

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

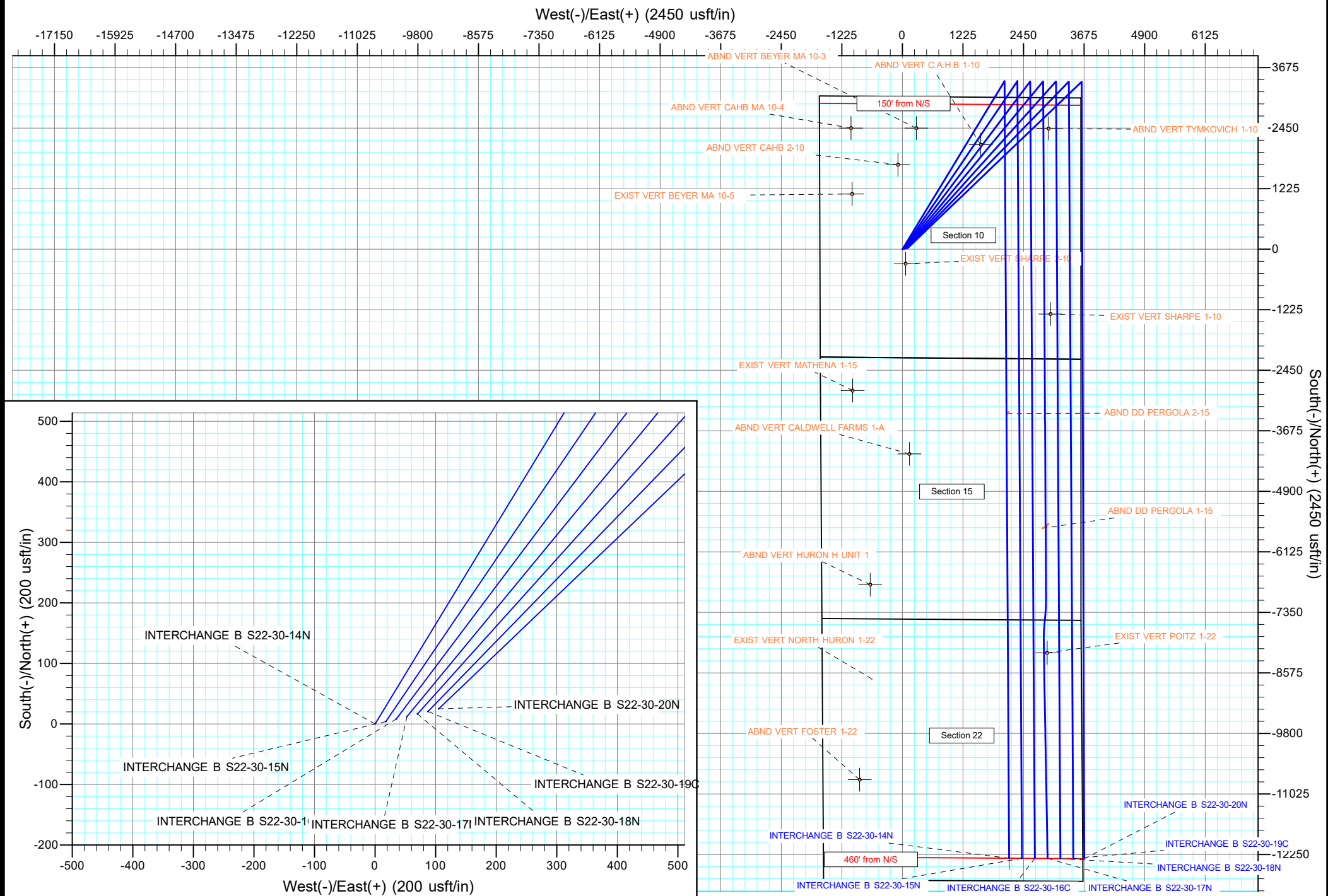
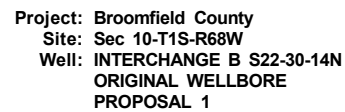
INTERCHANGE B S22-30-16C

ORIGINAL WELLBORE

PROPOSAL 1

Anticollision Report

24 January, 2018



Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
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 S22-30-16C	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	25,008.39	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	4,707.20	4,016.40	1,270.81	1,149.78	10.500	CC
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	4,800.00	4,087.11	1,272.23	1,148.70	10.299	ES
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	5,400.00	4,544.32	1,347.67	1,209.94	9.784	SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	5,503.34	4,584.07	28.09	-114.05	0.198	Level 1, CC, ES, SF
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,448.66	3,055.38	1,124.09	1,037.58	12.994	CC
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,500.00	3,105.50	1,124.59	1,036.47	12.762	ES
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	4,200.00	3,627.91	1,224.87	1,120.07	11.687	SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	3,479.39	3,101.21	2,327.77	2,239.97	26.512	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	3,600.00	3,209.30	2,329.08	2,237.67	25.482	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	10,300.00	8,114.99	3,632.30	3,408.68	16.243	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,664.39	5,180.00	973.93	897.00	12.660	CC, ES
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,700.00	5,180.00	974.58	897.45	12.636	SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,715.08	1,705.03	1,507.73	1,466.60	36.660	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,900.00	1,860.94	1,509.93	1,464.30	33.097	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	11,900.00	8,119.94	3,632.93	3,412.27	16.464	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,994.09	8,049.89	383.79	152.39	1.659	CC
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	14,000.00	8,049.89	383.83	152.38	1.658	ES, SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	500.00	478.00	301.96	291.21	28.091	CC
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	600.00	577.98	303.25	290.12	23.095	ES
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	13,200.00	8,081.91	2,553.28	2,328.15	11.341	SF
INTERCHANGE B S22-30-14N - ORIGINAL WELLBORE	500.00	500.00	36.02	32.88	11.483	CC, ES
INTERCHANGE B S22-30-14N - ORIGINAL WELLBORE	25,008.39	24,693.48	582.00	135.40	1.303	Level 3, SF
INTERCHANGE B S22-30-15N - ORIGINAL WELLBORE	500.00	500.00	17.92	14.78	5.712	CC
INTERCHANGE B S22-30-15N - ORIGINAL WELLBORE	25,007.47	24,749.52	370.12	-17.07	0.956	Level 1, ES, SF
INTERCHANGE B S22-30-17N - ORIGINAL WELLBORE	400.00	400.00	18.10	15.68	7.482	CC
INTERCHANGE B S22-30-17N - ORIGINAL WELLBORE	25,005.00	24,875.89	369.24	-41.87	0.898	Level 1, ES, SF
INTERCHANGE B S22-30-18N - ORIGINAL WELLBORE	300.00	300.00	36.02	34.32	21.153	CC, ES
INTERCHANGE B S22-30-18N - ORIGINAL WELLBORE	24,953.34	26,502.56	580.46	93.52	1.192	Level 2, SF
INTERCHANGE B S22-30-19C - ORIGINAL WELLBORE	200.00	200.00	53.85	52.86	54.625	CC, ES
INTERCHANGE B S22-30-19C - ORIGINAL WELLBORE	24,999.95	25,213.65	780.77	293.22	1.601	SF
INTERCHANGE B S22-30-20N - ORIGINAL WELLBORE	100.00	100.00	72.04	71.77	267.940	CC, ES
INTERCHANGE B S22-30-20N - ORIGINAL WELLBORE	25,005.28	25,131.79	1,034.12	552.19	2.146	SF

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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 S22-30-16C	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	18,327.36	7,500.00	572.52	456.76	4.946	CC, ES
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	18,400.00	7,500.00	577.11	457.68	4.832	SF
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	16,003.33	7,500.00	757.68	662.00	7.918	CC, ES
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	16,100.00	7,500.00	763.82	666.30	7.832	SF
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	16,807.95	8,078.82	2,488.50	2,218.62	9.221	CC, ES
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	17,000.00	8,078.81	2,495.90	2,224.44	9.194	SF
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	19,448.26	8,106.75	3,295.82	2,983.28	10.545	CC
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	19,500.00	8,106.75	3,296.22	2,983.16	10.529	ES
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	19,700.00	8,106.74	3,305.42	2,990.64	10.501	SF
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	500.00	502.00	3,053.88	3,042.65	271.791	CC
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	600.00	602.02	3,055.55	3,041.94	224.395	ES
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	16,000.00	8,101.84	3,661.12	3,404.76	14.281	SF
Sec 22-T1S-R68W						
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	23,394.20	8,062.65	3,532.31	3,154.13	9.340	CC
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	23,400.00	8,062.65	3,532.32	3,154.07	9.339	ES
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	23,600.00	8,062.64	3,538.30	3,158.31	9.312	SF
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	21,354.65	8,079.70	3,276.44	2,932.64	9.530	CC
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	21,400.00	8,079.70	3,276.75	2,932.51	9.519	ES
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	21,600.00	8,079.69	3,285.61	2,939.79	9.501	SF
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	20,849.19	8,044.71	274.51	-60.08	0.820	Level 1, CC, ES, SF

Offset Design												Offset Site Error:		0.00 usft
Survey Program: 0-INC												Offset Well Error:		0.00 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		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
	0.00	0.00	7.00	-7.00	0.00	0.08	5.77	2,441.72	246.59	2,454.14				
	100.00	100.00	107.00	93.00	0.13	1.35	5.77	2,441.72	246.59	2,454.14	2,452.66	1.48	1,658.410	
	200.00	200.00	207.00	193.00	0.49	3.62	5.77	2,441.72	246.59	2,454.14	2,450.03	4.12	596.258	
	300.00	300.00	307.00	293.00	0.85	5.70	5.77	2,441.72	246.59	2,454.14	2,447.59	6.55	374.656	
	400.00	400.00	407.00	393.00	1.21	7.74	5.77	2,441.72	246.59	2,454.14	2,445.19	8.95	274.200	
	500.00	500.00	507.00	493.00	1.57	9.77	5.77	2,441.72	246.59	2,454.14	2,442.81	11.34	216.466	
	600.00	599.98	607.02	592.98	1.93	11.79	-31.22	2,441.72	246.59	2,452.65	2,438.93	13.72	178.794	
	700.00	699.84	707.16	692.84	2.29	13.81	-31.33	2,441.72	246.59	2,448.18	2,432.08	16.10	152.066	
	800.00	799.45	807.55	792.45	2.65	15.84	-31.52	2,441.72	246.59	2,440.73	2,422.24	18.49	132.020	
	900.00	898.70	908.30	891.70	3.02	17.87	-31.78	2,441.72	246.59	2,430.34	2,409.45	20.89	116.359	
	1,000.00	997.47	1,009.53	990.47	3.42	19.91	-32.11	2,441.72	246.59	2,417.02	2,393.72	23.30	103.730	
	1,100.00	1,095.62	1,088.62	1,088.62	3.83	21.50	-32.53	2,441.72	246.59	2,400.81	2,375.53	25.28	94.978	
	1,200.00	1,193.06	1,186.06	1,186.06	4.28	23.46	-33.03	2,441.72	246.59	2,381.75	2,354.12	27.63	86.188	
	1,300.00	1,289.64	1,282.64	1,282.64	4.76	25.41	-33.62	2,441.72	246.59	2,359.90	2,329.92	29.99	78.697	
	1,400.00	1,385.27	1,378.27	1,378.27	5.28	27.33	-34.29	2,441.72	246.59	2,335.32	2,302.99	32.34	72.218	
	1,500.00	1,479.82	1,472.82	1,472.82	5.85	29.24	-35.07	2,441.72	246.59	2,308.08	2,273.39	34.68	66.546	
	1,600.00	1,573.17	1,566.17	1,566.17	6.45	31.11	-35.94	2,441.72	246.59	2,278.25	2,241.22	37.03	61.526	
	1,700.00	1,665.21	1,658.21	1,658.21	7.11	32.97	-36.91	2,441.72	246.59	2,245.93	2,206.55	39.37	57.042	
	1,800.00	1,755.84	1,748.84	1,748.84	7.82	34.79	-38.00	2,441.72	246.59	2,211.21	2,169.49	41.72	53.004	
	1,900.00	1,844.94	1,837.94	1,837.94	8.59	36.58	-39.21	2,441.72	246.59	2,174.22	2,130.15	44.07	49.341	
	2,000.00	1,932.39	1,925.39	1,925.39	9.40	38.34	-40.54	2,441.72	246.59	2,135.07	2,088.65	46.42	45.998	
	2,100.00	2,018.11	2,011.11	2,011.11	10.27	40.07	-42.00	2,441.72	246.59	2,093.91	2,045.13	48.78	42.930	
	2,200.00	2,101.97	2,105.03	2,094.97	11.20	41.96	-43.60	2,441.72	246.59	2,050.89	1,999.55	51.35	39.943	

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