

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

INTERCHANGE B N35-20-5C

ORIGINAL WELLBORE

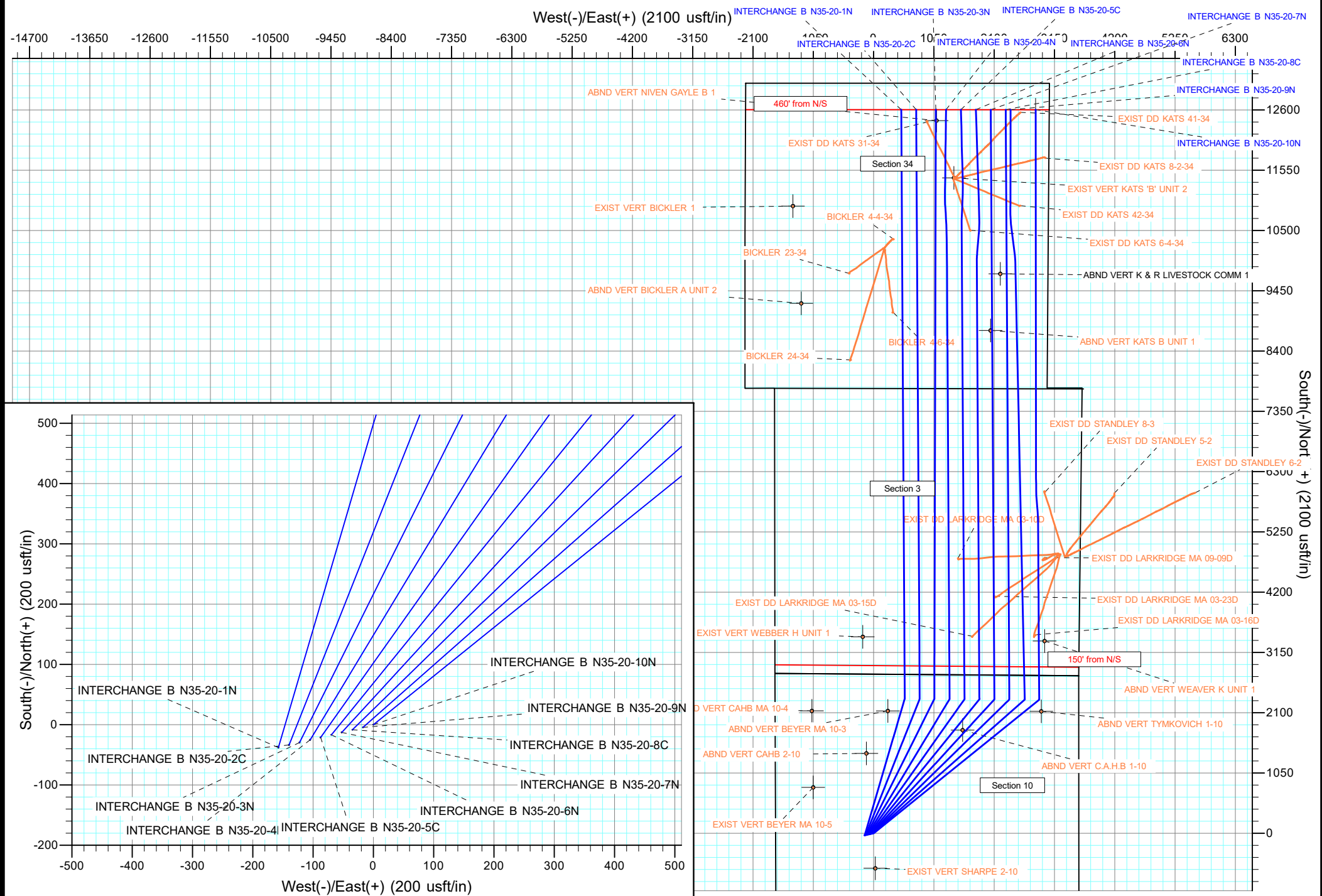
PROPOSAL 1

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 N35-20-5C
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 N35-20-5C	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	18,786.29	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	5,466.04	4,974.26	972.22	834.09	7.038	CC
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	5,600.00	5,107.23	974.22	832.32	6.865	ES
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	6,200.00	5,623.58	1,030.68	874.91	6.617	SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	6,494.12	5,844.78	284.93	120.29	1.731	CC
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	6,500.00	5,849.98	284.94	120.14	1.729	ES, SF
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,709.55	3,418.34	849.19	757.64	9.276	CC
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,800.00	3,501.64	850.24	756.26	9.047	ES
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	4,500.00	4,117.63	925.71	814.93	8.357	SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	3,827.06	3,542.30	2,051.78	1,956.72	21.584	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	4,100.00	3,783.76	2,055.72	1,953.49	20.107	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	8,800.00	8,013.10	2,703.21	2,492.04	12.801	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,404.30	5,180.00	1,738.65	1,683.18	31.347	CC, ES
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,500.00	5,180.00	1,741.28	1,685.52	31.231	SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,408.07	1,383.39	1,262.55	1,229.98	38.767	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,700.00	1,659.17	1,266.14	1,226.42	31.871	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	8,600.00	7,907.15	3,122.61	2,925.01	15.802	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	2,243.28	2,076.17	3,416.76	3,364.61	65.516	CC
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	2,600.00	2,408.25	3,420.80	3,359.04	55.383	ES
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	8,450.00	7,701.89	4,254.08	4,048.49	20.693	SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	600.00	548.00	599.38	586.86	47.855	CC
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	700.00	647.98	600.59	585.68	40.299	ES
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	8,450.00	7,730.11	3,382.07	3,192.95	17.883	SF
INTERCHANGE B N35-20-10N - ORIGINAL WELLBORE	100.00	100.00	89.95	89.68	334.573	CC, ES
INTERCHANGE B N35-20-10N - ORIGINAL WELLBORE	18,786.96	18,922.45	1,326.48	891.36	3.049	SF
INTERCHANGE B N35-20-1N - ORIGINAL WELLBORE	600.00	600.00	72.04	68.18	18.693	CC, ES
INTERCHANGE B N35-20-1N - ORIGINAL WELLBORE	18,786.96	18,395.75	1,072.96	644.77	2.506	SF
INTERCHANGE B N35-20-2C - ORIGINAL WELLBORE	600.00	600.00	53.85	49.99	13.974	CC, ES
INTERCHANGE B N35-20-2C - ORIGINAL WELLBORE	18,786.96	18,657.76	780.05	338.88	1.768	SF
INTERCHANGE B N35-20-3N - ORIGINAL WELLBORE	600.00	600.00	36.02	32.16	9.347	CC, ES
INTERCHANGE B N35-20-3N - ORIGINAL WELLBORE	18,786.59	18,459.40	510.67	126.26	1.328	Level 3, SF
INTERCHANGE B N35-20-4N - ORIGINAL WELLBORE	600.00	600.00	17.83	13.98	4.627	CC, ES
INTERCHANGE B N35-20-4N - ORIGINAL WELLBORE	18,786.96	18,507.35	370.46	41.44	1.126	Level 2, SF
INTERCHANGE B N35-20-6N - ORIGINAL WELLBORE	500.00	500.00	18.19	15.05	5.799	CC, ES
INTERCHANGE B N35-20-6N - ORIGINAL WELLBORE	18,786.96	18,615.79	370.49	27.82	1.081	Level 2, SF
INTERCHANGE B N35-20-7N - ORIGINAL WELLBORE	400.00	400.00	36.02	33.60	14.885	CC, ES
INTERCHANGE B N35-20-7N - ORIGINAL WELLBORE	18,700.00	22,802.26	581.51	111.18	1.236	Level 2, SF
INTERCHANGE B N35-20-8C - ORIGINAL WELLBORE	300.00	300.00	54.21	52.50	31.834	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 N35-20-5C
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 N35-20-5C	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 N35-20-8C - ORIGINAL WELLBORE	18,786.96	18,984.69	780.06	340.41	1.774	SF
INTERCHANGE B N35-20-9N - ORIGINAL WELLBORE	200.00	200.00	72.04	71.05	73.074	CC, ES
INTERCHANGE B N35-20-9N - ORIGINAL WELLBORE	18,786.96	18,830.85	1,228.71	794.72	2.831	SF
Sec 28-T1N-R68W						
COYOTE TRAILS 34S-20-10N - ORIGINAL WELLBORE	18,786.96	8,709.12	3,592.88	3,331.99	13.771	CC, ES, SF
COYOTE TRAILS 34S-20-11C - ORIGINAL WELLBORE	18,786.96	9,063.58	3,200.10	2,936.15	12.124	CC, ES, SF
COYOTE TRAILS 34S-20-12N - ORIGINAL WELLBORE	18,786.96	9,006.70	2,791.75	2,530.52	10.687	CC, ES, SF
COYOTE TRAILS 34S-20-13N - ORIGINAL WELLBORE	18,786.96	9,170.83	2,458.90	2,197.47	9.406	CC, ES, SF
COYOTE TRAILS 34S-20-14C - ORIGINAL WELLBORE	18,786.96	9,546.39	2,095.28	1,828.81	7.863	CC, ES, SF
COYOTE TRAILS 34S-20-15N - ORIGINAL WELLBORE	18,786.96	9,561.42	1,707.45	1,447.77	6.575	CC, ES, SF
COYOTE TRAILS 34S-20-16N - ORIGINAL WELLBORE	9,107.96	19,416.15	1,340.46	1,089.12	5.333	CC, ES, SF
Sec 34-T1N-R68W						
ABND VERT BICKLER A UNIT 2 - Wellbore #1 - Design	15,428.64	8,051.93	2,801.60	2,478.21	8.663	CC, ES
ABND VERT BICKLER A UNIT 2 - Wellbore #1 - Design	15,600.00	8,051.93	2,806.84	2,482.32	8.649	SF
ABND VERT K & R LIVESTOCK COMM 1 - Wellbore #1	15,923.01	5,503.00	2,617.61	2,506.56	23.570	CC, ES
ABND VERT K & R LIVESTOCK COMM 1 - Wellbore #1	17,200.00	5,503.00	2,908.51	2,768.62	20.791	SF
ABND VERT KATS B UNIT 1 - Wellbore #1 - Design #1	14,936.09	8,007.94	492.74	178.71	1.569	CC, ES
ABND VERT KATS B UNIT 1 - Wellbore #1 - Design #1	15,000.00	8,007.94	496.87	179.69	1.567	SF
ABND VERT NIVEN GAYLE B 1 - Wellbore #1 - Design	17,300.00	5,145.00	3,211.04	3,079.18	24.353	SF
ABND VERT NIVEN GAYLE B 1 - Wellbore #1 - Design	18,600.00	5,145.00	2,933.70	2,825.50	27.113	ES
ABND VERT NIVEN GAYLE B 1 - Wellbore #1 - Design	18,607.18	5,145.00	2,933.69	2,825.50	27.116	CC
BICKLER 23-34 - Wellbore #1 - Wellbore #1	15,942.61	8,131.45	1,964.21	1,763.66	9.794	CC, ES
BICKLER 23-34 - Wellbore #1 - Wellbore #1	16,000.00	8,131.16	1,965.05	1,764.38	9.792	SF
BICKLER 24-34 - Wellbore #1 - Wellbore #1	14,437.51	8,378.49	1,943.89	1,754.82	10.281	CC, ES, SF
BICKLER 4-4-34 - Wellbore #1 - Wellbore #1	16,533.64	8,053.35	1,187.66	980.20	5.725	CC, ES, SF
BICKLER 4-6-34 - Wellbore #1 - Wellbore #1	15,259.06	8,156.17	1,207.29	1,013.79	6.239	CC, ES, SF
EXIST DD KATS 31-34 - Wellbore #1 - Wellbore #1	18,599.00	8,143.96	589.74	340.24	2.364	CC, ES, SF
EXIST DD KATS 41-34 - Wellbore #1 - Wellbore #1	18,712.93	8,228.86	1,029.78	776.32	4.063	CC
EXIST DD KATS 41-34 - Wellbore #1 - Wellbore #1	18,786.96	8,229.53	1,032.43	775.48	4.018	ES, SF
EXIST DD KATS 42-34 - Wellbore #1 - Wellbore #1	17,156.13	8,142.26	1,008.24	784.67	4.510	CC
EXIST DD KATS 42-34 - Wellbore #1 - Wellbore #1	17,200.00	8,142.28	1,009.19	784.53	4.492	ES, SF
EXIST DD KATS 6-4-34 - Wellbore #1 - Wellbore #1	16,679.28	8,107.41	151.63	-64.54	0.701	Level 1, CC, SF
EXIST DD KATS 6-4-34 - Wellbore #1 - Wellbore #1	16,700.00	8,107.59	153.04	-64.97	0.702	Level 1, ES
EXIST DD KATS 8-2-34 - Wellbore #1 - Wellbore #1	17,909.28	8,234.55	1,449.94	1,214.68	6.163	CC
EXIST DD KATS 8-2-34 - Wellbore #1 - Wellbore #1	18,000.00	8,233.68	1,452.78	1,214.20	6.089	ES
EXIST DD KATS 8-2-34 - Wellbore #1 - Wellbore #1	18,100.00	8,232.72	1,462.43	1,221.05	6.058	SF
EXIST VERT BICKLER 1 - Wellbore #1 - Design #1	16,979.15	8,114.92	2,945.64	2,593.09	8.355	CC
EXIST VERT BICKLER 1 - Wellbore #1 - Design #1	17,000.00	8,114.92	2,945.71	2,592.93	8.350	ES
EXIST VERT BICKLER 1 - Wellbore #1 - Design #1	17,200.00	8,114.92	2,953.91	2,599.29	8.330	SF
EXIST VERT KATS 'B' UNIT 2 - Wellbore #1 - Design #1	17,600.00	8,028.92	151.32	-76.51	0.664	Level 1, ES, SF
EXIST VERT KATS 'B' UNIT 2 - Wellbore #1 - Design #1	17,601.63	8,028.92	151.31	-76.25	0.665	Level 1, CC

Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-5C
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 N35-20-5C	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	9,521.91	8,057.00	1,400.80	1,307.58	15.027	CC
ABND VERT WEAVER K UNIT 1 - Wellbore #1 - Design	9,600.00	8,056.99	1,402.97	1,307.41	14.681	ES
ABND VERT WEAVER K UNIT 1 - Wellbore #1 - Design	9,900.00	8,056.99	1,450.92	1,347.77	14.066	SF
EXIST DD LARKRIDGE MA 03-10D - Wellbore #1 - Well	10,972.51	8,312.23	101.80	-15.48	0.868	Level 1, CC, ES, SF
EXIST DD LARKRIDGE MA 03-15D - Wellbore #1 - Well	9,605.25	8,355.40	144.76	39.21	1.371	Level 3, CC, ES, SF
EXIST DD LARKRIDGE MA 03-16D - Wellbore #1 - Well	9,627.28	8,207.34	1,247.17	1,143.80	12.065	CC
EXIST DD LARKRIDGE MA 03-16D - Wellbore #1 - Well	9,700.00	8,208.57	1,249.29	1,143.34	11.792	ES
EXIST DD LARKRIDGE MA 03-16D - Wellbore #1 - Well	10,000.00	8,213.62	1,301.66	1,187.51	11.403	SF
EXIST DD LARKRIDGE MA 03-23D - Wellbore #1 - Well	10,300.27	8,243.35	538.90	430.88	4.989	CC, ES
EXIST DD LARKRIDGE MA 03-23D - Wellbore #1 - Well	10,400.00	8,246.10	548.04	433.65	4.791	SF
EXIST DD LARKRIDGE MA 09-09D - Wellbore #1 - Well	10,969.18	8,031.65	1,408.55	1,294.13	12.311	CC
EXIST DD LARKRIDGE MA 09-09D - Wellbore #1 - Well	11,000.00	8,031.80	1,408.88	1,293.46	12.206	ES
EXIST DD LARKRIDGE MA 09-09D - Wellbore #1 - Well	11,300.00	8,033.23	1,446.87	1,323.50	11.728	SF
EXIST DD STANDLEY 5-2 - Wellbore #1 - Wellbore #1	12,076.19	8,223.09	2,631.32	2,493.82	19.136	CC
EXIST DD STANDLEY 5-2 - Wellbore #1 - Wellbore #1	12,100.00	8,223.77	2,631.43	2,493.24	19.042	ES
EXIST DD STANDLEY 5-2 - Wellbore #1 - Wellbore #1	12,800.00	8,243.49	2,728.98	2,574.78	17.697	SF
EXIST DD STANDLEY 6-2 - Wellbore #1 - Wellbore #1	12,023.99	12,023.99	3,940.37	3,784.55	25.287	CC, ES
EXIST DD STANDLEY 6-2 - Wellbore #1 - Wellbore #1	13,600.00	7,907.95	4,240.72	4,067.45	24.475	SF
EXIST DD STANDLEY 8-3 - Wellbore #1 - Wellbore #1	12,129.14	8,178.68	1,424.30	1,285.74	10.280	CC
EXIST DD STANDLEY 8-3 - Wellbore #1 - Wellbore #1	12,200.00	8,178.22	1,426.06	1,285.39	10.137	ES
EXIST DD STANDLEY 8-3 - Wellbore #1 - Wellbore #1	12,400.00	8,176.95	1,449.82	1,304.60	9.983	SF
EXIST VERT WEBBER H UNIT 1 - Wellbore #1 - Design	9,614.31	8,076.99	1,765.27	1,537.33	7.744	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	0.00	0.00	0.00	8.81	2,154.31	333.74	2,180.33						
	100.00	100.00	63.00	63.00	0.13	0.75	8.81	2,154.31	333.74	2,180.01	2,179.13	0.88	2,474.700		
	200.00	200.00	163.00	163.00	0.49	2.63	8.81	2,154.31	333.74	2,180.01	2,176.89	3.12	698.241		
	300.00	300.00	263.00	263.00	0.85	4.79	8.81	2,154.31	333.74	2,180.01	2,174.37	5.64	386.638		
	400.00	400.00	363.00	363.00	1.21	6.84	8.81	2,154.31	333.74	2,180.01	2,171.96	8.05	270.724		
	500.00	500.00	463.00	463.00	1.57	8.88	8.81	2,154.31	333.74	2,180.01	2,169.57	10.44	208.714		
	600.00	600.00	563.00	563.00	1.93	10.90	8.81	2,154.31	333.74	2,180.01	2,167.18	12.83	169.935		
	700.00	699.98	662.98	662.98	2.28	12.92	-26.52	2,154.31	333.74	2,178.45	2,163.24	15.21	143.260		
	800.00	799.84	762.84	762.84	2.64	14.94	-26.62	2,154.31	333.74	2,173.77	2,156.19	17.58	123.646		
	900.00	899.45	862.45	862.45	3.01	16.95	-26.80	2,154.31	333.74	2,165.98	2,146.03	19.95	108.564		
	1,000.00	998.70	961.70	961.70	3.38	18.95	-27.04	2,154.31	333.74	2,155.09	2,132.78	22.32	96.568		
	1,100.00	1,097.47	1,060.47	1,060.47	3.77	20.93	-27.36	2,154.31	333.74	2,141.14	2,116.47	24.68	86.767		
	1,200.00	1,195.62	1,158.62	1,158.62	4.18	22.91	-27.76	2,154.31	333.74	2,124.16	2,097.13	27.03	78.583		
	1,300.00	1,293.06	1,256.06	1,256.06	4.62	24.87	-28.23	2,154.31	333.74	2,104.19	2,074.81	29.38	71.624		
	1,400.00	1,389.64	1,352.64	1,352.64	5.09	26.82	-28.79	2,154.31	333.74	2,081.27	2,049.55	31.72	65.616		
	1,500.00	1,485.27	1,448.27	1,448.27	5.60	28.74	-29.44	2,154.31	333.74	2,055.47	2,021.41	34.05	60.362		
	1,600.00	1,579.82	1,542.82	1,542.82	6.15	30.64	-30.19	2,154.31	333.74	2,026.84	1,990.46	36.38	55.714		
	1,700.00	1,673.17	1,636.17	1,636.17	6.75	32.52	-31.04	2,154.31	333.74	1,995.47	1,956.77	38.70	51.563		
	1,800.00	1,765.21	1,728.21	1,728.21	7.40	34.38	-31.99	2,154.31	333.74	1,961.44	1,920.43	41.01	47.823		
	1,900.00	1,855.84	1,818.84	1,818.84	8.09	36.20	-33.07	2,154.31	333.74	1,924.85	1,881.53	43.33	44.428		
	1,989.43	1,935.59	1,901.41	1,898.59	8.76	37.86	-34.14	2,154.31	333.74	1,890.05	1,844.61	45.45	41.589		

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