EXTRACTION OIL & GAS

WELD COUNTY
Sec 20-T7N-R67W
VIC 29W-20-1N

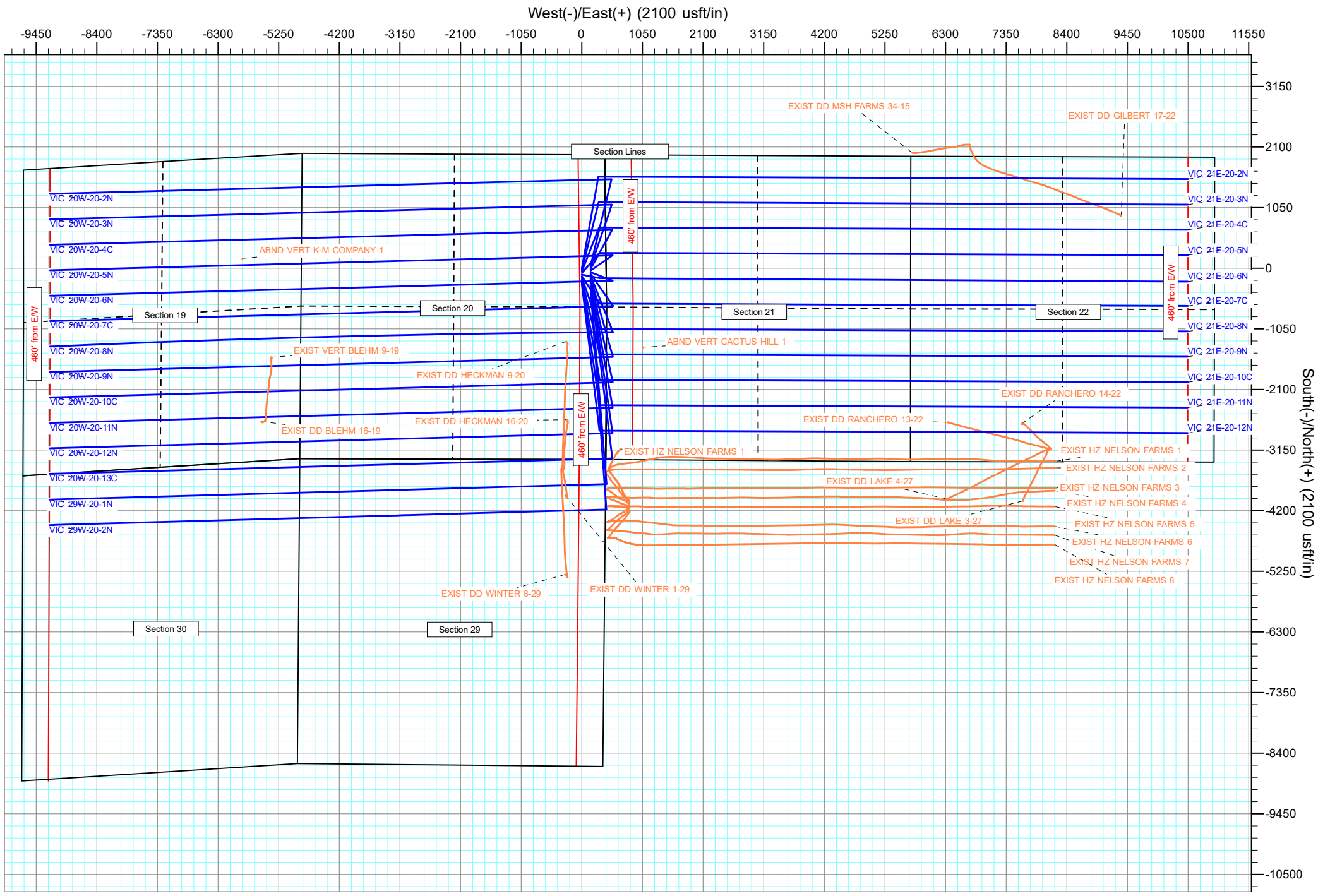
ORIGINAL WELLBORE
PROPOSAL 1

Anticollision Report

22 May, 2018

EXTRACTION Oil & Gas

Project: WELD COUNTY
Site: Sec 20-T7N-R67W
Well: VIC 21E-20-2N
ORIGINAL WELLBORE
PROPOSAL 1



Anticollision Report

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well VIC 29W-20-1N
Project:	WELD COUNTY	**TVD Reference:**	KB 29' @ 5040.00usft
Reference Site:	Sec 20-T7N-R67W	**MD Reference:**	KB 29' @ 5040.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	VIC 29W-20-1N	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	**Offset TVD Reference:**	Offset Datum

Reference	PROPOSAL 1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 5/22/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	17,475.73	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG 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
Sec 19-T7N-R67W						
ABND VERT K-M COMPANY 1 - Wellbore #1 - Design #	14,018.56	6,882.85	4,083.83	3,891.06	21.185	CC
ABND VERT K-M COMPANY 1 - Wellbore #1 - Design #	14,100.00	6,882.85	4,084.64	3,890.18	21.005	ES
ABND VERT K-M COMPANY 1 - Wellbore #1 - Design #	15,000.00	6,882.87	4,200.11	3,991.20	20.105	SF
EXIST DD BLEHM 16-19 - Wellbore #1 - Wellbore #1	13,759.51	7,036.56	1,240.38	1,054.54	6.674	CC, ES
EXIST DD BLEHM 16-19 - Wellbore #1 - Wellbore #1	13,800.00	7,038.05	1,241.04	1,054.97	6.670	SF
EXIST VERT BLEHM 9-19 - Wellbore #1 - Design #1	13,575.65	6,901.16	2,358.43	2,177.42	13.030	CC
EXIST VERT BLEHM 9-19 - Wellbore #1 - Design #1	13,600.00	6,901.16	2,358.55	2,177.14	13.001	ES
EXIST VERT BLEHM 9-19 - Wellbore #1 - Design #1	13,900.00	6,901.15	2,380.63	2,195.38	12.851	SF
Sec 20-T7N-R67W						
ABND VERT CACTUS HILL 1 - Wellbore #1 - Design #1	2,943.21	2,586.95	811.58	780.16	25.830	CC, ES
ABND VERT CACTUS HILL 1 - Wellbore #1 - Design #1	3,400.00	2,938.79	862.28	825.57	23.489	SF
VIC 20W-20-10C - ORIGINAL WELLBORE - PROPOSA	200.00	189.00	111.84	110.90	119.080	CC, ES
VIC 20W-20-10C - ORIGINAL WELLBORE - PROPOSA	17,476.43	16,963.18	1,782.85	1,263.37	3.432	SF
VIC 20W-20-11N - ORIGINAL WELLBORE - PROPOSA	200.00	189.00	83.79	82.85	89.216	CC, ES
VIC 20W-20-11N - ORIGINAL WELLBORE - PROPOSA	17,434.14	16,936.74	1,329.12	806.72	2.544	SF
VIC 20W-20-12N - ORIGINAL WELLBORE - PROPOSA	200.00	189.00	55.74	54.80	59.348	CC, ES
VIC 20W-20-12N - ORIGINAL WELLBORE - PROPOSA	17,448.52	17,117.29	888.55	365.82	1.700	SF
VIC 20W-20-13C - ORIGINAL WELLBORE - PROPOSA	200.00	206.00	28.05	27.05	28.044	CC
VIC 20W-20-13C - ORIGINAL WELLBORE - PROPOSA	17,476.43	17,489.29	492.33	5.67	1.012	Level 2, ES, SF
VIC 20W-20-2N - ORIGINAL WELLBORE - PROPOSAL	200.00	202.00	335.90	334.91	340.734	CC, ES
VIC 20W-20-2N - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,711.81	5,296.35	4,775.76	10.174	SF
VIC 20W-20-3N - ORIGINAL WELLBORE - PROPOSAL	200.00	204.00	307.84	306.85	310.024	CC, ES
VIC 20W-20-3N - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,583.23	4,855.54	4,335.56	9.338	SF
VIC 20W-20-4C - ORIGINAL WELLBORE - PROPOSAL	200.00	203.00	279.79	278.80	282.794	CC, ES
VIC 20W-20-4C - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,700.26	4,419.30	3,898.68	8.489	SF
VIC 20W-20-5N - ORIGINAL WELLBORE - PROPOSAL	200.00	205.00	251.74	250.74	252.606	CC, ES
VIC 20W-20-5N - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,468.89	3,974.28	3,453.41	7.630	SF
VIC 20W-20-6N - ORIGINAL WELLBORE - PROPOSAL	200.00	204.00	223.68	222.69	225.268	CC, ES
VIC 20W-20-6N - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,468.66	3,533.46	3,012.60	6.784	SF
VIC 20W-20-7C - ORIGINAL WELLBORE - PROPOSAL	200.00	206.00	196.00	195.00	195.969	CC, ES
VIC 20W-20-7C - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,699.66	3,099.71	2,579.17	5.955	SF
VIC 20W-20-8N - ORIGINAL WELLBORE - PROPOSAL	200.00	209.00	167.95	166.94	166.138	CC, ES
VIC 20W-20-8N - ORIGINAL WELLBORE - PROPOSAL	17,400.00	16,566.20	2,650.90	2,130.71	5.096	SF
VIC 20W-20-9N - ORIGINAL WELLBORE - PROPOSAL	200.00	210.00	139.90	138.88	137.899	CC, ES
VIC 20W-20-9N - ORIGINAL WELLBORE - PROPOSAL	17,476.43	16,654.08	2,211.40	1,690.26	4.243	SF
VIC 21E-20-10C - ORIGINAL WELLBORE - PROPOSAL	200.00	204.00	165.29	164.30	166.461	CC, ES

Anticollision Report

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well VIC 29W-20-1N
Project:	WELD COUNTY	**TVD Reference:**	KB 29' @ 5040.00usft
Reference Site:	Sec 20-T7N-R67W	**MD Reference:**	KB 29' @ 5040.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	VIC 29W-20-1N	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	**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
Sec 20-T7N-R67W						
VIC 21E-20-10C - ORIGINAL WELLBORE - PROPOSAL	1,800.00	1,844.26	306.11	292.41	22.351	SF
VIC 21E-20-11N - ORIGINAL WELLBORE - PROPOSAL	200.00	204.00	155.51	154.52	156.612	CC
VIC 21E-20-11N - ORIGINAL WELLBORE - PROPOSAL	300.00	304.02	156.12	154.43	92.080	ES
VIC 21E-20-11N - ORIGINAL WELLBORE - PROPOSAL	1,900.00	1,937.96	211.78	195.63	13.113	SF
VIC 21E-20-12N - ORIGINAL WELLBORE - PROPOSAL	1,840.27	1,851.52	134.48	114.63	6.774	CC
VIC 21E-20-12N - ORIGINAL WELLBORE - PROPOSAL	1,900.00	1,911.03	134.73	113.94	6.479	ES
VIC 21E-20-12N - ORIGINAL WELLBORE - PROPOSAL	2,100.00	2,109.27	140.85	117.37	5.998	SF
VIC 21E-20-2N - ORIGINAL WELLBORE - PROPOSAL	200.00	204.00	329.94	328.95	332.282	CC, ES
VIC 21E-20-2N - ORIGINAL WELLBORE - PROPOSAL	12,400.00	6,700.00	7,048.06	6,930.35	59.877	SF
VIC 21E-20-3N - ORIGINAL WELLBORE - PROPOSAL	200.00	205.00	305.21	304.22	306.271	CC, ES
VIC 21E-20-3N - ORIGINAL WELLBORE - PROPOSAL	12,000.00	6,600.00	6,451.20	6,342.79	59.504	SF
VIC 21E-20-4C - ORIGINAL WELLBORE - PROPOSAL	200.00	206.00	281.11	280.11	281.071	CC, ES
VIC 21E-20-4C - ORIGINAL WELLBORE - PROPOSAL	1,200.00	1,145.52	450.20	442.10	55.548	SF
VIC 21E-20-5N - ORIGINAL WELLBORE - PROPOSAL	200.00	206.00	257.80	256.80	257.768	CC, ES
VIC 21E-20-5N - ORIGINAL WELLBORE - PROPOSAL	1,200.00	1,163.30	417.82	409.62	50.969	SF
VIC 21E-20-6N - ORIGINAL WELLBORE - PROPOSAL	200.00	207.00	235.53	234.53	234.661	CC, ES
VIC 21E-20-6N - ORIGINAL WELLBORE - PROPOSAL	1,300.00	1,281.12	420.87	411.83	46.580	SF
VIC 21E-20-7C - ORIGINAL WELLBORE - PROPOSAL	200.00	207.00	214.63	213.62	213.830	CC, ES
VIC 21E-20-7C - ORIGINAL WELLBORE - PROPOSAL	1,600.00	1,606.68	496.64	485.22	43.495	SF
VIC 21E-20-8N - ORIGINAL WELLBORE - PROPOSAL	200.00	207.00	195.75	194.74	195.022	CC, ES
VIC 21E-20-8N - ORIGINAL WELLBORE - PROPOSAL	1,700.00	1,721.21	462.80	450.55	37.797	SF
VIC 21E-20-9N - ORIGINAL WELLBORE - PROPOSAL	200.00	200.00	178.98	178.00	184.234	CC, ES
VIC 21E-20-9N - ORIGINAL WELLBORE - PROPOSAL	1,800.00	1,845.15	401.83	388.57	30.319	SF
VIC 29W-20-2N - ORIGINAL WELLBORE - PROPOSAL	100.00	100.00	28.05	27.80	110.217	CC
VIC 29W-20-2N - ORIGINAL WELLBORE - PROPOSAL	17,476.43	17,707.70	440.59	-81.15	0.844	Level 1, ES, SF
Sec 28-T7N-R67W						
EXIST HZ NELSON FARMS 1 - STK1 - STK1	6,572.53	5,498.37	98.85	16.69	1.203	Level 2, CC, ES, SF
EXIST HZ NELSON FARMS 1 - Wellbore #1 - Wellbore #	6,572.53	5,498.37	98.85	16.69	1.203	Level 2, CC, ES, SF
EXIST HZ NELSON FARMS 2 - Wellbore #1 - Wellbore #	6,714.07	5,630.21	52.39	-24.81	0.679	Level 1, CC, ES, SF
EXIST HZ NELSON FARMS 3 - Wellbore #1 - Wellbore #	7,686.02	6,582.21	86.18	40.25	1.876	CC
EXIST HZ NELSON FARMS 3 - Wellbore #1 - Wellbore #	7,750.00	6,634.48	93.70	36.54	1.639	ES, SF
EXIST HZ NELSON FARMS 4 - Wellbore #1 - Wellbore #	7,736.59	6,628.60	227.91	182.50	5.020	CC
EXIST HZ NELSON FARMS 4 - Wellbore #1 - Wellbore #	7,775.00	6,666.24	228.45	182.35	4.955	ES
EXIST HZ NELSON FARMS 4 - Wellbore #1 - Wellbore #	7,925.00	6,759.82	260.50	202.28	4.475	SF
EXIST HZ NELSON FARMS 5 - Wellbore #1 - Wellbore #	7,527.28	6,409.81	381.90	337.03	8.510	CC
EXIST HZ NELSON FARMS 5 - Wellbore #1 - Wellbore #	7,550.18	6,430.04	381.98	336.92	8.476	ES
EXIST HZ NELSON FARMS 5 - Wellbore #1 - Wellbore #	7,875.00	6,661.00	432.50	378.09	7.949	SF
EXIST HZ NELSON FARMS 6 - Wellbore #1 - Wellbore #	7,724.84	6,628.64	656.35	610.85	14.424	CC
EXIST HZ NELSON FARMS 6 - Wellbore #1 - Wellbore #	7,750.00	6,648.43	656.59	610.79	14.337	ES
EXIST HZ NELSON FARMS 6 - Wellbore #1 - Wellbore #	8,125.00	6,749.48	758.33	698.92	12.765	SF
EXIST HZ NELSON FARMS 7 - Wellbore #1 - Wellbore #	7,418.86	6,281.21	791.13	745.73	17.427	CC, ES
EXIST HZ NELSON FARMS 7 - Wellbore #1 - Wellbore #	8,400.00	6,761.00	991.82	925.52	14.958	SF
EXIST HZ NELSON FARMS 8 - Wellbore #1 - Wellbore #	7,635.99	6,540.23	935.94	890.16	20.445	CC
EXIST HZ NELSON FARMS 8 - Wellbore #1 - Wellbore #	7,650.00	6,551.68	935.98	890.12	20.411	ES
EXIST HZ NELSON FARMS 8 - Wellbore #1 - Wellbore #	8,400.00	6,755.69	1,141.96	1,076.11	17.342	SF

Anticollision Report

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well VIC 29W-20-1N
Project:	WELD COUNTY	**TVD Reference:**	KB 29' @ 5040.00usft
Reference Site:	Sec 20-T7N-R67W	**MD Reference:**	KB 29' @ 5040.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	VIC 29W-20-1N	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	**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
Sec 29-T7N-R67W						
EXIST DD HECKMAN 16-20 - Wellbore #1 - Wellbore #1	4,856.74	4,161.25	583.28	519.12	9.091	CC, ES
EXIST DD HECKMAN 16-20 - Wellbore #1 - Wellbore #1	4,900.00	4,188.63	584.19	519.49	9.030	SF
EXIST DD HECKMAN 9-20 - Wellbore #1 - Wellbore #1	3,588.94	3,537.64	550.04	490.71	9.271	CC
EXIST DD HECKMAN 9-20 - Wellbore #1 - Wellbore #1	3,600.00	3,541.94	550.13	490.62	9.244	ES, SF
EXIST DD WINTER 1-29 - Wellbore #1 - Wellbore #1	8,539.28	6,954.03	181.23	122.30	3.076	CC, ES
EXIST DD WINTER 1-29 - Wellbore #1 - Wellbore #1	8,600.00	6,955.33	191.12	125.07	2.894	SF
EXIST DD WINTER 8-29 - Wellbore #1 - Wellbore #1	8,574.65	7,365.31	1,555.81	1,494.20	25.255	CC
EXIST DD WINTER 8-29 - Wellbore #1 - Wellbore #1	8,600.00	7,365.96	1,556.01	1,493.95	25.071	ES
EXIST DD WINTER 8-29 - Wellbore #1 - Wellbore #1	9,700.00	7,393.39	1,919.93	1,820.53	19.316	SF

Offset Design Sec 19-T7N-R67W - ABND VERT K-M COMPANY 1 - Wellbore #1 - Design #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD OWSG

Offset Well Error: 0.00 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
0.00	0.00	0.00	0.00	0.00	0.00	-85.61	463.04	-6,028.67	6,046.77				
100.00	100.00	35.00	35.00	0.13	0.06	-85.61	463.04	-6,028.67	6,046.42	6,046.24	0.18	N/A	
200.00	200.00	135.00	135.00	0.49	0.29	-85.61	463.04	-6,028.67	6,046.42	6,045.65	0.77	7,827.019	
300.00	299.98	234.98	234.98	0.83	0.65	99.02	463.04	-6,028.67	6,046.70	6,045.22	1.47	4,100.124	
400.00	399.84	334.84	334.84	1.18	1.00	99.06	463.04	-6,028.67	6,047.52	6,045.34	2.18	2,773.520	
500.00	499.45	434.45	434.45	1.55	1.36	99.11	463.04	-6,028.67	6,048.90	6,046.00	2.91	2,081.915	
600.00	598.70	533.70	533.70	1.94	1.72	99.18	463.04	-6,028.67	6,050.85	6,047.20	3.65	1,657.027	
700.00	697.47	632.47	632.47	2.35	2.07	99.28	463.04	-6,028.67	6,053.39	6,048.97	4.42	1,368.653	
800.00	795.62	730.62	730.62	2.81	2.42	99.39	463.04	-6,028.67	6,056.55	6,051.32	5.22	1,159.537	
900.00	893.06	828.06	828.06	3.29	2.77	99.52	463.04	-6,028.67	6,060.34	6,054.28	6.06	1,000.662	
1,000.00	989.64	924.64	924.64	3.82	3.12	99.67	463.04	-6,028.67	6,064.80	6,057.87	6.93	875.769	
1,100.00	1,085.27	1,020.27	1,020.27	4.39	3.46	99.82	463.04	-6,028.67	6,069.97	6,062.14	7.83	775.028	
1,200.00	1,179.82	1,114.82	1,114.82	5.00	3.80	99.99	463.04	-6,028.67	6,075.88	6,067.11	8.78	692.137	
1,300.00	1,273.17	1,208.17	1,208.17	5.67	4.13	100.17	463.04	-6,028.67	6,082.59	6,072.82	9.77	622.852	
1,400.00	1,365.21	1,300.21	1,300.21	6.38	4.46	100.36	463.04	-6,028.67	6,090.14	6,079.34	10.79	564.201	
1,500.00	1,455.84	1,409.16	1,390.84	7.14	4.85	100.55	463.04	-6,028.67	6,098.57	6,086.64	11.93	511.202	
1,600.00	1,544.94	1,479.94	1,479.94	7.95	5.11	100.74	463.04	-6,028.67	6,107.94	6,094.96	12.98	470.743	
1,700.00	1,632.39	1,567.39	1,567.39	8.81	5.42	100.92	463.04	-6,028.67	6,118.30	6,104.17	14.13	433.115	
1,800.00	1,718.11	1,653.11	1,653.11	9.72	5.73	101.11	463.04	-6,028.67	6,129.71	6,114.39	15.32	400.199	
1,900.00	1,801.97	1,736.97	1,736.97	10.68	6.03	101.28	463.04	-6,028.67	6,142.22	6,125.68	16.54	371.246	
2,000.00	1,883.88	1,818.88	1,818.88	11.69	6.32	101.44	463.04	-6,028.67	6,155.89	6,138.08	17.81	345.655	
2,100.00	1,963.74	1,901.26	1,898.74	12.75	6.62	101.59	463.04	-6,028.67	6,170.78	6,151.66	19.12	322.786	
2,181.17	2,026.99	1,961.99	1,961.99	13.64	6.84	101.70	463.04	-6,028.67	6,183.79	6,163.60	20.19	306.346	
2,200.00	2,041.49	1,976.49	1,976.49	13.85	6.89	101.78	463.04	-6,028.67	6,186.92	6,166.48	20.44	302.725	
2,300.00	2,118.51	2,053.51	2,053.51	14.98	7.16	102.23	463.04	-6,028.67	6,203.89	6,182.11	21.78	284.850	
2,400.00	2,195.54	2,130.54	2,130.54	16.11	7.44	102.68	463.04	-6,028.67	6,221.48	6,198.35	23.12	269.069	
2,500.00	2,272.57	2,207.57	2,207.57	17.25	7.72	103.13	463.04	-6,028.67	6,239.66	6,215.20	24.46	255.055	
2,600.00	2,349.59	2,284.59	2,284.59	18.40	7.99	103.58	463.04	-6,028.67	6,258.45	6,232.64	25.80	242.541	
2,700.00	2,426.62	2,361.62	2,361.62	19.54	8.27	104.02	463.04	-6,028.67	6,277.82	6,250.68	27.14	231.310	
2,800.00	2,503.64	2,438.64	2,438.64	20.69	8.54	104.46	463.04	-6,028.67	6,297.78	6,269.31	28.47	221.183	
2,900.00	2,580.67	2,515.67	2,515.67	21.85	8.82	104.91	463.04	-6,028.67	6,318.33	6,288.52	29.80	212.014	
3,000.00	2,657.69	2,607.31	2,592.69	23.00	9.15	105.35	463.04	-6,028.67	6,339.44	6,308.27	31.18	203.336	
3,100.00	2,734.72	2,669.72	2,669.72	24.16	9.37	105.78	463.04	-6,028.67	6,361.13	6,328.69	32.44	196.073	
3,200.00	2,811.74	2,746.74	2,746.74	25.32	9.65	106.22	463.04	-6,028.67	6,383.38	6,349.63	33.75	189.111	

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