

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

INTERCHANGE B S22-30-19C

ORIGINAL WELLBORE

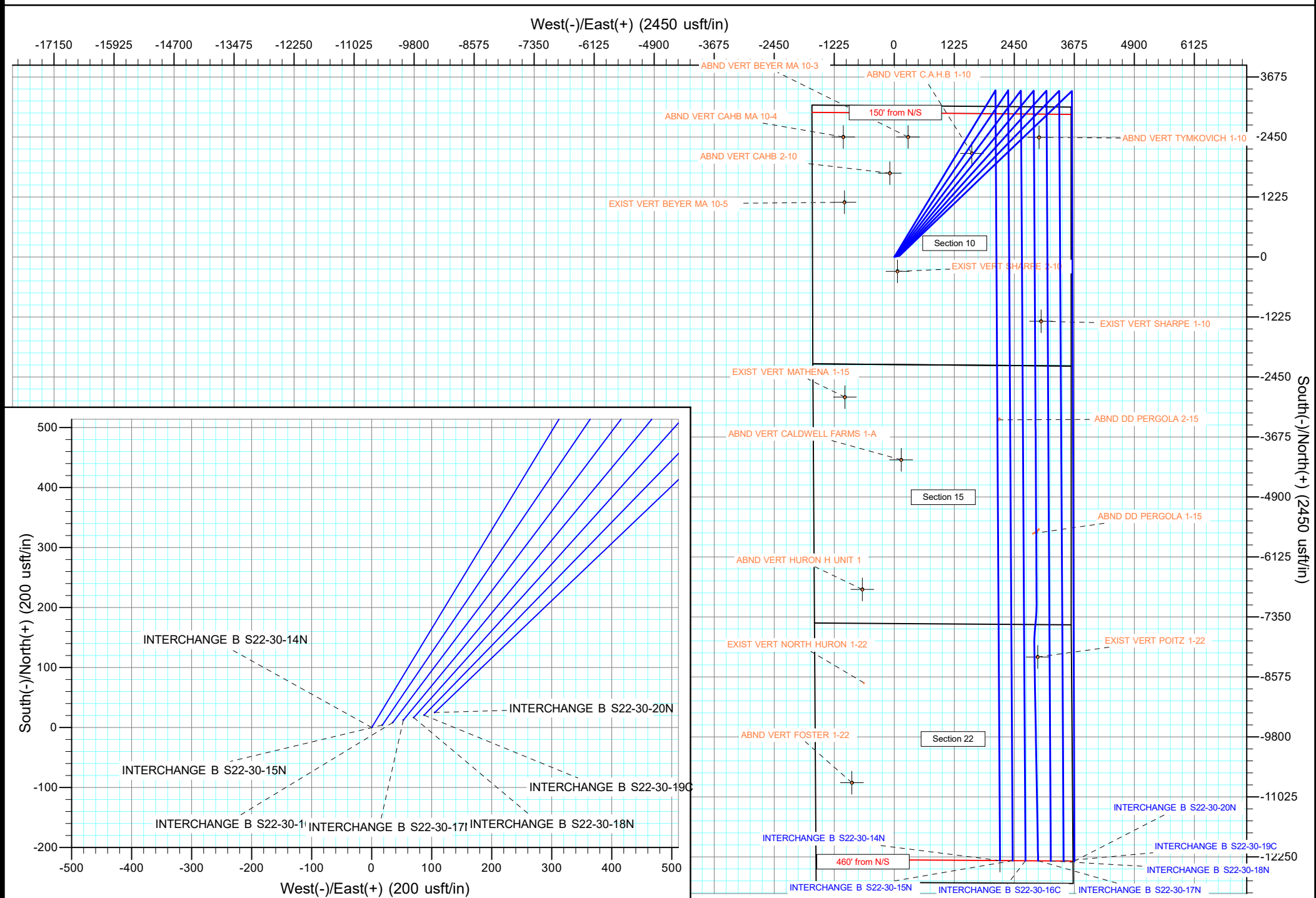
PROPOSAL 1

Anticollision Report

24 January, 2018



Project: Broomfield County
Site: Sec 10-T1S-R68W
Well: INTERCHANGE B S22-30-14N
ORIGINAL WELLBORE
PROPOSAL 1



Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-19C
Project:	Broomfield County	TVD Reference:	KB 25' @ 5231.00usft
Reference Site:	Sec 10-T1S-R68W	MD Reference:	KB 25' @ 5231.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	INTERCHANGE B S22-30-19C	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	1/24/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	25,235.41	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 10-T1S-R68W						
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	3,999.45	3,369.04	1,554.18	1,449.66	14.870	CC
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	4,100.00	3,443.54	1,555.65	1,448.35	14.498	ES
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	5,000.00	4,110.34	1,693.24	1,564.21	13.123	SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	4,994.11	4,066.98	386.33	254.70	2.935	CC
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	5,000.00	4,071.34	386.35	254.56	2.932	ES, SF
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	2,823.19	2,504.44	1,305.94	1,234.12	18.184	CC
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	2,900.00	2,552.46	1,306.96	1,233.20	17.721	ES
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,900.00	3,306.64	1,492.82	1,394.56	15.194	SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	2,626.75	2,370.01	2,502.52	2,435.93	37.580	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	2,800.00	2,501.62	2,505.22	2,433.79	35.069	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	10,700.00	8,114.99	4,419.42	4,192.42	19.469	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #1	6,621.88	5,180.00	390.17	303.91	4.523	CC, ES, SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	506.88	522.30	1,556.64	1,544.95	133.206	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,100.00	1,101.27	1,561.55	1,535.43	59.793	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	12,400.00	8,119.97	4,441.51	4,216.27	19.718	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	14,212.36	8,049.95	396.24	163.75	1.704	CC, ES, SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	200.00	178.00	313.75	310.29	90.522	CC
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	300.00	277.98	315.09	309.14	52.964	ES
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	13,600.00	8,081.96	3,348.72	3,119.97	14.639	SF
INTERCHANGE B S22-30-14N - ORIGINAL WELLBORE	200.00	200.00	89.87	88.88	91.162	CC, ES
INTERCHANGE B S22-30-14N - ORIGINAL WELLBORE	25,218.18	24,685.05	1,326.36	848.98	2.778	SF
INTERCHANGE B S22-30-15N - ORIGINAL WELLBORE	200.00	200.00	71.76	70.78	72.798	CC, ES
INTERCHANGE B S22-30-15N - ORIGINAL WELLBORE	25,225.12	24,745.35	1,073.45	600.79	2.271	SF
INTERCHANGE B S22-30-16C - ORIGINAL WELLBORE	200.00	200.00	53.85	52.86	54.625	CC, ES
INTERCHANGE B S22-30-16C - ORIGINAL WELLBORE	25,235.89	25,013.97	781.42	293.90	1.603	SF
INTERCHANGE B S22-30-17N - ORIGINAL WELLBORE	200.00	200.00	35.75	34.76	36.261	CC, ES
INTERCHANGE B S22-30-17N - ORIGINAL WELLBORE	25,230.49	24,892.26	584.94	140.38	1.316	Level 3, SF
INTERCHANGE B S22-30-18N - ORIGINAL WELLBORE	200.00	200.00	17.83	16.85	18.088	CC
INTERCHANGE B S22-30-18N - ORIGINAL WELLBORE	25,232.71	24,963.12	372.56	-13.85	0.964	Level 1, ES, SF
INTERCHANGE B S22-30-20N - ORIGINAL WELLBORE	100.00	100.00	18.19	17.92	67.652	CC
INTERCHANGE B S22-30-20N - ORIGINAL WELLBORE	25,235.89	25,133.12	343.00	-56.58	0.858	Level 1, ES, SF

Anticollision Report

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Reference Site:	Sec 10-T1S-R68W	MD Reference:	KB 25' @ 5231.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	INTERCHANGE B S22-30-19C	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	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 15-T1S-R68W						
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	18,545.61	7,500.00	801.06	672.74	6.243	CC, ES, SF
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	16,221.54	7,500.00	1,400.85	1,290.03	12.640	CC, ES
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	16,300.00	7,500.00	1,403.05	1,291.51	12.579	SF
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	17,026.05	8,078.92	3,268.69	2,998.71	12.107	CC, ES
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	17,300.00	8,078.92	3,280.15	3,007.79	12.043	SF
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	19,666.31	8,106.90	4,076.16	3,763.96	13.056	CC
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	19,700.00	8,106.90	4,076.30	3,763.76	13.043	ES
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	20,000.00	8,106.89	4,089.80	3,774.65	12.977	SF
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	200.00	202.00	3,083.76	3,079.75	768.637	CC
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	300.00	302.02	3,085.36	3,078.91	478.468	ES
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	16,400.00	8,101.93	4,459.04	4,200.40	17.240	SF
Sec 22-T1S-R68W						
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	23,612.24	8,062.85	4,312.89	3,935.36	11.424	CC, ES
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	23,900.00	8,062.85	4,322.48	3,942.54	11.377	SF
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	21,572.70	8,079.88	4,056.90	3,713.62	11.818	CC
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	21,600.00	8,079.88	4,056.99	3,713.44	11.809	ES
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	21,900.00	8,079.87	4,070.08	3,724.13	11.765	SF
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	21,067.45	8,044.88	505.92	171.80	1.514	CC, ES, SF

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-INC													Offset Well Error:	0.00 usft
Sec 10-T1S-R68W - ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1														
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	7.00	-7.00	0.00	0.08	4.57	2,429.34	194.19	2,437.09					
100.00	100.00	107.00	93.00	0.13	1.35	4.57	2,429.34	194.19	2,437.09	2,435.61	1.48	1,646.884		
200.00	200.00	207.00	193.00	0.49	3.62	4.57	2,429.34	194.19	2,437.09	2,432.97	4.12	592.114		
300.00	299.98	307.02	292.98	0.85	5.70	-39.67	2,429.34	194.19	2,435.74	2,429.19	6.55	371.856		
400.00	399.84	407.16	392.84	1.22	7.74	-39.80	2,429.34	194.19	2,431.72	2,422.76	8.96	271.471		
500.00	499.45	507.55	492.45	1.58	9.78	-40.01	2,429.34	194.19	2,425.02	2,413.66	11.36	213.403		
600.00	598.70	608.30	591.70	1.97	11.82	-40.32	2,429.34	194.19	2,415.68	2,401.90	13.78	175.307		
700.00	697.47	709.53	690.47	2.38	13.86	-40.72	2,429.34	194.19	2,403.72	2,387.51	16.21	148.249		
800.00	795.62	788.62	788.62	2.82	15.46	-41.21	2,429.34	194.19	2,389.20	2,370.99	18.21	131.168		
900.00	893.06	886.06	886.06	3.30	17.42	-41.79	2,429.34	194.19	2,372.16	2,351.56	20.60	115.138		
1,000.00	989.64	982.64	982.64	3.81	19.37	-42.47	2,429.34	194.19	2,352.67	2,329.68	22.99	102.314		
1,100.00	1,085.27	1,078.27	1,078.27	4.37	21.29	-43.25	2,429.34	194.19	2,330.80	2,305.41	25.39	91.794		
1,200.00	1,179.82	1,172.82	1,172.82	4.97	23.20	-44.14	2,429.34	194.19	2,306.64	2,278.85	27.80	82.985		
1,300.00	1,273.17	1,266.17	1,266.17	5.62	25.08	-45.13	2,429.34	194.19	2,280.29	2,250.08	30.21	75.483		
1,400.00	1,365.21	1,358.21	1,358.21	6.32	26.93	-46.23	2,429.34	194.19	2,251.86	2,219.23	32.63	69.005		
1,500.00	1,455.84	1,448.84	1,448.84	7.08	28.75	-47.45	2,429.34	194.19	2,221.47	2,186.40	35.07	63.344		
1,600.00	1,544.94	1,537.94	1,537.94	7.89	30.55	-48.78	2,429.34	194.19	2,189.26	2,151.74	37.52	58.346		
1,700.00	1,632.39	1,625.39	1,625.39	8.75	32.31	-50.23	2,429.34	194.19	2,155.39	2,115.40	39.99	53.896		
1,800.00	1,718.11	1,711.11	1,711.11	9.68	34.03	-51.80	2,429.34	194.19	2,120.04	2,077.55	42.48	49.903		
1,900.00	1,801.97	1,805.03	1,794.97	10.66	35.92	-53.50	2,429.34	194.19	2,083.38	2,038.18	45.20	46.091		
2,000.00	1,883.88	1,876.88	1,876.88	11.70	37.37	-55.30	2,429.34	194.19	2,045.63	1,998.09	47.54	43.027		
2,100.00	1,963.74	1,956.74	1,956.74	12.80	38.97	-57.22	2,429.34	194.19	2,007.02	1,956.90	50.12	40.046		
2,200.00	2,041.45	2,034.45	2,034.45	13.95	40.54	-59.25	2,429.34	194.19	1,967.81	1,915.08	52.73	37.319		
2,300.00	2,116.91	2,109.91	2,109.91	15.17	42.05	-61.38	2,429.34	194.19	1,928.27	1,872.89	55.38	34.818		
2,309.61	2,124.05	2,117.05	2,117.05	15.29	42.20	-61.59	2,429.34	194.19	1,924.46	1,868.82	55.64	34.590		

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