

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

SW NW SEC. 15 T5N R65W 6th P.M.

VETTING 13

ORIGINAL WELLBORE

PROPOSAL #4

Anticollision Report

16 June, 2016



Anticollision Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL #4		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 us	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	16/06/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	15,470.6	PROPOSAL #4 (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
SW NW SEC. 15 T5N R65W 6th P.M.						
ABDN VERT LORENZ FARM INC #1 - Wellbore #1 - De:	4,830.4	4,600.0	2,112.1	2,001.0	18.999	CC, ES
ABDN VERT LORENZ FARM INC #1 - Wellbore #1 - De:	4,900.0	4,600.0	2,113.6	2,002.2	18.980	SF
CARLSON A-15-16HN - Wellbore #1 - FINAL SURVEYS	7,069.3	11,926.0	2,688.7	2,527.4	16.664	CC
CARLSON A-15-16HN - Wellbore #1 - FINAL SURVEYS	10,200.0	14,866.0	2,691.7	2,376.6	8.542	ES
CARLSON A-15-16HN - Wellbore #1 - FINAL SURVEYS	10,800.0	14,866.0	2,764.5	2,432.9	8.337	SF
CARLSON B-15-16HC - Wellbore #1 - Wellbore #1	7,180.7	11,998.8	2,511.9	2,349.2	15.435	CC
CARLSON B-15-16HC - Wellbore #1 - Wellbore #1	10,200.0	14,917.0	2,514.9	2,199.4	7.971	ES
CARLSON B-15-16HC - Wellbore #1 - Wellbore #1	10,700.0	14,917.0	2,569.8	2,240.5	7.805	SF
CARLSON C-15-16HN - Wellbore #1 - Wellbore #1	6,953.1	11,718.4	2,353.3	2,195.5	14.915	CC
CARLSON C-15-16HN - Wellbore #1 - Wellbore #1	10,200.0	14,752.0	2,382.3	2,070.6	7.642	ES
CARLSON C-15-16HN - Wellbore #1 - Wellbore #1	10,700.0	14,752.0	2,441.1	2,115.8	7.503	SF
CARLSON D-15-16HN - Wellbore #1 - Wellbore #1	7,061.6	11,796.8	2,026.0	1,865.9	12.652	CC
CARLSON D-15-16HN - Wellbore #1 - Wellbore #1	10,200.0	14,749.3	2,042.4	1,729.6	6.531	ES
CARLSON D-15-16HN - Wellbore #1 - Wellbore #1	10,500.0	14,760.0	2,068.8	1,747.6	6.441	SF
CARLSON E-15-16HC - Wellbore #1 - Wellbore #1	10,172.5	14,837.0	1,851.5	1,537.3	5.893	CC
CARLSON E-15-16HC - Wellbore #1 - Wellbore #1	10,200.0	14,837.0	1,851.7	1,536.7	5.879	ES
CARLSON E-15-16HC - Wellbore #1 - Wellbore #1	10,500.0	14,837.0	1,880.2	1,557.0	5.818	SF
CARLSON F-15-16HN - Wellbore #1 - Wellbore #1	6,969.1	11,673.0	1,756.0	1,597.8	11.100	CC
CARLSON F-15-16HN - Wellbore #1 - Wellbore #1	10,200.0	14,691.0	1,777.3	1,469.0	5.765	ES
CARLSON F-15-16HN - Wellbore #1 - Wellbore #1	10,500.0	14,691.0	1,806.4	1,490.1	5.710	SF
CARLSON G-15-16HN - Wellbore #1 - Wellbore #1	7,063.9	11,792.1	1,326.4	1,167.0	8.320	CC
CARLSON G-15-16HN - Wellbore #1 - Wellbore #1	10,200.0	14,774.0	1,352.3	1,043.8	4.384	ES
CARLSON G-15-16HN - Wellbore #1 - Wellbore #1	10,300.0	14,774.0	1,357.8	1,046.6	4.364	SF
CARLSON H-15-16HC - Wellbore #1 - Wellbore #1	8,666.6	13,357.0	1,161.3	932.8	5.083	CC
CARLSON H-15-16HC - Wellbore #1 - Wellbore #1	10,200.0	14,860.8	1,173.6	862.7	3.774	ES
CARLSON H-15-16HC - Wellbore #1 - Wellbore #1	10,300.0	14,861.0	1,180.4	866.8	3.763	SF
CARLSON I-15-16HN - Wellbore #1 - Wellbore #1	6,964.1	11,794.0	994.0	838.3	6.384	CC
CARLSON I-15-16HN - Wellbore #1 - Wellbore #1	10,200.0	14,870.0	1,006.3	711.6	3.415	ES
CARLSON I-15-16HN - Wellbore #1 - Wellbore #1	10,300.0	14,870.0	1,014.0	716.8	3.412	SF
CARLSON J-15-16HN - Wellbore #1 - Wellbore #1	7,029.6	11,865.7	582.9	426.1	3.718	CC
CARLSON J-15-16HN - Wellbore #1 - Wellbore #1	10,200.0	14,898.0	641.5	361.3	2.289	ES, SF
CARLSON K-15-16HC - Wellbore #1 - Wellbore #1	7,177.4	12,073.8	449.3	288.0	2.785	CC
CARLSON K-15-16HC - Wellbore #1 - Wellbore #1	10,171.5	15,003.0	476.1	189.2	1.660	ES
CARLSON K-15-16HC - Wellbore #1 - Wellbore #1	10,200.0	15,003.0	477.0	189.3	1.658	SF
CARLSON L-15-16HN - Wellbore #1 - Wellbore #1	6,977.0	11,960.3	314.9	157.3	1.998	CC, ES
CARLSON L-15-16HN - Wellbore #1 - Wellbore #1	7,000.0	11,968.8	315.6	157.4	1.994	SF
EXIST DD BMC #B8 - Wellbore #1 - Wellbore #1	14,426.7	7,455.2	1,919.2	1,685.7	8.218	CC

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

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Reference Design:	PROPOSAL #4	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
SW NW SEC. 15 T5N R65W 6th P.M.						
EXIST DD BMC #B8 - Wellbore #1 - Wellbore #1	14,500.0	7,455.0	1,920.6	1,685.1	8.153	ES
EXIST DD BMC #B8 - Wellbore #1 - Wellbore #1	14,900.0	7,453.8	1,976.8	1,730.0	8.010	SF
EXIST DD BUS BARN #A5 - Wellbore #1 - Wellbore #1	11,827.4	7,605.3	1,825.0	1,657.5	10.895	CC
EXIST DD BUS BARN #A5 - Wellbore #1 - Wellbore #1	11,900.0	7,604.5	1,826.4	1,656.9	10.774	ES
EXIST DD BUS BARN #A5 - Wellbore #1 - Wellbore #1	12,400.0	7,599.0	1,912.7	1,729.2	10.426	SF
EXIST DD CDOT 2 #D7 - Wellbore #1 - Wellbore #1	15,157.2	7,525.0	2,419.3	2,159.4	9.307	CC
EXIST DD CDOT 2 #D7 - Wellbore #1 - Wellbore #1	15,200.0	7,525.0	2,419.7	2,158.6	9.266	ES
EXIST DD CDOT 2 #D7 - Wellbore #1 - Wellbore #1	15,470.6	7,525.0	2,439.6	2,170.8	9.078	SF
EXIST DD CDOT 3 # D2 - Wellbore #1 - Wellbore #1	13,753.2	7,276.4	2,439.3	2,234.2	11.898	CC
EXIST DD CDOT 3 # D2 - Wellbore #1 - Wellbore #1	13,800.0	7,276.1	2,439.7	2,233.4	11.824	ES
EXIST DD CDOT 3 # D2 - Wellbore #1 - Wellbore #1	14,600.0	7,270.4	2,582.1	2,353.4	11.290	SF
EXIST DD CLARK #A1 - Wellbore #1 - Wellbore #1	12,423.3	7,950.0	908.3	732.6	5.168	CC, ES
EXIST DD CLARK #A1 - Wellbore #1 - Wellbore #1	12,600.0	7,950.0	925.3	744.7	5.122	SF
EXIST DD CLASSIC LANES #C9 - Wellbore #1 - Wellbore #1	15,470.6	7,990.0	552.6	268.3	1.944	CC, ES, SF
EXIST DD COUNTRYSIDE CENTER C3 - Wellbore #1 - Wellbore #1	12,600.1	7,992.0	186.8	0.8	1.004	Level 2, CC, ES, SF
EXIST DD DELTA PARK #A2 - Wellbore #1 - Wellbore #1	11,775.7	7,850.0	490.3	321.6	2.907	CC
EXIST DD DELTA PARK #A2 - Wellbore #1 - Wellbore #1	11,800.0	7,850.0	490.9	321.6	2.899	ES, SF
EXIST DD DISTRICT SIX #C6 - Wellbore #1 - Wellbore #1	14,532.5	8,319.0	784.5	541.9	3.234	CC, ES
EXIST DD DISTRICT SIX #C6 - Wellbore #1 - Wellbore #1	14,600.0	8,320.0	787.4	542.9	3.221	SF
EXIST DD DRIFTWOOD #D1 - Wellbore #1 - Wellbore #1	14,983.4	7,620.0	1,216.6	960.9	4.758	CC
EXIST DD DRIFTWOOD #D1 - Wellbore #1 - Wellbore #1	15,000.0	7,620.0	1,216.7	960.6	4.750	ES
EXIST DD DRIFTWOOD #D1 - Wellbore #1 - Wellbore #1	15,100.0	7,616.8	1,222.2	963.3	4.720	SF
EXIST DD EHRlich MOTORS #D8 - Wellbore #1 - Wellbore #1	15,470.6	7,762.2	2,596.2	2,303.5	8.870	CC, ES, SF
EXIST DD GARDEN CITY #D5 - Wellbore #1 - Wellbore #1	15,470.6	7,699.0	1,769.8	1,487.6	6.273	CC, ES, SF
EXIST DD GREELEY IND SOUTH #B9 - Wellbore #1 - V	14,522.6	7,750.0	591.9	351.4	2.461	CC, ES
EXIST DD GREELEY IND SOUTH #B9 - Wellbore #1 - V	14,600.0	7,750.0	596.9	354.3	2.460	SF
EXIST DD HWY 34-1 #A-7 - Wellbore #1 - Wellbore #1	12,414.9	7,307.2	2,541.7	2,367.6	14.598	CC
EXIST DD HWY 34-1 #A-7 - Wellbore #1 - Wellbore #1	12,500.0	7,307.1	2,543.1	2,366.6	14.410	ES
EXIST DD HWY 34-1 #A-7 - Wellbore #1 - Wellbore #1	13,500.0	7,306.1	2,763.6	2,559.2	13.520	SF
EXIST DD HWY 34-2 #A-8 - Wellbore #1 - Wellbore #1	11,189.6	7,665.9	2,535.1	2,372.8	15.622	CC
EXIST DD HWY 34-2 #A-8 - Wellbore #1 - Wellbore #1	11,300.0	7,664.4	2,537.5	2,372.2	15.347	ES
EXIST DD HWY 34-2 #A-8 - Wellbore #1 - Wellbore #1	12,300.0	7,649.9	2,767.6	2,574.5	14.328	SF
EXIST DD HWY 85-1 #B-12 - Wellbore #1 - Wellbore #1	13,042.2	7,346.5	1,859.2	1,672.6	9.965	CC
EXIST DD HWY 85-1 #B-12 - Wellbore #1 - Wellbore #1	13,100.0	7,346.1	1,860.1	1,671.9	9.884	ES
EXIST DD HWY 85-1 #B-12 - Wellbore #1 - Wellbore #1	13,600.0	7,342.5	1,941.1	1,738.9	9.602	SF
EXIST DD HWY 85-2 #B11 - Wellbore #1 - Wellbore #1	13,263.3	7,725.0	450.3	256.2	2.320	CC, ES
EXIST DD HWY 85-2 #B11 - Wellbore #1 - Wellbore #1	13,300.0	7,725.0	451.7	256.7	2.316	SF
EXIST DD HWY 85-3 #C4 - Wellbore #1 - Wellbore #1	13,098.9	8,142.0	727.2	527.9	3.649	CC
EXIST DD HWY 85-3 #C4 - Wellbore #1 - Wellbore #1	13,100.0	8,142.0	727.2	527.9	3.648	ES
EXIST DD HWY 85-3 #C4 - Wellbore #1 - Wellbore #1	13,200.0	8,142.0	734.2	532.1	3.633	SF
EXIST DD KUETTEL #11-15 - Wellbore #1 - Wellbore #1	6,769.0	6,882.5	2,193.4	2,146.3	46.569	ES
EXIST DD KUETTEL #11-15 - Wellbore #1 - Wellbore #1	6,803.7	6,923.7	2,193.2	2,160.9	67.886	CC
EXIST DD KUETTEL #11-15 - Wellbore #1 - Wellbore #1	15,470.6	7,315.5	9,059.1	8,803.0	35.377	SF
EXIST DD KUETTEL #21-15 - Wellbore #1 - Wellbore #1	0.0	0.0	2,513.9			
EXIST DD KUETTEL #21-15 - Wellbore #1 - Wellbore #1	200.0	187.0	2,514.1	2,513.5	4,963.215	ES
EXIST DD KUETTEL #21-15 - Wellbore #1 - Wellbore #1	14,900.0	7,421.0	9,932.0	9,685.6	40.314	SF
EXIST DD KUETTEL #CNW-15 - Wellbore #1 - Wellbore #1	6,769.0	6,944.3	2,043.2	1,995.6	42.986	ES
EXIST DD KUETTEL #CNW-15 - Wellbore #1 - Wellbore #1	6,778.8	6,953.1	2,043.1	2,001.2	48.729	CC
EXIST DD KUETTEL #CNW-15 - Wellbore #1 - Wellbore #1	15,470.6	7,428.0	9,729.1	9,472.3	37.892	SF
EXIST DD PARKVIEW AOUTH #A3 - Wellbore #1 - Wellbore #1	10,633.0	8,140.0	364.7	208.5	2.334	CC, ES, SF
EXIST DD SAM PAK #A6 - Wellbore #1 - Wellbore #1	10,393.7	7,998.0	1,754.4	1,598.9	11.286	CC
EXIST DD SAM PAK #A6 - Wellbore #1 - Wellbore #1	10,400.0	7,998.0	1,754.4	1,598.8	11.273	ES
EXIST DD SAM PAK #A6 - Wellbore #1 - Wellbore #1	10,900.0	7,945.0	1,825.1	1,655.8	10.780	SF

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SW NW SEC. 15 T5N R65W 6th P.M.						
EXIST DD SMITH 5 SPOT #A4 - Wellbore #1 - Wellbore	11,237.0	7,752.0	1,276.6	1,115.1	7.901	CC
EXIST DD SMITH 5 SPOT #A4 - Wellbore #1 - Wellbore	11,300.0	7,752.0	1,278.2	1,114.9	7.825	ES
EXIST DD SMITH 5 SPOT #A4 - Wellbore #1 - Wellbore	11,500.0	7,752.0	1,303.5	1,134.6	7.717	SF
EXIST DD STATE #16-6B - Wellbore #1 - Wellbore #1	10,456.9	7,321.0	778.6	657.0	6.404	CC, ES
EXIST DD STATE #16-6B - Wellbore #1 - Wellbore #1	10,600.0	7,321.0	791.7	666.3	6.315	SF
EXIST DD UNION PACIFIC #C5 - Wellbore #1 - Wellbore	13,843.7	7,951.0	152.3	-64.2	0.703	Level 1, CC, ES, SF
EXIST DD UNIVERSITY 5 SPOT #D4 - Wellbore #1 - Wellbore	15,470.6	8,077.0	1,499.5	1,201.7	5.036	CC, ES, SF
EXIST DD UNIVERSITY SQUARE #D6 - Wellbore #1 - V	15,470.6	8,016.1	2,492.7	2,182.3	8.031	CC, ES, SF
EXIST DD VOLK #C7 - Wellbore #1 - Wellbore #1	15,090.4	8,120.1	119.7	-144.0	0.454	Level 1, CC, ES, SF
EXIST DD WHEELER #D3 - Wellbore #1 - Wellbore #1	15,470.6	8,438.7	1,659.3	1,347.1	5.314	CC, ES, SF
EXIST VERT EISENMAN #22-15 - Wellbore #1 - Wellbore	249.4	240.6	1,677.0	1,676.4	2,538.183	CC, ES
EXIST VERT EISENMAN #22-15 - Wellbore #1 - Wellbore	15,000.0	6,600.0	9,991.5	9,816.3	57.011	SF
EXIST VERT FAY #1 - Wellbore #1 - Design #1	9,198.2	7,147.0	846.0	640.8	4.123	CC
EXIST VERT FAY #1 - Wellbore #1 - Design #1	9,200.0	7,147.0	846.0	640.8	4.122	ES
EXIST VERT FAY #1 - Wellbore #1 - Design #1	9,300.0	7,147.0	852.1	644.2	4.098	SF
EXIST VERT HARRINGTON #1 - Wellbore #1 - Design #1	6,769.0	6,638.0	541.5	392.8	3.643	CC
EXIST VERT HARRINGTON #1 - Wellbore #1 - Design #1	6,800.0	6,669.0	542.1	386.5	3.483	ES, SF
EXIST VERT SANDUSKY #1 - Wellbore #1 - Wellbore #1	100.0	81.6	123.0	122.8	874.522	CC, ES
EXIST VERT SANDUSKY #1 - Wellbore #1 - Wellbore #1	15,470.6	6,700.0	9,010.1	8,798.3	42.555	SF
VETTING 12 - ORIGINAL WELLBORE - PROPOSAL #3	100.0	100.0	25.3	25.1	134.163	CC
VETTING 12 - ORIGINAL WELLBORE - PROPOSAL #3	5,200.0	5,200.1	57.2	15.9	1.385	Level 3, ES, SF
VETTING 14 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	22.6	21.9	35.369	CC
VETTING 14 - ORIGINAL WELLBORE - PROPOSAL #2	5,025.5	5,028.4	60.2	18.9	1.458	Level 3, ES, SF
VETTING 15 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	47.9	47.3	75.045	CC, ES
VETTING 15 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,171.7	627.5	240.7	1.622	SF
VETTING 16 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	70.0	69.4	109.675	CC, ES
VETTING 16 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,409.8	686.2	224.9	1.487	Level 3, SF
VETTING 17 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	95.3	94.7	149.333	CC, ES
VETTING 17 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,284.8	908.9	470.9	2.075	SF
VETTING 18 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	117.9	117.2	184.670	CC, ES
VETTING 18 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,420.3	1,217.0	760.2	2.664	SF
VETTING 19 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	143.2	142.6	224.740	CC, ES
VETTING 19 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,682.9	1,332.4	857.8	2.808	SF
VETTING 20 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	165.8	165.1	259.695	CC, ES
VETTING 20 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,616.6	1,531.9	1,066.0	3.288	SF
VETTING 21 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	191.1	190.5	299.374	CC, ES
VETTING 21 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	15,843.4	1,854.7	1,384.1	3.941	SF
VETTING 22 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	213.7	213.0	334.730	CC, ES
VETTING 22 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	16,129.6	1,987.3	1,509.6	4.160	SF
VETTING 23 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	239.0	238.4	374.407	CC, ES
VETTING 23 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	16,069.4	2,176.5	1,702.7	4.594	SF
VETTING 24 - ORIGINAL WELLBORE - PROPOSAL #2	200.0	200.0	261.1	260.4	409.014	CC, ES
VETTING 24 - ORIGINAL WELLBORE - PROPOSAL #2	15,470.6	16,281.8	2,503.5	2,027.8	5.263	SF
VT-ALLES 1-16-18 - ORIGINAL WELLBORE - PROPOS	100.0	99.0	102.4	102.2	545.262	CC
VT-ALLES 1-16-18 - ORIGINAL WELLBORE - PROPOS	200.0	198.1	102.9	102.2	164.108	ES
VT-ALLES 1-16-18 - ORIGINAL WELLBORE - PROPOS	15,470.6	13,038.5	630.8	263.5	1.718	SF
VT-GLENMERE 3-16-18 - ORIGINAL WELLBORE - PRC	200.0	199.0	214.8	214.1	337.659	CC, ES
VT-GLENMERE 3-16-18 - ORIGINAL WELLBORE - PRC	15,470.6	13,335.5	2,513.9	2,052.2	5.444	SF
VT-GLENMERE C1-16-18 - ORIGINAL WELLBORE - PF	200.0	199.0	237.6	237.0	373.589	CC, ES
VT-GLENMERE C1-16-18 - ORIGINAL WELLBORE - PF	15,470.6	13,554.3	2,654.9	2,188.8	5.697	SF
VT-LDS 1-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	200.0	192.5	191.9	301.635	CC, ES
VT-LDS 1-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,314.9	2,186.9	1,728.2	4.768	SF
VT-LDS 2-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	200.0	152.9	152.2	239.508	CC, ES

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

Anticollision Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SW NW SEC. 15 T5N R65W 6th P.M.						
VT-LDS 2-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,118.1	1,864.9	1,411.1	4.109	SF
VT-LDS 3-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	200.0	135.9	135.3	212.887	CC, ES
VT-LDS 3-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,163.2	1,542.2	1,094.0	3.441	SF
VT-LDS 4-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	199.0	110.8	110.2	174.207	CC, ES
VT-LDS 4-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,098.4	1,222.8	785.1	2.794	SF
VT-LDS 5-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	200.0	102.3	101.7	160.337	CC, ES
VT-LDS 5-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,075.1	914.1	495.9	2.186	SF
VT-LDS C2-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	199.0	173.2	172.6	272.315	CC, ES
VT-LDS C2-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,325.7	1,997.8	1,536.2	4.328	SF
VT-LDS C3-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	200.0	122.7	122.0	192.172	CC, ES
VT-LDS C3-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,150.2	1,334.3	878.7	2.929	SF
VT-LDS C4-16-18 - ORIGINAL WELLBORE - PROPOSAL	200.0	199.0	99.3	98.7	155.906	CC, ES
VT-LDS C4-16-18 - ORIGINAL WELLBORE - PROPOSAL	15,470.6	13,074.9	691.4	251.5	1.572	SF

Offset Design

Survey Program: 0-INC												Offset Site Error:	0.0 usft
SW NW SEC. 15 T5N R65W 6th P.M. - ABDN VERT LORENZ FARM INC #1 - Wellbore #1 - Design #1												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	153.89	-2,297.0	1,125.9	2,558.4				
100.0	100.0	57.0	57.0	0.1	0.6	153.89	-2,297.0	1,125.9	2,558.0	2,557.4	0.69	3,686.410	
200.0	200.0	157.0	157.0	0.3	2.4	153.89	-2,297.0	1,125.9	2,558.0	2,555.4	2.70	949.110	
300.0	300.0	257.0	257.0	0.5	4.6	-50.80	-2,297.0	1,125.9	2,556.9	2,551.9	5.08	503.089	
400.0	399.8	356.8	356.8	0.7	6.6	-50.94	-2,297.0	1,125.9	2,553.6	2,546.3	7.34	347.860	
500.0	499.5	456.5	456.5	1.0	8.6	-51.18	-2,297.0	1,125.9	2,548.1	2,538.6	9.59	265.676	
600.0	598.7	555.7	555.7	1.3	10.7	-51.51	-2,297.0	1,125.9	2,540.5	2,528.7	11.85	214.476	
700.0	697.5	654.5	654.5	1.6	12.6	-51.94	-2,297.0	1,125.9	2,530.7	2,516.6	14.11	179.376	
799.9	795.6	752.6	752.6	2.0	14.6	-52.47	-2,297.0	1,125.9	2,518.9	2,502.5	16.38	153.742	
900.0	893.4	850.4	850.4	2.4	16.6	-52.84	-2,297.0	1,125.9	2,506.1	2,487.4	18.71	133.914	
1,000.0	991.3	948.3	948.3	2.9	18.6	-53.21	-2,297.0	1,125.9	2,493.4	2,472.4	21.05	118.430	
1,100.0	1,089.1	1,046.1	1,046.1	3.3	20.5	-53.59	-2,297.0	1,125.9	2,480.9	2,457.5	23.40	106.012	
1,200.0	1,186.9	1,143.9	1,143.9	3.7	22.5	-53.98	-2,297.0	1,125.9	2,468.4	2,442.7	25.76	95.841	
1,300.0	1,284.7	1,241.7	1,241.7	4.2	24.5	-54.36	-2,297.0	1,125.9	2,456.1	2,427.9	28.11	87.361	
1,400.0	1,382.5	1,339.5	1,339.5	4.6	26.5	-54.75	-2,297.0	1,125.9	2,443.8	2,413.4	30.48	80.187	
1,500.0	1,480.3	1,437.3	1,437.3	5.1	28.4	-55.15	-2,297.0	1,125.9	2,431.7	2,398.9	32.84	74.039	
1,600.0	1,578.1	1,535.1	1,535.1	5.6	30.4	-55.55	-2,297.0	1,125.9	2,419.7	2,384.5	35.21	68.714	
1,700.0	1,676.0	1,633.0	1,633.0	6.0	32.4	-55.95	-2,297.0	1,125.9	2,407.8	2,370.2	37.59	64.058	
1,800.0	1,773.8	1,730.8	1,730.8	6.5	34.3	-56.35	-2,297.0	1,125.9	2,396.1	2,356.1	39.97	59.953	
1,900.0	1,871.6	1,828.6	1,828.6	6.9	36.3	-56.76	-2,297.0	1,125.9	2,384.4	2,342.1	42.35	56.308	
2,000.0	1,969.4	1,926.4	1,926.4	7.4	38.3	-57.18	-2,297.0	1,125.9	2,372.9	2,328.2	44.73	53.049	
2,100.0	2,067.2	2,024.2	2,024.2	7.8	40.2	-57.59	-2,297.0	1,125.9	2,361.6	2,314.4	47.12	50.120	
2,200.0	2,165.0	2,122.0	2,122.0	8.3	42.2	-58.01	-2,297.0	1,125.9	2,350.3	2,300.8	49.51	47.473	
2,300.0	2,262.9	2,219.9	2,219.9	8.8	44.2	-58.44	-2,297.0	1,125.9	2,339.2	2,287.3	51.90	45.070	
2,400.0	2,360.7	2,317.7	2,317.7	9.2	46.1	-58.87	-2,297.0	1,125.9	2,328.2	2,273.9	54.30	42.879	
2,500.0	2,458.5	2,415.5	2,415.5	9.7	48.1	-59.30	-2,297.0	1,125.9	2,317.3	2,260.6	56.70	40.873	
2,600.0	2,556.3	2,513.3	2,513.3	10.1	50.1	-59.74	-2,297.0	1,125.9	2,306.6	2,247.5	59.10	39.030	
2,700.0	2,654.1	2,611.1	2,611.1	10.6	52.0	-60.18	-2,297.0	1,125.9	2,296.0	2,234.5	61.50	37.332	
2,800.0	2,751.9	2,708.9	2,708.9	11.0	54.0	-60.62	-2,297.0	1,125.9	2,285.6	2,221.7	63.91	35.762	
2,900.0	2,849.7	2,806.7	2,806.7	11.5	56.0	-61.07	-2,297.0	1,125.9	2,275.3	2,209.0	66.32	34.307	

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

Anticollision Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 100-GYD_CT												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	61.87	57.9	108.3	124.2				
100.0	100.0	81.6	81.6	0.1	0.0	61.96	57.8	108.5	123.0	122.8	0.14	874.522 CC, ES	
200.0	200.0	181.5	181.5	0.3	0.2	62.23	57.5	109.2	123.4	122.9	0.51	243.528	
300.0	300.0	282.1	282.1	0.5	0.3	-142.61	57.0	109.6	124.9	124.1	0.81	154.585	
400.0	399.8	382.5	382.5	0.7	0.4	-143.78	56.5	109.5	128.8	127.7	1.09	118.233	
500.0	499.5	482.3	482.3	1.0	0.4	-145.73	55.9	109.2	135.3	133.9	1.39	97.194	
600.0	598.7	581.7	581.7	1.3	0.5	-148.25	55.3	108.7	144.9	143.2	1.71	84.542	
700.0	697.5	680.7	680.6	1.6	0.5	-151.07	54.8	108.2	157.7	155.7	2.05	76.918	
799.9	795.6	779.0	779.0	2.0	0.6	-153.91	54.3	107.7	173.9	171.5	2.40	72.476	
900.0	893.4	876.8	876.8	2.4	0.6	-156.63	53.8	107.1	192.2	189.4	2.72	70.765	
1,000.0	991.3	974.7	974.6	2.9	0.6	-158.92	53.5	106.5	210.8	207.8	3.03	69.676	
1,100.0	1,089.1	1,072.5	1,072.5	3.3	0.7	-160.91	53.4	105.7	229.8	226.4	3.33	68.994	
1,200.0	1,186.9	1,170.2	1,170.2	3.7	0.7	-162.65	53.5	104.7	249.0	245.4	3.63	68.617	
1,300.0	1,284.7	1,267.5	1,267.5	4.2	0.8	-164.19	53.9	103.6	268.5	264.6	3.92	68.435	
1,400.0	1,382.5	1,363.5	1,363.4	4.6	0.8	-165.58	54.8	102.5	288.6	284.4	4.21	68.472	
1,500.0	1,480.3	1,458.0	1,457.9	5.1	0.8	-166.84	56.5	101.6	309.7	305.2	4.51	68.738	
1,600.0	1,578.1	1,553.1	1,553.0	5.6	0.8	-167.94	59.0	101.4	331.8	327.0	4.80	69.203	
1,700.0	1,676.0	1,648.7	1,648.5	6.0	0.8	-168.85	61.6	101.7	354.5	349.5	5.08	69.800	
1,800.0	1,773.8	1,744.5	1,744.3	6.5	0.9	-169.61	64.5	102.4	377.8	372.5	5.36	70.426	
1,900.0	1,871.6	1,841.0	1,840.8	6.9	0.9	-170.22	67.2	103.7	401.3	395.7	5.65	71.034	
2,000.0	1,969.4	1,936.7	1,936.4	7.4	0.9	-170.68	69.8	105.6	425.1	419.1	5.94	71.594	
2,100.0	2,067.2	2,032.0	2,031.6	7.8	0.9	-171.02	72.5	108.1	449.3	443.1	6.23	72.139	
2,200.0	2,165.0	2,129.7	2,129.3	8.3	0.9	-171.22	74.8	111.5	473.6	467.1	6.52	72.636	
2,300.0	2,262.9	2,228.2	2,227.6	8.8	1.0	-171.32	76.5	115.3	497.7	490.9	6.81	73.070	
2,400.0	2,360.7	2,326.9	2,326.3	9.2	1.0	-171.38	77.8	119.3	521.5	514.4	7.10	73.412	
2,500.0	2,458.5	2,425.0	2,424.3	9.7	1.0	-171.38	78.6	123.4	545.0	537.6	7.40	73.669	
2,600.0	2,556.3	2,521.8	2,521.0	10.1	1.0	-171.36	79.3	127.7	568.5	560.8	7.70	73.876	
2,700.0	2,654.1	2,618.5	2,617.6	10.6	1.1	-171.35	80.1	132.0	592.1	584.1	7.99	74.067	
2,800.0	2,751.9	2,715.8	2,714.8	11.0	1.1	-171.32	80.9	136.4	615.7	607.4	8.29	74.240	
2,900.0	2,849.7	2,813.4	2,812.2	11.5	1.1	-171.30	81.6	140.8	639.3	630.7	8.59	74.401	
3,000.0	2,947.6	2,911.5	2,910.3	12.0	1.1	-171.32	82.5	144.8	662.8	653.9	8.89	74.548	
3,100.0	3,045.4	3,011.2	3,009.9	12.4	1.1	-171.33	83.1	148.8	686.0	676.8	9.19	74.661	
3,200.0	3,143.2	3,108.7	3,107.4	12.9	1.2	-171.37	83.8	152.3	709.0	699.5	9.48	74.755	
3,300.0	3,241.0	3,209.7	3,208.3	13.3	1.2	-171.44	84.5	155.5	731.8	722.0	9.78	74.820	
3,400.0	3,338.8	3,312.6	3,311.2	13.8	1.2	-171.52	84.7	158.2	753.9	743.9	10.07	74.843	
3,500.0	3,436.6	3,413.3	3,411.8	14.3	1.2	-171.59	84.4	160.6	775.6	765.2	10.37	74.813	
3,600.0	3,534.4	3,512.3	3,510.8	14.7	1.3	-171.66	83.9	162.8	796.9	786.2	10.66	74.750	
3,700.0	3,632.3	3,609.9	3,608.3	15.2	1.3	-171.72	83.4	164.9	818.2	807.2	10.96	74.678	
3,800.0	3,730.1	3,709.5	3,707.9	15.6	1.3	-171.77	82.6	167.2	839.4	828.1	11.25	74.591	
3,900.0	3,827.9	3,805.1	3,803.6	16.1	1.3	-171.79	81.7	169.7	860.5	849.0	11.55	74.507	
4,000.0	3,925.7	3,901.4	3,899.8	16.6	1.4	-171.80	81.0	172.3	881.9	870.1	11.85	74.428	
4,100.0	4,023.5	3,999.2	3,997.5	17.0	1.4	-171.86	80.6	174.5	903.4	891.2	12.15	74.370	
4,200.0	4,121.3	4,097.3	4,095.6	17.5	1.4	-172.00	81.0	175.5	924.8	912.4	12.44	74.346	
4,300.0	4,219.2	4,198.5	4,196.9	17.9	1.4	-172.21	81.8	175.5	946.1	933.3	12.73	74.322	
4,400.0	4,317.0	4,296.4	4,294.8	18.4	1.4	-172.42	82.6	175.0	967.1	954.1	13.02	74.288	
4,500.0	4,414.8	4,393.6	4,392.0	18.9	1.5	-172.64	83.4	174.5	988.2	974.9	13.31	74.248	
4,600.0	4,512.6	4,493.2	4,491.6	19.3	1.5	-172.85	84.3	173.9	1,009.2	995.6	13.60	74.210	
4,609.0	4,521.4	4,502.2	4,500.6	19.4	1.5	-172.87	84.4	173.8	1,011.1	997.5	13.63	74.206	
4,700.0	4,610.7	4,592.4	4,590.7	19.7	1.5	-173.08	85.0	173.2	1,028.7	1,014.9	13.80	74.543	
4,800.0	4,709.4	4,692.3	4,690.6	20.0	1.5	-173.27	85.5	172.6	1,044.6	1,030.7	13.95	74.888	
4,900.0	4,808.6	4,791.1	4,789.4	20.2	1.5	-173.41	85.9	172.1	1,057.1	1,043.1	14.08	75.069	
5,000.0	4,908.2	4,889.2	4,887.5	20.4	1.5	-173.51	86.3	171.8	1,066.3	1,052.1	14.20	75.082	

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

Anticollision Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Offset Design SW NW SEC. 15 T5N R65W 6th P.M. - EXIST VERT SANDUSKY #1 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 100-GYD_CT												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	5,008.1	4,988.1	4,986.5	20.5	1.5	-173.57	86.7	171.8	1,072.1	1,057.8	14.31	74.916	
5,200.0	5,108.0	5,088.3	5,086.7	20.7	1.5	-173.58	86.9	172.1	1,074.5	1,060.1	14.43	74.481	
5,209.0	5,117.0	5,097.3	5,095.7	20.7	1.5	31.06	86.9	172.1	1,074.5	1,052.5	22.05	48.734	
5,300.0	5,208.0	5,188.9	5,187.3	20.8	1.6	31.09	86.9	172.6	1,074.8	1,052.6	22.16	48.495	
5,400.0	5,308.0	5,287.2	5,285.5	20.9	1.6	31.12	86.8	173.4	1,075.1	1,052.8	22.28	48.264	
5,500.0	5,408.0	5,384.6	5,382.9	21.0	1.6	31.17	86.8	174.3	1,075.7	1,053.3	22.39	48.043	
5,600.0	5,508.0	5,481.8	5,480.1	21.1	1.6	31.20	87.2	175.2	1,076.4	1,053.9	22.50	47.833	
5,700.0	5,608.0	5,581.9	5,580.2	21.2	1.7	31.22	87.8	176.0	1,077.4	1,054.8	22.62	47.628	
5,800.0	5,708.0	5,681.5	5,679.8	21.3	1.7	31.26	88.2	177.1	1,078.3	1,055.6	22.74	47.421	
5,900.0	5,808.0	5,782.8	5,781.1	21.4	1.7	31.34	88.2	179.0	1,079.2	1,056.4	22.86	47.208	
6,000.0	5,908.0	5,888.8	5,887.1	21.5	1.7	31.43	87.8	180.8	1,079.8	1,056.8	22.99	46.976	
6,100.0	6,008.0	5,989.0	5,987.2	21.6	1.8	31.51	87.2	182.2	1,080.0	1,056.9	23.11	46.728	
6,200.0	6,108.0	6,091.3	6,089.5	21.7	1.8	31.59	86.6	183.5	1,080.2	1,057.0	23.24	46.474	
6,300.0	6,208.0	6,190.5	6,188.7	21.8	1.8	31.66	86.0	184.7	1,080.3	1,056.9	23.38	46.215	
6,400.0	6,308.0	6,287.2	6,285.4	21.9	1.8	31.71	85.6	185.7	1,080.5	1,057.0	23.51	45.965	
6,500.0	6,408.0	6,387.4	6,385.6	22.0	1.8	31.76	85.5	186.7	1,081.0	1,057.3	23.64	45.720	
6,600.0	6,508.0	6,488.1	6,486.3	22.1	1.9	31.81	85.4	187.7	1,081.4	1,057.6	23.78	45.470	
6,700.0	6,608.0	6,589.7	6,587.9	22.3	1.9	31.85	85.2	188.5	1,081.6	1,057.7	23.92	45.214	
6,769.0	6,677.0	6,658.4	6,656.6	22.3	1.9	31.88	85.0	189.0	1,081.8	1,057.7	24.02	45.036	
6,800.0	6,708.0	6,689.2	6,687.4	22.4	1.9	121.95	85.0	189.2	1,082.3	1,064.8	17.46	61.979	
6,850.0	6,757.8	6,700.0	6,698.2	22.5	1.9	121.70	85.0	189.3	1,085.7	1,068.0	17.67	61.448	
6,900.0	6,806.9	6,700.0	6,698.2	22.6	1.9	121.01	85.0	189.3	1,093.6	1,075.7	17.87	61.203	
6,950.0	6,855.0	6,700.0	6,698.2	22.8	1.9	119.92	85.0	189.3	1,105.9	1,087.8	18.07	61.208	
7,000.0	6,901.8	6,700.0	6,698.2	22.9	1.9	118.40	85.0	189.3	1,122.3	1,104.0	18.28	61.398	
7,050.0	6,946.9	6,700.0	6,698.2	23.1	1.9	116.43	85.0	189.3	1,142.6	1,124.1	18.53	61.668	
7,100.0	6,989.9	6,700.0	6,698.2	23.4	1.9	113.98	85.0	189.3	1,166.4	1,147.6	18.85	61.888	
7,150.0	7,030.6	6,700.0	6,698.2	23.7	1.9	111.03	85.0	189.3	1,193.3	1,174.0	19.27	61.937	
7,200.0	7,068.5	6,700.0	6,698.2	24.0	1.9	107.55	85.0	189.3	1,222.9	1,203.1	19.81	61.743	
7,250.0	7,103.5	6,700.0	6,698.2	24.3	1.9	103.56	85.0	189.3	1,254.8	1,234.4	20.47	61.308	
7,300.0	7,135.2	6,700.0	6,698.2	24.7	1.9	99.06	85.0	189.3	1,288.7	1,267.4	21.23	60.699	
7,350.0	7,163.5	6,700.0	6,698.2	25.1	1.9	94.10	85.0	189.3	1,324.0	1,301.9	22.07	59.993	
7,400.0	7,188.0	6,700.0	6,698.2	25.6	1.9	88.77	85.0	189.3	1,360.4	1,337.5	22.97	59.217	
7,450.0	7,208.6	6,700.0	6,698.2	26.2	1.9	83.21	85.0	189.3	1,397.7	1,373.7	23.92	58.426	
7,500.0	7,225.2	6,700.0	6,698.2	26.8	1.9	77.57	85.0	189.3	1,435.3	1,410.5	24.81	57.846	
7,550.0	7,237.7	6,700.0	6,698.2	27.5	1.9	71.99	85.0	189.3	1,473.1	1,447.6	25.51	57.759	
7,600.0	7,245.8	6,700.0	6,698.2	28.2	1.9	66.64	85.0	189.3	1,510.8	1,484.9	25.90	58.334	
7,650.0	7,249.7	6,700.0	6,698.2	29.0	1.9	61.62	85.0	189.3	1,548.0	1,522.1	25.97	59.612	
7,669.1	7,250.0	6,700.0	6,698.2	29.3	1.9	59.82	85.0	189.3	1,562.1	1,536.2	25.91	60.280	
7,700.0	7,250.0	6,700.0	6,698.2	29.8	1.9	59.82	85.0	189.3	1,584.9	1,558.4	26.46	59.906	
7,800.0	7,250.0	6,700.0	6,698.2	31.6	1.9	59.82	85.0	189.3	1,660.5	1,632.2	28.28	58.717	
7,900.0	7,250.0	6,700.0	6,698.2	33.5	1.9	59.82	85.0	189.3	1,738.6	1,708.4	30.20	57.574	
8,000.0	7,250.0	6,700.0	6,698.2	35.5	1.9	59.82	85.0	189.3	1,818.8	1,786.6	32.20	56.487	
8,100.0	7,250.0	6,700.0	6,698.2	37.7	1.9	59.82	85.0	189.3	1,900.8	1,866.6	34.27	55.473	
8,200.0	7,250.0	6,700.0	6,698.2	39.9	1.9	59.82	85.0	189.3	1,984.6	1,948.2	36.39	54.537	
8,300.0	7,250.0	6,700.0	6,698.2	42.3	1.9	59.82	85.0	189.3	2,069.8	2,031.2	38.56	53.681	
8,400.0	7,250.0	6,700.0	6,698.2	44.7	1.9	59.82	85.0	189.3	2,156.2	2,115.4	40.76	52.899	
8,500.0	7,250.0	6,700.0	6,698.2	47.1	1.9	59.82	85.0	189.3	2,243.8	2,200.8	43.00	52.186	
8,600.0	7,250.0	6,700.0	6,698.2	49.6	1.9	59.82	85.0	189.3	2,332.4	2,287.1	45.26	51.537	
8,700.0	7,250.0	6,700.0	6,698.2	52.1	1.9	59.82	85.0	189.3	2,421.8	2,374.3	47.54	50.945	
8,800.0	7,250.0	6,700.0	6,698.2	54.6	1.9	59.82	85.0	189.3	2,512.1	2,462.2	49.84	50.405	
8,900.0	7,249.9	6,700.0	6,698.2	57.2	1.9	59.82	85.0	189.3	2,603.0	2,550.9	52.15	49.911	
9,000.0	7,249.9	6,700.0	6,698.2	59.8	1.9	59.82	85.0	189.3	2,694.7	2,640.2	54.48	49.458	

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

Anticollision Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 100-GYD_CT												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.0	7,249.9	6,700.0	6,698.2	62.4	1.9	59.82	85.0	189.3	2,786.8	2,730.0	56.82	49.043	
9,200.0	7,249.9	6,700.0	6,698.2	65.1	1.9	59.82	85.0	189.3	2,879.6	2,820.4	59.18	48.661	
9,300.0	7,249.9	6,700.0	6,698.2	67.7	1.9	59.82	85.0	189.3	2,972.7	2,911.2	61.54	48.308	
9,400.0	7,249.9	6,700.0	6,698.2	70.4	1.9	59.82	85.0	189.3	3,066.4	3,002.4	63.91	47.983	
9,500.0	7,249.9	6,700.0	6,698.2	73.0	1.9	59.82	85.0	189.3	3,160.4	3,094.1	66.28	47.681	
9,600.0	7,249.9	6,700.0	6,698.2	75.7	1.9	59.82	85.0	189.3	3,254.7	3,186.1	68.66	47.401	
9,700.0	7,249.9	6,700.0	6,698.2	78.4	1.9	59.82	85.0	189.3	3,349.4	3,278.4	71.05	47.141	
9,800.0	7,249.9	6,700.0	6,698.2	81.1	1.9	59.82	85.0	189.3	3,444.4	3,370.9	73.44	46.899	
9,900.0	7,249.9	6,700.0	6,698.2	83.8	1.9	59.82	85.0	189.3	3,539.7	3,463.8	75.84	46.673	
10,000.0	7,249.9	6,700.0	6,698.2	86.5	1.9	59.82	85.0	189.3	3,635.2	3,556.9	78.24	46.461	
10,100.0	7,249.9	6,700.0	6,698.2	89.3	1.9	59.82	85.0	189.3	3,730.9	3,650.3	80.65	46.263	
10,200.0	7,249.9	6,700.0	6,698.2	92.0	1.9	59.82	85.0	189.3	3,826.9	3,743.8	83.05	46.077	
10,300.0	7,249.9	6,700.0	6,698.2	94.7	1.9	59.82	85.0	189.3	3,923.1	3,837.6	85.47	45.902	
10,400.0	7,249.9	6,700.0	6,698.2	97.5	1.9	59.82	85.0	189.3	4,019.4	3,931.6	87.88	45.738	
10,500.0	7,249.9	6,700.0	6,698.2	100.2	1.9	59.82	85.0	189.3	4,116.0	4,025.7	90.30	45.583	
10,600.0	7,249.9	6,700.0	6,698.2	103.0	1.9	59.82	85.0	189.3	4,212.7	4,119.9	92.72	45.436	
10,700.0	7,249.9	6,700.0	6,698.2	105.7	1.9	59.82	85.0	189.3	4,309.5	4,214.4	95.14	45.298	
10,800.0	7,249.9	6,700.0	6,698.2	108.5	1.9	59.82	85.0	189.3	4,406.5	4,308.9	97.56	45.167	
10,900.0	7,249.9	6,700.0	6,698.2	111.2	1.9	59.82	85.0	189.3	4,503.6	4,403.6	99.99	45.042	
11,000.0	7,249.9	6,700.0	6,698.2	114.0	1.9	59.82	85.0	189.3	4,600.9	4,498.4	102.41	44.924	
11,100.0	7,249.9	6,700.0	6,698.2	116.7	1.9	59.82	85.0	189.3	4,698.2	4,593.4	104.84	44.812	
11,200.0	7,249.9	6,700.0	6,698.2	119.5	1.9	59.82	85.0	189.3	4,795.7	4,688.4	107.27	44.706	
11,300.0	7,249.9	6,700.0	6,698.2	122.3	1.9	59.82	85.0	189.3	4,893.2	4,783.5	109.70	44.604	
11,400.0	7,249.9	6,700.0	6,698.2	125.0	1.9	59.82	85.0	189.3	4,990.9	4,878.8	112.14	44.508	
11,500.0	7,249.9	6,700.0	6,698.2	127.8	1.9	59.82	85.0	189.3	5,088.7	4,974.1	114.57	44.415	
11,600.0	7,249.9	6,700.0	6,698.2	130.6	1.9	59.82	85.0	189.3	5,186.5	5,069.5	117.01	44.327	
11,700.0	7,249.9	6,700.0	6,698.2	133.3	1.9	59.82	85.0	189.3	5,284.4	5,165.0	119.44	44.243	
11,800.0	7,249.9	6,700.0	6,698.2	136.1	1.9	59.82	85.0	189.3	5,382.4	5,260.5	121.88	44.162	
11,900.0	7,249.9	6,700.0	6,698.2	138.9	1.9	59.82	85.0	189.3	5,480.5	5,356.2	124.32	44.085	
12,000.0	7,249.9	6,700.0	6,698.2	141.7	1.9	59.82	85.0	189.3	5,578.6	5,451.9	126.76	44.011	
12,100.0	7,249.9	6,700.0	6,698.2	144.4	1.9	59.82	85.0	189.3	5,676.8	5,547.6	129.20	43.940	
12,200.0	7,249.9	6,700.0	6,698.2	147.2	1.9	59.83	85.0	189.3	5,775.1	5,643.5	131.64	43.872	
12,300.0	7,249.9	6,700.0	6,698.2	150.0	1.9	59.83	85.0	189.3	5,873.4	5,739.4	134.08	43.806	
12,400.0	7,249.9	6,700.0	6,698.2	152.8	1.9	59.83	85.0	189.3	5,971.8	5,835.3	136.52	43.743	
12,500.0	7,249.9	6,700.0	6,698.2	155.6	1.9	59.83	85.0	189.3	6,070.2	5,931.3	138.96	43.682	
12,600.0	7,249.9	6,700.0	6,698.2	158.4	1.9	59.83	85.0	189.3	6,168.7	6,027.3	141.41	43.624	
12,700.0	7,249.9	6,700.0	6,698.2	161.1	1.9	59.83	85.0	189.3	6,267.3	6,123.4	143.85	43.568	
12,800.0	7,249.9	6,700.0	6,698.2	163.9	1.9	59.83	85.0	189.3	6,365.8	6,219.5	146.30	43.514	
12,900.0	7,249.9	6,700.0	6,698.2	166.7	1.9	59.83	85.0	189.3	6,464.5	6,315.7	148.74	43.461	
13,000.0	7,249.9	6,700.0	6,698.2	169.5	1.9	59.83	85.0	189.3	6,563.1	6,411.9	151.19	43.411	
13,100.0	7,249.9	6,700.0	6,698.2	172.3	1.9	59.83	85.0	189.3	6,661.8	6,508.2	153.63	43.362	
13,200.0	7,249.9	6,700.0	6,698.2	175.1	1.9	59.83	85.0	189.3	6,760.6	6,604.5	156.08	43.315	
13,300.0	7,249.9	6,700.0	6,698.2	177.9	1.9	59.83	85.0	189.3	6,859.3	6,700.8	158.53	43.269	
13,400.0	7,249.9	6,700.0	6,698.2	180.7	1.9	59.83	85.0	189.3	6,958.2	6,797.2	160.97	43.225	
13,500.0	7,249.9	6,700.0	6,698.2	183.4	1.9	59.83	85.0	189.3	7,057.0	6,893.6	163.42	43.183	
13,600.0	7,249.9	6,700.0	6,698.2	186.2	1.9	59.83	85.0	189.3	7,155.9	6,990.0	165.87	43.141	
13,700.0	7,249.9	6,700.0	6,698.2	189.0	1.9	59.83	85.0	189.3	7,254.8	7,086.5	168.32	43.101	
13,800.0	7,249.9	6,700.0	6,698.2	191.8	1.9	59.83	85.0	189.3	7,353.7	7,183.0	170.77	43.062	
13,900.0	7,249.9	6,700.0	6,698.2	194.6	1.9	59.83	85.0	189.3	7,452.7	7,279.5	173.22	43.025	
14,000.0	7,249.9	6,700.0	6,698.2	197.4	1.9	59.83	85.0	189.3	7,551.7	7,376.0	175.67	42.988	
14,100.0	7,249.9	6,700.0	6,698.2	200.2	1.9	59.83	85.0	189.3	7,650.7	7,472.6	178.12	42.953	
14,200.0	7,249.9	6,700.0	6,698.2	203.0	1.9	59.83	85.0	189.3	7,749.7	7,569.2	180.57	42.918	

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

Anticollision Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Offset Design SW NW SEC. 15 T5N R65W 6th P.M. - EXIST VERT SANDUSKY #1 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 100-GYD_CT												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis			Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,300.0	7,249.9	6,700.0	6,698.2	205.8	1.9	59.83	85.0	189.3	7,848.8	7,665.8	183.02	42.885	
14,400.0	7,250.0	6,700.0	6,698.2	208.6	1.9	59.83	85.0	189.3	7,947.9	7,762.4	185.47	42.853	
14,500.0	7,250.0	6,700.0	6,698.2	211.4	1.9	59.83	85.0	189.3	8,047.0	7,859.1	187.92	42.821	
14,600.0	7,250.0	6,700.0	6,698.2	214.2	1.9	59.84	85.0	189.3	8,146.2	7,955.8	190.37	42.790	
14,700.0	7,250.0	6,700.0	6,698.2	217.0	1.9	59.84	85.0	189.3	8,245.3	8,052.5	192.83	42.760	
14,800.0	7,250.0	6,700.0	6,698.2	219.8	1.9	59.84	85.0	189.3	8,344.5	8,149.2	195.28	42.731	
14,900.0	7,250.0	6,700.0	6,698.2	222.6	1.9	59.84	85.0	189.3	8,443.7	8,246.0	197.73	42.703	
15,000.0	7,250.0	6,700.0	6,698.2	225.4	1.9	59.84	85.0	189.3	8,542.9	8,342.7	200.18	42.675	
15,100.0	7,250.0	6,700.0	6,698.2	228.2	1.9	59.84	85.0	189.3	8,642.1	8,439.5	202.64	42.648	
15,200.0	7,250.0	6,700.0	6,698.2	231.0	1.9	59.84	85.0	189.3	8,741.4	8,536.3	205.09	42.622	
15,300.0	7,250.0	6,700.0	6,698.2	233.8	1.9	59.84	85.0	189.3	8,840.7	8,633.1	207.54	42.597	
15,400.0	7,250.0	6,700.0	6,698.2	236.6	1.9	59.84	85.0	189.3	8,939.9	8,729.9	210.00	42.572	
15,470.6	7,250.0	6,700.0	6,698.2	238.5	1.9	59.84	85.0	189.3	9,010.1	8,798.3	211.73	42.555 SF	

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well VETTING 13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Reference Site:	SW NW SEC. 15 T5N R65W 6th P.M.	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	VETTING 13	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 #4	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB-EST @ 4664.0usft (Original Well ECoordinates are relative to: VETTING 13

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: 0.54°

Separation Factor Plot

