

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

INTERCHANGE B N35-20-4N

ORIGINAL WELLBORE

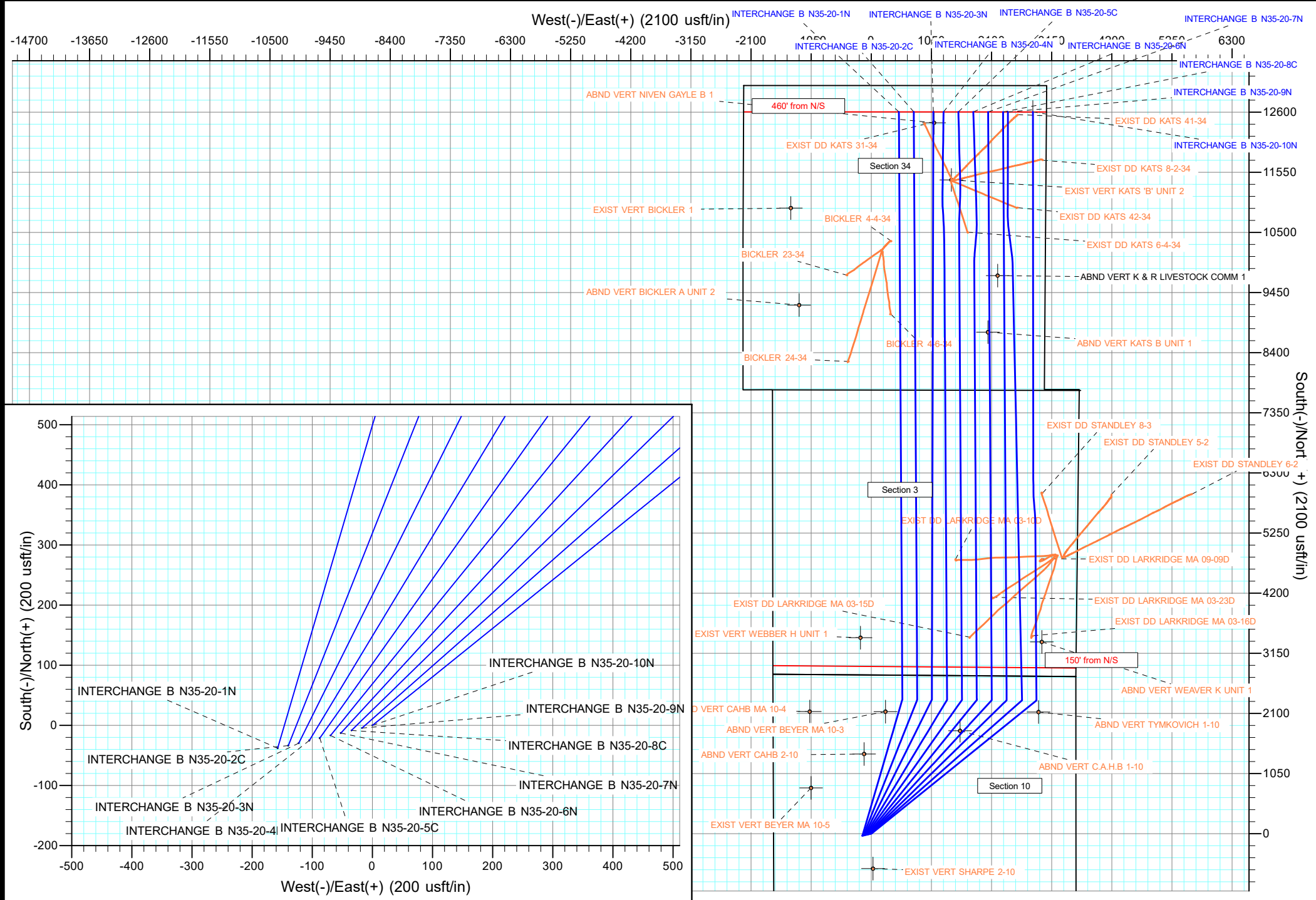
PROPOSAL 1

Anticollision Report

13 February, 2018



Project: Broomfield County
 Site: Sec 10-T1S-R68W
 Well: INTERCHANGE B N35-20-10N
 ORIGINAL WELLBORE
 PROPOSAL 1



Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Project:	Broomfield County	TVD Reference:	KB 25' @ 5261.00usft
Reference Site:	Sec 10-T1S-R68W	MD Reference:	KB 25' @ 5261.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	INTERCHANGE B N35-20-4N	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	2/13/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	18,502.76	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
Sec 10-T1S-R68W						
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	5,647.10	5,124.39	814.52	672.19	5.723	CC
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	5,700.00	5,170.87	814.91	671.20	5.671	ES
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	6,100.00	5,522.30	842.76	689.49	5.499	SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	6,456.02	5,803.91	474.23	311.07	2.907	CC
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	6,500.00	5,834.91	474.68	310.54	2.892	ES
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	6,600.00	5,924.35	478.72	312.19	2.875	SF
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,918.29	3,603.50	751.55	655.02	7.786	CC
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	4,000.00	3,675.29	752.56	653.90	7.628	ES
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	4,500.00	4,114.58	801.26	690.60	7.241	SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	4,216.32	3,885.34	1,946.94	1,842.13	18.576	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	4,400.00	4,046.72	1,948.91	1,839.27	17.776	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	8,500.00	7,739.81	2,445.34	2,240.60	11.944	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #1	6,391.37	5,180.00	1,879.16	1,821.47	32.572	CC
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #1	6,400.00	5,180.00	1,879.18	1,821.45	32.549	ES
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #1	6,500.00	5,180.00	1,882.54	1,824.40	32.379	SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,823.24	1,780.68	1,238.12	1,195.50	29.048	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	2,000.00	1,941.84	1,240.25	1,193.22	26.375	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	8,250.00	7,574.48	2,883.95	2,694.38	15.213	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	1,805.75	1,705.50	3,453.19	3,412.18	84.203	CC
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	2,200.00	2,048.85	3,457.48	3,406.79	68.201	ES
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	8,200.00	7,461.92	4,360.48	4,162.31	22.004	SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	700.00	648.00	599.10	584.19	40.195	CC
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	800.00	747.98	600.35	583.07	34.742	ES
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	8,200.00	7,506.08	3,285.83	3,102.47	17.920	SF
INTERCHANGE B N35-20-10N - ORIGINAL WELLBORE	100.00	100.00	107.78	107.51	400.892	CC, ES
INTERCHANGE B N35-20-10N - ORIGINAL WELLBORE	18,503.59	18,922.45	1,559.86	1,120.49	3.550	SF
INTERCHANGE B N35-20-1N - ORIGINAL WELLBORE	700.00	700.00	54.21	49.64	11.860	CC, ES
INTERCHANGE B N35-20-1N - ORIGINAL WELLBORE	18,503.59	18,396.89	780.06	338.74	1.768	SF
INTERCHANGE B N35-20-2C - ORIGINAL WELLBORE	700.00	700.00	36.02	31.45	7.881	CC, ES
INTERCHANGE B N35-20-2C - ORIGINAL WELLBORE	18,503.59	18,658.09	583.29	178.33	1.440	Level 3, SF
INTERCHANGE B N35-20-3N - ORIGINAL WELLBORE	700.00	700.00	18.19	13.62	3.979	CC
INTERCHANGE B N35-20-3N - ORIGINAL WELLBORE	18,503.59	18,459.00	177.21	-263.80	0.402	Level 1, ES, SF
INTERCHANGE B N35-20-5C - ORIGINAL WELLBORE	600.00	600.00	17.83	13.98	4.627	CC, ES
INTERCHANGE B N35-20-5C - ORIGINAL WELLBORE	18,503.59	18,786.67	370.49	42.34	1.129	Level 2, SF
INTERCHANGE B N35-20-6N - ORIGINAL WELLBORE	500.00	500.00	36.02	32.88	11.483	CC, ES
INTERCHANGE B N35-20-6N - ORIGINAL WELLBORE	18,503.59	18,615.79	519.86	79.70	1.181	Level 2, SF
INTERCHANGE B N35-20-7N - ORIGINAL WELLBORE	400.00	400.00	53.85	51.43	22.254	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 INTERCHANGE B N35-20-4N
Project:	Broomfield County	TVD Reference:	KB 25' @ 5261.00usft
Reference Site:	Sec 10-T1S-R68W	MD Reference:	KB 25' @ 5261.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	INTERCHANGE B N35-20-4N	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 10-T1S-R68W						
INTERCHANGE B N35-20-7N - ORIGINAL WELLBORE	18,503.59	18,682.77	779.79	339.95	1.773	SF
INTERCHANGE B N35-20-8C - ORIGINAL WELLBORE	300.00	300.00	72.04	70.33	42.306	CC, ES
INTERCHANGE B N35-20-8C - ORIGINAL WELLBORE	18,503.59	18,985.41	1,072.96	647.44	2.522	SF
INTERCHANGE B N35-20-9N - ORIGINAL WELLBORE	200.00	200.00	89.87	88.88	91.161	CC, ES
INTERCHANGE B N35-20-9N - ORIGINAL WELLBORE	18,503.59	18,832.75	1,459.93	1,020.58	3.323	SF
Sec 28-T1N-R68W						
COYOTE TRAILS 34S-20-10N - ORIGINAL WELLBORE	16,974.80	10,218.29	3,292.20	3,035.77	12.838	CC, ES
COYOTE TRAILS 34S-20-10N - ORIGINAL WELLBORE	18,503.59	8,689.76	3,320.25	3,057.86	12.654	SF
COYOTE TRAILS 34S-20-11C - ORIGINAL WELLBORE	16,974.67	10,608.90	2,920.08	2,661.65	11.299	CC, ES
COYOTE TRAILS 34S-20-11C - ORIGINAL WELLBORE	18,503.59	9,062.45	2,948.10	2,683.52	11.143	SF
COYOTE TRAILS 34S-20-12N - ORIGINAL WELLBORE	16,987.87	10,522.28	2,494.34	2,236.93	9.690	CC
COYOTE TRAILS 34S-20-12N - ORIGINAL WELLBORE	17,000.00	10,510.14	2,494.36	2,236.92	9.689	ES
COYOTE TRAILS 34S-20-12N - ORIGINAL WELLBORE	18,503.59	9,006.75	2,515.45	2,251.40	9.527	SF
COYOTE TRAILS 34S-20-13N - ORIGINAL WELLBORE	16,974.60	10,701.59	2,152.22	1,893.96	8.334	CC, ES
COYOTE TRAILS 34S-20-13N - ORIGINAL WELLBORE	18,503.59	9,169.68	2,180.37	1,915.38	8.228	SF
COYOTE TRAILS 34S-20-14C - ORIGINAL WELLBORE	16,974.60	11,073.97	1,820.11	1,559.64	6.988	CC, ES
COYOTE TRAILS 34S-20-14C - ORIGINAL WELLBORE	18,503.59	9,545.25	1,848.04	1,580.39	6.905	SF
COYOTE TRAILS 34S-20-15N - ORIGINAL WELLBORE	16,974.60	11,089.02	1,392.53	1,133.36	5.373	CC, ES
COYOTE TRAILS 34S-20-15N - ORIGINAL WELLBORE	18,503.59	9,560.28	1,420.66	1,154.25	5.333	SF
COYOTE TRAILS 34S-20-16N - ORIGINAL WELLBORE	8,823.23	19,416.15	1,046.09	786.83	4.035	CC, ES
COYOTE TRAILS 34S-20-16N - ORIGINAL WELLBORE	8,900.00	19,344.17	1,046.43	787.04	4.034	SF
Sec 34-T1N-R68W						
ABND VERT BICKLER A UNIT 2 - Wellbore #1 - Design	15,143.94	7,787.90	2,541.49	2,223.37	7.989	CC, ES
ABND VERT BICKLER A UNIT 2 - Wellbore #1 - Design	15,300.00	7,787.89	2,546.27	2,227.08	7.977	SF
ABND VERT K & R LIVESTOCK COMM 1 - Wellbore #1	15,638.27	5,503.00	2,449.55	2,314.00	18.071	CC, ES
ABND VERT K & R LIVESTOCK COMM 1 - Wellbore #1	16,700.00	5,503.00	2,675.61	2,518.38	17.018	SF
ABND VERT KATS B UNIT 1 - Wellbore #1 - Design #1	14,651.34	7,743.90	752.85	444.11	2.439	CC
ABND VERT KATS B UNIT 1 - Wellbore #1 - Design #1	14,700.00	7,743.90	754.42	443.74	2.428	ES, SF
ABND VERT NIVEN GAYLE B 1 - Wellbore #1 - Design	17,028.29	5,145.00	2,938.21	2,810.36	22.982	SF
ABND VERT NIVEN GAYLE B 1 - Wellbore #1 - Design	18,311.65	5,145.00	2,643.02	2,545.72	27.163	CC, ES
BICKLER 23-34 - Wellbore #1 - Wellbore #1	15,660.06	7,832.96	1,710.79	1,511.10	8.567	CC, ES
BICKLER 23-34 - Wellbore #1 - Wellbore #1	15,700.00	7,832.55	1,711.26	1,511.48	8.566	SF
BICKLER 24-34 - Wellbore #1 - Wellbore #1	14,153.62	8,132.55	1,688.86	1,500.35	8.959	CC, ES, SF
BICKLER 4-4-34 - Wellbore #1 - Wellbore #1	16,250.17	7,788.28	931.43	724.80	4.508	CC, ES, SF
BICKLER 4-6-34 - Wellbore #1 - Wellbore #1	14,974.00	7,878.68	952.06	759.34	4.940	CC, ES, SF
EXIST DD KATS 31-34 - Wellbore #1 - Wellbore #1	18,300.00	7,878.21	327.40	77.87	1.312	Level 3, ES, SF
EXIST DD KATS 31-34 - Wellbore #1 - Wellbore #1	18,303.33	7,878.19	327.38	77.93	1.312	Level 3, CC
EXIST DD KATS 41-34 - Wellbore #1 - Wellbore #1	18,469.18	7,970.60	1,289.05	1,034.47	5.064	CC
EXIST DD KATS 41-34 - Wellbore #1 - Wellbore #1	18,503.59	7,970.90	1,289.51	1,033.76	5.042	ES, SF
EXIST DD KATS 42-34 - Wellbore #1 - Wellbore #1	16,750.10	7,877.54	1,299.62	1,080.85	5.941	CC
EXIST DD KATS 42-34 - Wellbore #1 - Wellbore #1	16,800.00	7,877.50	1,300.57	1,080.08	5.898	ES
EXIST DD KATS 42-34 - Wellbore #1 - Wellbore #1	16,900.00	7,877.43	1,307.02	1,083.85	5.856	SF
EXIST DD KATS 6-4-34 - Wellbore #1 - Wellbore #1	16,382.23	7,844.61	412.53	197.80	1.921	CC
EXIST DD KATS 6-4-34 - Wellbore #1 - Wellbore #1	16,400.00	7,844.67	412.96	197.05	1.913	ES, SF
EXIST DD KATS 8-2-34 - Wellbore #1 - Wellbore #1	17,686.05	7,961.32	1,737.72	1,501.02	7.341	CC
EXIST DD KATS 8-2-34 - Wellbore #1 - Wellbore #1	17,700.00	7,961.25	1,737.77	1,500.65	7.329	ES
EXIST DD KATS 8-2-34 - Wellbore #1 - Wellbore #1	17,900.00	7,960.30	1,750.84	1,509.02	7.240	SF
EXIST VERT BICKLER 1 - Wellbore #1 - Design #1	16,905.13	7,850.88	2,649.68	2,300.23	7.583	CC, ES
EXIST VERT BICKLER 1 - Wellbore #1 - Design #1	17,000.00	7,850.88	2,652.94	2,302.88	7.579	SF
EXIST VERT KATS 'B' UNIT 2 - Wellbore #1 - Design #1	17,317.18	7,764.88	152.56	-75.13	0.670	Level 1, CC, ES, SF

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 INTERCHANGE B N35-20-4N
Project:	Broomfield County	TVD Reference:	KB 25' @ 5261.00usft
Reference Site:	Sec 10-T1S-R68W	MD Reference:	KB 25' @ 5261.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	INTERCHANGE B N35-20-4N	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 3-T1S-R68W						
ABND VERT WEAVER K UNIT 1 - Wellbore #1 - Design	9,237.14	7,807.01	1,660.82	1,569.19	18.125	CC
ABND VERT WEAVER K UNIT 1 - Wellbore #1 - Design	9,300.00	7,807.01	1,662.01	1,568.73	17.818	ES
ABND VERT WEAVER K UNIT 1 - Wellbore #1 - Design	9,700.00	7,807.01	1,724.11	1,622.03	16.890	SF
EXIST DD LARKRIDGE MA 03-10D - Wellbore #1 - Well	10,688.18	8,048.88	158.12	41.99	1.362	Level 3, CC
EXIST DD LARKRIDGE MA 03-10D - Wellbore #1 - Well	10,700.00	8,048.84	158.56	40.64	1.345	Level 3, ES, SF
EXIST DD LARKRIDGE MA 03-15D - Wellbore #1 - Well	9,317.39	8,083.79	399.09	294.84	3.828	CC, ES
EXIST DD LARKRIDGE MA 03-15D - Wellbore #1 - Well	9,400.00	8,084.85	407.55	296.02	3.654	SF
EXIST DD LARKRIDGE MA 03-16D - Wellbore #1 - Well	9,337.92	7,942.55	1,500.41	1,398.39	14.708	CC
EXIST DD LARKRIDGE MA 03-16D - Wellbore #1 - Well	9,400.00	7,943.56	1,501.69	1,397.79	14.453	ES
EXIST DD LARKRIDGE MA 03-16D - Wellbore #1 - Well	9,700.00	7,948.45	1,543.46	1,432.02	13.850	SF
EXIST DD LARKRIDGE MA 03-23D - Wellbore #1 - Well	10,010.13	7,986.84	796.96	690.25	7.468	CC, ES
EXIST DD LARKRIDGE MA 03-23D - Wellbore #1 - Well	10,200.00	7,987.57	819.27	704.56	7.142	SF
EXIST DD LARKRIDGE MA 09-09D - Wellbore #1 - Well	10,682.54	7,771.36	1,666.82	1,553.72	14.738	CC
EXIST DD LARKRIDGE MA 09-09D - Wellbore #1 - Well	10,700.00	7,771.51	1,666.91	1,553.31	14.674	ES
EXIST DD LARKRIDGE MA 09-09D - Wellbore #1 - Well	11,100.00	7,775.05	1,718.30	1,595.57	14.001	SF
EXIST DD STANDLEY 5-2 - Wellbore #1 - Wellbore #1	11,783.39	7,962.05	2,889.67	2,753.34	21.196	CC
EXIST DD STANDLEY 5-2 - Wellbore #1 - Wellbore #1	11,900.00	7,965.93	2,892.02	2,752.66	20.752	ES
EXIST DD STANDLEY 5-2 - Wellbore #1 - Wellbore #1	12,600.00	7,988.58	3,002.72	2,849.03	19.538	SF
EXIST DD STANDLEY 6-2 - Wellbore #1 - Wellbore #1	11,400.00	11,400.00	4,148.31	4,002.88	28.523	ES
EXIST DD STANDLEY 6-2 - Wellbore #1 - Wellbore #1	11,676.48	7,127.38	4,139.23	4,005.17	30.877	CC
EXIST DD STANDLEY 6-2 - Wellbore #1 - Wellbore #1	13,600.00	13,600.00	4,557.89	4,356.69	22.653	SF
EXIST DD STANDLEY 8-3 - Wellbore #1 - Wellbore #1	11,844.95	7,914.07	1,681.40	1,543.78	12.217	CC
EXIST DD STANDLEY 8-3 - Wellbore #1 - Wellbore #1	11,900.00	7,914.05	1,682.31	1,543.22	12.096	ES
EXIST DD STANDLEY 8-3 - Wellbore #1 - Wellbore #1	12,200.00	7,913.98	1,718.48	1,573.52	11.854	SF
EXIST VERT WEBBER H UNIT 1 - Wellbore #1 - Design	9,329.59	7,812.99	1,505.24	1,283.27	6.781	CC, ES, SF

Offset Design													Offset Site Error:	0.00 usft		
Survey Program: 0-INC													Offset Well Error:	0.00 usft		
Reference													Distance		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	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)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
0.00	0.00	0.00	0.00	0.00	0.00	9.24	2,158.32	351.11	2,187.01							
100.00	100.00	63.00	63.00	0.13	0.75	9.24	2,158.32	351.11	2,186.69	2,185.81	0.88	2,482.286				
200.00	200.00	163.00	163.00	0.49	2.63	9.24	2,158.32	351.11	2,186.69	2,183.57	3.12	700.381				
300.00	300.00	263.00	263.00	0.85	4.79	9.24	2,158.32	351.11	2,186.69	2,181.06	5.64	387.824				
400.00	400.00	363.00	363.00	1.21	6.84	9.24	2,158.32	351.11	2,186.69	2,178.64	8.05	271.554				
500.00	500.00	463.00	463.00	1.57	8.88	9.24	2,158.32	351.11	2,186.69	2,176.25	10.44	209.354				
600.00	600.00	563.00	563.00	1.93	10.90	9.24	2,158.32	351.11	2,186.69	2,173.87	12.83	170.455				
700.00	700.00	663.00	663.00	2.29	12.92	9.24	2,158.32	351.11	2,186.69	2,171.49	15.21	143.790				
800.00	799.98	762.98	762.98	2.64	14.94	-21.90	2,158.32	351.11	2,185.07	2,167.49	17.58	124.273				
900.00	899.84	862.84	862.84	3.00	16.95	-21.99	2,158.32	351.11	2,180.22	2,160.26	19.96	109.254				
1,000.00	999.45	962.45	962.45	3.36	18.96	-22.13	2,158.32	351.11	2,172.14	2,149.81	22.32	97.300				
1,100.00	1,098.70	1,061.70	1,061.70	3.73	20.96	-22.34	2,158.32	351.11	2,160.85	2,136.16	24.69	87.529				
1,200.00	1,197.47	1,160.47	1,160.47	4.12	22.95	-22.61	2,158.32	351.11	2,146.36	2,119.32	27.04	79.368				
1,300.00	1,295.62	1,258.62	1,258.62	4.53	24.92	-22.95	2,158.32	351.11	2,128.72	2,099.33	29.39	72.427				
1,400.00	1,393.06	1,356.06	1,356.06	4.96	26.89	-23.35	2,158.32	351.11	2,107.96	2,076.23	31.73	66.433				
1,500.00	1,489.64	1,452.64	1,452.64	5.42	28.83	-23.83	2,158.32	351.11	2,084.11	2,050.05	34.06	61.189				
1,600.00	1,585.27	1,548.27	1,548.27	5.92	30.75	-24.39	2,158.32	351.11	2,057.23	2,020.86	36.38	56.550				
1,700.00	1,679.82	1,642.82	1,642.82	6.46	32.66	-25.03	2,158.32	351.11	2,027.38	1,988.69	38.69	52.404				
1,800.00	1,773.17	1,736.17	1,736.17	7.05	34.54	-25.76	2,158.32	351.11	1,994.62	1,953.63	40.98	48.668				

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