	-1,191.5	413.8	979.9	915.4	64.52	15.187	
9,251.9	7,123.6	9,087.2	7,116.5	38.8	33.7	89.53	-1,243.5	413.8	979.9	913.8	66.15	14.813	
9,300.0	7,123.2	9,135.2	7,116.4	39.5	34.5	89.54	-1,291.5	413.8	979.9	912.2	67.67	14.480	
9,350.4	7,122.8	9,185.6	7,116.2	40.1	35.3	89.56	-1,341.9	413.8	979.9	910.6	69.29	14.143	
9,400.0	7,122.5	9,235.2	7,116.1	40.8	36.1	89.57	-1,391.5	413.8	979.9	909.0	70.89	13.823	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-243 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	9,284.0	7,116.0	41.5	36.9	89.58	-1,440.3	413.8	979.9	907.4	72.49	13.519	
9,500.0	7,121.7	9,335.2	7,115.9	42.2	37.7	89.60	-1,491.5	413.8	979.9	905.7	74.17	13.212	
9,547.2	7,121.4	9,382.5	7,115.7	42.9	38.5	89.61	-1,538.8	413.8	979.9	904.2	75.74	12.938	
9,600.0	7,121.0	9,435.2	7,115.6	43.7	39.4	89.63	-1,591.5	413.8	979.9	902.4	77.50	12.644	
9,645.6	7,120.6	9,480.9	7,115.5	44.3	40.2	89.64	-1,637.2	413.8	979.9	900.9	79.04	12.398	
9,700.0	7,120.2	9,535.2	7,115.4	45.1	41.1	89.66	-1,691.5	413.8	979.9	899.0	80.87	12.117	
9,744.1	7,119.9	9,579.3	7,115.3	45.8	41.9	89.67	-1,735.6	413.8	979.9	897.5	82.38	11.895	
9,800.0	7,119.5	9,635.2	7,115.1	46.6	42.8	89.69	-1,791.5	413.8	979.9	895.6	84.29	11.625	
9,842.5	7,119.1	9,677.7	7,115.0	47.3	43.6	89.70	-1,834.0	413.8	979.9	894.1	85.75	11.427	
9,900.0	7,118.7	9,735.2	7,114.9	48.2	44.6	89.72	-1,891.5	413.8	979.9	892.2	87.74	11.168	
9,940.9	7,118.4	9,776.1	7,114.8	48.8	45.3	89.73	-1,932.5	413.8	979.9	890.7	89.16	10.990	
10,000.0	7,118.0	9,835.2	7,114.6	49.8	46.3	89.75	-1,991.5	413.8	979.9	888.7	91.22	10.742	
10,039.3	7,117.7	9,874.6	7,114.5	50.4	47.0	89.76	-2,030.9	413.8	979.9	887.3	92.60	10.582	
10,100.0	7,117.2	9,935.2	7,114.4	51.4	48.1	89.78	-2,091.5	413.8	979.9	885.2	94.73	10.344	
10,137.8	7,116.9	9,973.0	7,114.3	52.0	48.8	89.79	-2,129.3	413.8	979.9	883.8	96.07	10.200	
10,200.0	7,116.5	10,035.2	7,114.1	53.0	49.9	89.80	-2,191.5	413.8	979.9	881.6	98.27	9.972	
10,236.2	7,116.2	10,071.4	7,114.0	53.6	50.5	89.82	-2,227.7	413.8	979.9	880.3	99.56	9.843	
10,300.0	7,115.7	10,135.2	7,113.9	54.6	51.6	89.83	-2,291.5	413.8	979.9	878.1	101.83	9.623	
10,334.6	7,115.5	10,169.8	7,113.8	55.2	52.3	89.84	-2,326.1	413.8	979.9	876.8	103.06	9.508	
10,400.0	7,115.0	10,235.2	7,113.6	56.3	53.4	89.86	-2,391.5	413.8	979.9	874.5	105.40	9.297	
10,433.0	7,114.7	10,268.3	7,113.5	56.8	54.0	89.87	-2,424.6	413.8	979.9	873.3	106.59	9.193	
10,489.3	7,114.3	10,324.5	7,113.4	57.8	55.0	89.89	-2,480.8	413.8	979.9	871.3	108.61	9.022	
10,500.0	7,114.2	10,335.2	7,113.4	58.0	55.2	89.89	-2,491.5	413.8	979.9	870.9	109.00	8.990	
10,531.5	7,114.0	10,366.7	7,113.3	58.5	55.8	89.90	-2,523.0	413.8	979.9	869.8	110.14	8.897	
10,600.0	7,113.5	10,435.2	7,113.1	59.7	57.0	89.92	-2,591.5	413.8	979.9	867.3	112.61	8.701	
10,629.9	7,113.2	10,465.1	7,113.0	60.2	57.6	89.93	-2,621.4	413.8	979.9	866.2	113.70	8.619	
10,700.0	7,112.7	10,535.2	7,112.9	61.4	58.9	89.95	-2,691.5	413.8	979.9	863.7	116.24	8.430	
10,728.3	7,112.5	10,563.5	7,112.8	61.8	59.4	89.96	-2,719.8	413.8	979.9	862.6	117.27	8.356	
10,800.0	7,112.0	10,635.2	7,112.6	63.1	60.7	89.98	-2,791.5	413.8	979.9	860.0	119.88	8.174	
10,826.7	7,111.8	10,662.0	7,112.5	63.5	61.2	89.99	-2,818.3	413.8	979.9	859.0	120.86	8.108	
10,900.0	7,111.2	10,735.2	7,112.4	64.8	62.5	90.01	-2,891.5	413.8	979.9	856.4	123.53	7.932	
10,925.2	7,111.0	10,760.4	7,112.3	65.2	63.0	90.02	-2,916.7	413.8	979.9	855.4	124.46	7.874	
11,000.0	7,110.5	10,835.2	7,112.1	66.5	64.3	90.04	-2,991.5	413.8	979.9	852.7	127.20	7.704	
11,023.6	7,110.3	10,858.8	7,112.1	66.9	64.8	90.04	-3,015.1	413.8	979.9	851.8	128.06	7.652	
11,100.0	7,109.7	10,935.2	7,111.9	68.3	66.2	90.07	-3,091.5	413.8	979.9	849.0	130.87	7.487	
11,122.0	7,109.5	10,957.2	7,111.8	68.7	66.6	90.07	-3,113.5	413.8	979.9	848.2	131.68	7.441	
11,200.0	7,109.0	11,035.2	7,111.6	70.0	68.0	90.10	-3,191.5	413.8	979.9	845.3	134.56	7.283	
11,220.4	7,108.8	11,055.7	7,111.6	70.4	68.4	90.10	-3,212.0	413.8	979.9	844.6	135.31	7.242	
11,300.0	7,108.2	11,135.2	7,111.4	71.8	69.9	90.13	-3,291.5	413.8	979.9	841.7	138.25	7.088	
11,318.9	7,108.1	11,154.1	7,111.3	72.1	70.2	90.13	-3,310.4	413.8	979.9	841.0	138.95	7.052	
11,400.0	7,107.5	11,235.2	7,111.1	73.6	71.7	90.15	-3,391.5	413.8	979.9	838.0	141.95	6.903	
11,417.3	7,107.3	11,252.5	7,111.1	73.9	72.0	90.16	-3,408.8	413.8	979.9	837.3	142.59	6.872	
11,500.0	7,106.7	11,335.2	7,110.8	75.3	73.6	90.18	-3,491.5	413.8	979.9	834.3	145.66	6.728	
11,515.7	7,106.6	11,350.9	7,110.8	75.6	73.9	90.19	-3,507.2	413.8	979.9	833.7	146.24	6.701	
11,600.0	7,106.0	11,435.2	7,110.6	77.1	75.4	90.21	-3,591.5	413.8	979.9	830.5	149.37	6.560	
11,614.1	7,105.9	11,449.3	7,110.6	77.4	75.7	90.22	-3,605.6	413.8	979.9	830.0	149.90	6.537	
11,700.0	7,105.2	11,535.2	7,110.3	78.9	77.3	90.24	-3,691.5	413.8	979.9	826.8	153.09	6.401	
11,712.6	7,105.1	11,547.8	7,110.3	79.2	77.5	90.25	-3,704.1	413.8	979.9	826.4	153.56	6.381	
11,800.0	7,104.5	11,635.2	7,110.1	80.7	79.1	90.27	-3,791.5	413.8	979.9	823.1	156.82	6.249	
11,811.0	7,104.4	11,646.2	7,110.1	80.9	79.3	90.27	-3,802.5	413.8	979.9	822.7	157.23	6.232	
11,816.6	7,104.3	11,651.8	7,110.0	81.0	79.4	90.28	-3,808.1	413.8	979.9	822.5	157.44	6.224	
11,860.2	7,104.0	11,668.5	7,110.0	81.8	79.8	90.28	-3,824.8	413.8	980.3	821.7	158.56	6.182	SF

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-88.61	0.4	-15.1	15.1				
98.4	98.4	98.4	98.4	0.1	0.1	-88.61	0.4	-15.1	15.1	14.9	0.17	88.675	
100.0	100.0	100.0	100.0	0.1	0.1	-88.61	0.4	-15.1	15.1	14.9	0.17	87.070	
196.8	196.8	196.8	196.8	0.3	0.3	-88.61	0.4	-15.1	15.1	14.5	0.61	24.767	
200.0	200.0	200.0	200.0	0.3	0.3	-88.61	0.4	-15.1	15.1	14.4	0.62	24.204	
295.3	295.3	295.3	295.3	0.5	0.5	-88.61	0.4	-15.1	15.1	14.0	1.05	14.339	
300.0	300.0	300.0	300.0	0.5	0.5	-88.61	0.4	-15.1	15.1	14.0	1.07	14.055	
393.7	393.7	393.7	393.7	0.7	0.7	-88.61	0.4	-15.1	15.1	13.6	1.49	10.091	
400.0	400.0	400.0	400.0	0.8	0.8	-88.61	0.4	-15.1	15.1	13.5	1.52	9.903	
492.1	492.1	492.1	492.1	1.0	1.0	-88.61	0.4	-15.1	15.1	13.1	1.94	7.785	
500.0	500.0	500.0	500.0	1.0	1.0	-88.61	0.4	-15.1	15.1	13.1	1.97	7.645	
590.5	590.5	590.5	590.5	1.2	1.2	-88.61	0.4	-15.1	15.1	12.7	2.38	6.336	
600.0	600.0	600.0	600.0	1.2	1.2	-88.61	0.4	-15.1	15.1	12.6	2.42	6.225	
689.0	689.0	689.0	689.0	1.4	1.4	-88.61	0.4	-15.1	15.1	12.2	2.82	5.342	
700.0	700.0	700.0	700.0	1.4	1.4	-88.61	0.4	-15.1	15.1	12.2	2.87	5.250	
787.4	787.4	787.4	787.4	1.6	1.6	-88.61	0.4	-15.1	15.1	11.8	3.26	4.618	
800.0	800.0	800.0	800.0	1.7	1.7	-88.61	0.4	-15.1	15.1	11.7	3.32	4.539	
885.8	885.8	885.8	885.8	1.9	1.9	-88.61	0.4	-15.1	15.1	11.4	3.71	4.067	
900.0	900.0	900.0	900.0	1.9	1.9	-88.61	0.4	-15.1	15.1	11.3	3.77	3.998	
984.2	984.2	984.2	984.2	2.1	2.1	-88.61	0.4	-15.1	15.1	10.9	4.15	3.633	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-88.61	0.4	-15.1	15.1	10.9	4.22	3.572	
1,082.7	1,082.7	1,082.7	1,082.7	2.3	2.3	-88.61	0.4	-15.1	15.1	10.5	4.59	3.283	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-88.61	0.4	-15.1	15.1	10.4	4.67	3.228	
1,181.1	1,181.1	1,181.1	1,181.1	2.5	2.5	-88.61	0.4	-15.1	15.1	10.0	5.03	2.994	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-88.61	0.4	-15.1	15.1	10.0	5.12	2.944	
1,279.5	1,279.5	1,279.5	1,279.5	2.7	2.7	-88.61	0.4	-15.1	15.1	9.6	5.48	2.752	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-88.61	0.4	-15.1	15.1	9.5	5.57	2.707	
1,377.9	1,377.9	1,377.9	1,377.9	3.0	3.0	-88.61	0.4	-15.1	15.1	9.2	5.92	2.546	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-88.61	0.4	-15.1	15.1	9.1	6.02	2.504	
1,476.4	1,476.4	1,476.4	1,476.4	3.2	3.2	-88.61	0.4	-15.1	15.1	8.7	6.36	2.369	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-88.61	0.4	-15.1	15.1	8.6	6.47	2.330	
1,550.0	1,550.0	1,550.0	1,550.0	3.3	3.3	-88.61	0.4	-15.1	15.1	8.4	6.69	2.252	CC
1,574.8	1,574.8	1,574.8	1,574.8	3.4	3.4	-147.05	0.4	-15.1	15.2	8.4	6.80	2.229	ES
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-147.72	0.4	-15.1	15.4	8.5	6.91	2.233	
1,673.2	1,673.2	1,673.3	1,673.3	3.6	3.6	-151.44	0.4	-15.0	17.3	10.0	7.23	2.389	
1,700.0	1,699.9	1,700.2	1,700.2	3.7	3.7	-152.77	0.6	-14.7	18.1	10.8	7.34	2.467	
1,771.6	1,771.4	1,772.2	1,772.2	3.8	3.8	-155.49	1.9	-13.0	20.4	12.8	7.64	2.676	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	3.9	-156.30	2.7	-11.9	21.4	13.6	7.75	2.759	
1,870.1	1,869.4	1,871.3	1,871.0	4.0	4.1	-157.76	5.5	-8.2	23.8	15.8	8.04	2.959	
1,900.0	1,899.1	1,901.4	1,901.1	4.1	4.1	-158.20	7.0	-6.2	24.8	16.7	8.16	3.043	
1,968.5	1,967.0	1,970.4	1,969.7	4.3	4.3	-158.87	11.1	-0.7	27.3	18.8	8.44	3.231	
2,000.0	1,998.2	2,002.2	2,001.3	4.4	4.4	-159.04	13.3	2.2	28.4	19.8	8.57	3.315	
2,066.9	2,064.1	2,069.7	2,068.2	4.5	4.5	-159.18	18.8	9.5	30.9	22.0	8.85	3.489	
2,100.0	2,096.6	2,103.1	2,101.2	4.6	4.6	-159.15	21.8	13.5	32.1	23.1	8.98	3.573	
2,165.3	2,160.6	2,169.1	2,166.2	4.8	4.8	-158.94	28.5	22.5	34.5	25.3	9.25	3.732	
2,200.0	2,194.4	2,204.1	2,200.6	4.9	4.9	-158.76	32.4	27.7	35.8	26.4	9.40	3.815	
2,263.8	2,256.4	2,268.5	2,263.7	5.2	5.1	-158.32	40.3	38.2	38.3	28.6	9.67	3.958	
2,300.0	2,291.5	2,305.2	2,299.5	5.3	5.2	-158.01	45.1	44.6	39.7	29.9	9.83	4.038	
2,362.2	2,351.4	2,368.1	2,360.6	5.5	5.4	-157.41	54.1	56.6	42.1	32.0	10.12	4.165	
2,400.0	2,387.6	2,406.4	2,397.7	5.7	5.5	-157.01	59.9	64.4	43.6	33.4	10.29	4.241	
2,460.6	2,445.4	2,467.8	2,456.8	6.0	5.8	-156.30	69.9	77.7	46.1	35.5	10.59	4.351	
2,500.0	2,482.7	2,507.7	2,495.0	6.2	5.9	-155.81	76.8	86.9	47.7	36.9	10.79	4.419	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,567.6	2,552.0	6.5	6.2	-155.03	87.8	101.5	50.1	39.0	11.12	4.510	
2,600.0	2,576.6	2,609.2	2,591.4	6.7	6.4	-154.47	95.8	112.2	51.9	40.5	11.35	4.568	
2,657.5	2,630.1	2,667.5	2,646.3	7.0	6.7	-153.65	107.6	128.0	54.3	42.6	11.71	4.637	
2,700.0	2,669.4	2,710.7	2,686.6	7.3	6.9	-153.04	116.8	140.2	56.1	44.2	11.99	4.684	
2,755.9	2,720.6	2,766.5	2,738.7	7.6	7.2	-152.53	128.9	156.4	59.1	46.8	12.36	4.781	
2,776.7	2,739.5	2,787.2	2,758.0	7.8	7.4	-152.47	133.4	162.4	60.5	48.0	12.50	4.838	
2,800.0	2,760.8	2,810.5	2,779.7	7.9	7.5	-152.46	138.4	169.1	62.1	49.4	12.67	4.896	
2,854.3	2,810.2	2,864.7	2,830.2	8.3	7.8	-152.44	150.2	184.7	65.8	52.7	13.09	5.023	
2,900.0	2,851.7	2,910.3	2,872.7	8.7	8.1	-152.42	160.0	197.9	68.9	55.4	13.45	5.122	
2,952.7	2,899.7	2,962.9	2,921.8	9.1	8.4	-152.40	171.4	213.1	72.5	58.6	13.87	5.226	
3,000.0	2,942.7	3,010.0	2,965.8	9.4	8.7	-152.39	181.6	226.7	75.7	61.4	14.25	5.313	
3,051.2	2,989.3	3,061.1	3,013.4	9.8	9.0	-152.37	192.7	241.4	79.2	64.5	14.67	5.399	
3,100.0	3,033.7	3,109.8	3,058.8	10.2	9.3	-152.36	203.2	255.5	82.5	67.4	15.07	5.475	
3,149.6	3,078.8	3,159.3	3,105.0	10.5	9.7	-152.35	213.9	269.8	85.9	70.4	15.49	5.546	
3,200.0	3,124.6	3,209.6	3,151.9	10.9	10.0	-152.33	224.8	284.3	89.3	73.4	15.91	5.613	
3,248.0	3,168.3	3,257.5	3,196.6	11.3	10.3	-152.32	235.2	298.1	92.6	76.3	16.33	5.672	
3,300.0	3,215.6	3,309.3	3,244.9	11.7	10.7	-152.31	246.4	313.1	96.1	79.4	16.77	5.731	
3,346.4	3,257.9	3,355.7	3,288.1	12.1	11.0	-152.31	256.5	326.5	99.3	82.1	17.18	5.780	
3,400.0	3,306.6	3,409.1	3,338.0	12.5	11.3	-152.30	268.0	341.9	103.0	85.3	17.65	5.833	
3,444.9	3,347.4	3,453.9	3,379.7	12.9	11.6	-152.29	277.7	354.8	106.0	88.0	18.05	5.874	
3,500.0	3,397.6	3,508.9	3,431.0	13.3	12.0	-152.28	289.6	370.7	109.8	91.2	18.54	5.921	
3,543.3	3,436.9	3,552.1	3,471.3	13.7	12.3	-152.27	299.0	383.2	112.7	93.8	18.93	5.956	
3,600.0	3,488.5	3,608.6	3,524.0	14.1	12.7	-152.27	311.2	399.5	116.6	97.2	19.44	5.998	
3,641.7	3,526.5	3,650.3	3,562.9	14.5	13.0	-152.26	320.2	411.5	119.4	99.6	19.82	6.027	
3,700.0	3,579.5	3,708.4	3,617.1	15.0	13.4	-152.25	332.8	428.3	123.4	103.1	20.35	6.065	
3,740.1	3,616.0	3,748.5	3,654.4	15.3	13.7	-152.25	341.5	439.9	126.2	105.4	20.72	6.090	
3,800.0	3,670.5	3,808.2	3,710.1	15.8	14.1	-152.24	354.4	457.1	130.2	109.0	21.27	6.124	
3,838.6	3,705.6	3,846.6	3,746.0	16.1	14.4	-152.24	362.7	468.3	132.9	111.2	21.62	6.145	
3,900.0	3,761.4	3,907.9	3,803.2	16.6	14.8	-152.23	376.0	485.9	137.1	114.9	22.19	6.177	
3,937.0	3,795.1	3,944.8	3,837.6	16.9	15.0	-152.23	384.0	496.6	139.6	117.0	22.53	6.194	
4,000.0	3,852.4	4,007.7	3,896.2	17.4	15.5	-152.23	397.6	514.8	143.9	120.8	23.12	6.223	
4,035.4	3,884.6	4,043.0	3,929.2	17.7	15.7	-152.22	405.3	525.0	146.3	122.8	23.45	6.238	
4,100.0	3,943.4	4,107.5	3,989.3	18.3	16.2	-152.22	419.2	543.6	150.7	126.6	24.06	6.264	
4,133.8	3,974.2	4,141.2	4,020.8	18.6	16.4	-152.21	426.5	553.3	153.0	128.6	24.37	6.277	
4,200.0	4,034.4	4,207.2	4,082.3	19.1	16.9	-152.21	440.8	572.4	157.5	132.5	25.00	6.301	
4,232.3	4,063.7	4,239.4	4,112.3	19.4	17.1	-152.21	447.8	581.7	159.7	134.4	25.30	6.312	
4,300.0	4,125.3	4,307.0	4,175.4	19.9	17.6	-152.20	462.4	601.2	164.3	138.4	25.94	6.334	
4,330.7	4,153.3	4,337.6	4,203.9	20.2	17.8	-152.20	469.0	610.0	166.4	140.2	26.23	6.343	
4,400.0	4,216.3	4,406.8	4,268.4	20.8	18.3	-152.20	484.0	630.0	171.1	144.3	26.89	6.364	
4,429.1	4,242.8	4,435.8	4,295.5	21.0	18.5	-152.19	490.3	638.4	173.1	146.0	27.17	6.372	
4,500.0	4,307.3	4,506.5	4,361.4	21.6	19.1	-152.19	505.6	658.8	178.0	150.1	27.85	6.391	
4,527.5	4,332.3	4,534.0	4,387.1	21.9	19.2	-152.19	511.6	666.7	179.8	151.7	28.11	6.398	
4,600.0	4,398.2	4,606.3	4,454.5	22.5	19.8	-152.19	527.2	687.6	184.8	156.0	28.80	6.415	
4,626.0	4,421.9	4,632.2	4,478.7	22.7	20.0	-152.18	532.8	695.1	186.6	157.5	29.05	6.421	
4,700.0	4,489.2	4,706.1	4,547.5	23.3	20.5	-152.18	548.8	716.4	191.6	161.8	29.76	6.438	
4,724.4	4,511.4	4,730.4	4,570.2	23.5	20.7	-152.18	554.1	723.4	193.3	163.3	30.00	6.443	
4,800.0	4,580.2	4,805.8	4,640.6	24.2	21.2	-152.18	570.4	745.2	198.4	167.7	30.72	6.458	
4,822.8	4,601.0	4,828.6	4,661.8	24.4	21.4	-152.18	575.3	751.8	200.0	169.0	30.94	6.462	
4,900.0	4,671.2	4,905.6	4,733.6	25.0	21.9	-152.17	592.0	774.0	205.2	173.5	31.69	6.477	
4,921.2	4,690.5	4,926.8	4,753.4	25.2	22.1	-152.17	596.6	780.1	206.7	174.8	31.89	6.480	
5,000.0	4,762.1	5,005.4	4,826.7	25.9	22.7	-152.17	613.6	802.8	212.1	179.4	32.65	6.494	
5,019.7	4,780.0	5,025.0	4,845.0	26.0	22.8	-152.17	617.9	808.5	213.4	180.5	32.85	6.497	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	5,105.1	4,919.7	26.7	23.4	-152.16	635.2	831.6	218.9	185.2	33.62	6.509	
5,118.1	4,869.6	5,123.2	4,936.5	26.9	23.5	-152.16	639.1	836.8	220.1	186.3	33.80	6.512	
5,200.0	4,944.1	5,204.9	5,012.8	27.6	24.1	-152.16	656.8	860.4	225.7	191.1	34.59	6.524	
5,216.5	4,959.1	5,221.4	5,028.1	27.7	24.2	-152.16	660.4	865.2	226.8	192.1	34.75	6.526	
5,300.0	5,035.0	5,304.7	5,105.8	28.4	24.8	-152.16	678.4	889.2	232.5	196.9	35.57	6.537	
5,314.9	5,048.6	5,319.6	5,119.7	28.6	24.9	-152.16	681.6	893.5	233.5	197.8	35.71	6.539	
5,400.0	5,126.0	5,404.4	5,198.8	29.3	25.6	-152.15	700.0	918.0	239.3	202.8	36.54	6.550	
5,413.4	5,138.2	5,417.8	5,211.3	29.4	25.7	-152.15	702.9	921.9	240.2	203.6	36.67	6.551	
5,479.4	5,198.3	5,483.7	5,272.7	30.0	26.1	-152.15	717.2	940.9	244.7	207.4	37.31	6.559	
5,500.0	5,217.0	5,504.2	5,291.9	30.1	26.3	-152.16	721.6	946.9	246.1	208.6	37.52	6.558	
5,511.8	5,227.8	5,516.0	5,302.9	30.2	26.4	-152.15	724.1	950.3	246.8	209.1	37.64	6.556	
5,600.0	5,309.0	5,604.1	5,385.0	30.8	27.0	-151.93	743.2	975.7	250.7	212.1	38.60	6.495	
5,610.2	5,318.5	5,614.3	5,394.6	30.8	27.1	-151.89	745.4	978.6	251.0	212.3	38.72	6.484	
5,700.0	5,402.3	5,700.0	5,474.5	31.4	27.7	-151.37	763.9	1,003.3	252.5	212.7	39.77	6.349	
5,708.6	5,410.4	5,709.7	5,483.6	31.4	27.8	-151.31	765.9	1,006.0	252.6	212.7	39.87	6.334	
5,800.0	5,496.7	5,794.7	5,563.8	31.9	28.2	-150.76	782.9	1,028.6	253.4	212.5	40.85	6.203	
5,807.1	5,503.5	5,800.0	5,568.8	31.9	28.2	-150.72	783.9	1,030.0	253.4	212.5	40.91	6.194	
5,900.0	5,592.3	5,887.9	5,652.5	32.4	28.7	-150.18	799.9	1,051.3	253.9	212.1	41.84	6.069	
5,905.5	5,597.6	5,893.0	5,657.4	32.4	28.7	-150.14	800.8	1,052.5	253.9	212.0	41.89	6.061	
6,000.0	5,688.8	5,981.1	5,742.2	32.9	29.1	-149.62	815.2	1,071.6	254.1	211.4	42.76	5.943	
6,003.9	5,692.6	5,984.7	5,745.7	32.9	29.1	-149.60	815.7	1,072.4	254.1	211.3	42.79	5.939	
6,100.0	5,786.2	6,074.3	5,832.7	33.3	29.5	-149.08	828.7	1,089.7	254.0	210.4	43.60	5.826	
6,102.3	5,788.5	6,076.5	5,834.8	33.3	29.5	-149.07	829.0	1,090.1	254.0	210.4	43.62	5.823	
6,200.0	5,884.3	6,167.6	5,923.9	33.6	29.8	-148.56	840.4	1,105.3	253.6	209.2	44.37	5.715	
6,200.8	5,885.1	6,168.3	5,924.6	33.6	29.8	-148.56	840.5	1,105.4	253.6	209.2	44.38	5.715	
6,299.2	5,982.3	6,260.2	6,015.0	33.9	30.1	-148.07	850.3	1,118.5	252.8	207.8	45.05	5.612	
6,300.0	5,983.1	6,261.0	6,015.7	33.9	30.1	-148.07	850.4	1,118.6	252.8	207.8	45.06	5.611	
6,397.6	6,079.9	6,352.1	6,105.9	34.1	30.4	-147.59	858.3	1,129.2	251.7	206.1	45.66	5.514	
6,400.0	6,082.3	6,354.4	6,108.1	34.1	30.4	-147.58	858.5	1,129.5	251.7	206.0	45.67	5.512	
6,496.0	6,177.9	6,444.2	6,197.4	34.3	30.6	-147.13	864.6	1,137.6	250.3	204.1	46.18	5.421	
6,500.0	6,181.9	6,447.9	6,201.0	34.3	30.6	-147.11	864.9	1,137.9	250.3	204.1	46.20	5.417	
6,594.5	6,276.2	6,536.2	6,289.1	34.5	30.8	-146.69	869.2	1,143.7	248.6	201.9	46.63	5.331	
6,600.0	6,281.7	6,541.4	6,294.3	34.5	30.8	-146.66	869.4	1,144.0	248.5	201.8	46.65	5.326	
6,692.9	6,374.6	6,628.4	6,381.2	34.6	30.9	-146.25	872.0	1,147.4	246.5	199.5	47.01	5.244	
6,706.1	6,387.8	6,640.8	6,393.5	34.6	30.9	-87.97	872.2	1,147.7	246.2	199.2	47.05	5.233	
6,736.1	6,417.8	6,668.9	6,421.6	34.6	31.0	-87.87	872.6	1,148.3	245.6	198.4	47.18	5.206	
6,750.0	6,431.7	6,681.9	6,434.7	34.6	31.0	92.21	872.8	1,148.5	245.4	198.2	47.26	5.193	
6,785.0	6,466.6	6,714.7	6,467.4	34.6	31.0	92.60	872.9	1,148.7	245.2	197.7	47.54	5.158	
6,791.3	6,473.0	6,720.6	6,473.3	34.6	31.0	92.71	873.0	1,148.7	245.2	197.6	47.61	5.151	
6,800.0	6,481.6	6,728.9	6,481.6	34.6	31.0	92.87	873.0	1,148.7	245.3	197.6	47.71	5.141	
6,850.0	6,531.2	6,779.1	6,531.8	34.6	31.1	94.20	872.6	1,148.7	245.6	197.2	48.48	5.066	
6,889.7	6,570.3	6,819.7	6,572.3	34.6	31.1	95.36	870.1	1,148.7	246.1	197.0	49.07	5.014	
6,900.0	6,580.3	6,830.2	6,582.8	34.6	31.1	95.65	869.1	1,148.7	246.2	197.0	49.22	5.002	
6,950.0	6,628.5	6,881.8	6,633.9	34.6	31.1	97.08	862.0	1,148.7	246.9	197.1	49.81	4.956	
6,988.2	6,664.7	6,921.5	6,672.8	34.5	31.0	98.14	854.0	1,148.7	247.5	197.3	50.16	4.934	
7,000.0	6,675.8	6,933.9	6,684.8	34.5	31.0	98.47	851.0	1,148.7	247.7	197.5	50.25	4.930	
7,050.0	6,721.8	6,986.4	6,735.2	34.4	31.0	99.81	836.3	1,148.7	248.6	198.1	50.51	4.923	
7,086.6	6,754.5	7,025.2	6,771.7	34.3	30.9	100.76	823.0	1,148.7	249.4	198.8	50.58	4.931	
7,100.0	6,766.2	7,039.5	6,784.9	34.2	30.9	101.10	817.7	1,148.7	249.7	199.1	50.59	4.936	
7,150.0	6,809.0	7,093.0	6,833.5	34.1	30.7	102.33	795.2	1,148.7	250.8	200.3	50.48	4.968	
7,185.0	6,837.9	7,130.8	6,866.7	34.0	30.6	103.15	777.2	1,148.7	251.6	201.3	50.29	5.004	
7,200.0	6,849.9	7,147.0	6,880.6	33.9	30.6	103.50	768.9	1,148.7	252.0	201.8	50.19	5.021	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	7,201.4	6,926.0	33.8	30.4	104.59	739.0	1,148.7	253.2	203.5	49.72	5.092	
7,283.4	6,913.4	7,238.1	6,955.3	33.6	30.3	105.27	716.8	1,148.7	254.0	204.7	49.31	5.151	
7,300.0	6,925.2	7,256.3	6,969.4	33.6	30.2	105.60	705.3	1,148.7	254.4	205.3	49.09	5.182	
7,350.0	6,959.2	7,311.6	7,010.3	33.4	30.0	106.53	668.2	1,148.7	255.6	207.3	48.32	5.289	
7,381.9	6,979.6	7,347.0	7,035.0	33.3	29.8	107.07	642.7	1,148.7	256.3	208.5	47.77	5.365	
7,400.0	6,990.6	7,367.2	7,048.5	33.2	29.7	107.36	627.7	1,148.7	256.7	209.3	47.44	5.411	
7,450.0	7,019.2	7,423.3	7,083.6	33.0	29.5	108.11	584.1	1,148.7	257.8	211.3	46.48	5.546	
7,480.3	7,035.1	7,457.4	7,103.3	32.8	29.3	108.51	556.2	1,148.7	258.4	212.5	45.88	5.631	
7,500.0	7,044.9	7,479.6	7,115.5	32.8	29.2	108.76	537.6	1,148.7	258.7	213.3	45.49	5.689	
7,550.0	7,067.5	7,536.2	7,143.6	32.6	29.0	109.31	488.5	1,148.7	259.6	215.1	44.49	5.836	
7,578.7	7,079.1	7,568.9	7,158.1	32.4	28.8	109.58	459.2	1,148.7	260.0	216.1	43.93	5.919	
7,600.0	7,086.9	7,593.1	7,167.9	32.3	28.7	109.76	437.1	1,148.7	260.3	216.8	43.53	5.980	
7,650.0	7,103.1	7,650.2	7,188.2	32.1	28.4	110.10	383.8	1,148.7	260.9	218.2	42.65	6.116	
7,677.1	7,110.5	7,681.2	7,197.4	32.0	28.3	110.24	354.1	1,148.7	261.1	218.9	42.23	6.182	
7,700.0	7,116.0	7,707.4	7,204.1	32.0	28.2	110.34	328.9	1,148.7	261.3	219.4	41.90	6.235	
7,750.0	7,125.4	7,764.7	7,215.6	31.8	28.0	110.47	272.8	1,148.7	261.5	220.2	41.32	6.329	
7,775.6	7,128.9	7,794.0	7,219.8	31.7	27.9	110.50	243.7	1,148.7	261.5	220.4	41.09	6.365	
7,800.0	7,131.4	7,822.0	7,222.7	31.6	27.8	110.50	215.9	1,148.7	261.5	220.6	40.91	6.392	
7,850.0	7,133.9	7,879.3	7,225.1	31.5	27.6	110.42	158.6	1,148.7	261.4	220.7	40.71	6.421	
7,866.5	7,134.0	7,897.3	7,224.9	31.4	27.5	110.37	140.7	1,148.7	261.3	220.6	40.68	6.423	
7,874.0	7,133.9	7,904.8	7,224.8	31.4	27.5	110.36	133.1	1,148.7	261.3	220.6	40.71	6.418	
7,900.0	7,133.7	7,930.8	7,224.5	31.4	27.4	110.33	107.1	1,148.7	261.2	220.4	40.82	6.400	
7,972.4	7,133.2	8,003.2	7,223.5	31.2	27.3	110.24	34.7	1,148.7	261.1	219.9	41.19	6.338	
8,000.0	7,133.0	8,030.8	7,223.1	31.2	27.2	110.20	7.2	1,148.7	261.0	219.6	41.37	6.309	
8,070.8	7,132.4	8,101.6	7,222.1	31.1	27.2	110.11	-63.7	1,148.7	260.9	218.9	41.95	6.218	
8,100.0	7,132.2	8,130.8	7,221.7	31.1	27.1	110.07	-92.8	1,148.7	260.8	218.6	42.24	6.175	
8,169.3	7,131.7	8,200.1	7,220.8	31.1	27.2	109.98	-162.1	1,148.7	260.7	217.7	43.00	6.062	
8,200.0	7,131.5	8,230.8	7,220.3	31.1	27.2	109.94	-192.8	1,148.7	260.6	217.2	43.38	6.007	
8,267.7	7,131.0	8,298.5	7,219.4	31.2	27.3	109.85	-260.5	1,148.7	260.4	216.1	44.32	5.877	
8,300.0	7,130.7	8,330.8	7,219.0	31.2	27.4	109.81	-292.8	1,148.7	260.4	215.6	44.80	5.812	
8,366.1	7,130.2	8,396.9	7,218.1	31.4	27.6	109.73	-358.9	1,148.7	260.2	214.4	45.87	5.673	
8,400.0	7,130.0	8,430.8	7,217.6	31.5	27.7	109.68	-392.8	1,148.7	260.2	213.7	46.46	5.600	
8,464.5	7,129.5	8,495.3	7,216.7	31.7	28.1	109.60	-457.3	1,148.7	260.0	212.4	47.65	5.457	
8,500.0	7,129.2	8,530.8	7,216.2	31.9	28.3	109.55	-492.8	1,148.7	260.0	211.6	48.34	5.378	
8,563.0	7,128.7	8,593.7	7,215.3	32.2	28.7	109.47	-555.8	1,148.7	259.8	210.2	49.63	5.236	
8,600.0	7,128.5	8,630.8	7,214.8	32.4	29.0	109.42	-592.8	1,148.7	259.7	209.3	50.41	5.152	
8,661.4	7,128.0	8,692.2	7,214.0	32.8	29.6	109.34	-654.2	1,148.7	259.6	207.8	51.78	5.014	
8,700.0	7,127.7	8,730.8	7,213.5	33.1	29.9	109.29	-692.8	1,148.7	259.5	206.9	52.66	4.928	
8,759.8	7,127.3	8,790.6	7,212.6	33.5	30.5	109.21	-752.6	1,148.7	259.4	205.3	54.09	4.796	
8,800.0	7,127.0	8,830.8	7,212.1	33.9	30.9	109.16	-792.8	1,148.7	259.3	204.3	55.06	4.710	
8,858.2	7,126.5	8,889.0	7,211.3	34.4	31.6	109.08	-851.0	1,148.7	259.2	202.7	56.53	4.585	
8,900.0	7,126.2	8,930.8	7,210.7	34.8	32.1	109.03	-892.7	1,148.7	259.1	201.5	57.60	4.498	
8,956.7	7,125.8	8,987.4	7,209.9	35.4	32.8	108.95	-949.4	1,148.7	259.0	199.9	59.10	4.383	
9,000.0	7,125.5	9,030.8	7,209.3	35.8	33.3	108.90	-992.7	1,148.7	258.9	198.7	60.26	4.297	
9,055.1	7,125.1	9,085.9	7,208.6	36.5	34.0	108.82	-1,047.8	1,148.7	258.8	197.0	61.77	4.190	
9,100.0	7,124.7	9,130.8	7,207.9	37.0	34.6	108.76	-1,092.7	1,148.7	258.7	195.7	63.02	4.105	
9,153.5	7,124.3	9,184.3	7,207.2	37.6	35.4	108.69	-1,146.2	1,148.7	258.6	194.1	64.54	4.007	
9,200.0	7,124.0	9,230.8	7,206.6	38.2	36.0	108.63	-1,192.7	1,148.7	258.5	192.6	65.88	3.924	
9,251.9	7,123.6	9,282.7	7,205.8	38.8	36.7	108.56	-1,244.6	1,148.7	258.4	191.0	67.40	3.834	
9,300.0	7,123.2	9,330.8	7,205.2	39.5	37.4	108.50	-1,292.7	1,148.7	258.3	189.5	68.81	3.754	
9,350.4	7,122.8	9,381.1	7,204.5	40.1	38.2	108.43	-1,343.1	1,148.7	258.2	187.9	70.32	3.672	
9,400.0	7,122.5	9,430.8	7,203.8	40.8	38.9	108.37	-1,392.7	1,148.7	258.1	186.3	71.82	3.594	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-303 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	9,479.6	7,203.1	41.5	39.6	108.30	-1,441.5	1,148.7	258.0	184.7	73.32	3.519	
9,500.0	7,121.7	9,530.8	7,202.4	42.2	40.4	108.24	-1,492.7	1,148.7	257.9	183.0	74.89	3.444	
9,547.2	7,121.4	9,578.0	7,201.8	42.9	41.1	108.17	-1,539.9	1,148.7	257.8	181.5	76.37	3.376	
9,600.0	7,121.0	9,630.8	7,201.0	43.7	41.9	108.10	-1,592.7	1,148.7	257.7	179.7	78.02	3.303	
9,645.6	7,120.6	9,676.4	7,200.4	44.3	42.7	108.04	-1,638.3	1,148.7	257.6	178.2	79.47	3.242	
9,700.0	7,120.2	9,730.8	7,199.7	45.1	43.5	107.97	-1,692.6	1,148.7	257.5	176.3	81.20	3.171	
9,744.1	7,119.9	9,774.8	7,199.1	45.8	44.2	107.91	-1,736.7	1,148.7	257.4	174.8	82.62	3.116	
9,800.0	7,119.5	9,830.8	7,198.3	46.6	45.1	107.84	-1,792.6	1,148.7	257.3	172.9	84.43	3.048	
9,842.5	7,119.1	9,873.2	7,197.7	47.3	45.8	107.78	-1,835.1	1,148.7	257.3	171.4	85.82	2.998	
9,900.0	7,118.7	9,930.7	7,196.9	48.2	46.7	107.70	-1,892.6	1,148.7	257.1	169.4	87.70	2.932	
9,940.9	7,118.4	9,971.7	7,196.3	48.8	47.4	107.65	-1,933.5	1,148.7	257.1	168.0	89.05	2.887	
10,000.0	7,118.0	10,030.7	7,195.5	49.8	48.4	107.57	-1,992.6	1,148.7	257.0	165.9	91.01	2.824	
10,039.3	7,117.7	10,070.1	7,195.0	50.4	49.0	107.52	-2,032.0	1,148.7	256.9	164.6	92.32	2.783	
10,100.0	7,117.2	10,130.7	7,194.1	51.4	50.0	107.44	-2,092.6	1,148.7	256.8	162.4	94.34	2.722	
10,137.8	7,116.9	10,168.5	7,193.6	52.0	50.7	107.39	-2,130.4	1,148.7	256.7	161.1	95.62	2.685	
10,200.0	7,116.5	10,230.7	7,192.8	53.0	51.7	107.30	-2,192.6	1,148.7	256.6	158.9	97.72	2.626	
10,236.2	7,116.2	10,266.9	7,192.3	53.6	52.3	107.25	-2,228.8	1,148.7	256.5	157.6	98.94	2.592	
10,300.0	7,115.7	10,330.7	7,191.4	54.6	53.4	107.17	-2,292.6	1,148.7	256.4	155.3	101.11	2.536	
10,334.6	7,115.5	10,365.4	7,190.9	55.2	54.0	107.12	-2,327.2	1,148.7	256.3	154.0	102.30	2.506	
10,400.0	7,115.0	10,430.7	7,190.0	56.3	55.1	107.03	-2,392.6	1,148.7	256.2	151.7	104.54	2.451	
10,433.0	7,114.7	10,463.8	7,189.6	56.8	55.7	106.99	-2,425.6	1,148.7	256.1	150.5	105.68	2.424	
10,500.0	7,114.2	10,530.7	7,188.6	58.0	56.8	106.90	-2,492.6	1,148.7	256.0	148.0	107.99	2.371	
10,531.5	7,114.0	10,562.2	7,188.2	58.5	57.4	106.86	-2,524.0	1,148.7	256.0	146.9	109.08	2.347	
10,600.0	7,113.5	10,630.7	7,187.3	59.7	58.6	106.77	-2,592.5	1,148.7	255.8	144.4	111.46	2.295	
10,629.9	7,113.2	10,660.6	7,186.8	60.2	59.1	106.73	-2,622.4	1,148.7	255.8	143.3	112.50	2.274	
10,700.0	7,112.7	10,730.7	7,185.9	61.4	60.3	106.63	-2,692.5	1,148.7	255.7	140.7	114.95	2.224	
10,728.3	7,112.5	10,759.1	7,185.5	61.8	60.8	106.59	-2,720.9	1,148.7	255.6	139.7	115.94	2.205	
10,800.0	7,112.0	10,830.7	7,184.5	63.1	62.1	106.50	-2,792.5	1,148.7	255.5	137.0	118.46	2.157	
10,826.7	7,111.8	10,857.5	7,184.1	63.5	62.6	106.46	-2,819.3	1,148.7	255.4	136.0	119.40	2.139	
10,900.0	7,111.2	10,930.7	7,183.1	64.8	63.8	106.36	-2,892.5	1,148.7	255.3	133.3	121.99	2.093	
10,925.2	7,111.0	10,955.9	7,182.8	65.2	64.3	106.33	-2,917.7	1,148.7	255.3	132.4	122.88	2.077	
11,000.0	7,110.5	11,030.7	7,181.7	66.5	65.6	106.22	-2,992.5	1,148.7	255.1	129.6	125.53	2.032	
11,023.6	7,110.3	11,054.3	7,181.4	66.9	66.0	106.19	-3,016.1	1,148.7	255.1	128.7	126.37	2.019	
11,100.0	7,109.7	11,130.7	7,180.4	68.3	67.4	106.09	-3,092.5	1,148.7	255.0	125.9	129.09	1.975	
11,122.0	7,109.5	11,152.7	7,180.1	68.7	67.8	106.06	-3,114.5	1,148.7	254.9	125.0	129.88	1.963	
11,200.0	7,109.0	11,230.7	7,179.0	70.0	69.2	105.95	-3,192.5	1,148.7	254.8	122.1	132.67	1.920	
11,220.4	7,108.8	11,251.2	7,178.7	70.4	69.6	105.93	-3,212.9	1,148.7	254.7	121.3	133.40	1.910	
11,300.0	7,108.2	11,330.7	7,177.6	71.8	71.0	105.82	-3,292.5	1,148.7	254.6	118.4	136.25	1.869	
11,318.9	7,108.1	11,349.6	7,177.3	72.1	71.3	105.79	-3,311.3	1,148.7	254.6	117.6	136.93	1.859	
11,400.0	7,107.5	11,430.7	7,176.2	73.6	72.8	105.68	-3,392.5	1,148.7	254.4	114.6	139.85	1.819	
11,417.3	7,107.3	11,448.0	7,176.0	73.9	73.1	105.66	-3,409.8	1,148.7	254.4	113.9	140.48	1.811	
11,500.0	7,106.7	11,530.7	7,174.8	75.3	74.6	105.55	-3,492.4	1,148.7	254.3	110.8	143.47	1.772	
11,515.7	7,106.6	11,546.4	7,174.6	75.6	74.9	105.52	-3,508.2	1,148.7	254.2	110.2	144.04	1.765	
11,600.0	7,106.0	11,630.7	7,173.5	77.1	76.4	105.41	-3,592.4	1,148.7	254.1	107.0	147.09	1.728	
11,614.1	7,105.9	11,644.9	7,173.3	77.4	76.7	105.39	-3,606.6	1,148.7	254.1	106.5	147.60	1.721	
11,700.0	7,105.2	11,730.7	7,172.1	78.9	78.2	105.27	-3,692.4	1,148.7	253.9	103.2	150.72	1.685	
11,712.6	7,105.1	11,743.3	7,171.9	79.2	78.4	105.25	-3,705.0	1,148.7	253.9	102.7	151.18	1.680	
11,800.0	7,104.5	11,830.7	7,170.7	80.7	80.0	105.14	-3,792.4	1,148.7	253.8	99.4	154.37	1.644	
11,811.0	7,104.4	11,841.7	7,170.6	80.9	80.2	105.12	-3,803.4	1,148.7	253.8	99.0	154.77	1.640	
11,847.1	7,104.1	11,877.8	7,170.1	81.6	80.9	105.07	-3,839.5	1,148.7	253.7	97.6	156.09	1.625	
11,860.2	7,104.0	11,883.5	7,170.0	81.8	81.0	105.07	-3,845.2	1,148.7	253.8	97.4	156.43	1.622	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-88.61	1.1	-44.9	44.9				
98.4	98.4	99.4	99.4	0.1	0.1	-88.61	1.1	-44.9	44.9	44.8	0.17	263.045	
100.0	100.0	101.0	101.0	0.1	0.1	-88.61	1.1	-44.9	44.9	44.8	0.18	256.271	
196.8	196.8	197.8	197.8	0.3	0.3	-88.61	1.1	-44.9	44.9	44.3	0.61	73.571	
200.0	200.0	201.0	201.0	0.3	0.3	-88.61	1.1	-44.9	44.9	44.3	0.62	71.903	
295.3	295.3	296.3	296.3	0.5	0.5	-88.61	1.1	-44.9	44.9	43.9	1.05	42.662	
300.0	300.0	301.0	301.0	0.5	0.5	-88.61	1.1	-44.9	44.9	43.9	1.07	41.818	
393.7	393.7	394.7	394.7	0.7	0.7	-88.61	1.1	-44.9	44.9	43.4	1.50	30.041	
400.0	400.0	401.0	401.0	0.8	0.8	-88.61	1.1	-44.9	44.9	43.4	1.52	29.483	
492.1	492.1	493.1	493.1	1.0	1.0	-88.61	1.1	-44.9	44.9	43.0	1.94	23.183	
500.0	500.0	501.0	501.0	1.0	1.0	-88.61	1.1	-44.9	44.9	43.0	1.97	22.767	
590.5	590.5	591.5	591.5	1.2	1.2	-88.61	1.1	-44.9	44.9	42.5	2.38	18.874	
600.0	600.0	601.0	601.0	1.2	1.2	-88.61	1.1	-44.9	44.9	42.5	2.42	18.543	
689.0	689.0	690.0	690.0	1.4	1.4	-88.61	1.1	-44.9	44.9	42.1	2.82	15.916	
700.0	700.0	701.0	701.0	1.4	1.4	-88.61	1.1	-44.9	44.9	42.1	2.87	15.641	
787.4	787.4	788.4	788.4	1.6	1.6	-88.61	1.1	-44.9	44.9	41.7	3.27	13.759	
800.0	800.0	801.0	801.0	1.7	1.7	-88.61	1.1	-44.9	44.9	41.6	3.32	13.524	
885.8	885.8	886.8	886.8	1.9	1.9	-88.61	1.1	-44.9	44.9	41.2	3.71	12.117	
900.0	900.0	901.0	901.0	1.9	1.9	-88.61	1.1	-44.9	44.9	41.2	3.77	11.912	
984.2	984.2	985.2	985.2	2.1	2.1	-88.61	1.1	-44.9	44.9	40.8	4.15	10.825	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-88.61	1.1	-44.9	44.9	40.7	4.22	10.644	
1,082.7	1,082.7	1,083.7	1,083.7	2.3	2.3	-88.61	1.1	-44.9	44.9	40.3	4.59	9.783	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-88.61	1.1	-44.9	44.9	40.3	4.67	9.619	
1,181.1	1,181.1	1,182.1	1,182.1	2.5	2.5	-88.61	1.1	-44.9	44.9	39.9	5.04	8.923	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-88.61	1.1	-44.9	44.9	39.8	5.12	8.775	
1,279.5	1,279.5	1,280.5	1,280.5	2.7	2.7	-88.61	1.1	-44.9	44.9	39.5	5.48	8.202	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-88.61	1.1	-44.9	44.9	39.4	5.57	8.067	
1,377.9	1,377.9	1,378.9	1,378.9	3.0	3.0	-88.61	1.1	-44.9	44.9	39.0	5.92	7.589	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-88.61	1.1	-44.9	44.9	38.9	6.02	7.464	
1,476.4	1,476.4	1,477.4	1,477.4	3.2	3.2	-88.61	1.1	-44.9	44.9	38.6	6.36	7.061	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	-88.61	1.1	-44.9	44.9	38.5	6.47	6.945	
1,550.0	1,550.0	1,551.0	1,551.0	3.3	3.3	-88.61	1.1	-44.9	44.9	38.2	6.69	6.712	CC
1,574.8	1,574.8	1,575.8	1,575.8	3.4	3.4	-146.90	1.1	-44.9	45.0	38.2	6.80	6.617	ES
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-147.12	1.1	-44.9	45.3	38.4	6.91	6.551	
1,673.2	1,673.2	1,674.2	1,674.2	3.6	3.6	-148.56	1.1	-44.9	47.2	39.9	7.23	6.523	
1,700.0	1,699.9	1,700.9	1,700.9	3.7	3.7	-149.34	1.1	-44.9	48.3	40.9	7.35	6.570	
1,771.6	1,771.4	1,772.4	1,772.4	3.8	3.8	-151.90	1.1	-44.9	52.3	44.7	7.65	6.836	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	3.9	-153.03	1.1	-44.9	54.4	46.6	7.77	6.997	
1,870.1	1,869.4	1,870.7	1,870.7	4.0	4.1	-155.93	1.2	-44.9	60.6	52.6	8.07	7.515	
1,900.0	1,899.1	1,901.0	1,901.0	4.1	4.1	-156.97	1.4	-44.6	63.6	55.4	8.19	7.760	
1,968.5	1,967.0	1,970.3	1,970.2	4.3	4.3	-158.73	3.1	-43.4	70.5	62.1	8.47	8.327	
2,000.0	1,998.2	2,002.2	2,002.1	4.4	4.4	-159.30	4.3	-42.4	73.9	65.3	8.60	8.591	
2,066.9	2,064.1	2,070.1	2,069.9	4.5	4.5	-160.08	7.7	-39.7	81.1	72.2	8.87	9.146	
2,100.0	2,096.6	2,103.8	2,103.4	4.6	4.6	-160.29	9.9	-38.0	84.8	75.8	9.00	9.421	
2,165.3	2,160.6	2,170.3	2,169.6	4.8	4.7	-160.44	15.1	-33.8	92.2	83.0	9.27	9.954	
2,200.0	2,194.4	2,205.6	2,204.7	4.9	4.8	-160.39	18.4	-31.3	96.3	86.9	9.41	10.237	
2,263.8	2,256.4	2,270.7	2,269.1	5.2	5.0	-160.11	25.3	-25.8	103.9	94.2	9.67	10.742	
2,300.0	2,291.5	2,307.7	2,305.7	5.3	5.1	-159.86	29.7	-22.3	108.3	98.5	9.82	11.028	
2,362.2	2,351.4	2,371.3	2,368.4	5.5	5.2	-159.30	38.2	-15.6	116.1	106.0	10.09	11.500	
2,400.0	2,387.6	2,410.0	2,406.4	5.7	5.3	-158.89	43.9	-11.1	120.9	110.6	10.26	11.785	
2,460.6	2,445.4	2,472.1	2,467.2	6.0	5.5	-158.15	53.9	-3.2	128.8	118.2	10.54	12.221	
2,500.0	2,482.7	2,512.5	2,506.6	6.2	5.6	-157.62	60.9	2.4	134.0	123.3	10.73	12.493	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,573.2	2,565.5	6.5	5.8	-156.77	72.3	11.4	142.1	131.0	11.03	12.878	
2,600.0	2,576.6	2,615.3	2,606.2	6.7	6.0	-156.14	80.8	18.1	147.8	136.5	11.25	13.136	
2,657.5	2,630.1	2,674.4	2,663.1	7.0	6.2	-155.21	93.5	28.1	156.0	144.4	11.58	13.467	
2,700.0	2,669.4	2,716.8	2,703.7	7.3	6.4	-154.57	103.1	35.7	162.3	150.5	11.83	13.719	
2,755.9	2,720.6	2,771.9	2,756.5	7.6	6.6	-153.92	115.5	45.5	171.5	159.3	12.18	14.082	
2,776.7	2,739.5	2,792.4	2,776.1	7.8	6.7	-153.73	120.1	49.1	175.1	162.8	12.31	14.232	
2,800.0	2,760.8	2,815.3	2,798.1	7.9	6.8	-153.58	125.3	53.2	179.3	166.9	12.48	14.372	
2,854.3	2,810.2	2,868.8	2,849.2	8.3	7.0	-153.25	137.4	62.7	189.1	176.2	12.88	14.675	
2,900.0	2,851.7	2,913.7	2,892.3	8.7	7.2	-153.00	147.5	70.7	197.3	184.1	13.23	14.911	
2,952.7	2,899.7	2,965.6	2,942.0	9.1	7.4	-152.73	159.2	80.0	206.8	193.1	13.65	15.153	
3,000.0	2,942.7	3,012.0	2,986.5	9.4	7.7	-152.51	169.7	88.3	215.3	201.3	14.02	15.355	
3,051.2	2,989.3	3,062.4	3,034.7	9.8	7.9	-152.29	181.0	97.2	224.5	210.1	14.44	15.549	
3,100.0	3,033.7	3,110.4	3,080.7	10.2	8.1	-152.10	191.9	105.8	233.3	218.4	14.84	15.722	
3,149.6	3,078.8	3,159.2	3,127.4	10.5	8.4	-151.92	202.9	114.5	242.2	227.0	15.25	15.878	
3,200.0	3,124.6	3,208.7	3,174.9	10.9	8.6	-151.75	214.0	123.3	251.3	235.6	15.68	16.026	
3,248.0	3,168.3	3,256.0	3,220.1	11.3	8.8	-151.59	224.7	131.7	259.9	243.8	16.09	16.152	
3,300.0	3,215.6	3,307.1	3,269.1	11.7	9.1	-151.44	236.2	140.8	269.3	252.8	16.54	16.279	
3,346.4	3,257.9	3,352.8	3,312.8	12.1	9.3	-151.31	246.5	149.0	277.7	260.7	16.95	16.380	
3,400.0	3,306.6	3,405.5	3,363.3	12.5	9.6	-151.17	258.4	158.4	287.3	269.9	17.42	16.490	
3,444.9	3,347.4	3,449.6	3,405.6	12.9	9.8	-151.06	268.4	166.2	295.4	277.6	17.83	16.572	
3,500.0	3,397.6	3,503.8	3,457.5	13.3	10.1	-150.94	280.6	175.9	305.3	287.0	18.32	16.667	
3,543.3	3,436.9	3,546.4	3,498.3	13.7	10.3	-150.84	290.2	183.5	313.2	294.4	18.71	16.733	
3,600.0	3,488.5	3,602.2	3,551.7	14.1	10.6	-150.73	302.8	193.4	323.4	304.1	19.23	16.815	
3,641.7	3,526.5	3,643.2	3,591.0	14.5	10.8	-150.65	312.0	200.7	330.9	311.3	19.62	16.869	
3,700.0	3,579.5	3,700.5	3,645.9	15.0	11.1	-150.54	325.0	210.9	341.4	321.3	20.15	16.941	
3,740.1	3,616.0	3,740.0	3,683.7	15.3	11.4	-150.47	333.9	218.0	348.7	328.1	20.53	16.985	
3,800.0	3,670.5	3,798.9	3,740.1	15.8	11.7	-150.37	347.1	228.5	359.4	338.4	21.09	17.047	
3,838.6	3,705.6	3,836.8	3,776.4	16.1	11.9	-150.31	355.7	235.2	366.4	345.0	21.45	17.083	
3,900.0	3,761.4	3,897.2	3,834.3	16.6	12.2	-150.22	369.3	246.0	377.5	355.5	22.03	17.137	
3,937.0	3,795.1	3,933.6	3,869.2	16.9	12.4	-150.17	377.5	252.5	384.2	361.8	22.38	17.167	
4,000.0	3,852.4	3,995.6	3,928.5	17.4	12.7	-150.08	391.5	263.5	395.5	372.6	22.98	17.215	
4,035.4	3,884.6	4,030.4	3,961.9	17.7	12.9	-150.04	399.4	269.7	401.9	378.6	23.32	17.239	
4,100.0	3,943.4	4,093.9	4,022.7	18.3	13.3	-149.96	413.7	281.0	413.6	389.6	23.93	17.281	
4,133.8	3,974.2	4,127.2	4,054.6	18.6	13.5	-149.92	421.2	287.0	419.7	395.4	24.26	17.300	
4,200.0	4,034.4	4,192.3	4,116.9	19.1	13.8	-149.84	435.9	298.6	431.6	406.7	24.90	17.337	
4,232.3	4,063.7	4,224.0	4,147.3	19.4	14.0	-149.81	443.0	304.2	437.4	412.2	25.21	17.354	
4,300.0	4,125.3	4,290.6	4,211.1	19.9	14.4	-149.73	458.1	316.1	449.7	423.8	25.86	17.386	
4,330.7	4,153.3	4,320.8	4,240.0	20.2	14.5	-149.70	464.9	321.5	455.2	429.1	26.16	17.399	
4,400.0	4,216.3	4,389.0	4,305.3	20.8	14.9	-149.64	480.3	333.6	467.7	440.9	26.84	17.428	
4,429.1	4,242.8	4,417.6	4,332.8	21.0	15.1	-149.61	486.7	338.7	473.0	445.9	27.12	17.439	
4,500.0	4,307.3	4,487.4	4,399.5	21.6	15.5	-149.55	502.4	351.1	485.8	458.0	27.81	17.464	
4,527.5	4,332.3	4,514.5	4,425.5	21.9	15.6	-149.52	508.6	356.0	490.7	462.7	28.09	17.473	
4,600.0	4,398.2	4,585.7	4,493.7	22.5	16.0	-149.46	524.6	368.7	503.8	475.0	28.80	17.496	
4,626.0	4,421.9	4,611.3	4,518.2	22.7	16.2	-149.44	530.4	373.2	508.5	479.5	29.05	17.503	
4,700.0	4,489.2	4,684.1	4,587.9	23.3	16.6	-149.38	546.8	386.2	521.9	492.1	29.78	17.523	
4,724.4	4,511.4	4,708.1	4,610.9	23.5	16.7	-149.36	552.2	390.5	526.3	496.3	30.02	17.529	
4,800.0	4,580.2	4,782.4	4,682.1	24.2	17.1	-149.31	569.0	403.7	539.9	509.2	30.77	17.547	
4,822.8	4,601.0	4,804.9	4,703.6	24.4	17.3	-149.29	574.1	407.7	544.1	513.1	31.00	17.552	
4,900.0	4,671.2	4,880.8	4,776.3	25.0	17.7	-149.24	591.2	421.2	558.0	526.2	31.76	17.568	
4,921.2	4,690.5	4,901.7	4,796.4	25.2	17.8	-149.23	595.9	425.0	561.8	529.8	31.97	17.572	
5,000.0	4,762.1	4,979.1	4,870.5	25.9	18.2	-149.18	613.4	438.8	576.0	543.3	32.76	17.586	
5,019.7	4,780.0	4,998.5	4,889.1	26.0	18.4	-149.16	617.7	442.2	579.6	546.6	32.95	17.589	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	4,853.1	5,077.5	4,964.7	26.7	18.8	-149.12	635.5	456.3	594.1	560.3	33.75	17.601	
5,118.1	4,869.6	5,095.3	4,981.8	26.9	18.9	-149.11	639.6	459.5	597.4	563.4	33.93	17.604	
5,200.0	4,944.1	5,175.8	5,058.9	27.6	19.4	-149.06	657.7	473.8	612.2	577.4	34.75	17.615	
5,216.5	4,959.1	5,192.1	5,074.5	27.7	19.5	-149.05	661.4	476.7	615.1	580.2	34.92	17.617	
5,300.0	5,035.0	5,274.2	5,153.2	28.4	19.9	-149.01	679.9	491.3	630.2	594.5	35.75	17.626	
5,314.9	5,048.6	5,288.9	5,167.2	28.6	20.0	-149.00	683.2	494.0	632.9	597.0	35.90	17.628	
5,400.0	5,126.0	5,372.5	5,247.4	29.3	20.5	-148.95	702.1	508.9	648.3	611.5	36.76	17.637	
5,413.4	5,138.2	5,385.7	5,260.0	29.4	20.6	-148.95	705.1	511.2	650.7	613.8	36.89	17.638	
5,479.4	5,198.3	5,450.7	5,322.2	30.0	20.9	-148.92	719.7	522.8	662.6	625.1	37.55	17.644	
5,500.0	5,217.0	5,470.9	5,341.6	30.1	21.1	-148.94	724.3	526.4	666.3	628.5	37.77	17.641	
5,511.8	5,227.8	5,482.5	5,352.7	30.2	21.1	-148.95	726.9	528.5	668.3	630.4	37.88	17.641	
5,600.0	5,309.0	5,569.6	5,436.1	30.8	21.6	-148.96	746.5	544.0	682.2	643.5	38.78	17.591	
5,610.2	5,318.5	5,579.7	5,445.8	30.8	21.7	-148.95	748.8	545.8	683.7	644.8	38.89	17.581	
5,700.0	5,402.3	5,668.7	5,531.0	31.4	22.2	-148.79	768.9	561.6	695.3	655.4	39.83	17.456	
5,708.6	5,410.4	5,677.3	5,539.2	31.4	22.2	-148.77	770.8	563.2	696.3	656.3	39.92	17.441	
5,800.0	5,496.7	5,768.0	5,626.1	31.9	22.8	-148.47	791.3	579.3	705.4	664.5	40.90	17.245	
5,807.1	5,503.5	5,775.1	5,632.9	31.9	22.8	-148.44	792.9	580.6	706.0	665.0	40.98	17.228	
5,900.0	5,592.3	5,857.5	5,712.1	32.4	23.2	-148.08	810.9	594.8	713.1	671.2	41.85	17.040	
5,905.5	5,597.6	5,862.3	5,716.6	32.4	23.2	-148.06	811.9	595.6	713.5	671.6	41.89	17.030	
6,000.0	5,688.8	5,943.7	5,795.5	32.9	23.5	-147.74	827.9	608.3	719.7	677.0	42.67	16.866	
6,003.9	5,692.6	5,947.1	5,798.8	32.9	23.6	-147.73	828.6	608.8	719.9	677.2	42.70	16.859	
6,100.0	5,786.2	6,030.0	5,879.6	33.3	23.9	-147.43	843.0	620.2	725.3	681.9	43.42	16.705	
6,102.3	5,788.5	6,032.0	5,881.6	33.3	23.9	-147.42	843.3	620.4	725.4	682.0	43.43	16.702	
6,200.0	5,884.3	6,116.3	5,964.3	33.6	24.2	-147.14	856.0	630.5	729.8	685.7	44.08	16.557	
6,200.8	5,885.1	6,117.0	5,965.0	33.6	24.2	-147.14	856.1	630.5	729.8	685.7	44.08	16.556	
6,299.2	5,982.3	6,200.0	6,046.9	33.9	24.4	-146.89	866.8	638.9	733.2	688.6	44.64	16.425	
6,300.0	5,983.1	6,200.0	6,046.9	33.9	24.4	-146.89	866.8	638.9	733.3	688.6	44.64	16.425	
6,397.6	6,079.9	6,287.3	6,133.4	34.1	24.7	-146.65	876.0	646.2	735.6	690.4	45.13	16.298	
6,400.0	6,082.3	6,289.4	6,135.4	34.1	24.7	-146.65	876.1	646.3	735.6	690.5	45.14	16.295	
6,496.0	6,177.9	6,372.6	6,218.2	34.3	24.9	-146.44	882.9	651.7	736.9	691.3	45.53	16.183	
6,500.0	6,181.9	6,376.0	6,221.6	34.3	24.9	-146.44	883.2	651.9	736.9	691.4	45.55	16.178	
6,594.5	6,276.2	6,457.9	6,303.2	34.5	25.0	-146.26	887.9	655.6	737.1	691.3	45.85	16.076	
6,600.0	6,281.7	6,462.7	6,308.0	34.5	25.0	-146.25	888.1	655.8	737.1	691.2	45.87	16.069	
6,692.9	6,374.6	6,543.3	6,388.6	34.6	25.2	-146.09	890.9	658.0	736.3	690.2	46.09	15.975	
6,706.1	6,387.8	6,554.7	6,400.0	34.6	25.2	-87.85	891.1	658.2	736.1	690.0	46.12	15.961	
6,736.1	6,417.8	6,580.8	6,426.0	34.6	25.2	-87.81	891.6	658.5	735.7	689.5	46.21	15.923	
6,750.0	6,431.7	6,592.9	6,438.1	34.6	25.2	92.22	891.7	658.6	735.6	689.4	46.25	15.904	
6,778.0	6,459.7	6,617.2	6,462.4	34.6	25.2	92.31	891.9	658.8	735.5	689.2	46.34	15.871	
6,791.3	6,473.0	6,628.7	6,474.0	34.6	25.3	92.37	891.9	658.8	735.5	689.2	46.39	15.855	
6,800.0	6,481.6	6,637.4	6,482.6	34.6	25.3	92.42	891.9	658.8	735.6	689.1	46.43	15.842	
6,850.0	6,531.2	6,688.5	6,533.8	34.6	25.3	92.85	891.3	658.8	735.8	689.2	46.66	15.769	
6,889.7	6,570.3	6,730.3	6,575.4	34.6	25.3	93.21	888.3	658.8	736.1	689.3	46.79	15.733	
6,900.0	6,580.3	6,741.1	6,586.2	34.6	25.3	93.30	887.2	658.8	736.1	689.3	46.81	15.725	
6,950.0	6,628.5	6,794.1	6,638.6	34.6	25.3	93.73	879.1	658.8	736.5	689.6	46.87	15.715	
6,988.2	6,664.7	6,835.0	6,678.5	34.5	25.3	94.05	870.3	658.8	736.8	689.9	46.83	15.733	
7,000.0	6,675.8	6,847.7	6,690.7	34.5	25.3	94.14	867.1	658.8	736.9	690.0	46.81	15.740	
7,050.0	6,721.8	6,901.6	6,742.3	34.4	25.2	94.54	851.1	658.8	737.2	690.6	46.66	15.801	
7,086.6	6,754.5	6,941.4	6,779.4	34.3	25.1	94.81	836.8	658.8	737.5	691.1	46.48	15.869	
7,100.0	6,766.2	6,956.0	6,792.8	34.2	25.0	94.91	831.0	658.8	737.6	691.2	46.40	15.897	
7,150.0	6,809.0	7,010.9	6,842.1	34.1	24.8	95.26	807.0	658.8	738.0	692.0	46.05	16.028	
7,185.0	6,837.9	7,049.5	6,875.7	34.0	24.7	95.48	787.9	658.8	738.3	692.6	45.75	16.139	
7,200.0	6,849.9	7,066.1	6,889.7	33.9	24.6	95.58	779.1	658.8	738.4	692.8	45.61	16.191	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	7,121.7	6,935.4	33.8	24.4	95.87	747.3	658.8	738.8	693.7	45.09	16.386	
7,283.4	6,913.4	7,159.1	6,964.6	33.6	24.3	96.05	724.1	658.8	739.0	694.3	44.70	16.532	
7,300.0	6,925.2	7,177.6	6,978.6	33.6	24.2	96.13	711.9	658.8	739.2	694.7	44.50	16.609	
7,350.0	6,959.2	7,233.9	7,019.2	33.4	23.9	96.36	673.0	658.8	739.5	695.6	43.87	16.856	
7,381.9	6,979.6	7,269.9	7,043.6	33.3	23.7	96.48	646.5	658.8	739.7	696.2	43.45	17.024	
7,400.0	6,990.6	7,290.4	7,056.8	33.2	23.6	96.55	630.9	658.8	739.8	696.5	43.20	17.123	
7,450.0	7,019.2	7,347.1	7,091.1	33.0	23.3	96.71	585.7	658.8	740.0	697.5	42.52	17.402	
7,480.3	7,035.1	7,381.6	7,110.2	32.8	23.1	96.78	557.0	658.8	740.1	698.0	42.11	17.573	
7,500.0	7,044.9	7,404.0	7,121.8	32.8	23.0	96.83	537.8	658.8	740.2	698.3	41.85	17.686	
7,550.0	7,067.5	7,461.1	7,148.7	32.6	22.7	96.91	487.5	658.8	740.3	699.1	41.21	17.965	
7,578.7	7,079.1	7,493.9	7,162.3	32.4	22.5	96.94	457.6	658.8	740.3	699.5	40.86	18.119	
7,600.0	7,086.9	7,518.2	7,171.5	32.3	22.4	96.95	435.1	658.8	740.4	699.7	40.61	18.229	
7,650.0	7,103.1	7,575.3	7,190.0	32.1	22.1	96.96	381.1	658.8	740.4	700.3	40.09	18.466	
7,677.1	7,110.5	7,606.4	7,198.3	32.0	21.9	96.94	351.2	658.8	740.3	700.5	39.85	18.580	
7,700.0	7,116.0	7,632.5	7,204.2	32.0	21.8	96.92	325.7	658.8	740.3	700.7	39.66	18.667	
7,750.0	7,125.4	7,689.5	7,213.9	31.8	21.5	96.85	269.5	658.8	740.2	700.9	39.33	18.822	
7,775.6	7,128.9	7,718.7	7,217.2	31.7	21.4	96.80	240.6	658.8	740.1	700.9	39.21	18.878	
7,800.0	7,131.4	7,746.5	7,219.1	31.6	21.3	96.74	212.8	658.8	740.0	700.9	39.11	18.924	
7,850.0	7,133.9	7,802.0	7,219.9	31.5	21.1	96.60	157.3	658.8	739.8	700.8	39.01	18.966	
7,866.5	7,134.0	7,818.5	7,219.7	31.4	21.0	96.58	140.9	658.8	739.8	700.8	39.02	18.961	
7,874.0	7,133.9	7,826.0	7,219.6	31.4	21.0	96.58	133.3	658.8	739.8	700.7	39.03	18.953	
7,900.0	7,133.7	7,852.0	7,219.3	31.4	20.9	96.57	107.3	658.8	739.8	700.7	39.09	18.923	
7,972.4	7,133.2	7,924.4	7,218.4	31.2	20.6	96.54	34.9	658.8	739.7	700.3	39.39	18.778	
8,000.0	7,133.0	7,952.0	7,218.1	31.2	20.5	96.53	7.4	658.8	739.7	700.2	39.54	18.707	
8,070.8	7,132.4	8,022.8	7,217.2	31.1	20.4	96.50	-63.5	658.8	739.7	699.6	40.09	18.450	
8,100.0	7,132.2	8,052.0	7,216.8	31.1	20.4	96.49	-92.6	658.8	739.7	699.3	40.35	18.331	
8,169.3	7,131.7	8,121.3	7,216.0	31.1	20.5	96.46	-161.9	658.8	739.6	698.5	41.12	17.988	
8,200.0	7,131.5	8,152.0	7,215.6	31.1	20.6	96.45	-192.6	658.8	739.6	698.1	41.49	17.825	
8,267.7	7,131.0	8,219.7	7,214.7	31.2	21.2	96.43	-260.3	658.8	739.6	697.1	42.45	17.421	
8,300.0	7,130.7	8,252.0	7,214.3	31.2	21.5	96.41	-292.6	658.8	739.5	696.6	42.95	17.221	
8,366.1	7,130.2	8,318.1	7,213.5	31.4	22.1	96.39	-358.7	658.8	739.5	695.4	44.07	16.781	
8,400.0	7,130.0	8,352.0	7,213.1	31.5	22.5	96.38	-392.6	658.8	739.5	694.8	44.68	16.552	
8,464.5	7,129.5	8,416.5	7,212.3	31.7	23.2	96.35	-457.2	658.8	739.5	693.5	45.94	16.097	
8,500.0	7,129.2	8,452.0	7,211.9	31.9	23.6	96.34	-492.6	658.8	739.4	692.8	46.66	15.848	
8,563.0	7,128.7	8,515.0	7,211.1	32.2	24.4	96.31	-555.6	658.8	739.4	691.4	48.03	15.396	
8,600.0	7,128.5	8,552.0	7,210.6	32.4	24.8	96.30	-592.6	658.8	739.4	690.5	48.86	15.133	
8,661.4	7,128.0	8,613.4	7,209.8	32.8	25.6	96.28	-654.0	658.8	739.4	689.0	50.31	14.696	
8,700.0	7,127.7	8,652.0	7,209.4	33.1	26.1	96.26	-692.6	658.8	739.3	688.1	51.25	14.427	
8,759.8	7,127.3	8,711.8	7,208.6	33.5	26.9	96.24	-752.4	658.8	739.3	686.5	52.76	14.012	
8,800.0	7,127.0	8,752.0	7,208.1	33.9	27.5	96.22	-792.6	658.8	739.3	685.5	53.80	13.741	
8,858.2	7,126.5	8,810.2	7,207.4	34.4	28.3	96.20	-850.8	658.8	739.2	683.9	55.36	13.353	
8,900.0	7,126.2	8,852.0	7,206.9	34.8	28.9	96.19	-892.6	658.8	739.2	682.7	56.50	13.083	
8,956.7	7,125.8	8,908.7	7,206.2	35.4	29.7	96.16	-949.2	658.8	739.2	681.1	58.09	12.725	
9,000.0	7,125.5	8,952.0	7,205.6	35.8	30.4	96.15	-992.6	658.8	739.2	679.8	59.32	12.460	
9,055.1	7,125.1	9,007.1	7,204.9	36.5	31.2	96.13	-1,047.7	658.8	739.1	678.2	60.93	12.132	
9,100.0	7,124.7	9,052.0	7,204.4	37.0	31.9	96.11	-1,092.5	658.8	739.1	676.9	62.25	11.873	
9,153.5	7,124.3	9,105.5	7,203.7	37.6	32.7	96.09	-1,146.1	658.8	739.1	675.2	63.86	11.574	
9,200.0	7,124.0	9,152.0	7,203.1	38.2	33.4	96.07	-1,192.5	658.8	739.1	673.8	65.27	11.323	
9,251.9	7,123.6	9,203.9	7,202.5	38.8	34.2	96.05	-1,244.5	658.8	739.0	672.2	66.88	11.051	
9,300.0	7,123.2	9,252.0	7,201.9	39.5	35.0	96.03	-1,292.5	658.8	739.0	670.6	68.37	10.808	
9,350.4	7,122.8	9,302.4	7,201.3	40.1	35.8	96.01	-1,342.9	658.8	739.0	669.0	69.96	10.562	
9,400.0	7,122.5	9,352.0	7,200.6	40.8	36.6	96.00	-1,392.5	658.8	739.0	667.4	71.55	10.328	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30R-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,448.8	7,122.1	9,400.8	7,200.0	41.5	37.4	95.98	-1,441.3	658.8	738.9	665.8	73.12	10.106	
9,500.0	7,121.7	9,452.0	7,199.4	42.2	38.2	95.96	-1,492.5	658.8	738.9	664.1	74.78	9.881	
9,547.2	7,121.4	9,499.2	7,198.8	42.9	39.0	95.94	-1,539.7	658.8	738.9	662.6	76.33	9.681	
9,600.0	7,121.0	9,552.0	7,198.1	43.7	39.9	95.92	-1,592.5	658.8	738.9	660.8	78.07	9.465	
9,645.6	7,120.6	9,597.6	7,197.6	44.3	40.6	95.90	-1,638.2	658.8	738.8	659.3	79.58	9.284	
9,700.0	7,120.2	9,652.0	7,196.9	45.1	41.6	95.88	-1,692.5	658.8	738.8	657.4	81.40	9.076	
9,744.1	7,119.9	9,696.0	7,196.3	45.8	42.3	95.86	-1,736.6	658.8	738.8	655.9	82.88	8.914	
9,800.0	7,119.5	9,752.0	7,195.6	46.6	43.2	95.84	-1,792.5	658.8	738.8	654.0	84.77	8.714	
9,842.5	7,119.1	9,794.5	7,195.1	47.3	44.0	95.82	-1,835.0	658.8	738.7	652.5	86.22	8.568	
9,900.0	7,118.7	9,852.0	7,194.4	48.2	45.0	95.80	-1,892.5	658.8	738.7	650.5	88.19	8.377	
9,940.9	7,118.4	9,892.9	7,193.9	48.8	45.7	95.79	-1,933.4	658.8	738.7	649.1	89.59	8.245	
10,000.0	7,118.0	9,952.0	7,193.1	49.8	46.7	95.76	-1,992.5	658.8	738.7	647.0	91.63	8.061	
10,039.3	7,117.7	9,991.3	7,192.6	50.4	47.4	95.75	-2,031.8	658.8	738.6	645.6	93.00	7.943	
10,100.0	7,117.2	10,052.0	7,191.9	51.4	48.4	95.72	-2,092.5	658.8	738.6	643.5	95.11	7.766	
10,137.8	7,116.9	10,089.7	7,191.4	52.0	49.1	95.71	-2,130.2	658.8	738.6	642.2	96.43	7.660	
10,200.0	7,116.5	10,152.0	7,190.6	53.0	50.2	95.69	-2,192.5	658.8	738.6	639.9	98.61	7.490	
10,236.2	7,116.2	10,188.2	7,190.2	53.6	50.8	95.67	-2,228.6	658.8	738.5	638.7	99.88	7.394	
10,300.0	7,115.7	10,252.0	7,189.4	54.6	51.9	95.65	-2,292.4	658.8	738.5	636.4	102.13	7.231	
10,334.6	7,115.5	10,286.6	7,188.9	55.2	52.6	95.63	-2,327.1	658.8	738.5	635.1	103.36	7.145	
10,400.0	7,115.0	10,352.0	7,188.1	56.3	53.7	95.61	-2,392.4	658.8	738.5	632.8	105.68	6.988	
10,433.0	7,114.7	10,385.0	7,187.7	56.8	54.3	95.60	-2,425.5	658.8	738.4	631.6	106.86	6.911	
10,500.0	7,114.2	10,452.0	7,186.9	58.0	55.5	95.57	-2,492.4	658.8	738.4	629.2	109.24	6.759	
10,531.5	7,114.0	10,483.4	7,186.5	58.5	56.1	95.56	-2,523.9	658.8	738.4	628.0	110.37	6.690	
10,600.0	7,113.5	10,552.0	7,185.6	59.7	57.3	95.53	-2,592.4	658.8	738.4	625.5	112.83	6.544	
10,629.9	7,113.2	10,581.9	7,185.2	60.2	57.8	95.52	-2,622.3	658.8	738.3	624.4	113.90	6.482	
10,700.0	7,112.7	10,652.0	7,184.4	61.4	59.1	95.49	-2,692.4	658.8	738.3	621.9	116.42	6.342	
10,728.3	7,112.5	10,680.3	7,184.0	61.8	59.6	95.48	-2,720.7	658.8	738.3	620.9	117.45	6.286	
10,800.0	7,112.0	10,752.0	7,183.1	63.1	60.9	95.45	-2,792.4	658.8	738.3	618.2	120.04	6.150	
10,826.7	7,111.8	10,778.7	7,182.8	63.5	61.4	95.44	-2,819.1	658.8	738.3	617.2	121.01	6.101	
10,900.0	7,111.2	10,852.0	7,181.8	64.8	62.7	95.41	-2,892.4	658.8	738.2	614.6	123.66	5.970	
10,925.2	7,111.0	10,877.1	7,181.5	65.2	63.2	95.40	-2,917.6	658.8	738.2	613.6	124.58	5.926	
11,000.0	7,110.5	10,952.0	7,180.6	66.5	64.5	95.37	-2,992.4	658.8	738.2	610.9	127.30	5.799	
11,023.6	7,110.3	10,975.6	7,180.3	66.9	65.0	95.36	-3,016.0	658.8	738.2	610.0	128.16	5.760	
11,100.0	7,109.7	11,052.0	7,179.3	68.3	66.4	95.33	-3,092.4	658.8	738.1	607.2	130.95	5.637	
11,122.0	7,109.5	11,074.0	7,179.0	68.7	66.8	95.33	-3,114.4	658.8	738.1	606.4	131.76	5.602	
11,200.0	7,109.0	11,152.0	7,178.1	70.0	68.2	95.30	-3,192.4	658.8	738.1	603.5	134.61	5.483	
11,220.4	7,108.8	11,172.4	7,177.8	70.4	68.6	95.29	-3,212.8	658.8	738.1	602.7	135.36	5.453	
11,300.0	7,108.2	11,252.0	7,176.8	71.8	70.0	95.26	-3,292.4	658.8	738.0	599.7	138.28	5.337	
11,318.9	7,108.1	11,270.8	7,176.6	72.1	70.4	95.25	-3,311.2	658.8	738.0	599.0	138.98	5.310	
11,400.0	7,107.5	11,352.0	7,175.5	73.6	71.9	95.22	-3,392.3	658.8	738.0	596.0	141.96	5.199	
11,417.3	7,107.3	11,369.3	7,175.3	73.9	72.2	95.21	-3,409.6	658.8	738.0	595.4	142.60	5.175	
11,500.0	7,106.7	11,452.0	7,174.3	75.3	73.7	95.18	-3,492.3	658.8	737.9	592.3	145.65	5.067	
11,515.7	7,106.6	11,467.7	7,174.1	75.6	74.0	95.17	-3,508.1	658.8	737.9	591.7	146.23	5.046	
11,600.0	7,106.0	11,552.0	7,173.0	77.1	75.5	95.14	-3,592.3	658.8	737.9	588.6	149.34	4.941	
11,614.1	7,105.9	11,566.1	7,172.8	77.4	75.8	95.13	-3,606.5	658.8	737.9	588.0	149.86	4.924	
11,700.0	7,105.2	11,652.0	7,171.8	78.9	77.4	95.10	-3,692.3	658.8	737.8	584.8	153.04	4.821	
11,712.6	7,105.1	11,664.5	7,171.6	79.2	77.6	95.09	-3,704.9	658.8	737.8	584.3	153.51	4.807	
11,800.0	7,104.5	11,752.0	7,170.5	80.7	79.2	95.06	-3,792.3	658.8	737.8	581.1	156.75	4.707	
11,811.0	7,104.4	11,763.0	7,170.4	80.9	79.4	95.05	-3,803.3	658.8	737.8	580.6	157.16	4.695	
11,836.9	7,104.2	11,788.8	7,170.0	81.4	79.9	95.04	-3,829.2	658.8	737.8	579.7	158.12	4.666	
11,860.2	7,104.0	11,791.4	7,170.0	81.8	80.0	95.04	-3,831.7	658.8	738.1	579.5	158.60	4.654	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	91.35	-0.4	15.1	15.1				
98.4	98.4	98.4	98.4	0.1	0.1	91.35	-0.4	15.1	15.1	14.9	0.17	88.674	
100.0	100.0	100.0	100.0	0.1	0.1	91.35	-0.4	15.1	15.1	14.9	0.17	87.069	
196.8	196.8	196.8	196.8	0.3	0.3	91.35	-0.4	15.1	15.1	14.5	0.61	24.767	
200.0	200.0	200.0	200.0	0.3	0.3	91.35	-0.4	15.1	15.1	14.4	0.62	24.203	
295.3	295.3	295.3	295.3	0.5	0.5	91.35	-0.4	15.1	15.1	14.0	1.05	14.339	
300.0	300.0	300.0	300.0	0.5	0.5	91.35	-0.4	15.1	15.1	14.0	1.07	14.055	
393.7	393.7	393.7	393.7	0.7	0.7	91.35	-0.4	15.1	15.1	13.6	1.49	10.091	
400.0	400.0	400.0	400.0	0.8	0.8	91.35	-0.4	15.1	15.1	13.5	1.52	9.903	
492.1	492.1	492.1	492.1	1.0	1.0	91.35	-0.4	15.1	15.1	13.1	1.94	7.784	
500.0	500.0	500.0	500.0	1.0	1.0	91.35	-0.4	15.1	15.1	13.1	1.97	7.645	
590.5	590.5	590.5	590.5	1.2	1.2	91.35	-0.4	15.1	15.1	12.7	2.38	6.336	
600.0	600.0	600.0	600.0	1.2	1.2	91.35	-0.4	15.1	15.1	12.6	2.42	6.225	
689.0	689.0	689.0	689.0	1.4	1.4	91.35	-0.4	15.1	15.1	12.2	2.82	5.342	
700.0	700.0	700.0	700.0	1.4	1.4	91.35	-0.4	15.1	15.1	12.2	2.87	5.250	
787.4	787.4	787.4	787.4	1.6	1.6	91.35	-0.4	15.1	15.1	11.8	3.26	4.618	
800.0	800.0	800.0	800.0	1.7	1.7	91.35	-0.4	15.1	15.1	11.7	3.32	4.539	
885.8	885.8	885.8	885.8	1.9	1.9	91.35	-0.4	15.1	15.1	11.4	3.71	4.067	
900.0	900.0	900.0	900.0	1.9	1.9	91.35	-0.4	15.1	15.1	11.3	3.77	3.998	
984.2	984.2	984.2	984.2	2.1	2.1	91.35	-0.4	15.1	15.1	10.9	4.15	3.633	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	91.35	-0.4	15.1	15.1	10.9	4.22	3.572	
1,082.7	1,082.7	1,082.7	1,082.7	2.3	2.3	91.35	-0.4	15.1	15.1	10.5	4.59	3.283	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	91.35	-0.4	15.1	15.1	10.4	4.67	3.228	
1,181.1	1,181.1	1,181.1	1,181.1	2.5	2.5	91.35	-0.4	15.1	15.1	10.0	5.03	2.994	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	91.35	-0.4	15.1	15.1	10.0	5.12	2.944	
1,279.5	1,279.5	1,279.5	1,279.5	2.7	2.7	91.35	-0.4	15.1	15.1	9.6	5.48	2.752	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	91.35	-0.4	15.1	15.1	9.5	5.57	2.707	
1,377.9	1,377.9	1,377.9	1,377.9	3.0	3.0	91.35	-0.4	15.1	15.1	9.2	5.92	2.546	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	91.35	-0.4	15.1	15.1	9.1	6.02	2.504	
1,437.5	1,437.5	1,437.5	1,437.5	3.1	3.1	91.35	-0.4	15.1	15.1	8.9	6.19	2.436	CC
1,476.4	1,476.4	1,476.3	1,476.3	3.2	3.2	91.14	-0.3	15.2	15.2	8.8	6.36	2.387	ES
1,500.0	1,500.0	1,499.8	1,499.8	3.2	3.2	90.60	-0.2	15.5	15.5	9.0	6.46	2.391	
1,550.0	1,550.0	1,549.5	1,549.5	3.3	3.3	88.55	0.4	16.6	16.6	9.9	6.68	2.488	
1,574.8	1,574.8	1,574.1	1,574.1	3.4	3.4	29.15	0.9	17.5	17.4	10.6	6.78	2.566	
1,600.0	1,600.0	1,599.2	1,599.1	3.5	3.4	28.11	1.4	18.5	18.2	11.3	6.89	2.644	
1,673.2	1,673.2	1,671.9	1,671.7	3.6	3.6	25.85	3.5	22.7	20.6	13.5	7.20	2.869	
1,700.0	1,699.9	1,698.5	1,698.2	3.7	3.7	25.26	4.5	24.7	21.6	14.2	7.31	2.950	
1,771.6	1,771.4	1,769.6	1,768.9	3.8	3.8	24.13	7.6	31.0	24.0	16.4	7.60	3.159	
1,800.0	1,799.7	1,797.7	1,796.8	3.9	3.9	23.84	9.1	33.9	25.0	17.3	7.72	3.240	
1,870.1	1,869.4	1,867.1	1,865.6	4.0	4.1	23.43	13.3	42.1	27.5	19.5	8.01	3.433	
1,900.0	1,899.1	1,896.7	1,894.9	4.1	4.1	23.36	15.3	46.1	28.6	20.4	8.13	3.513	
1,968.5	1,967.0	1,964.5	1,961.8	4.3	4.3	23.41	20.3	56.2	31.0	22.6	8.42	3.688	
2,000.0	1,998.2	1,995.7	1,992.4	4.4	4.4	23.51	22.9	61.4	32.2	23.6	8.55	3.767	
2,066.9	2,064.1	2,061.8	2,057.2	4.5	4.6	23.86	28.9	73.2	34.7	25.8	8.83	3.926	
2,100.0	2,096.6	2,094.5	2,089.1	4.6	4.7	24.09	32.1	79.6	35.9	26.9	8.97	4.002	
2,165.3	2,160.6	2,159.0	2,151.8	4.8	4.9	24.64	38.9	93.1	38.4	29.1	9.26	4.144	
2,200.0	2,194.4	2,193.2	2,184.9	4.9	5.1	24.98	42.7	100.7	39.7	30.3	9.41	4.218	
2,263.8	2,256.4	2,256.1	2,245.5	5.2	5.3	25.67	50.2	115.7	42.1	32.4	9.70	4.341	
2,300.0	2,291.5	2,291.8	2,279.7	5.3	5.5	26.09	54.8	124.8	43.5	33.7	9.87	4.410	
2,362.2	2,351.4	2,353.0	2,338.1	5.5	5.7	26.86	63.0	141.2	46.0	35.8	10.18	4.516	
2,400.0	2,387.6	2,390.2	2,373.4	5.7	5.9	27.35	68.3	151.7	47.5	37.1	10.37	4.578	
2,460.6	2,445.4	2,449.9	2,429.7	6.0	6.2	28.18	77.2	169.4	49.9	39.2	10.71	4.664	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,500.0	2,482.7	2,488.6	2,466.0	6.2	6.4	28.73	83.3	181.4	51.5	40.6	10.93	4.714	
2,559.0	2,538.3	2,546.6	2,520.0	6.5	6.8	29.58	92.8	200.3	54.0	42.7	11.30	4.777	
2,600.0	2,576.6	2,586.8	2,557.2	6.7	7.0	30.19	99.6	214.0	55.7	44.1	11.57	4.817	
2,657.5	2,630.1	2,643.2	2,609.0	7.0	7.4	31.05	109.7	233.9	58.2	46.2	11.97	4.857	
2,700.0	2,669.4	2,684.9	2,647.0	7.3	7.7	31.70	117.4	249.2	60.0	47.7	12.29	4.882	
2,755.9	2,720.6	2,739.7	2,696.6	7.6	8.1	32.55	127.9	270.1	62.4	49.7	12.74	4.901	
2,776.7	2,739.5	2,760.1	2,714.9	7.8	8.3	32.87	131.9	278.1	63.4	50.4	12.92	4.905	
2,800.0	2,760.8	2,782.9	2,735.4	7.9	8.4	33.20	136.4	287.2	64.5	51.3	13.13	4.909	
2,854.3	2,810.2	2,836.2	2,782.7	8.3	8.9	33.63	147.4	308.9	67.7	54.1	13.64	4.965	
2,900.0	2,851.7	2,881.7	2,823.1	8.7	9.3	33.82	156.9	327.8	70.8	56.7	14.07	5.030	
2,952.7	2,899.7	2,934.4	2,869.7	9.1	9.7	34.02	167.8	349.6	74.3	59.7	14.57	5.096	
3,000.0	2,942.7	2,981.5	2,911.5	9.4	10.1	34.18	177.7	369.1	77.4	62.4	15.03	5.150	
3,051.2	2,989.3	3,032.6	2,956.7	9.8	10.6	34.34	188.3	390.3	80.8	65.3	15.54	5.200	
3,100.0	3,033.7	3,081.3	2,999.9	10.2	11.0	34.49	198.4	410.5	84.1	68.1	16.04	5.244	
3,149.6	3,078.8	3,130.8	3,043.7	10.5	11.4	34.62	208.8	431.0	87.4	70.9	16.55	5.282	
3,200.0	3,124.6	3,181.1	3,088.2	10.9	11.9	34.75	219.2	451.9	90.8	73.7	17.07	5.318	
3,248.0	3,168.3	3,229.0	3,130.7	11.3	12.3	34.86	229.2	471.7	94.0	76.4	17.57	5.347	
3,300.0	3,215.6	3,280.8	3,176.6	11.7	12.8	34.98	240.0	493.2	97.4	79.3	18.12	5.376	
3,346.4	3,257.9	3,327.2	3,217.7	12.1	13.2	35.07	249.7	512.4	100.5	81.9	18.62	5.399	
3,400.0	3,306.6	3,380.6	3,265.0	12.5	13.7	35.17	260.8	534.6	104.1	84.9	19.20	5.423	
3,444.9	3,347.4	3,425.4	3,304.7	12.9	14.1	35.25	270.2	553.2	107.1	87.4	19.69	5.440	
3,500.0	3,397.6	3,480.4	3,353.4	13.3	14.6	35.34	281.6	576.0	110.8	90.5	20.29	5.460	
3,543.3	3,436.9	3,523.6	3,391.7	13.7	15.0	35.41	290.6	593.9	113.7	92.9	20.77	5.473	
3,600.0	3,488.5	3,580.2	3,441.8	14.1	15.6	35.50	302.4	617.3	117.4	96.1	21.40	5.489	
3,641.7	3,526.5	3,621.8	3,478.7	14.5	16.0	35.56	311.1	634.6	120.2	98.4	21.86	5.500	
3,700.0	3,579.5	3,680.0	3,530.2	15.0	16.5	35.64	323.2	658.7	124.1	101.6	22.51	5.513	
3,740.1	3,616.0	3,720.0	3,565.7	15.3	16.9	35.69	331.6	675.3	126.8	103.8	22.97	5.521	
3,800.0	3,670.5	3,779.7	3,618.6	15.8	17.5	35.76	344.0	700.0	130.8	107.2	23.64	5.532	
3,838.6	3,705.6	3,818.2	3,652.6	16.1	17.8	35.80	352.0	716.0	133.4	109.3	24.08	5.538	
3,900.0	3,761.4	3,879.5	3,706.9	16.6	18.4	35.87	364.8	741.4	137.5	112.7	24.78	5.547	
3,937.0	3,795.1	3,916.4	3,739.6	16.9	18.8	35.91	372.5	756.7	139.9	114.7	25.21	5.552	
4,000.0	3,852.4	3,979.3	3,795.3	17.4	19.3	35.97	385.6	782.8	144.2	118.2	25.93	5.559	
4,035.4	3,884.6	4,014.6	3,826.6	17.7	19.7	36.00	393.0	797.4	146.5	120.2	26.34	5.563	
4,100.0	3,943.4	4,079.1	3,883.7	18.3	20.3	36.06	406.4	824.1	150.8	123.7	27.08	5.569	
4,133.8	3,974.2	4,112.8	3,913.6	18.6	20.6	36.09	413.4	838.1	153.1	125.6	27.48	5.572	
4,200.0	4,034.4	4,178.8	3,972.1	19.1	21.3	36.15	427.2	865.5	157.5	129.3	28.24	5.577	
4,232.3	4,063.7	4,211.0	4,000.6	19.4	21.6	36.17	433.9	878.8	159.7	131.0	28.62	5.579	
4,300.0	4,125.3	4,278.6	4,060.5	19.9	22.2	36.22	448.0	906.9	164.2	134.8	29.41	5.583	
4,330.7	4,153.3	4,309.2	4,087.6	20.2	22.5	36.24	454.4	919.6	166.2	136.5	29.77	5.584	
4,400.0	4,216.3	4,378.4	4,148.9	20.8	23.2	36.29	468.8	948.2	170.9	140.3	30.58	5.587	
4,429.1	4,242.8	4,407.4	4,174.6	21.0	23.5	36.31	474.8	960.3	172.8	141.9	30.92	5.588	
4,500.0	4,307.3	4,478.2	4,237.3	21.6	24.1	36.36	489.6	989.6	177.5	145.8	31.75	5.591	
4,527.5	4,332.3	4,505.7	4,261.6	21.9	24.4	36.38	495.3	1,001.0	179.4	147.3	32.08	5.592	
4,600.0	4,398.2	4,577.9	4,325.6	22.5	25.1	36.42	510.4	1,030.9	184.2	151.3	32.93	5.594	
4,626.0	4,421.9	4,603.9	4,348.6	22.7	25.4	36.44	515.8	1,041.7	185.9	152.7	33.24	5.594	
4,700.0	4,489.2	4,677.7	4,414.0	23.3	26.1	36.48	531.2	1,072.3	190.9	156.8	34.12	5.595	
4,724.4	4,511.4	4,702.1	4,435.6	23.5	26.3	36.49	536.2	1,082.4	192.5	158.1	34.40	5.596	
4,800.0	4,580.2	4,777.5	4,502.4	24.2	27.0	36.53	552.0	1,113.7	197.6	162.3	35.30	5.597	
4,822.8	4,601.0	4,800.3	4,522.6	24.4	27.3	36.54	556.7	1,123.1	199.1	163.5	35.57	5.597	
4,900.0	4,671.2	4,877.3	4,590.8	25.0	28.0	36.58	572.8	1,155.0	204.3	167.8	36.49	5.597	
4,921.2	4,690.5	4,898.5	4,609.6	25.2	28.2	36.59	577.2	1,163.8	205.7	168.9	36.74	5.598	
5,000.0	4,762.1	4,977.0	4,679.2	25.9	29.0	36.63	593.6	1,196.4	210.9	173.2	37.68	5.598	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,996.7	4,696.6	26.0	29.2	36.63	597.6	1,204.5	212.2	174.3	37.92	5.598	
5,100.0	4,853.1	5,076.8	4,767.6	26.7	29.9	36.67	614.3	1,237.8	217.6	178.7	38.87	5.598	
5,118.1	4,869.6	5,094.9	4,783.6	26.9	30.1	36.68	618.1	1,245.2	218.8	179.7	39.09	5.598	
5,200.0	4,944.1	5,176.6	4,856.0	27.6	30.9	36.71	635.1	1,279.1	224.3	184.2	40.07	5.597	
5,216.5	4,959.1	5,193.1	4,870.6	27.7	31.1	36.72	638.6	1,286.0	225.4	185.1	40.27	5.597	
5,300.0	5,035.0	5,276.4	4,944.3	28.4	31.9	36.75	655.9	1,320.5	231.0	189.7	41.27	5.597	
5,314.9	5,048.6	5,291.3	4,957.6	28.6	32.0	36.75	659.0	1,326.7	232.0	190.5	41.45	5.597	
5,400.0	5,126.0	5,376.2	5,032.7	29.3	32.9	36.78	676.7	1,361.8	237.6	195.2	42.47	5.596	
5,413.4	5,138.2	5,389.5	5,044.5	29.4	33.0	36.79	679.5	1,367.4	238.5	195.9	42.63	5.596	
5,479.4	5,198.3	5,455.4	5,102.9	30.0	33.6	36.81	693.2	1,394.7	243.0	199.5	43.42	5.595	
5,500.0	5,217.0	5,475.9	5,121.1	30.1	33.8	36.83	697.5	1,403.2	244.4	200.7	43.66	5.597	
5,511.8	5,227.8	5,487.7	5,131.5	30.2	34.0	36.83	700.0	1,408.1	245.3	201.5	43.79	5.601	
5,600.0	5,309.0	5,581.0	5,214.6	30.8	34.8	36.71	719.1	1,446.0	252.3	207.6	44.66	5.649	
5,610.2	5,318.5	5,592.0	5,224.5	30.8	34.9	36.69	721.2	1,450.3	253.1	208.4	44.76	5.655	
5,700.0	5,402.3	5,688.9	5,312.3	31.4	35.6	36.55	739.6	1,486.9	260.0	214.5	45.52	5.712	
5,708.6	5,410.4	5,698.2	5,320.8	31.4	35.6	36.54	741.3	1,490.3	260.7	215.1	45.59	5.717	
5,800.0	5,496.7	5,797.1	5,411.9	31.9	36.3	36.38	758.6	1,524.6	267.3	221.0	46.29	5.775	
5,807.1	5,503.5	5,804.7	5,419.0	31.9	36.3	36.37	759.8	1,527.2	267.8	221.5	46.34	5.780	
5,900.0	5,592.3	5,905.6	5,513.4	32.4	37.0	36.19	775.9	1,559.0	274.2	227.3	46.95	5.840	
5,905.5	5,597.6	5,911.6	5,519.0	32.4	37.0	36.18	776.8	1,560.8	274.6	227.6	46.99	5.844	
6,000.0	5,688.8	6,014.4	5,616.5	32.9	37.5	35.99	791.4	1,590.0	280.7	233.2	47.53	5.906	
6,003.9	5,692.6	6,018.6	5,620.5	32.9	37.6	35.99	792.0	1,591.2	281.0	233.4	47.54	5.909	
6,100.0	5,786.2	6,123.4	5,721.1	33.3	38.1	35.78	805.3	1,617.6	286.8	238.8	48.00	5.974	
6,102.3	5,788.5	6,126.0	5,723.5	33.3	38.1	35.78	805.6	1,618.2	286.9	238.9	48.01	5.976	
6,200.0	5,884.3	6,232.8	5,827.0	33.6	38.5	35.56	817.4	1,641.6	292.4	244.0	48.38	6.044	
6,200.8	5,885.1	6,233.6	5,827.9	33.6	38.6	35.55	817.5	1,641.8	292.4	244.0	48.38	6.044	
6,299.2	5,982.3	6,341.5	5,933.3	33.9	39.0	35.32	827.6	1,661.9	297.5	248.9	48.66	6.115	
6,300.0	5,983.1	6,342.4	5,934.2	33.9	39.0	35.31	827.7	1,662.1	297.6	248.9	48.66	6.115	
6,397.6	6,079.9	6,449.6	6,039.8	34.1	39.3	35.07	835.9	1,678.5	302.2	253.3	48.84	6.187	
6,400.0	6,082.3	6,452.2	6,042.4	34.1	39.3	35.06	836.1	1,678.9	302.3	253.5	48.85	6.189	
6,496.0	6,177.9	6,557.9	6,147.1	34.3	39.6	34.80	842.5	1,691.5	306.4	257.5	48.94	6.261	
6,500.0	6,181.9	6,562.2	6,151.4	34.3	39.6	34.79	842.7	1,692.0	306.6	257.6	48.94	6.264	
6,594.5	6,276.2	6,666.4	6,255.1	34.5	39.8	34.52	847.2	1,700.9	310.2	261.2	48.94	6.338	
6,600.0	6,281.7	6,672.5	6,261.2	34.5	39.8	34.50	847.4	1,701.4	310.4	261.4	48.94	6.342	
6,692.9	6,374.6	6,775.1	6,363.6	34.6	39.9	34.22	850.1	1,706.7	313.5	264.6	48.86	6.417	
6,706.1	6,387.8	6,789.6	6,378.2	34.6	40.0	92.40	850.3	1,707.2	313.9	265.1	48.84	6.427	
6,736.1	6,417.8	6,822.8	6,411.3	34.6	40.0	92.32	850.8	1,708.1	314.7	265.8	48.86	6.441	
6,750.0	6,431.7	6,838.2	6,426.7	34.6	40.0	-87.72	850.9	1,708.3	314.9	266.1	48.87	6.444	
6,791.3	6,473.0	6,883.9	6,472.3	34.6	40.1	-88.14	851.1	1,708.8	315.2	266.6	48.67	6.477	
6,800.0	6,481.6	6,893.1	6,481.6	34.6	40.1	-88.28	851.1	1,708.8	315.2	266.6	48.59	6.487	
6,850.0	6,531.2	6,942.6	6,531.1	34.6	40.1	-89.34	850.8	1,708.8	315.1	267.2	47.91	6.576	
6,878.6	6,559.4	6,971.0	6,559.4	34.6	40.1	-90.00	849.4	1,708.8	315.1	267.6	47.45	6.640	
6,889.7	6,570.3	6,982.0	6,570.4	34.6	40.1	-90.26	848.5	1,708.8	315.1	267.8	47.27	6.665	
6,900.0	6,580.3	6,992.2	6,580.6	34.6	40.1	-90.49	847.6	1,708.8	315.1	268.0	47.11	6.688	
6,950.0	6,628.5	7,042.2	6,630.1	34.6	40.1	-91.65	840.8	1,708.8	315.2	268.9	46.25	6.815	
6,988.2	6,664.7	7,080.7	6,667.8	34.5	40.1	-92.53	833.3	1,708.8	315.4	269.8	45.57	6.921	
7,000.0	6,675.8	7,092.6	6,679.5	34.5	40.1	-92.80	830.5	1,708.8	315.4	270.1	45.36	6.954	
7,050.0	6,721.8	7,143.6	6,728.5	34.4	40.0	-93.95	816.7	1,708.8	315.8	271.4	44.45	7.106	
7,086.6	6,754.5	7,181.2	6,763.9	34.3	40.0	-94.77	804.2	1,708.8	316.2	272.4	43.77	7.224	
7,100.0	6,766.2	7,195.0	6,776.8	34.2	39.9	-95.07	799.2	1,708.8	316.3	272.8	43.53	7.267	
7,150.0	6,809.0	7,246.9	6,824.2	34.1	39.8	-96.17	778.0	1,708.8	316.9	274.3	42.61	7.437	
7,185.0	6,837.9	7,283.5	6,856.6	34.0	39.8	-96.93	761.1	1,708.8	317.4	275.4	41.98	7.561	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,200.0	6,849.9	7,299.2	6,870.3	33.9	39.7	-97.25	753.3	1,708.8	317.6	275.9	41.72	7.613	
7,250.0	6,888.7	7,352.1	6,914.9	33.8	39.6	-98.28	724.9	1,708.8	318.4	277.6	40.86	7.793	
7,283.4	6,913.4	7,387.7	6,943.7	33.6	39.5	-98.96	704.0	1,708.8	319.0	278.7	40.30	7.915	
7,300.0	6,925.2	7,405.4	6,957.7	33.6	39.4	-99.28	693.1	1,708.8	319.3	279.3	40.04	7.975	
7,350.0	6,959.2	7,459.2	6,998.3	33.4	39.3	-100.23	657.8	1,708.8	320.2	280.9	39.27	8.154	
7,381.9	6,979.6	7,493.8	7,022.9	33.3	39.1	-100.81	633.6	1,708.8	320.8	282.0	38.81	8.267	
7,400.0	6,990.6	7,513.5	7,036.5	33.2	39.1	-101.12	619.3	1,708.8	321.2	282.6	38.56	8.330	
7,450.0	7,019.2	7,568.2	7,071.9	33.0	38.9	-101.96	577.6	1,708.8	322.1	284.2	37.91	8.497	
7,480.3	7,035.1	7,601.6	7,091.9	32.8	38.8	-102.44	550.9	1,708.8	322.7	285.1	37.55	8.593	
7,500.0	7,044.9	7,623.3	7,104.3	32.8	38.7	-102.73	533.0	1,708.8	323.1	285.7	37.34	8.653	
7,550.0	7,067.5	7,678.9	7,133.3	32.6	38.5	-103.44	485.7	1,708.8	324.0	287.1	36.84	8.794	
7,578.7	7,079.1	7,710.9	7,148.4	32.4	38.4	-103.81	457.4	1,708.8	324.5	287.9	36.60	8.866	
7,600.0	7,086.9	7,734.8	7,158.8	32.3	38.3	-104.08	435.9	1,708.8	324.9	288.4	36.43	8.917	
7,650.0	7,103.1	7,791.0	7,180.4	32.1	38.1	-104.64	384.0	1,708.8	325.7	289.6	36.11	9.019	
7,677.1	7,110.5	7,821.7	7,190.4	32.0	38.0	-104.91	355.0	1,708.8	326.1	290.1	35.98	9.062	
7,700.0	7,116.0	7,847.6	7,197.9	32.0	37.9	-105.12	330.3	1,708.8	326.4	290.5	35.88	9.096	
7,750.0	7,125.4	7,904.4	7,211.3	31.8	37.7	-105.52	275.1	1,708.8	327.0	291.3	35.75	9.146	
7,775.6	7,128.9	7,933.5	7,216.4	31.7	37.6	-105.69	246.4	1,708.8	327.3	291.5	35.73	9.159	
7,800.0	7,131.4	7,961.4	7,220.2	31.6	37.5	-105.83	218.8	1,708.8	327.5	291.8	35.72	9.169	
7,850.0	7,133.9	8,018.6	7,224.6	31.5	37.4	-106.06	161.8	1,708.8	327.9	292.1	35.78	9.163	
7,866.5	7,134.0	8,037.4	7,225.1	31.4	37.3	-106.12	142.9	1,708.8	328.0	292.1	35.82	9.156	
7,874.0	7,133.9	8,046.0	7,225.1	31.4	37.3	-106.14	134.3	1,708.8	328.0	292.2	35.80	9.163	
7,900.0	7,133.7	8,073.2	7,224.8	31.4	37.3	-106.12	107.1	1,708.8	328.0	292.2	35.76	9.171	
7,972.4	7,133.2	8,145.6	7,223.8	31.2	37.1	-106.04	34.7	1,708.8	327.8	292.0	35.85	9.145	
8,000.0	7,133.0	8,173.2	7,223.4	31.2	37.1	-106.02	7.2	1,708.8	327.8	291.9	35.90	9.131	
8,070.8	7,132.4	8,244.1	7,222.4	31.1	37.0	-105.94	-63.7	1,708.8	327.7	291.4	36.24	9.042	
8,100.0	7,132.2	8,273.2	7,222.0	31.1	37.0	-105.91	-92.8	1,708.8	327.6	291.2	36.40	9.000	
8,169.3	7,131.7	8,342.5	7,221.1	31.1	37.0	-105.84	-162.1	1,708.8	327.5	290.5	36.99	8.853	
8,200.0	7,131.5	8,373.2	7,220.6	31.1	37.0	-105.80	-192.8	1,708.8	327.4	290.2	37.28	8.784	
8,267.7	7,131.0	8,440.9	7,219.7	31.2	37.0	-105.73	-260.5	1,708.8	327.3	289.2	38.08	8.595	
8,300.0	7,130.7	8,473.2	7,219.3	31.2	37.1	-105.70	-292.8	1,708.8	327.3	288.8	38.49	8.503	
8,366.1	7,130.2	8,539.3	7,218.4	31.4	37.2	-105.63	-358.9	1,708.8	327.2	287.7	39.49	8.285	
8,400.0	7,130.0	8,573.2	7,217.9	31.5	37.2	-105.59	-392.8	1,708.8	327.1	287.1	40.02	8.173	
8,464.5	7,129.5	8,637.8	7,217.0	31.7	37.4	-105.52	-457.3	1,708.8	327.0	285.8	41.18	7.941	
8,500.0	7,129.2	8,673.2	7,216.5	31.9	37.5	-105.49	-492.8	1,708.8	326.9	285.1	41.83	7.816	
8,563.0	7,128.7	8,736.2	7,215.6	32.2	37.7	-105.42	-555.8	1,708.8	326.8	283.7	43.11	7.581	
8,600.0	7,128.5	8,773.2	7,215.1	32.4	37.9	-105.38	-592.8	1,708.8	326.8	282.9	43.88	7.446	
8,661.4	7,128.0	8,834.6	7,214.3	32.8	38.2	-105.31	-654.2	1,708.8	326.7	281.4	45.27	7.216	
8,700.0	7,127.7	8,873.2	7,213.7	33.1	38.4	-105.27	-692.8	1,708.8	326.6	280.4	46.15	7.076	
8,759.8	7,127.3	8,933.0	7,212.9	33.5	38.7	-105.21	-752.6	1,708.8	326.5	278.9	47.61	6.857	
8,800.0	7,127.0	8,973.2	7,212.4	33.9	38.9	-105.17	-792.8	1,708.8	326.4	277.8	48.61	6.716	
8,858.2	7,126.5	9,031.5	7,211.6	34.4	39.3	-105.10	-851.0	1,708.8	326.3	276.2	50.12	6.511	
8,900.0	7,126.2	9,073.2	7,211.0	34.8	39.6	-105.06	-892.7	1,708.8	326.3	275.0	51.22	6.370	
8,956.7	7,125.8	9,129.9	7,210.2	35.4	40.1	-105.00	-949.4	1,708.8	326.2	273.4	52.77	6.181	
9,000.0	7,125.5	9,173.2	7,209.6	35.8	40.4	-104.95	-992.7	1,708.8	326.1	272.1	53.97	6.042	
9,055.1	7,125.1	9,228.3	7,208.8	36.5	40.9	-104.89	-1,047.8	1,708.8	326.0	270.5	55.54	5.870	
9,100.0	7,124.7	9,273.2	7,208.2	37.0	41.3	-104.85	-1,092.7	1,708.8	325.9	269.1	56.84	5.735	
9,153.5	7,124.3	9,326.7	7,207.5	37.6	41.8	-104.79	-1,146.2	1,708.8	325.9	267.4	58.42	5.578	
9,200.0	7,124.0	9,373.2	7,206.9	38.2	42.3	-104.74	-1,192.7	1,708.8	325.8	266.0	59.81	5.447	
9,251.9	7,123.6	9,425.1	7,206.1	38.8	42.8	-104.68	-1,244.7	1,708.8	325.7	264.3	61.39	5.306	
9,300.0	7,123.2	9,473.2	7,205.5	39.5	43.4	-104.63	-1,292.7	1,708.8	325.6	262.8	62.86	5.180	
9,350.4	7,122.8	9,523.6	7,204.8	40.1	43.9	-104.58	-1,343.1	1,708.8	325.5	261.1	64.43	5.052	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - OLSON 30U-343 - ORIGINAL WELLBORE - PROPOSAL #2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,400.0	7,122.5	9,573.2	7,204.1	40.8	44.5	-104.53	-1,392.7	1,708.8	325.5	259.5	65.99	4.932	
9,448.8	7,122.1	9,622.0	7,203.4	41.5	45.1	-104.47	-1,441.5	1,708.8	325.4	257.8	67.55	4.817	
9,500.0	7,121.7	9,673.2	7,202.7	42.2	45.7	-104.42	-1,492.7	1,708.8	325.3	256.1	69.19	4.702	
9,547.2	7,121.4	9,720.4	7,202.1	42.9	46.3	-104.37	-1,539.9	1,708.8	325.2	254.5	70.72	4.599	
9,600.0	7,121.0	9,773.2	7,201.3	43.7	47.0	-104.31	-1,592.7	1,708.8	325.1	252.7	72.44	4.488	
9,645.6	7,120.6	9,818.8	7,200.7	44.3	47.6	-104.26	-1,638.3	1,708.8	325.1	251.1	73.95	4.396	
9,700.0	7,120.2	9,873.2	7,199.9	45.1	48.3	-104.20	-1,692.7	1,708.8	325.0	249.2	75.75	4.290	
9,744.1	7,119.9	9,917.3	7,199.3	45.8	48.9	-104.16	-1,736.7	1,708.8	324.9	247.7	77.22	4.208	
9,800.0	7,119.5	9,973.2	7,198.6	46.6	49.7	-104.10	-1,792.6	1,708.8	324.8	245.7	79.10	4.107	
9,842.5	7,119.1	10,015.7	7,198.0	47.3	50.3	-104.05	-1,835.1	1,708.8	324.8	244.2	80.53	4.033	
9,900.0	7,118.7	10,073.2	7,197.2	48.2	51.1	-103.99	-1,892.6	1,708.8	324.7	242.2	82.49	3.936	
9,940.9	7,118.4	10,114.1	7,196.6	48.8	51.7	-103.94	-1,933.6	1,708.8	324.6	240.7	83.88	3.870	
10,000.0	7,118.0	10,173.2	7,195.8	49.8	52.5	-103.88	-1,992.6	1,708.8	324.5	238.6	85.91	3.778	
10,039.3	7,117.7	10,212.5	7,195.3	50.4	53.1	-103.84	-2,032.0	1,708.8	324.5	237.2	87.27	3.718	
10,100.0	7,117.2	10,273.2	7,194.4	51.4	54.0	-103.77	-2,092.6	1,708.8	324.4	235.0	89.37	3.630	
10,137.8	7,116.9	10,311.0	7,193.9	52.0	54.6	-103.73	-2,130.4	1,708.8	324.3	233.6	90.68	3.577	
10,200.0	7,116.5	10,373.2	7,193.0	53.0	55.5	-103.66	-2,192.6	1,708.8	324.2	231.4	92.85	3.492	
10,236.2	7,116.2	10,409.4	7,192.5	53.6	56.1	-103.62	-2,228.8	1,708.8	324.2	230.1	94.12	3.444	
10,300.0	7,115.7	10,473.2	7,191.7	54.6	57.1	-103.55	-2,292.6	1,708.8	324.1	227.7	96.36	3.363	
10,334.6	7,115.5	10,507.8	7,191.2	55.2	57.6	-103.52	-2,327.2	1,708.8	324.0	226.4	97.58	3.321	
10,400.0	7,115.0	10,573.2	7,190.3	56.3	58.7	-103.45	-2,392.6	1,708.8	323.9	224.0	99.89	3.243	
10,433.0	7,114.7	10,606.2	7,189.8	56.8	59.2	-103.41	-2,425.6	1,708.8	323.9	222.8	101.07	3.205	
10,500.0	7,114.2	10,673.2	7,188.9	58.0	60.2	-103.34	-2,492.6	1,708.8	323.8	220.3	103.45	3.130	
10,531.5	7,114.0	10,704.6	7,188.5	58.5	60.7	-103.30	-2,524.0	1,708.7	323.7	219.2	104.57	3.096	
10,600.0	7,113.5	10,773.2	7,187.5	59.7	61.9	-103.23	-2,592.6	1,708.7	323.6	216.6	107.02	3.024	
10,629.9	7,113.2	10,803.1	7,187.1	60.2	62.3	-103.20	-2,622.5	1,708.7	323.6	215.5	108.09	2.994	
10,700.0	7,112.7	10,873.2	7,186.1	61.4	63.5	-103.12	-2,692.5	1,708.7	323.5	212.9	110.61	2.925	
10,728.3	7,112.5	10,901.5	7,185.7	61.8	63.9	-103.09	-2,720.9	1,708.7	323.5	211.8	111.63	2.898	
10,800.0	7,112.0	10,973.2	7,184.8	63.1	65.1	-103.01	-2,792.5	1,708.7	323.3	209.1	114.22	2.831	
10,826.7	7,111.8	10,999.9	7,184.4	63.5	65.6	-102.98	-2,819.3	1,708.7	323.3	208.1	115.18	2.807	
10,900.0	7,111.2	11,073.2	7,183.4	64.8	66.8	-102.90	-2,892.5	1,708.7	323.2	205.4	117.84	2.743	
10,925.2	7,111.0	11,098.3	7,183.0	65.2	67.2	-102.88	-2,917.7	1,708.7	323.2	204.4	118.75	2.721	
11,000.0	7,110.5	11,173.2	7,182.0	66.5	68.5	-102.79	-2,992.5	1,708.7	323.1	201.6	121.47	2.660	
11,023.6	7,110.3	11,196.8	7,181.7	66.9	68.9	-102.77	-3,016.1	1,708.7	323.0	200.7	122.33	2.641	
11,100.0	7,109.7	11,273.2	7,180.6	68.3	70.1	-102.68	-3,092.5	1,708.7	322.9	197.8	125.12	2.581	
11,122.0	7,109.5	11,295.2	7,180.3	68.7	70.5	-102.66	-3,114.5	1,708.7	322.9	197.0	125.93	2.564	
11,200.0	7,109.0	11,373.2	7,179.2	70.0	71.8	-102.58	-3,192.5	1,708.7	322.8	194.0	128.78	2.506	
11,220.4	7,108.8	11,393.6	7,179.0	70.4	72.2	-102.55	-3,212.9	1,708.7	322.8	193.2	129.53	2.492	
11,300.0	7,108.2	11,473.2	7,177.9	71.8	73.6	-102.47	-3,292.5	1,708.7	322.6	190.2	132.45	2.436	
11,318.9	7,108.1	11,492.0	7,177.6	72.1	73.9	-102.45	-3,311.3	1,708.7	322.6	189.5	133.15	2.423	
11,400.0	7,107.5	11,573.2	7,176.5	73.6	75.3	-102.36	-3,392.5	1,708.7	322.5	186.4	136.14	2.369	
11,417.3	7,107.3	11,590.5	7,176.2	73.9	75.6	-102.34	-3,409.8	1,708.7	322.5	185.7	136.77	2.358	
11,500.0	7,106.7	11,673.2	7,175.1	75.3	77.0	-102.25	-3,492.5	1,708.7	322.4	182.5	139.83	2.306	
11,515.7	7,106.6	11,688.9	7,174.9	75.6	77.3	-102.23	-3,508.2	1,708.7	322.4	181.9	140.41	2.296	
11,600.0	7,106.0	11,773.2	7,173.7	77.1	78.7	-102.14	-3,592.4	1,708.7	322.2	178.7	143.53	2.245	
11,614.1	7,105.9	11,787.3	7,173.5	77.4	79.0	-102.12	-3,606.6	1,708.7	322.2	178.2	144.05	2.237	
11,700.0	7,105.2	11,873.2	7,172.3	78.9	80.5	-102.03	-3,692.4	1,708.7	322.1	174.9	147.24	2.188	
11,712.6	7,105.1	11,885.7	7,172.1	79.2	80.7	-102.01	-3,705.0	1,708.7	322.1	174.4	147.70	2.181	
11,800.0	7,104.5	11,973.1	7,170.9	80.7	82.3	-101.92	-3,792.4	1,708.7	322.0	171.0	150.95	2.133	
11,811.0	7,104.4	11,984.1	7,170.8	80.9	82.4	-101.91	-3,803.4	1,708.7	322.0	170.6	151.36	2.127	
11,860.2	7,104.0	12,033.4	7,170.1	81.8	83.3	-101.85	-3,852.7	1,708.7	321.9	168.7	153.20	2.101	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore #1 - W

Offset Site Error: 0.0 usft

Survey Program: 16-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-7.81	1,372.3	-188.3	1,385.7				
98.4	98.4	59.6	59.6	0.1	0.1	-7.81	1,372.3	-188.3	1,385.2	1,385.0	0.19	7,324.699	
100.0	100.0	61.2	61.2	0.1	0.1	-7.81	1,372.3	-188.3	1,385.2	1,385.0	0.19	7,124.646	
196.8	196.8	158.0	158.0	0.3	0.3	-7.81	1,372.3	-188.3	1,385.2	1,384.6	0.63	2,199.437	
200.0	200.0	161.2	161.2	0.3	0.3	-7.81	1,372.3	-188.3	1,385.2	1,384.5	0.64	2,151.073	
295.3	295.3	256.5	256.5	0.5	0.5	-7.81	1,372.3	-188.3	1,385.2	1,384.1	1.07	1,291.861	
300.0	300.0	261.2	261.2	0.5	0.6	-7.81	1,372.3	-188.3	1,385.2	1,384.1	1.09	1,266.768	
393.7	393.7	354.9	354.9	0.7	0.8	-7.81	1,372.3	-188.3	1,385.2	1,383.7	1.51	914.501	
400.0	400.0	361.2	361.2	0.8	0.8	-7.81	1,372.3	-188.3	1,385.2	1,383.7	1.54	897.717	
492.1	492.1	453.3	453.3	1.0	1.0	-7.81	1,372.3	-188.3	1,385.2	1,383.2	1.96	707.761	
500.0	500.0	461.2	461.2	1.0	1.0	-7.81	1,372.3	-188.3	1,385.2	1,383.2	1.99	695.186	
590.5	590.5	551.7	551.7	1.2	1.2	-7.81	1,372.3	-188.3	1,385.2	1,382.8	2.40	577.260	
600.0	600.0	561.2	561.2	1.2	1.2	-7.81	1,372.3	-188.3	1,385.2	1,382.8	2.44	567.218	
689.0	689.0	650.2	650.2	1.4	1.4	-7.81	1,372.3	-188.3	1,385.2	1,382.4	2.84	487.392	
700.0	700.0	661.2	661.2	1.4	1.5	-7.81	1,372.3	-188.3	1,385.2	1,382.3	2.89	479.038	
787.4	787.4	748.6	748.6	1.6	1.7	-7.81	1,372.3	-188.3	1,385.2	1,381.9	3.28	421.736	
800.0	800.0	761.2	761.2	1.7	1.7	-7.81	1,372.3	-188.3	1,385.2	1,381.9	3.34	414.586	
885.8	885.8	847.0	847.0	1.9	1.9	-7.81	1,372.3	-188.3	1,385.2	1,381.5	3.73	371.669	
900.0	900.0	861.2	861.2	1.9	1.9	-7.81	1,372.3	-188.3	1,385.2	1,381.4	3.79	365.421	
984.2	984.2	945.4	945.4	2.1	2.1	-7.81	1,372.3	-188.3	1,385.2	1,381.0	4.17	332.228	
1,000.0	1,000.0	961.2	961.2	2.1	2.1	-7.81	1,372.3	-188.3	1,385.2	1,381.0	4.24	326.680	
1,082.7	1,082.7	1,043.9	1,043.9	2.3	2.3	-7.81	1,372.3	-188.3	1,385.2	1,380.6	4.61	300.355	
1,100.0	1,100.0	1,061.2	1,061.2	2.3	2.4	-7.81	1,372.3	-188.3	1,385.2	1,380.5	4.69	295.367	
1,181.1	1,181.1	1,142.3	1,142.3	2.5	2.5	-7.81	1,372.3	-188.3	1,385.2	1,380.1	5.05	274.062	
1,200.0	1,200.0	1,161.2	1,161.2	2.6	2.6	-7.81	1,372.3	-188.3	1,385.2	1,380.1	5.14	269.531	
1,279.5	1,279.5	1,240.7	1,240.7	2.7	2.8	-7.81	1,372.3	-188.3	1,385.2	1,379.7	5.50	252.002	
1,300.0	1,300.0	1,261.2	1,261.2	2.8	2.8	-7.81	1,372.3	-188.3	1,385.2	1,379.6	5.59	247.851	
1,377.9	1,377.9	1,339.1	1,339.1	3.0	3.0	-7.81	1,372.3	-188.3	1,385.2	1,379.3	5.94	233.228	
1,400.0	1,400.0	1,361.2	1,361.2	3.0	3.0	-7.81	1,372.3	-188.3	1,385.2	1,379.2	6.04	229.400	
1,476.4	1,476.4	1,437.6	1,437.6	3.2	3.2	-7.81	1,372.3	-188.3	1,385.2	1,378.8	6.38	217.058	
1,500.0	1,500.0	1,461.2	1,461.2	3.2	3.3	-7.81	1,372.3	-188.3	1,385.2	1,378.7	6.49	213.505	
1,550.0	1,550.0	1,511.2	1,511.2	3.3	3.4	-7.81	1,372.3	-188.3	1,385.2	1,378.5	6.71	206.356	
1,574.8	1,574.8	1,536.0	1,536.0	3.4	3.4	-66.04	1,372.3	-188.3	1,385.2	1,378.3	6.82	203.027	
1,600.0	1,600.0	1,561.2	1,561.2	3.5	3.5	-66.05	1,372.3	-188.3	1,385.0	1,378.1	6.93	199.742	
1,673.2	1,673.2	1,634.4	1,634.4	3.6	3.6	-66.15	1,372.3	-188.3	1,384.1	1,376.9	7.25	190.794	
1,700.0	1,699.9	1,661.1	1,661.1	3.7	3.7	-66.21	1,372.3	-188.3	1,383.6	1,376.2	7.37	187.697	
1,771.6	1,771.4	1,732.6	1,732.6	3.8	3.9	-66.42	1,372.3	-188.3	1,381.7	1,374.0	7.69	179.727	
1,800.0	1,799.7	1,760.9	1,760.9	3.9	3.9	-66.52	1,372.3	-188.3	1,380.8	1,373.0	7.81	176.734	
1,870.1	1,869.4	1,830.6	1,830.6	4.0	4.1	-66.84	1,372.3	-188.3	1,378.0	1,369.9	8.13	169.545	
1,900.0	1,899.1	1,860.3	1,860.3	4.1	4.2	-67.00	1,372.3	-188.3	1,376.7	1,368.4	8.26	166.619	
1,968.5	1,967.0	1,928.2	1,928.2	4.3	4.3	-67.41	1,372.3	-188.3	1,373.1	1,364.5	8.58	160.036	
2,000.0	1,998.2	1,959.4	1,959.4	4.4	4.4	-67.63	1,372.3	-188.3	1,371.2	1,362.5	8.73	157.148	
2,066.9	2,064.1	2,025.3	2,025.3	4.5	4.5	-68.14	1,372.3	-188.3	1,367.0	1,357.9	9.05	151.039	
2,100.0	2,096.6	2,057.8	2,057.8	4.6	4.6	-68.42	1,372.3	-188.3	1,364.7	1,355.4	9.21	148.155	
2,165.3	2,160.6	2,121.8	2,121.8	4.8	4.7	-69.02	1,372.3	-188.3	1,359.8	1,350.2	9.55	142.420	
2,200.0	2,194.4	2,155.6	2,155.6	4.9	4.8	-69.36	1,372.3	-188.3	1,357.0	1,347.3	9.73	139.515	
2,263.8	2,256.4	2,217.6	2,217.6	5.2	5.0	-70.04	1,372.3	-188.3	1,351.7	1,341.6	10.08	134.087	
2,300.0	2,291.5	2,252.7	2,252.7	5.3	5.0	-70.46	1,372.3	-188.3	1,348.5	1,338.2	10.28	131.146	
2,362.2	2,351.4	2,312.6	2,312.6	5.5	5.2	-71.22	1,372.3	-188.3	1,342.8	1,332.2	10.66	125.999	
2,400.0	2,387.6	2,348.8	2,348.8	5.7	5.2	-71.71	1,372.3	-188.3	1,339.2	1,328.3	10.89	123.004	
2,460.6	2,445.4	2,406.6	2,406.6	6.0	5.4	-72.54	1,372.3	-188.3	1,333.4	1,322.1	11.29	118.109	
2,500.0	2,482.7	2,443.9	2,443.9	6.2	5.5	-73.10	1,372.3	-188.3	1,329.5	1,317.9	11.55	115.088	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore #1 - W

Offset Site Error: 0.0 usft

Survey Program: 16-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,559.0	2,538.3	2,499.5	2,499.5	6.5	5.6	-73.99	1,372.3	-188.3	1,323.5	1,311.6	11.98	110.463	
2,600.0	2,576.6	2,537.8	2,537.8	6.7	5.7	-74.64	1,372.3	-188.3	1,319.4	1,307.1	12.28	107.422	
2,657.5	2,630.1	2,591.3	2,591.3	7.0	5.8	-75.58	1,372.3	-188.3	1,313.6	1,300.9	12.74	103.084	
2,700.0	2,669.4	2,630.6	2,630.6	7.3	5.9	-76.31	1,372.3	-188.3	1,309.3	1,296.2	13.09	100.053	
2,755.9	2,720.6	2,681.8	2,681.8	7.6	6.0	-77.30	1,372.3	-188.3	1,303.8	1,290.2	13.57	96.056	
2,776.7	2,739.5	2,700.7	2,700.7	7.8	6.0	-77.67	1,372.3	-188.3	1,301.8	1,288.0	13.76	94.639	
2,800.0	2,760.8	2,722.0	2,722.0	7.9	6.1	-78.05	1,372.3	-188.3	1,299.5	1,285.6	13.97	93.041	
2,854.3	2,810.2	2,771.4	2,771.4	8.3	6.2	-78.95	1,372.3	-188.3	1,294.6	1,280.1	14.47	89.459	
2,900.0	2,851.7	2,812.9	2,812.9	8.7	6.3	-79.70	1,372.3	-188.3	1,290.8	1,275.9	14.90	86.642	
2,952.7	2,899.7	2,860.9	2,860.9	9.1	6.4	-80.57	1,372.3	-188.3	1,286.6	1,271.2	15.40	83.538	
3,000.0	2,942.7	2,903.9	2,903.9	9.4	6.5	-81.36	1,372.3	-188.3	1,283.3	1,267.4	15.86	80.936	
3,051.2	2,989.3	2,950.5	2,950.5	9.8	6.6	-82.22	1,372.3	-188.3	1,279.9	1,263.6	16.36	78.258	
3,100.0	3,033.7	2,994.9	2,994.9	10.2	6.7	-83.04	1,372.3	-188.3	1,277.1	1,260.3	16.83	75.866	
3,149.6	3,078.8	3,040.0	3,040.0	10.5	6.8	-83.88	1,372.3	-188.3	1,274.5	1,257.2	17.33	73.562	
3,200.0	3,124.6	3,085.8	3,085.8	10.9	6.9	-84.73	1,372.3	-188.3	1,272.2	1,254.4	17.83	71.369	
3,248.0	3,168.3	3,129.5	3,129.5	11.3	7.0	-85.55	1,372.3	-188.3	1,270.4	1,252.1	18.31	69.390	
3,300.0	3,215.6	3,176.8	3,176.8	11.7	7.1	-86.43	1,372.3	-188.3	1,268.7	1,249.9	18.83	67.383	
3,346.4	3,257.9	3,219.1	3,219.1	12.1	7.2	-87.22	1,372.3	-188.3	1,267.5	1,248.2	19.30	65.686	
3,400.0	3,306.6	3,267.8	3,267.8	12.5	7.3	-88.14	1,372.3	-188.3	1,266.6	1,246.7	19.84	63.851	
3,444.9	3,347.4	3,308.6	3,308.6	12.9	7.4	-88.90	1,372.3	-188.3	1,266.0	1,245.7	20.29	62.398	
3,500.0	3,397.6	3,358.8	3,358.8	13.3	7.5	-89.85	1,372.3	-188.3	1,265.8	1,244.9	20.84	60.722	
3,509.0	3,405.7	3,366.9	3,366.9	13.4	7.5	-90.00	1,372.3	-188.3	1,265.7	1,244.8	20.94	60.458	
3,543.3	3,436.9	3,398.1	3,398.1	13.7	7.6	-90.59	1,372.3	-188.3	1,265.8	1,244.5	21.28	59.479	
3,600.0	3,488.5	3,449.7	3,449.7	14.1	7.7	-91.56	1,372.3	-188.3	1,266.3	1,244.5	21.85	57.950	
3,641.7	3,526.5	3,487.7	3,487.7	14.5	7.8	-92.27	1,372.3	-188.3	1,266.9	1,244.7	22.27	56.887	
3,700.0	3,579.5	3,540.7	3,540.7	15.0	7.9	-93.26	1,372.3	-188.3	1,268.2	1,245.4	22.85	55.493	
3,740.1	3,616.0	3,577.2	3,577.2	15.3	8.0	-93.95	1,372.3	-188.3	1,269.4	1,246.1	23.25	54.586	
3,800.0	3,670.5	3,631.7	3,631.7	15.8	8.1	-94.96	1,372.3	-188.3	1,271.5	1,247.7	23.85	53.316	
3,838.6	3,705.6	3,666.8	3,666.8	16.1	8.2	-95.62	1,372.3	-188.3	1,273.1	1,248.9	24.23	52.544	
3,900.0	3,761.4	3,722.6	3,722.6	16.6	8.3	-96.66	1,372.3	-188.3	1,276.1	1,251.3	24.83	51.389	
3,937.0	3,795.1	3,756.3	3,756.3	16.9	8.4	-97.28	1,372.3	-188.3	1,278.2	1,253.0	25.19	50.733	
4,000.0	3,852.4	3,813.6	3,813.6	17.4	8.5	-98.34	1,372.3	-188.3	1,282.1	1,256.3	25.80	49.683	
4,035.4	3,884.6	3,845.8	3,845.8	17.7	8.6	-98.93	1,372.3	-188.3	1,284.5	1,258.3	26.15	49.127	
4,100.0	3,943.4	3,904.6	3,904.6	18.3	8.7	-100.00	1,372.3	-188.3	1,289.3	1,262.6	26.76	48.176	
4,133.8	3,974.2	3,935.4	3,935.4	18.6	8.8	-100.56	1,372.3	-188.3	1,292.1	1,265.0	27.08	47.706	
4,200.0	4,034.4	3,995.6	3,995.6	19.1	9.0	-101.65	1,372.3	-188.3	1,297.9	1,270.2	27.71	46.846	
4,232.3	4,063.7	4,024.9	4,024.9	19.4	9.0	-102.18	1,372.3	-188.3	1,300.9	1,272.9	28.01	46.451	
4,300.0	4,125.3	4,086.5	4,086.5	19.9	9.2	-103.28	1,372.3	-188.3	1,307.7	1,279.0	28.63	45.674	
4,330.7	4,153.3	4,114.5	4,114.5	20.2	9.2	-103.78	1,372.3	-188.3	1,310.9	1,282.0	28.91	45.343	
4,400.0	4,216.3	4,177.5	4,177.5	20.8	9.4	-104.89	1,372.3	-188.3	1,318.7	1,289.2	29.54	44.644	
4,429.1	4,242.8	4,204.0	4,204.0	21.0	9.4	-105.35	1,372.3	-188.3	1,322.2	1,292.4	29.80	44.369	
4,500.0	4,307.3	4,268.5	4,268.5	21.6	9.6	-106.48	1,372.3	-188.3	1,331.0	1,300.5	30.43	43.743	
4,527.5	4,332.3	4,293.5	4,293.5	21.9	9.6	-106.91	1,372.3	-188.3	1,334.5	1,303.9	30.67	43.515	
4,600.0	4,398.2	4,359.4	4,359.4	22.5	9.8	-108.03	1,372.3	-188.3	1,344.4	1,313.1	31.30	42.957	
4,626.0	4,421.9	4,383.1	4,383.1	22.7	9.8	-108.44	1,372.3	-188.3	1,348.0	1,316.5	31.52	42.770	
4,700.0	4,489.2	4,450.4	4,450.4	23.3	10.0	-109.57	1,372.3	-188.3	1,358.9	1,326.8	32.15	42.274	
4,724.4	4,511.4	4,472.6	4,472.6	23.5	10.0	-109.94	1,372.3	-188.3	1,362.6	1,330.3	32.35	42.122	
4,800.0	4,580.2	4,541.4	4,541.4	24.2	10.2	-111.07	1,372.3	-188.3	1,374.6	1,341.6	32.97	41.686	
4,822.8	4,601.0	4,562.2	4,562.2	24.4	10.2	-111.41	1,372.3	-188.3	1,378.3	1,345.1	33.16	41.564	
4,900.0	4,671.2	4,632.4	4,632.4	25.0	10.4	-112.54	1,372.3	-188.3	1,391.3	1,357.5	33.78	41.182	
4,921.2	4,690.5	4,651.7	4,651.7	25.2	10.4	-112.85	1,372.3	-188.3	1,395.0	1,361.0	33.95	41.085	
5,000.0	4,762.1	4,723.3	4,723.3	25.9	10.6	-113.99	1,372.3	-188.3	1,409.0	1,374.5	34.57	40.755	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore #1 - W

Offset Site Error: 0.0 usft

Survey Program: 16-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,019.7	4,780.0	4,741.2	4,741.2	26.0	10.6	-114.27	1,372.3	-188.3	1,412.7	1,377.9	34.73	40.680	
5,100.0	4,853.1	4,814.3	4,814.3	26.7	10.8	-115.40	1,372.3	-188.3	1,427.8	1,392.4	35.34	40.398	
5,118.1	4,869.6	4,830.8	4,830.8	26.9	10.8	-115.65	1,372.3	-188.3	1,431.3	1,395.8	35.48	40.340	
5,200.0	4,944.1	4,905.3	4,905.3	27.6	11.0	-116.78	1,372.3	-188.3	1,447.5	1,411.4	36.09	40.103	
5,216.5	4,959.1	4,920.3	4,920.3	27.7	11.0	-117.00	1,372.3	-188.3	1,450.8	1,414.6	36.22	40.060	
5,300.0	5,035.0	4,996.2	4,996.2	28.4	11.2	-118.12	1,372.3	-188.3	1,468.0	1,431.2	36.82	39.866	
5,314.9	5,048.6	5,009.8	5,009.8	28.6	11.2	-118.32	1,372.3	-188.3	1,471.2	1,434.3	36.93	39.835	
5,400.0	5,126.0	5,087.2	5,087.2	29.3	11.4	-119.44	1,372.3	-188.3	1,489.5	1,452.0	37.54	39.680	
5,413.4	5,138.2	5,099.4	5,099.4	29.4	11.4	-119.61	1,372.3	-188.3	1,492.4	1,454.8	37.63	39.659	
5,479.4	5,198.3	5,159.5	5,159.5	30.0	11.6	-120.46	1,372.3	-188.3	1,507.2	1,469.1	38.09	39.566	
5,500.0	5,217.0	5,178.2	5,178.2	30.1	11.6	-120.80	1,372.3	-188.3	1,511.8	1,473.6	38.21	39.565	
5,511.8	5,227.8	5,189.0	5,189.0	30.2	11.6	-120.99	1,372.3	-188.3	1,514.4	1,476.1	38.27	39.574	
5,600.0	5,309.0	5,270.2	5,270.2	30.8	11.8	-122.36	1,372.3	-188.3	1,533.6	1,494.9	38.70	39.628	
5,610.2	5,318.5	5,279.7	5,279.7	30.8	11.8	-122.52	1,372.3	-188.3	1,535.8	1,497.0	38.75	39.636	
5,700.0	5,402.3	5,363.5	5,363.5	31.4	12.0	-123.79	1,372.3	-188.3	1,554.2	1,515.1	39.16	39.686	
5,708.6	5,410.4	5,371.6	5,371.6	31.4	12.0	-123.90	1,372.3	-188.3	1,556.0	1,516.8	39.20	39.693	
5,800.0	5,496.7	5,457.9	5,457.9	31.9	12.2	-125.06	1,372.3	-188.3	1,573.5	1,533.9	39.60	39.734	
5,807.1	5,503.5	5,464.7	5,464.7	31.9	12.3	-125.15	1,372.3	-188.3	1,574.8	1,535.1	39.63	39.738	
5,900.0	5,592.3	5,553.5	5,553.5	32.4	12.5	-126.20	1,372.3	-188.3	1,591.1	1,551.1	40.02	39.763	
5,905.5	5,597.6	5,558.8	5,558.8	32.4	12.5	-126.25	1,372.3	-188.3	1,592.1	1,552.0	40.04	39.765	
6,000.0	5,688.8	8,842.2	7,183.1	32.9	50.5	-161.39	942.0	1,323.9	1,538.1	1,496.8	41.24	37.297	
6,003.9	5,692.6	8,843.0	7,183.1	32.9	50.6	-161.31	942.0	1,324.7	1,534.2	1,493.0	41.23	37.208	
6,100.0	5,786.2	8,861.2	7,183.1	33.3	51.0	-158.90	941.5	1,342.8	1,440.0	1,399.0	40.99	35.128	
6,102.3	5,788.5	8,861.6	7,183.1	33.3	51.1	-158.82	941.4	1,343.2	1,437.7	1,396.7	40.98	35.080	
6,200.0	5,884.3	8,877.2	7,183.1	33.6	51.5	-154.95	941.0	1,358.8	1,341.4	1,300.9	40.46	33.153	
6,200.8	5,885.1	8,877.3	7,183.1	33.6	51.5	-154.91	941.0	1,359.0	1,340.6	1,300.1	40.46	33.138	
6,299.2	5,982.3	8,890.4	7,183.1	33.9	51.8	-148.38	940.6	1,372.0	1,243.1	1,202.9	40.12	30.980	
6,300.0	5,983.1	8,890.5	7,183.1	33.9	51.8	-148.31	940.6	1,372.1	1,242.3	1,202.1	40.13	30.958	
6,397.6	6,079.9	8,900.6	7,183.1	34.1	52.1	-136.73	940.3	1,382.2	1,145.2	1,101.9	43.30	26.448	
6,400.0	6,082.3	8,900.8	7,183.1	34.1	52.1	-136.35	940.3	1,382.4	1,142.8	1,099.3	43.50	26.274	
6,496.0	6,177.9	8,908.0	7,183.1	34.3	52.3	-115.50	940.0	1,389.6	1,047.1	988.1	59.01	17.744	
6,500.0	6,181.9	8,908.2	7,183.1	34.3	52.3	-114.40	940.0	1,389.8	1,043.1	983.2	59.91	17.410	
6,594.5	6,276.2	8,912.6	7,183.1	34.5	52.4	-84.73	939.9	1,394.2	948.9	869.7	79.12	11.993	
6,600.0	6,281.7	8,912.8	7,183.1	34.5	52.4	-83.00	939.9	1,394.4	943.4	863.5	79.81	11.821	
6,692.9	6,374.6	8,914.4	7,183.1	34.6	52.5	-59.00	939.9	1,396.0	850.7	767.6	83.12	10.235	
6,706.1	6,387.8	8,914.4	7,183.1	34.6	52.5	1.73	939.9	1,396.0	837.6	754.8	82.79	10.117	
6,736.1	6,417.8	8,914.4	7,183.1	34.6	52.5	1.73	939.9	1,396.0	807.7	724.9	82.81	9.753	
6,750.0	6,431.7	8,914.4	7,183.1	34.6	52.5	-178.56	939.9	1,396.0	793.9	711.1	82.84	9.584	
6,791.3	6,473.0	8,914.5	7,183.1	34.6	52.5	-179.00	939.9	1,396.1	753.0	670.4	82.67	9.109	
6,800.0	6,481.6	8,914.5	7,183.1	34.6	52.5	-179.05	939.9	1,396.1	744.5	661.9	82.60	9.013	
6,850.0	6,531.2	8,914.7	7,183.1	34.6	52.5	-179.24	939.8	1,396.3	695.9	614.0	81.94	8.493	
6,889.7	6,570.3	8,914.9	7,183.1	34.6	52.5	-179.30	939.8	1,396.5	658.2	577.0	81.15	8.111	
6,900.0	6,580.3	8,915.0	7,183.1	34.6	52.5	-179.31	939.8	1,396.6	648.6	567.7	80.91	8.017	
6,950.0	6,628.5	8,915.4	7,183.1	34.6	52.5	-179.33	939.8	1,397.0	603.1	523.6	79.51	7.585	
6,988.2	6,664.7	8,915.7	7,183.1	34.5	52.5	-179.32	939.8	1,397.3	570.0	491.8	78.21	7.288	
7,000.0	6,675.8	8,915.9	7,183.1	34.5	52.5	-179.31	939.8	1,397.5	560.1	482.4	77.77	7.203	
7,050.0	6,721.8	8,916.5	7,183.1	34.4	52.5	-179.27	939.8	1,398.1	520.5	444.8	75.68	6.877	
7,086.6	6,754.5	8,916.9	7,183.1	34.3	52.5	-179.23	939.8	1,398.5	494.2	420.2	73.95	6.682	
7,100.0	6,766.2	8,917.1	7,183.1	34.2	52.5	-179.21	939.8	1,398.7	485.2	412.0	73.28	6.622	
7,150.0	6,809.0	8,917.9	7,183.1	34.1	52.6	-179.14	939.7	1,399.5	455.6	385.0	70.57	6.455	
7,185.0	6,837.9	8,918.5	7,183.1	34.0	52.6	-179.07	939.7	1,400.1	438.9	370.4	68.51	6.406	
7,200.0	6,849.9	8,918.8	7,183.1	33.9	52.6	-179.04	939.7	1,400.4	432.9	365.3	67.59	6.404 SF	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore #1 - W

Offset Site Error: 0.0 usft

Survey Program: 16-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,250.0	6,888.7	8,919.7	7,183.1	33.8	52.6	-178.93	939.7	1,401.3	418.3	353.9	64.35	6.500	
7,283.4	6,913.4	8,920.4	7,183.1	33.6	52.6	-178.84	939.7	1,402.0	413.6	351.5	62.06	6.664	ES
7,300.0	6,925.2	8,920.8	7,183.1	33.6	52.6	-178.80	939.7	1,402.4	412.8	351.9	60.89	6.780	
7,303.9	6,927.9	8,920.9	7,183.1	33.6	52.6	-178.79	939.7	1,402.5	412.8	352.2	60.61	6.810	CC
7,350.0	6,959.2	8,921.9	7,183.1	33.4	52.7	-178.64	939.6	1,403.5	416.8	359.6	57.24	7.282	
7,381.9	6,979.6	8,922.6	7,183.1	33.3	52.7	-178.52	939.6	1,404.2	424.2	369.4	54.83	7.737	
7,400.0	6,990.6	8,923.1	7,183.1	33.2	52.7	-178.44	939.6	1,404.6	430.0	376.6	53.44	8.047	
7,450.0	7,019.2	8,924.3	7,183.1	33.0	52.7	-178.21	939.6	1,405.9	451.6	402.0	49.55	9.114	
7,480.3	7,035.1	8,925.1	7,183.1	32.8	52.7	-178.04	939.5	1,406.7	468.2	421.0	47.17	9.925	
7,500.0	7,044.9	8,925.6	7,183.1	32.8	52.8	-177.92	939.5	1,407.2	480.2	434.6	45.63	10.526	
7,550.0	7,067.5	8,926.9	7,183.1	32.6	52.8	-177.55	939.5	1,408.5	514.7	473.0	41.75	12.329	
7,578.7	7,079.1	8,927.7	7,183.1	32.4	52.8	-177.29	939.5	1,409.3	536.6	497.1	39.58	13.557	
7,600.0	7,086.9	8,928.3	7,183.1	32.3	52.8	-177.08	939.4	1,409.9	553.7	515.7	38.02	14.563	
7,650.0	7,103.1	8,929.8	7,183.1	32.1	52.9	-176.44	939.4	1,411.3	596.3	561.7	34.57	17.246	
7,677.1	7,110.5	8,930.5	7,183.1	32.0	52.9	-175.99	939.4	1,412.1	620.5	587.6	32.87	18.875	
7,700.0	7,116.0	8,931.2	7,183.1	32.0	52.9	-175.53	939.3	1,412.8	641.4	609.8	31.56	20.323	
7,750.0	7,125.4	8,932.7	7,183.1	31.8	52.9	-174.14	939.3	1,414.3	688.5	659.3	29.16	23.610	
7,775.6	7,128.9	8,933.5	7,183.1	31.7	53.0	-173.10	939.3	1,415.0	713.1	684.9	28.22	25.267	
7,800.0	7,131.4	8,934.2	7,183.1	31.6	53.0	-171.76	939.3	1,415.8	736.8	709.3	27.53	26.768	
7,850.0	7,133.9	8,935.7	7,183.1	31.5	53.0	-166.74	939.2	1,417.3	786.1	759.4	26.75	29.392	
7,866.5	7,134.0	8,936.2	7,183.1	31.4	53.0	-163.62	939.2	1,417.8	802.5	775.8	26.70	30.060	
7,874.0	7,133.9	8,936.4	7,183.1	31.4	53.0	-163.47	939.2	1,418.0	810.0	783.2	26.72	30.310	
7,900.0	7,133.7	8,937.2	7,183.1	31.4	53.1	-162.97	939.2	1,418.8	835.8	809.0	26.81	31.171	
7,972.4	7,133.2	8,939.4	7,183.1	31.2	53.1	-161.58	939.1	1,421.0	907.9	880.8	27.09	33.509	
8,000.0	7,133.0	8,940.2	7,183.1	31.2	53.1	-161.06	939.1	1,421.8	935.3	908.1	27.20	34.387	
8,070.8	7,132.4	8,942.4	7,183.1	31.1	53.2	-159.73	939.0	1,424.0	1,005.9	978.4	27.52	36.558	
8,100.0	7,132.2	8,943.2	7,183.1	31.1	53.2	-159.19	939.0	1,424.8	1,034.9	1,007.3	27.65	37.435	
8,169.3	7,131.7	8,945.3	7,183.1	31.1	53.3	-157.93	938.9	1,426.9	1,104.0	1,076.0	28.01	39.420	
8,200.0	7,131.5	8,946.3	7,183.1	31.1	53.3	-157.37	938.9	1,427.9	1,134.6	1,106.4	28.16	40.285	
8,267.7	7,131.0	8,948.3	7,183.1	31.2	53.4	-156.17	938.8	1,429.9	1,202.1	1,173.5	28.57	42.078	
8,300.0	7,130.7	8,949.3	7,183.1	31.2	53.4	-155.60	938.8	1,430.9	1,234.3	1,205.6	28.76	42.911	
8,366.1	7,130.2	8,951.3	7,183.1	31.4	53.4	-154.45	938.7	1,432.9	1,300.3	1,271.1	29.22	44.503	
8,400.0	7,130.0	8,952.3	7,183.1	31.5	53.5	-153.87	938.7	1,433.9	1,334.1	1,304.6	29.46	45.291	
8,464.5	7,129.5	8,954.3	7,183.1	31.7	53.5	-152.79	938.7	1,435.8	1,398.5	1,368.5	29.96	46.681	
8,500.0	7,129.2	8,955.3	7,183.1	31.9	53.5	-152.20	938.6	1,436.9	1,433.9	1,403.6	30.24	47.414	
8,563.0	7,128.7	8,957.2	7,183.1	32.2	53.6	-151.17	938.6	1,438.8	1,496.7	1,465.9	30.79	48.607	
8,600.0	7,128.5	8,958.3	7,183.1	32.4	53.6	-150.57	938.5	1,439.9	1,533.7	1,502.5	31.12	49.277	
8,661.4	7,128.0	8,960.2	7,183.1	32.8	53.7	-149.60	938.5	1,441.8	1,594.9	1,563.2	31.72	50.283	
8,700.0	7,127.7	8,961.4	7,183.1	33.1	53.7	-149.00	938.4	1,442.9	1,633.5	1,601.4	32.10	50.884	
8,759.8	7,127.3	8,963.2	7,183.1	33.5	53.8	-148.08	938.4	1,444.8	1,693.2	1,660.5	32.74	51.721	
8,800.0	7,127.0	8,964.4	7,183.1	33.9	53.8	-147.47	938.3	1,446.0	1,733.3	1,700.1	33.17	52.251	
8,858.2	7,126.5	8,966.1	7,183.1	34.4	53.8	-146.61	938.3	1,447.7	1,791.5	1,757.6	33.84	52.935	
8,900.0	7,126.2	8,967.4	7,183.1	34.8	53.9	-146.00	938.3	1,449.0	1,833.2	1,798.8	34.33	53.395	
8,956.7	7,125.8	8,969.1	7,183.1	35.4	53.9	-145.18	938.2	1,450.7	1,889.8	1,854.7	35.03	53.945	
9,000.0	7,125.5	8,970.4	7,183.1	35.8	53.9	-144.57	938.2	1,452.0	1,933.0	1,897.4	35.57	54.339	
9,055.1	7,125.1	8,972.1	7,183.1	36.5	54.0	-143.81	938.1	1,453.7	1,988.0	1,951.8	36.30	54.775	
9,100.0	7,124.7	8,973.4	7,183.1	37.0	54.0	-143.19	938.1	1,455.0	2,032.9	1,996.0	36.89	55.105	
9,153.5	7,124.3	8,975.1	7,183.1	37.6	54.1	-142.48	938.0	1,456.6	2,086.3	2,048.7	37.63	55.444	
9,200.0	7,124.0	8,976.5	7,183.1	38.2	54.1	-141.86	938.0	1,458.0	2,132.8	2,094.5	38.28	55.717	
9,251.9	7,123.6	8,978.0	7,183.1	38.8	54.2	-141.19	937.9	1,459.6	2,184.7	2,145.6	39.03	55.976	
9,300.0	7,123.2	8,979.5	7,183.1	39.5	54.2	-140.58	937.9	1,461.1	2,232.7	2,192.9	39.73	56.196	
9,350.4	7,122.8	8,981.0	7,183.1	40.1	54.2	-139.95	937.8	1,462.6	2,283.0	2,242.5	40.49	56.389	

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

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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

Offset Design NW NE SEC 30 T4N R67W 6th P.M. - PROP HZ CHANDLER FARMS HD 20-389HN - Wellbore #1 - W

Offset Site Error: 0.0 usft

Survey Program: 16-MWD

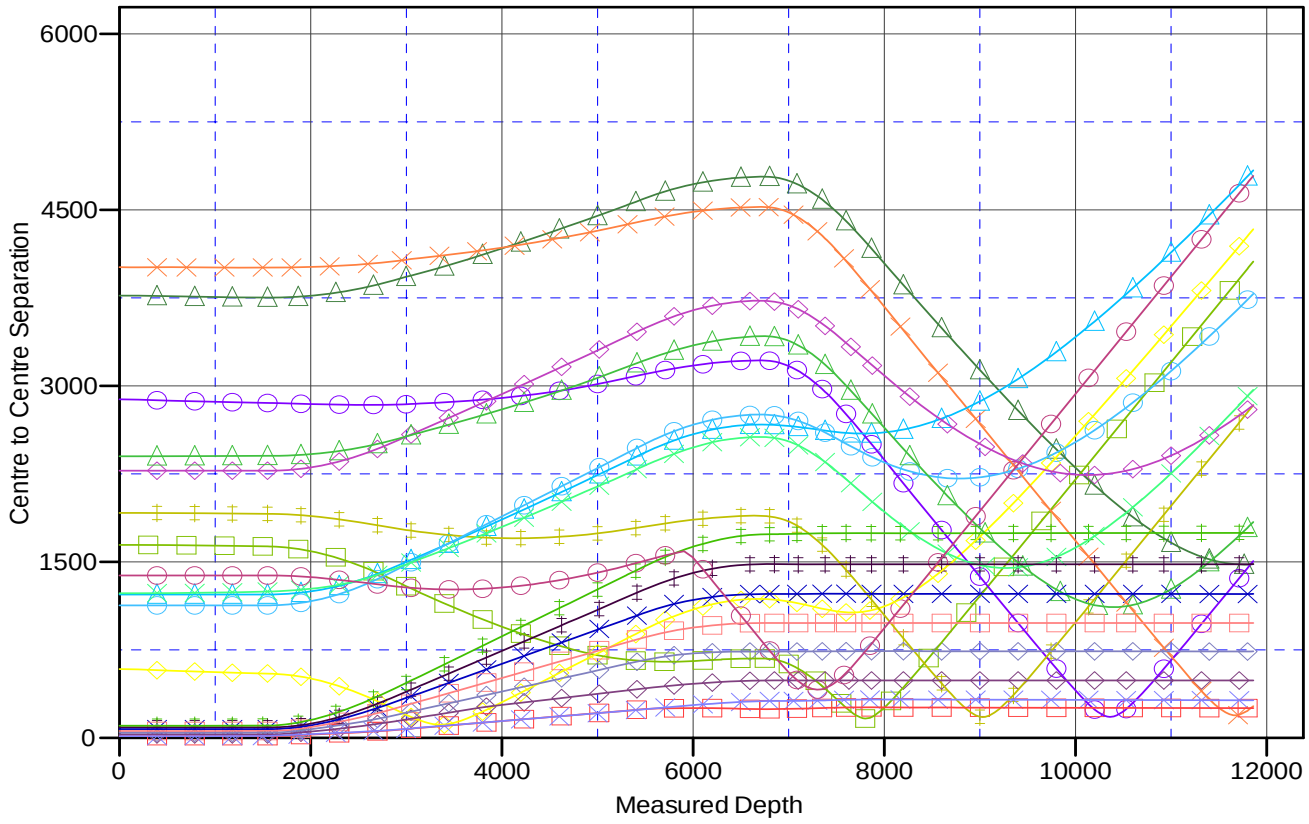
Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,400.0	7,122.5	8,982.5	7,183.1	40.8	54.3	-139.35	937.8	1,464.1	2,332.5	2,291.3	41.24	56.562	
9,448.8	7,122.1	8,984.0	7,183.1	41.5	54.3	-138.76	937.8	1,465.5	2,381.3	2,339.3	42.00	56.702	
9,500.0	7,121.7	8,985.5	7,183.1	42.2	54.3	-138.15	937.7	1,467.1	2,432.4	2,389.6	42.80	56.834	
9,547.2	7,121.4	8,987.0	7,183.1	42.9	54.4	-137.61	937.7	1,468.5	2,479.6	2,436.1	43.55	56.931	
9,600.0	7,121.0	8,988.5	7,183.1	43.7	54.4	-137.00	937.6	1,470.1	2,532.3	2,487.9	44.41	57.027	
9,645.6	7,120.6	8,989.9	7,183.1	44.3	54.5	-136.49	937.6	1,471.5	2,577.9	2,532.8	45.16	57.090	
9,700.0	7,120.2	8,991.6	7,183.1	45.1	54.5	-135.90	937.5	1,473.1	2,632.2	2,586.2	46.05	57.155	
9,744.1	7,119.9	8,992.9	7,183.1	45.8	54.5	-135.42	937.5	1,474.5	2,676.3	2,629.5	46.80	57.191	
9,800.0	7,119.5	8,994.6	7,183.1	46.6	54.6	-134.83	937.4	1,476.1	2,732.1	2,684.4	47.74	57.230	
9,842.5	7,119.1	8,995.9	7,183.1	47.3	54.6	-134.39	937.4	1,477.4	2,774.6	2,726.1	48.47	57.245	
9,900.0	7,118.7	8,997.6	7,183.1	48.2	54.7	-133.80	937.3	1,479.2	2,832.1	2,782.6	49.46	57.260	
9,940.9	7,118.4	8,998.8	7,183.1	48.8	54.7	-133.39	937.3	1,480.4	2,872.9	2,822.8	50.17	57.260	
10,000.0	7,118.0	9,000.6	7,183.1	49.8	54.8	-132.81	937.3	1,482.2	2,932.0	2,880.8	51.21	57.255	
10,039.3	7,117.7	9,001.8	7,183.1	50.4	54.8	-132.43	937.2	1,483.4	2,971.3	2,919.4	51.91	57.243	
10,100.0	7,117.2	9,003.6	7,183.1	51.4	54.8	-131.85	937.2	1,485.2	3,031.9	2,978.9	52.99	57.222	
10,137.8	7,116.9	9,004.8	7,183.1	52.0	54.9	-131.50	937.1	1,486.3	3,069.6	3,016.0	53.66	57.201	
10,200.0	7,116.5	9,006.7	7,183.1	53.0	54.9	-130.93	937.1	1,488.2	3,131.8	3,077.0	54.78	57.166	
10,236.2	7,116.2	9,007.8	7,183.1	53.6	54.9	-130.60	937.0	1,489.3	3,168.0	3,112.5	55.44	57.139	
10,300.0	7,115.7	9,009.7	7,183.1	54.6	55.0	-130.04	937.0	1,491.2	3,231.7	3,175.1	56.61	57.092	
10,334.6	7,115.5	9,010.7	7,183.1	55.2	55.0	-129.74	936.9	1,492.3	3,266.3	3,209.1	57.24	57.062	
10,400.0	7,115.0	9,012.7	7,183.1	56.3	55.1	-129.18	936.9	1,494.3	3,331.7	3,273.2	58.45	57.004	
10,433.0	7,114.7	9,013.7	7,183.1	56.8	55.1	-128.90	936.9	1,495.3	3,364.7	3,305.6	59.06	56.972	
10,500.0	7,114.2	9,015.7	7,183.1	58.0	55.2	-128.35	936.8	1,497.3	3,431.6	3,371.3	60.30	56.906	
10,531.5	7,114.0	9,016.7	7,183.1	58.5	55.2	-128.10	936.8	1,498.2	3,463.0	3,402.1	60.89	56.873	
10,600.0	7,113.5	9,018.7	7,183.1	59.7	55.2	-127.56	936.7	1,500.3	3,531.5	3,469.3	62.17	56.800	
10,629.9	7,113.2	9,019.6	7,183.1	60.2	55.3	-127.32	936.7	1,501.2	3,561.4	3,498.6	62.74	56.767	
10,700.0	7,112.7	9,021.8	7,183.1	61.4	55.3	-126.79	936.6	1,503.3	3,631.4	3,567.4	64.06	56.689	
10,728.3	7,112.5	9,022.6	7,183.1	61.8	55.3	-126.57	936.6	1,504.2	3,659.7	3,595.1	64.60	56.656	
10,800.0	7,112.0	9,024.8	7,183.1	63.1	55.4	-126.04	936.5	1,506.3	3,731.4	3,665.4	65.96	56.574	
10,826.7	7,111.8	9,025.6	7,183.1	63.5	55.4	-125.85	936.5	1,507.1	3,758.1	3,691.6	66.47	56.542	
10,900.0	7,111.2	9,027.8	7,183.1	64.8	55.5	-125.32	936.4	1,509.3	3,831.3	3,763.4	67.86	56.456	
10,925.2	7,111.0	9,028.6	7,183.1	65.2	55.5	-125.15	936.4	1,510.1	3,856.5	3,788.1	68.35	56.426	
11,000.0	7,110.5	9,030.8	7,183.1	66.5	55.6	-124.63	936.3	1,512.4	3,931.2	3,861.4	69.78	56.338	
11,023.6	7,110.3	9,031.5	7,183.1	66.9	55.6	-124.47	936.3	1,513.1	3,954.8	3,884.6	70.23	56.309	
11,100.0	7,109.7	9,033.8	7,183.1	68.3	55.6	-123.96	936.2	1,515.4	4,031.2	3,959.5	71.70	56.219	
11,122.0	7,109.5	9,034.5	7,183.1	68.7	55.7	-123.82	936.2	1,516.0	4,053.2	3,981.0	72.13	56.193	
11,200.0	7,109.0	9,036.9	7,183.1	70.0	55.7	-123.31	936.2	1,518.4	4,131.1	4,057.5	73.64	56.101	
11,220.4	7,108.8	9,037.5	7,183.1	70.4	55.7	-123.19	936.1	1,519.0	4,151.5	4,077.5	74.03	56.077	
11,300.0	7,108.2	9,039.9	7,183.1	71.8	55.8	-122.69	936.1	1,521.4	4,231.0	4,155.5	75.58	55.984	
11,318.9	7,108.1	9,040.4	7,183.1	72.1	55.8	-122.57	936.0	1,522.0	4,249.9	4,173.9	75.94	55.962	
11,400.0	7,107.5	9,042.9	7,183.1	73.6	55.9	-122.08	936.0	1,524.4	4,331.0	4,253.4	77.52	55.869	
11,417.3	7,107.3	9,043.4	7,183.1	73.9	55.9	-121.98	936.0	1,525.0	4,348.3	4,270.4	77.86	55.849	
11,500.0	7,106.7	9,045.9	7,183.1	75.3	56.0	-121.50	935.9	1,527.5	4,430.9	4,351.4	79.47	55.756	
11,515.7	7,106.6	9,046.4	7,183.1	75.6	56.0	-121.41	935.9	1,527.9	4,446.6	4,366.8	79.78	55.739	
11,600.0	7,106.0	9,048.9	7,183.1	77.1	56.0	-120.93	935.8	1,530.5	4,530.8	4,449.4	81.42	55.646	
11,614.1	7,105.9	9,049.4	7,183.1	77.4	56.1	-120.85	935.8	1,530.9	4,545.0	4,463.3	81.70	55.630	
11,700.0	7,105.2	9,052.0	7,183.1	78.9	56.1	-120.38	935.7	1,533.5	4,630.8	4,547.4	83.38	55.538	
11,712.6	7,105.1	9,052.3	7,183.1	79.2	56.1	-120.32	935.7	1,533.9	4,643.3	4,559.7	83.63	55.525	
11,800.0	7,104.5	9,055.0	7,183.1	80.7	56.2	-119.85	935.6	1,536.5	4,730.7	4,645.4	85.34	55.433	
11,811.0	7,104.4	9,055.3	7,183.1	80.9	56.2	-119.80	935.6	1,536.8	4,741.7	4,656.2	85.56	55.421	
11,860.2	7,104.0	9,056.8	7,183.1	81.8	56.3	-119.54	935.6	1,538.3	4,790.9	4,704.4	86.52	55.371	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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 Depths are relative to KB-EST @ 4989.0usft (Original Well E
Coordinates are relative to: OLSON 30R-223
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: 0.37°

Ladder Plot

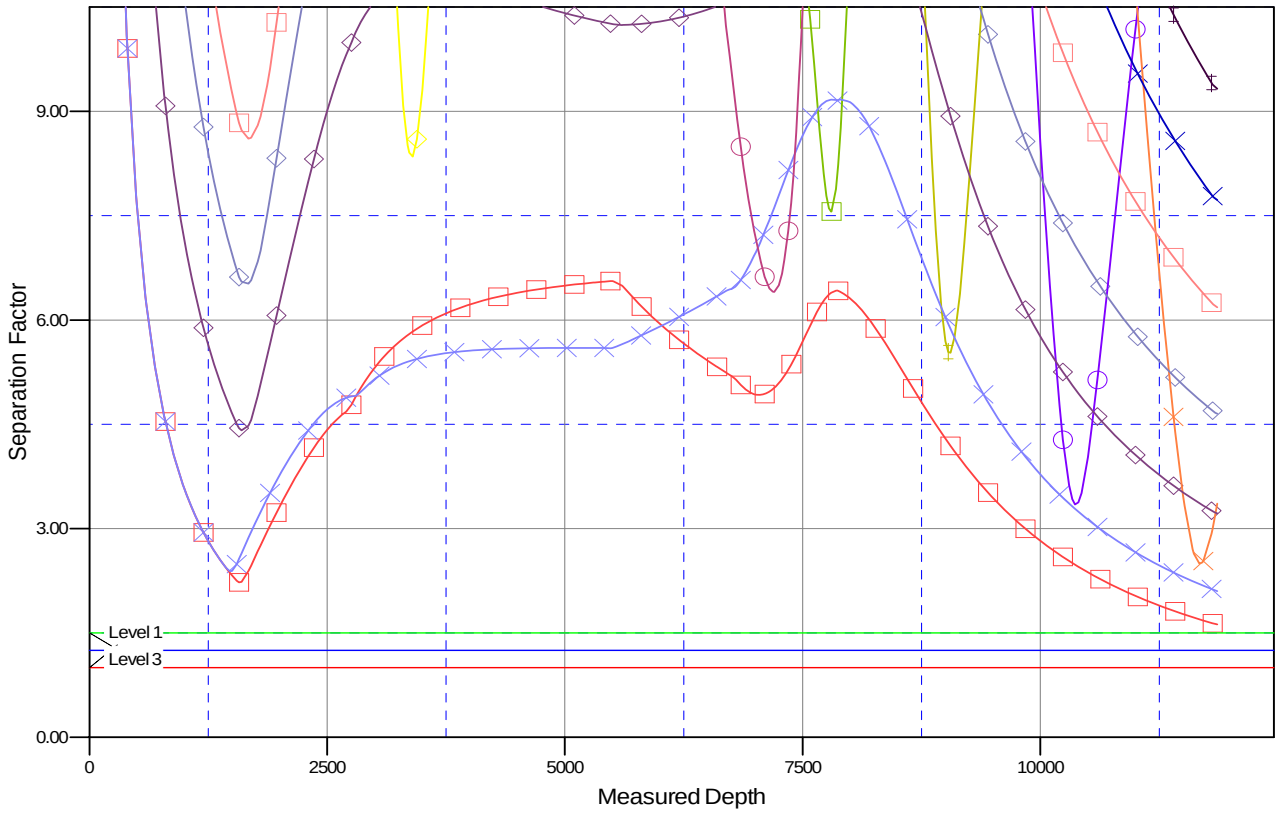


LEGEND

#1, Wellbore #1 V0	EXIST VERT SHULTZ 22-30, Wellbore #1, Design #1 V0	OLSON 30R-203, ORIGINAL W
1, Wellbore #1 V0	EXIST VERT SHULTZ 23-30, Wellbore #1, Design #1 V0	OLSON 30R-243, ORIGINAL W
#1, Wellbore #1 V0	EXIST VERT SHULTZ FARM 30-32, Wellbore #1, Wellbore #1 V0	OLSON 30R-303, ORIGINAL W
3, Wellbore #1, Wellbore #1 V0	EXIST VERT SHULTZ FARM 30-33, Wellbore #1, Wellbore #1 V0	OLSON 30R-343, ORIGINAL W
, Wellbore #1, Wellbore #1 V0	OLSON 30M-223, ORIGINAL WELLBORE, PROPOSAL #2 V0	OLSON 30U-343, ORIGINAL W
#1, Wellbore #1 V0	OLSON 30M-323, ORIGINAL WELLBORE, PROPOSAL #2 V0	PROP HZ CHANDLER FARM
#1, Design #1 V0	OLSON 30M-403, ORIGINAL WELLBORE, PROPOSAL #2 V0	

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well OLSON 30R-223
Project:	WELD COUNTY, COLORADO	**TVD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Reference Site:	NW NE SEC 30 T4N R67W 6th P.M.	**MD Reference:**	KB-EST @ 4989.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	OLSON 30R-223	**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 Depths are relative to KB-EST @ 4989.0usft (Original Well E
Coordinates are relative to: OLSON 30R-223
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: 0.37°



LEGEND

#1, Wellbore #1 V0	EXIST VERT SHULTZ 22-30, Wellbore #1, Design #1 V0	OLSON 30R-203, ORIGINAL W
1, Wellbore #1 V0	EXIST VERT SHULTZ 23-30, Wellbore #1, Design #1 V0	OLSON 30R-243, ORIGINAL W
#1, Wellbore #1 V0	EXIST VERT SHULTZ FARM 30-32, Wellbore #1, Wellbore #1 V0	OLSON 30R-303, ORIGINAL W
3, Wellbore #1, Wellbore #1 V0	EXIST VERT SHULTZ FARM 30-33, Wellbore #1, Wellbore #1 V0	OLSON 30R-343, ORIGINAL W
, Wellbore #1, Wellbore #1 V0	OLSON 30M-223, ORIGINAL WELLBORE, PROPOSAL #2 V0	OLSON 30U-343, ORIGINAL W
#1, Wellbore #1 V0	OLSON 30M-323, ORIGINAL WELLBORE, PROPOSAL #2 V0	PROP HZ CHANDLER FARM
#1, Design #1 V0	OLSON 30M-403, ORIGINAL WELLBORE, PROPOSAL #2 V0	