EXTRACTION OIL & GAS

Broomfield County
Sec 7-T1S-R68W
LIVINGSTON S20-25-3N

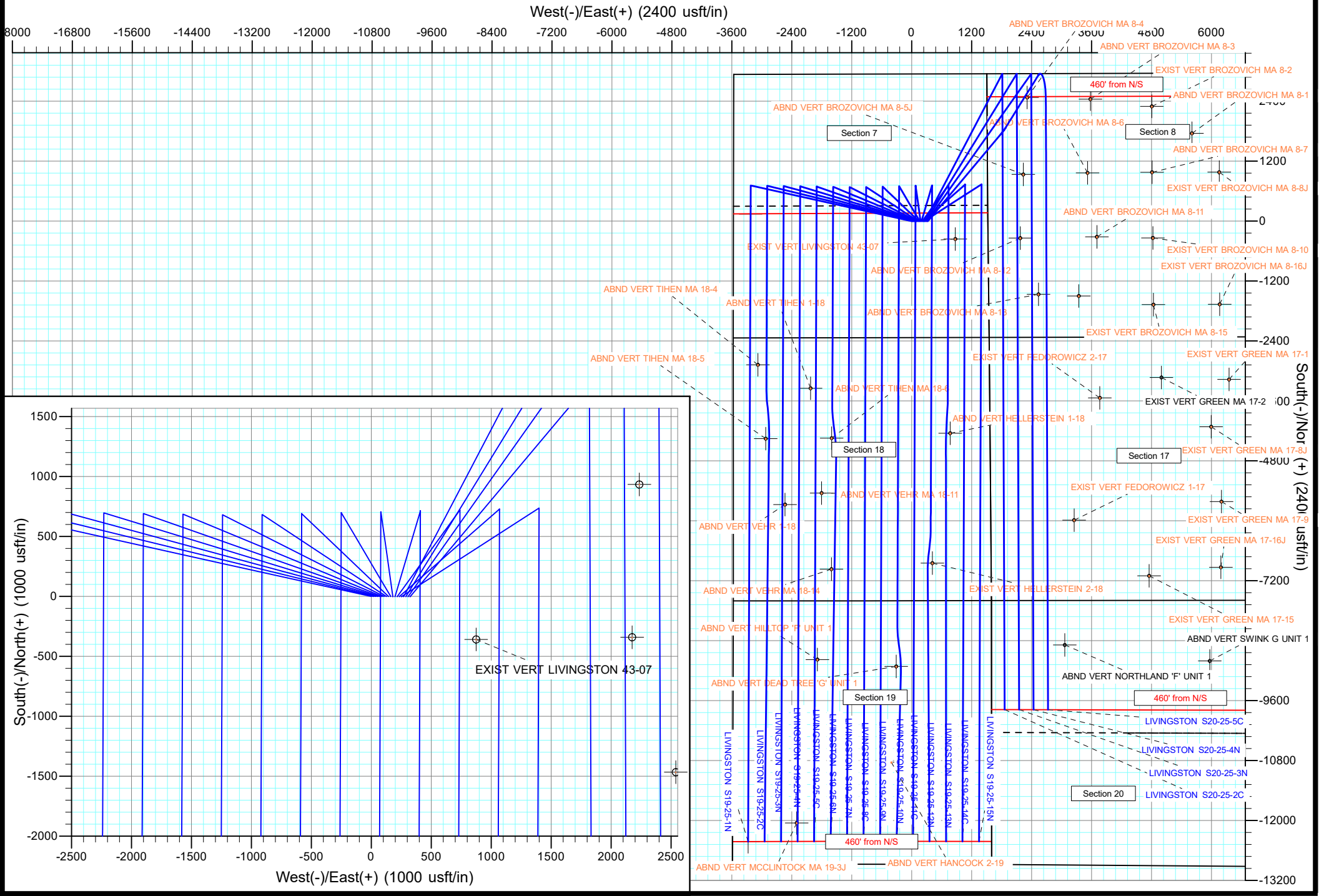
ORIGINAL WELLBORE
PROPOSAL 1

Anticollision Report

05 December, 2017

EXTRACTION Oil & Gas

Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-1N
ORIGINAL WELLBORE
PROPOSAL 1



Anticollision Report

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well LIVINGSTON S20-25-3N
Project:	Broomfield County	**TVD Reference:**	KB 25' @ 5336.00usft
Reference Site:	Sec 7-T1S-R68W	**MD Reference:**	KB 25' @ 5336.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	LIVINGSTON S20-25-3N	**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** 12/5/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,479.46	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 17-T1S-R68W						
EXIST VERT FEDOROWICZ 1-17 - Wellbore #1 - Design	17,689.92	8,063.94	1,115.11	820.55	3.786	CC
EXIST VERT FEDOROWICZ 1-17 - Wellbore #1 - Design	17,700.00	8,063.94	1,115.16	820.31	3.782	ES
EXIST VERT FEDOROWICZ 1-17 - Wellbore #1 - Design	17,800.00	8,063.94	1,120.53	823.31	3.770	SF
EXIST VERT FEDOROWICZ 2-17 - Wellbore #1 - Design	15,243.82	8,100.04	1,639.38	1,383.03	6.395	CC
EXIST VERT FEDOROWICZ 2-17 - Wellbore #1 - Design	15,300.00	8,100.04	1,640.34	1,382.82	6.370	ES
EXIST VERT FEDOROWICZ 2-17 - Wellbore #1 - Design	15,400.00	8,100.04	1,646.80	1,387.38	6.348	SF
EXIST VERT GREEN MA 17-1 - Wellbore #1 - Design #1	14,884.76	8,060.96	4,227.60	3,977.46	16.901	CC
EXIST VERT GREEN MA 17-1 - Wellbore #1 - Design #1	15,000.00	8,060.96	4,229.17	3,977.07	16.775	ES
EXIST VERT GREEN MA 17-1 - Wellbore #1 - Design #1	15,900.00	8,060.96	4,347.80	4,081.71	16.340	SF
EXIST VERT GREEN MA 17-15 - Wellbore #1 - Design #	18,810.52	8,025.94	2,612.89	2,300.42	8.362	CC
EXIST VERT GREEN MA 17-15 - Wellbore #1 - Design #	18,900.00	8,025.94	2,614.42	2,300.00	8.315	ES
EXIST VERT GREEN MA 17-15 - Wellbore #1 - Design #	19,200.00	8,025.94	2,641.75	2,322.00	8.262	SF
EXIST VERT GREEN MA 17-16J - Wellbore #1 - Design	18,643.48	8,009.94	4,049.55	3,740.20	13.091	CC
EXIST VERT GREEN MA 17-16J - Wellbore #1 - Design	18,700.00	8,009.94	4,049.94	3,739.45	13.043	ES
EXIST VERT GREEN MA 17-16J - Wellbore #1 - Design	19,400.00	8,009.93	4,119.61	3,797.15	12.776	SF
EXIST VERT GREEN MA 17-2 - Wellbore #1 - Design #1	15,243.83	8,079.96	1,639.38	1,383.47	6.406	CC
EXIST VERT GREEN MA 17-2 - Wellbore #1 - Design #1	15,300.00	8,079.96	1,640.34	1,383.26	6.381	ES
EXIST VERT GREEN MA 17-2 - Wellbore #1 - Design #1	15,400.00	8,079.96	1,646.80	1,387.82	6.359	SF
EXIST VERT GREEN MA 17-8J - Wellbore #1 - Design #	15,830.66	8,044.96	3,865.65	3,601.41	14.629	CC
EXIST VERT GREEN MA 17-8J - Wellbore #1 - Design #	15,900.00	8,044.96	3,866.27	3,600.75	14.561	ES
EXIST VERT GREEN MA 17-8J - Wellbore #1 - Design #	16,600.00	8,044.95	3,941.46	3,664.36	14.224	SF
EXIST VERT GREEN MA 17-9 - Wellbore #1 - Design #1	17,329.23	8,020.95	4,066.04	3,778.24	14.128	CC
EXIST VERT GREEN MA 17-9 - Wellbore #1 - Design #1	17,400.00	8,020.95	4,066.65	3,777.47	14.063	ES
EXIST VERT GREEN MA 17-9 - Wellbore #1 - Design #1	18,100.00	8,020.94	4,138.45	3,837.37	13.745	SF
Sec 20-T1S-R68W						
ABND VERT NORTHLAND 'F' UNIT 1 - Wellbore #1 - De	20,188.89	8,023.93	919.67	583.93	2.739	CC
ABND VERT NORTHLAND 'F' UNIT 1 - Wellbore #1 - De	20,200.00	8,023.93	919.74	583.62	2.736	ES, SF
ABND VERT SWINK G UNIT 1 - Wellbore #1 - Design #1	20,519.08	7,989.93	3,820.06	3,479.38	11.213	CC
ABND VERT SWINK G UNIT 1 - Wellbore #1 - Design #1	20,600.00	7,989.93	3,820.92	3,478.54	11.160	ES
ABND VERT SWINK G UNIT 1 - Wellbore #1 - Design #1	21,100.00	7,989.92	3,863.98	3,512.87	11.005	SF

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well LIVINGSTON S20-25-3N
Project:	Broomfield County	**TVD Reference:**	KB 25' @ 5336.00usft
Reference Site:	Sec 7-T1S-R68W	**MD Reference:**	KB 25' @ 5336.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	LIVINGSTON S20-25-3N	**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 7-T1S-R68W						
EXIST VERT LIVINGSTON 43-07 - Wellbore #1 - Design	446.44	458.38	686.87	676.73	67.685	CC
EXIST VERT LIVINGSTON 43-07 - Wellbore #1 - Design	1,000.00	1,005.06	691.68	668.25	29.530	ES
EXIST VERT LIVINGSTON 43-07 - Wellbore #1 - Design	12,100.00	8,069.98	1,242.56	1,026.16	5.742	SF
LIVINGSTON S19-25-10N - ORIGINAL WELLBORE - PR	300.00	300.00	126.11	124.41	74.063	CC, ES
LIVINGSTON S19-25-10N - ORIGINAL WELLBORE - PR	21,479.55	18,286.67	2,383.42	2,008.50	6.357	SF
LIVINGSTON S19-25-11C - ORIGINAL WELLBORE - PR	300.00	300.00	108.17	106.47	63.529	CC, ES
LIVINGSTON S19-25-11C - ORIGINAL WELLBORE - PR	21,479.55	18,574.40	2,125.90	1,750.64	5.665	SF
LIVINGSTON S19-25-12N - ORIGINAL WELLBORE - PR	300.00	300.00	90.24	88.54	52.996	CC, ES
LIVINGSTON S19-25-12N - ORIGINAL WELLBORE - PR	21,479.55	18,367.79	1,809.74	1,433.22	4.806	SF
LIVINGSTON S19-25-13N - ORIGINAL WELLBORE - PR	300.00	300.00	72.02	70.32	42.298	CC, ES
LIVINGSTON S19-25-13N - ORIGINAL WELLBORE - PR	21,479.55	18,383.42	1,462.05	1,085.87	3.887	SF
LIVINGSTON S19-25-14C - ORIGINAL WELLBORE - PR	300.00	300.00	54.09	52.39	31.765	CC, ES
LIVINGSTON S19-25-14C - ORIGINAL WELLBORE - PR	21,479.55	18,664.73	1,147.61	775.37	3.083	SF
LIVINGSTON S19-25-15N - ORIGINAL WELLBORE - PR	300.00	300.00	36.15	34.45	21.231	CC, ES
LIVINGSTON S19-25-15N - ORIGINAL WELLBORE - PR	21,479.55	18,505.69	791.03	415.00	2.104	SF
LIVINGSTON S19-25-1N - ORIGINAL WELLBORE - PR	0.00	25.00	288.09			
LIVINGSTON S19-25-1N - ORIGINAL WELLBORE - PR	100.00	122.76	288.19	287.84	819.087	ES
LIVINGSTON S19-25-1N - ORIGINAL WELLBORE - PR	21,479.55	19,082.25	5,412.70	5,035.16	14.337	SF
LIVINGSTON S19-25-2C - ORIGINAL WELLBORE - PR	105.56	130.56	270.16	269.76	678.271	CC
LIVINGSTON S19-25-2C - ORIGINAL WELLBORE - PR	200.00	222.90	270.25	269.19	253.166	ES
LIVINGSTON S19-25-2C - ORIGINAL WELLBORE - PR	21,479.55	19,131.90	5,068.18	4,691.72	13.463	SF
LIVINGSTON S19-25-3N - ORIGINAL WELLBORE - PR	300.00	300.00	251.94	250.24	147.962	CC, ES
LIVINGSTON S19-25-3N - ORIGINAL WELLBORE - PR	21,479.55	18,820.59	4,752.60	4,375.63	12.607	SF
LIVINGSTON S19-25-4N - ORIGINAL WELLBORE - PR	300.00	300.00	234.00	232.30	137.428	CC, ES
LIVINGSTON S19-25-4N - ORIGINAL WELLBORE - PR	21,479.55	18,706.44	4,422.61	4,045.90	11.740	SF
LIVINGSTON S19-25-5C - ORIGINAL WELLBORE - PR	300.00	300.00	216.07	214.37	126.895	CC, ES
LIVINGSTON S19-25-5C - ORIGINAL WELLBORE - PR	21,479.55	18,834.85	4,099.89	3,723.80	10.901	SF
LIVINGSTON S19-25-6N - ORIGINAL WELLBORE - PR	300.00	300.00	198.13	196.43	116.362	CC, ES
LIVINGSTON S19-25-6N - ORIGINAL WELLBORE - PR	21,479.55	18,480.09	3,734.42	3,358.79	9.942	SF
LIVINGSTON S19-25-7N - ORIGINAL WELLBORE - PR	300.00	300.00	180.20	178.49	105.828	CC, ES
LIVINGSTON S19-25-7N - ORIGINAL WELLBORE - PR	21,479.55	18,438.69	3,431.84	3,055.77	9.126	SF
LIVINGSTON S19-25-8C - ORIGINAL WELLBORE - PR	300.00	300.00	161.98	160.28	95.130	CC, ES
LIVINGSTON S19-25-8C - ORIGINAL WELLBORE - PR	21,479.55	18,624.37	3,111.17	2,735.63	8.285	SF
LIVINGSTON S19-25-9N - ORIGINAL WELLBORE - PR	300.00	300.00	144.05	142.34	84.597	CC, ES
LIVINGSTON S19-25-9N - ORIGINAL WELLBORE - PR	21,479.55	18,352.18	2,771.63	2,395.65	7.372	SF
LIVINGSTON S20-25-2C - ORIGINAL WELLBORE - PR	300.00	300.00	18.22	16.51	10.698	CC, ES
LIVINGSTON S20-25-2C - ORIGINAL WELLBORE - PR	21,479.55	21,635.75	379.11	35.94	1.105	Level 2, SF
LIVINGSTON S20-25-4N - ORIGINAL WELLBORE - PR	200.00	200.00	17.94	16.95	18.194	CC
LIVINGSTON S20-25-4N - ORIGINAL WELLBORE - PR	21,479.55	21,540.66	290.12	-103.56	0.737	Level 1, ES, SF
LIVINGSTON S20-25-5C - ORIGINAL WELLBORE - PR	100.00	100.00	35.87	35.60	133.428	CC, ES
LIVINGSTON S20-25-5C - ORIGINAL WELLBORE - PR	21,479.55	21,817.62	629.47	263.01	1.718	SF

Anticollision Report

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well LIVINGSTON S20-25-3N
Project:	Broomfield County	**TVD Reference:**	KB 25' @ 5336.00usft
Reference Site:	Sec 7-T1S-R68W	**MD Reference:**	KB 25' @ 5336.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	LIVINGSTON S20-25-3N	**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 8-T1S-R68W						
ABND VERT BROZOVICH MA 8-1 - Wellbore #1 - Desig	9,225.00	8,032.99	3,577.89	3,357.36	16.225	SF
ABND VERT BROZOVICH MA 8-1 - Wellbore #1 - Desig	9,900.00	8,033.00	3,503.17	3,291.08	16.518	ES
ABND VERT BROZOVICH MA 8-1 - Wellbore #1 - Desig	9,954.39	8,033.00	3,502.75	3,291.23	16.560	CC
ABND VERT BROZOVICH MA 8-11 - Wellbore #1 - Desi	12,019.82	8,101.98	1,591.73	1,375.43	7.359	CC, ES
ABND VERT BROZOVICH MA 8-11 - Wellbore #1 - Desi	12,100.00	8,101.98	1,593.75	1,377.03	7.354	SF
ABND VERT BROZOVICH MA 8-12 - Wellbore #1 - Desi	12,039.94	8,104.02	58.71	-24.04	0.709	Level 1, CC, ES, SF
ABND VERT BROZOVICH MA 8-13 - Wellbore #1 - Desi	13,166.83	8,187.97	419.06	189.64	1.827	CC, ES, SF
ABND VERT BROZOVICH MA 8-14J - Wellbore #1 - Des	13,202.44	8,144.97	1,226.08	997.13	5.355	CC, ES
ABND VERT BROZOVICH MA 8-14J - Wellbore #1 - Des	13,300.00	8,144.97	1,229.96	999.64	5.340	SF
ABND VERT BROZOVICH MA 8-3 - Wellbore #1 - Desig	9,100.00	8,027.79	1,481.12	1,261.41	6.741	SF
ABND VERT BROZOVICH MA 8-3 - Wellbore #1 - Desig	9,225.00	8,044.99	1,472.88	1,255.69	6.782	ES
ABND VERT BROZOVICH MA 8-3 - Wellbore #1 - Desig	9,261.84	8,045.00	1,472.42	1,256.11	6.807	CC
ABND VERT BROZOVICH MA 8-4 - Wellbore #1 - Desig	9,200.00	8,001.15	208.64	-9.95	0.954	Level 1, ES, SF
ABND VERT BROZOVICH MA 8-4 - Wellbore #1 - Desig	9,225.35	8,001.99	207.09	-8.67	0.960	Level 1, CC
ABND VERT BROZOVICH MA 8-5J - Wellbore #1 - Desi	10,765.94	8,048.99	123.18	-86.82	0.587	Level 1, CC, ES, SF
ABND VERT BROZOVICH MA 8-6 - Wellbore #1 - Desig	10,600.00	8,068.99	1,416.26	1,204.35	6.683	SF
ABND VERT BROZOVICH MA 8-6 - Wellbore #1 - Desig	10,737.67	8,068.99	1,409.55	1,199.15	6.699	CC, ES
ABND VERT BROZOVICH MA 8-7 - Wellbore #1 - Desig	10,500.00	8,073.99	2,710.14	2,498.14	12.784	SF
ABND VERT BROZOVICH MA 8-7 - Wellbore #1 - Desig	10,730.47	8,073.99	2,700.33	2,489.83	12.828	CC, ES
EXIST VERT BROZOVICH MA 8-10 - Wellbore #1 - Des	12,045.55	8,130.98	2,712.63	2,629.74	32.727	CC, ES
EXIST VERT BROZOVICH MA 8-10 - Wellbore #1 - Des	12,900.00	8,130.98	2,844.02	2,753.83	31.533	SF
EXIST VERT BROZOVICH MA 8-15 - Wellbore #1 - Des	13,381.01	8,104.97	2,718.98	2,488.63	11.804	CC
EXIST VERT BROZOVICH MA 8-15 - Wellbore #1 - Des	13,400.00	8,104.97	2,719.04	2,488.44	11.791	ES
EXIST VERT BROZOVICH MA 8-15 - Wellbore #1 - Des	13,800.00	8,104.97	2,751.07	2,514.96	11.652	SF
EXIST VERT BROZOVICH MA 8-16J - Wellbore #1 - De	13,379.69	8,065.97	4,044.90	3,815.36	17.622	CC
EXIST VERT BROZOVICH MA 8-16J - Wellbore #1 - De	13,400.00	8,065.97	4,044.95	3,815.14	17.601	ES
EXIST VERT BROZOVICH MA 8-16J - Wellbore #1 - De	14,300.00	8,065.97	4,148.28	3,906.11	17.130	SF
EXIST VERT BROZOVICH MA 8-2 - Wellbore #1 - Desig	9,075.00	8,032.51	2,722.64	2,502.33	12.358	SF
EXIST VERT BROZOVICH MA 8-2 - Wellbore #1 - Desig	9,400.00	8,057.00	2,702.08	2,486.53	12.536	ES
EXIST VERT BROZOVICH MA 8-2 - Wellbore #1 - Desig	9,411.80	8,057.00	2,702.05	2,486.69	12.547	CC
EXIST VERT BROZOVICH MA 8-8J - Wellbore #1 - Desi	10,000.00	8,059.00	4,111.66	3,896.61	19.119	SF
EXIST VERT BROZOVICH MA 8-8J - Wellbore #1 - Desi	10,735.05	8,058.99	4,045.43	3,835.23	19.246	CC, ES

Offset Design Sec 17-T1S-R68W - EXIST VERT FEDOROWICZ 1-17 - Wellbore #1 - Design #1

Offset Site Error: 0.00 usft

Survey Program: 0-INC

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	6.00	6.00	0.00	0.07	153.65	-5,984.83	2,963.99	6,678.58				
100.00	100.00	106.00	106.00	0.13	1.30	153.65	-5,984.83	2,963.99	6,678.58	6,677.15	1.43	4,668.300	
200.00	200.00	206.00	206.00	0.49	3.58	153.65	-5,984.83	2,963.99	6,678.58	6,674.50	4.07	1,639.119	
300.00	300.00	306.00	306.00	0.85	5.66	153.65	-5,984.83	2,963.99	6,678.58	6,672.07	6.51	1,025.931	
400.00	399.98	405.98	405.98	1.21	7.70	122.03	-5,984.83	2,963.99	6,679.50	6,670.59	8.91	749.773	
500.00	499.84	505.84	505.84	1.57	9.73	122.02	-5,984.83	2,963.99	6,682.28	6,670.98	11.30	591.593	
600.00	599.45	605.45	605.45	1.94	11.74	122.00	-5,984.83	2,963.99	6,686.91	6,673.23	13.68	488.871	
700.00	698.70	704.70	704.70	2.32	13.74	121.98	-5,984.83	2,963.99	6,693.40	6,677.34	16.06	416.730	
800.00	797.47	803.47	803.47	2.72	15.74	121.95	-5,984.83	2,963.99	6,701.76	6,683.31	18.45	363.256	
900.00	895.62	901.62	901.62	3.15	17.72	121.91	-5,984.83	2,963.99	6,711.99	6,691.14	20.84	322.028	
1,000.00	993.06	1,000.94	999.06	3.61	19.72	121.86	-5,984.83	2,963.99	6,724.09	6,700.81	23.28	288.801	
1,100.00	1,089.64	1,104.36	1,095.64	4.11	21.80	121.81	-5,984.83	2,963.99	6,738.09	6,712.26	25.83	260.849	