



Margaret Sue Kelley WTZ 2H  
Wetzel Co, WV  
SDC 40  
**Plan vs Actual**

**Plan Data for Margaret Sue Kelley WTZ 2H**

Plan Point Information: (Scale Factor = 0.999608)  
DogLeg Severity Unit: %/100.00ft Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS	Toolface	Comments
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(°)	
0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.0	
26.00	0.00	0.00	26.00	0.00	0.00	0.00	0.00	0.0	0.0 KB Offset
1450.00	0.00	0.00	1450.00	0.00	0.00	0.00	0.00	0.0	0.0 Nudge KOP
1600.00	3.00	250.00	1599.93	-1.34	-3.69	2.17	2.00	250.0	Build/Turn
1733.39	4.00	208.15	1733.09	-6.64	-9.16	3.43	2.00	269.6	Hold
6222.02	4.00	208.15	6210.79	-282.72	-156.87	-41.67	0.00	0.0	Curve KOP 7° DLS
7231.75	70.00	307.25	6988.30	11.67	-610.14	497.64	7.00	100.5	Build/Turn 9° DLS
7463.28	90.65	310.06	7027.00	153.58	-787.29	724.35	9.00	7.9	Landing Point
12895.29	90.65	310.06	6965.00	3649.40	-4944.46	6142.98	0.00	0.0	PBHL MSK2H

Target Set Information: (Scale Factor = 0.999608)  
Name: Margaret Sue Kelley WTZ 2H  
Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting	Lat	Long
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(°)	(°)
LP MSK2H	7027.00	29.02	-639.18	14413539.80	1724702.99	39.688753	-80.700388
PBHL MSK2H	6965.00	3649.40	-4944.46	14417158.76	1720399.40	39.698731	-80.715645

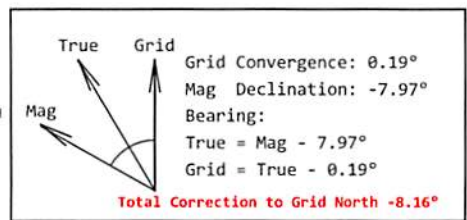
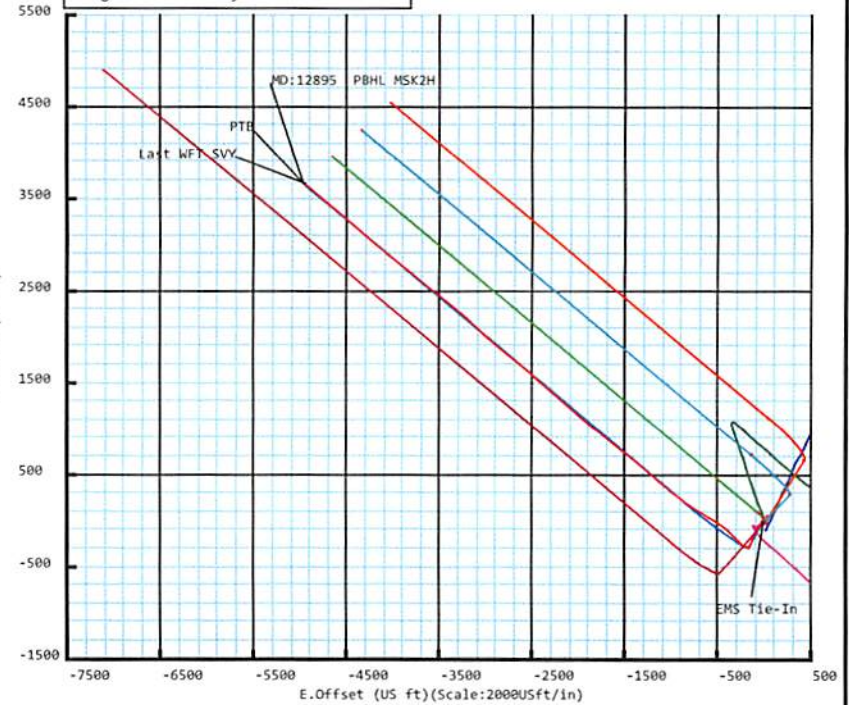
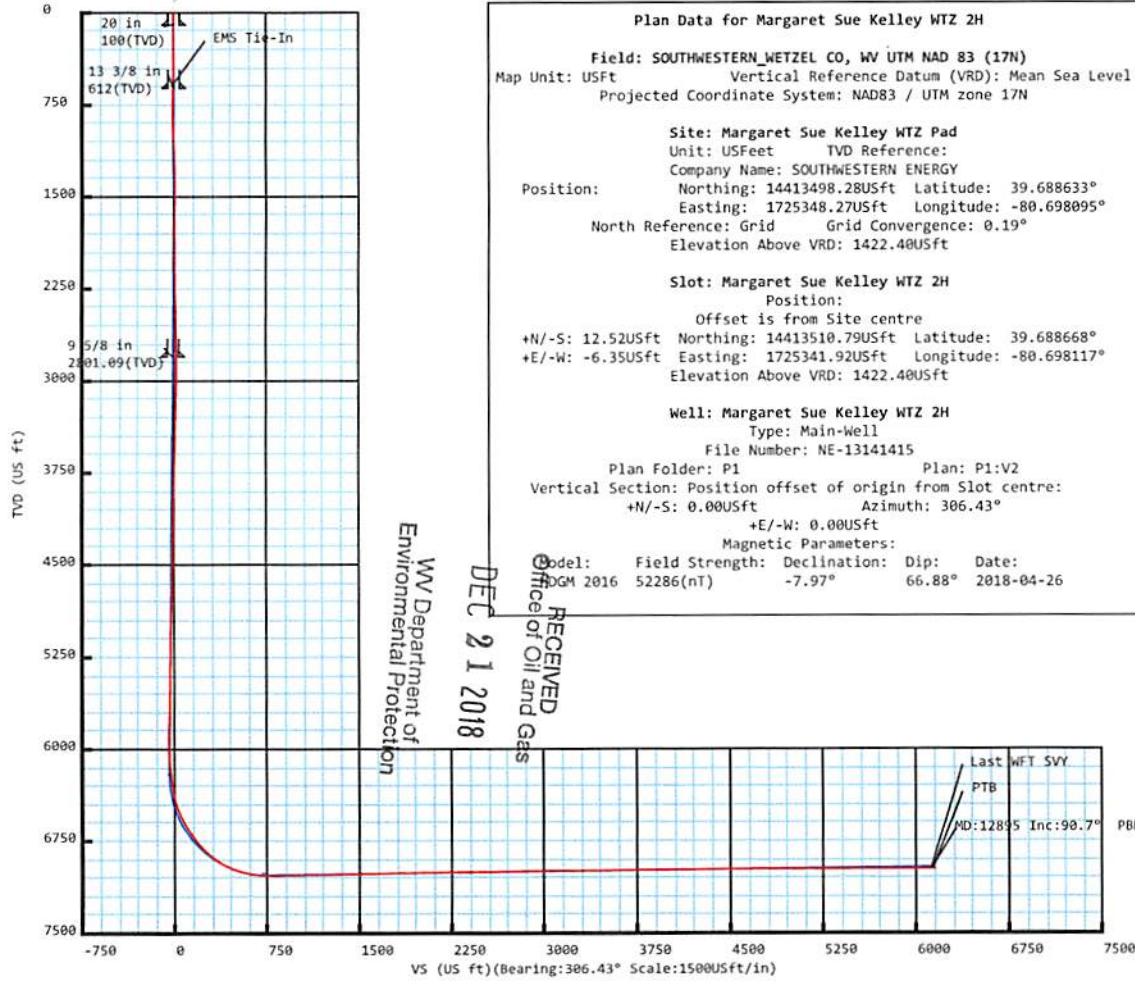


**Plan Data for Margaret Sue Kelley WTZ 2H**

Formation Point Information:

Name	TVD	Elevation	MD
(USft)	(USft)	(USft)	(USft)
Burket	7033.00	0.00	-1.00
Tully	7040.00	0.00	-1.00
Base Fresh Water	512.00	936.40	512.00
Top of Salt Water	962.00	486.40	962.00
Pittsburgh Coal	1242.00	206.40	1242.00
Maxton	2217.00	-768.60	2218.48
Big Lime	2335.00	-886.60	2336.77
Big Injun	2416.00	-967.60	2417.97
Base Big Injun	2659.00	-1210.60	2661.56
Berea	3008.00	-1559.60	3011.41
Gordon Sandstone	3173.00	-1724.60	3176.81
Upper Rhinestreet	6536.00	-5087.60	6556.39
Lower Rhinestreet	6685.00	-5236.60	6726.87
Basal Rhinestreet	6748.00	-5299.60	6806.39
Cashqua	6824.00	-5375.60	6912.14
Middlesex	6934.00	-5485.60	7100.99
Lower Middlesex	6962.00	-5513.60	7162.74
Geneseo	6988.00	-5539.60	7230.88
Geneseo 1	7008.00	-5559.60	7299.19
Burket Shale	7021.00	-5572.60	7367.80
Burket 2	7026.00	-5577.60	7419.37

KB: 1448.4'  
GL: 1422.4'



Drawing By: Vilaphanh (Cot) Sinakone  
Date: 26 April 2018  
Office Name: Weatherford Drilling Services  
Address: 12101 Cutten Road  
Houston, TX 77066  
Phone: 281-701-4760



# Weatherford®

## Margaret Sue Kelley WTZ 2H

<b>Field Name:</b> SOUTHWESTER N_WETZEL CO, WV UTM NAD 83 (17N)	<b>Map Units:</b> US ft	<b>Company Name:</b> SOUTHWESTERN ENERGY
	<b>Vertical Reference Datum (VRD):</b> Mean Sea Level	
	<b>Projected Coordinate System:</b> NAD83 / UTM zone 17N	
	<b>Comment:</b>	

<b>Site:</b> Margaret Sue Kelley WTZ Pad	<b>Units:</b> US ft	<b>North Reference:</b> Grid	<b>Convergence Angle:</b> 0.19
	<b>Position:</b>	<b>Northing:</b> 14413498.28 US ft	<b>Latitude:</b> 39.688633
		<b>Easting:</b> 1725348.27 US ft	<b>Longitude:</b> -80.698095
	<b>Elevation above MSL:</b> 1422.40 US ft		<b>Comment:</b>

<b>Slot:</b> Margaret Sue Kelley WTZ 2H	<b>Position (Relative to Site Centre)</b>		
	<b>+N/-S:</b> 12.52 US ft	<b>Northing:</b> 14413510.79 US ft	<b>Latitude:</b> 39.688668
	<b>+E/-W:</b> -6.35 US ft	<b>Easting:</b> 1725341.92 US ft	<b>Longitude:</b> -80.698117
	<b>Slot TVD Reference:</b> Ground Elevation		
<b>Elevation above MSL:</b> 1422.40 US ft		<b>Comment:</b>	

<b>Well:</b> Margaret Sue Kelley WTZ 2H	<b>Type:</b> Main well	<b>UWI:</b>
	<b>File Number:</b> NE-13141415	<b>Comment:</b>
	<b>Closure Distance:</b> 6155.96 US ft	<b>Closure Azimuth:</b> 306.51°
	<b>Vertical Section: Position of Origin (Relative to Slot centre)</b>	
	<b>+N/-S:</b> 0.00 US ft	<b>+E/-W:</b> 0.00 US ft <b>Az:</b> 306.43°

<b>Drill floor: Survey Name: Definitive Survey</b>			
<b>Rig Height (Drill Floor):</b> 26.00us ft	<b>Elevation above MSL:</b> 1448.40us ft	<b>Inclination:</b> 0.00°	<b>Azimuth:</b> 0.00°

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<b>Survey Name: Definitive Survey</b>			
<b>Date:</b> 29/Mar/2018	<b>Survey Tool:</b> See Survey Tool Ranges below.	<b>Comment:</b>	<b>Company:</b>

<b>Magnetic Model:</b>			
<b>Model Name:</b> HDGM 2016	<b>Date:</b> 26/Apr/2018	<b>Field Strength:</b> 52286.0nT	<b>Declination:</b> -7.97° <b>Dip:</b> 66.88°

<b>Tie Point:</b>					
<b>MD:</b> 0.00 US ft	<b>Inclination:</b> 0.00°	<b>Azimuth:</b> 0.00°	<b>TVD:</b> -0.00 US ft	<b>North Offset:</b> 0.00 US ft	<b>East Offset:</b> 0.00 US ft

## 5D Survey Report

Survey Tool Ranges:			
Name	Start MD(usft)	End MD(usft)	Source Survey
EMS	0.00	602.00	EMS
MFAC_US_V2	602.00	1334.00	WFT_MFAC_01
MWD	1334.00	1798.00	WFT_MWD_01
MFAC_US_V2	1798.00	1891.00	WFT_MFAC_02
MWD	1891.00	2790.00	WFT_MWD_02
MWD	2790.00	6785.00	WFT_MWD_03
MWD	6785.00	12895.00	WFT_MWD_04

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) (Scale factor 0.999608)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Latitude (° ' ")	Longitude (° ' ")	DLS (°/100US ft)	Comment
0.00	0.00	0.00	-0.00	0.00	0.00	0.00	39.688668	-80.698117	0.00	
204.00	0.20	95.94	204.00	-0.31	-0.04	0.35	39.688668	-80.698116	0.10	
295.00	0.20	118.74	295.00	-0.60	-0.13	0.65	39.688667	-80.698115	0.09	
386.00	1.20	122.84	385.99	-1.71	-0.72	1.59	39.688666	-80.698112	1.10	
463.00	0.50	147.04	462.98	-2.83	-1.44	2.45	39.688664	-80.698109	1.00	
555.00	0.60	148.04	554.98	-3.65	-2.19	2.92	39.688662	-80.698107	0.11	
602.00	0.70	153.94	601.98	-4.14	-2.65	3.18	39.688660	-80.698106	0.26	EMS Tie-In
691.00	1.09	137.48	690.96	-5.45	-3.77	3.99	39.688657	-80.698103	0.52	
737.00	1.33	153.56	736.95	-6.35	-4.57	4.53	39.688655	-80.698101	0.90	
784.00	0.97	201.89	783.95	-6.94	-5.42	4.62	39.688653	-80.698101	2.12	
876.00	2.32	264.98	875.91	-5.74	-6.31	2.47	39.688650	-80.698109	2.25	
923.00	2.79	271.21	922.86	-4.09	-6.37	0.38	39.688650	-80.698116	1.16	
1012.00	2.53	323.74	1011.78	-0.45	-4.74	-2.94	39.688655	-80.698128	2.66	
1059.00	2.92	337.98	1058.73	1.57	-2.79	-4.01	39.688660	-80.698132	1.66	
1152.00	2.03	351.78	1151.64	4.74	1.03	-5.13	39.688671	-80.698136	1.15	
1241.00	0.65	20.34	1240.62	5.99	3.07	-5.18	39.688676	-80.698136	1.68	
1334.00	0.37	99.76	1333.61	5.87	3.51	-4.70	39.688677	-80.698134	0.74	
1427.00	1.15	192.90	1426.61	5.23	2.55	-4.61	39.688675	-80.698134	1.32	
1520.00	1.91	198.36	1519.57	4.37	0.17	-5.31	39.688668	-80.698136	0.83	
1612.00	2.15	195.05	1611.51	3.27	-2.95	-6.24	39.688660	-80.698140	0.29	
1705.00	2.39	221.41	1704.44	2.80	-6.09	-7.98	39.688651	-80.698146	1.14	
1798.00	2.93	238.96	1797.34	3.88	-8.77	-11.30	39.688644	-80.698158	1.04	
1891.00	3.64	227.47	1890.19	5.36	-11.99	-15.51	39.688635	-80.698173	1.04	
1983.00	3.54	221.32	1982.01	6.16	-16.10	-19.54	39.688624	-80.698187	0.43	
2076.00	3.69	217.70	2074.83	6.47	-20.62	-23.26	39.688611	-80.698200	0.29	
2169.00	4.01	225.31	2167.62	7.04	-25.28	-27.40	39.688599	-80.698215	0.65	
2258.00	4.05	235.84	2256.40	8.56	-29.23	-32.22	39.688588	-80.698232	0.83	
2351.00	4.36	246.89	2349.15	11.44	-32.46	-38.19	39.688579	-80.698254	0.93	
2444.00	4.36	239.33	2441.88	14.61	-35.65	-44.48	39.688570	-80.698276	0.62	
2537.00	3.91	232.27	2534.64	16.85	-39.40	-50.03	39.688560	-80.698296	0.73	
2629.00	3.08	230.83	2626.47	18.32	-42.88	-54.42	39.688551	-80.698311	0.91	
2719.00	2.71	231.32	2716.35	19.47	-45.74	-57.96	39.688543	-80.698324	0.41	
2790.00	2.89	222.71	2787.27	20.10	-48.10	-60.48	39.688536	-80.698333	0.64	
2902.00	3.17	218.41	2899.11	20.52	-52.60	-64.32	39.688524	-80.698347	0.32	
2995.00	3.33	209.49	2991.96	20.28	-56.97	-67.25	39.688512	-80.698357	0.57	
3087.00	4.32	195.48	3083.76	18.72	-62.63	-69.49	39.688496	-80.698365	1.47	
3180.00	4.03	194.20	3176.51	16.23	-69.18	-71.23	39.688479	-80.698371	0.33	
3273.00	4.52	196.39	3269.25	13.74	-75.86	-73.06	39.688460	-80.698378	0.67	
3366.00	5.05	200.27	3361.93	11.34	-83.22	-75.51	39.688440	-80.698387	0.67	
3458.00	4.44	200.01	3453.61	9.21	-90.36	-78.14	39.688420	-80.698396	0.66	
3551.00	4.68	201.41	3546.32	7.21	-97.27	-80.75	39.688401	-80.698406	0.28	
3644.00	5.66	198.68	3638.94	4.82	-105.15	-83.61	39.688380	-80.698416	1.09	
3737.00	5.10	200.73	3731.53	2.31	-113.36	-86.54	39.688357	-80.698426	0.64	
3829.00	5.00	198.81	3823.17	-0.01	-120.98	-89.28	39.688336	-80.698436	0.21	
3922.00	4.56	200.70	3915.85	-2.24	-128.28	-91.89	39.688316	-80.698446	0.50	
4012.00	4.21	198.77	4005.59	-4.21	-134.75	-94.22	39.688299	-80.698454	0.42	

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## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) (Scale factor 0.999608)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Latitude (° ' ")	Longitude (° ' ")	DLS (%/100US ft)	Comment
4104.00	4.08	199.86	4097.34	-6.17	-141.03	-96.42	39.688282	-80.698462	0.17	
4197.00	4.27	202.34	4190.10	-7.96	-147.34	-98.86	39.688264	-80.698471	0.28	
4290.00	4.82	200.92	4282.81	-9.85	-154.19	-101.57	39.688245	-80.698480	0.60	
4383.00	4.56	200.66	4375.49	-11.89	-161.30	-104.27	39.688226	-80.698490	0.28	
4476.00	4.54	199.75	4468.20	-13.96	-168.22	-106.82	39.688207	-80.698499	0.08	
4568.00	4.54	199.16	4559.91	-16.08	-175.09	-109.24	39.688188	-80.698508	0.05	
4661.00	4.38	197.26	4652.63	-18.34	-181.96	-111.50	39.688169	-80.698516	0.23	
4754.00	4.73	199.01	4745.34	-20.66	-188.98	-113.81	39.688150	-80.698524	0.40	
4846.00	4.79	199.76	4837.02	-22.89	-196.18	-116.34	39.688130	-80.698533	0.09	
4939.00	5.31	198.41	4929.66	-25.34	-203.91	-119.01	39.688109	-80.698543	0.57	
5029.00	5.76	199.77	5019.24	-27.92	-212.12	-121.85	39.688087	-80.698553	0.52	
5122.00	5.92	203.43	5111.76	-30.34	-220.91	-125.34	39.688062	-80.698566	0.44	
5211.00	5.07	215.89	5200.35	-31.41	-228.31	-129.47	39.688042	-80.698580	1.64	
5304.00	3.35	208.47	5293.10	-31.82	-234.02	-133.18	39.688027	-80.698593	1.94	
5397.00	2.86	202.13	5385.96	-32.77	-238.56	-135.34	39.688014	-80.698601	0.64	
5489.00	4.00	205.81	5477.79	-33.93	-243.58	-137.61	39.688000	-80.698609	1.26	
5582.00	4.78	204.32	5570.52	-35.34	-250.03	-140.61	39.687983	-80.698620	0.85	
5675.00	4.98	199.84	5663.18	-37.31	-257.36	-143.58	39.687963	-80.698631	0.46	
5767.00	3.69	181.82	5754.92	-40.13	-264.07	-145.03	39.687944	-80.698636	2.02	
5860.00	1.94	160.68	5847.81	-43.13	-268.55	-144.60	39.687932	-80.698635	2.16	
5953.00	2.01	213.50	5940.76	-44.51	-271.39	-144.98	39.687924	-80.698636	1.89	
6046.00	6.26	240.68	6033.50	-42.51	-275.24	-150.31	39.687914	-80.698655	4.91	
6092.00	7.36	246.94	6079.18	-39.99	-277.62	-155.21	39.687907	-80.698672	2.88	
6138.00	8.16	254.16	6124.76	-36.49	-279.67	-161.06	39.687902	-80.698693	2.74	
6185.00	8.25	263.24	6171.28	-31.99	-280.97	-167.61	39.687898	-80.698716	2.76	
6228.00	8.50	268.40	6213.82	-27.24	-281.43	-173.86	39.687897	-80.698739	1.84	
6275.00	8.13	279.47	6260.33	-21.54	-280.98	-180.61	39.687898	-80.698763	3.49	
6321.00	7.78	292.39	6305.89	-15.62	-279.26	-186.69	39.687903	-80.698784	3.95	
6367.00	9.41	297.18	6351.37	-8.89	-276.35	-192.92	39.687911	-80.698806	3.87	
6414.00	13.14	297.93	6397.46	0.19	-272.09	-201.06	39.687923	-80.698835	7.94	
6460.00	17.12	302.60	6441.86	12.12	-265.99	-211.39	39.687940	-80.698872	9.04	
6506.00	20.49	308.20	6485.40	26.93	-257.36	-223.42	39.687963	-80.698914	8.30	
6553.00	24.03	311.59	6528.89	44.69	-245.92	-237.05	39.687995	-80.698963	8.01	
6599.00	26.91	313.79	6570.42	64.34	-232.50	-251.57	39.688032	-80.699014	6.59	
6646.00	29.80	315.97	6611.77	86.42	-216.74	-267.37	39.688075	-80.699070	6.53	
6692.00	32.34	317.08	6651.17	109.78	-199.50	-283.70	39.688123	-80.699128	5.66	
6738.00	34.15	315.73	6689.64	134.62	-181.25	-301.09	39.688173	-80.699190	4.25	
6785.00	35.87	313.70	6728.14	161.30	-162.29	-320.25	39.688225	-80.699257	4.42	
6839.00	39.32	313.22	6770.92	193.99	-139.63	-344.17	39.688288	-80.699342	6.41	
6885.00	42.84	315.17	6805.59	223.93	-118.55	-365.82	39.688346	-80.699419	8.14	
6932.00	47.29	314.02	6838.78	256.86	-95.21	-389.52	39.688410	-80.699503	9.62	
6978.00	50.07	308.29	6869.16	291.26	-72.52	-415.53	39.688473	-80.699595	11.13	
7025.00	52.93	304.82	6898.42	328.03	-50.64	-445.08	39.688533	-80.699700	8.39	
7071.00	57.25	303.53	6924.74	365.71	-29.47	-476.28	39.688591	-80.699810	9.67	
7114.00	62.06	302.39	6946.46	402.74	-9.29	-507.42	39.688647	-80.699921	11.42	
7161.00	66.08	301.98	6967.01	444.88	13.22	-543.18	39.688709	-80.700047	8.59	
7207.00	69.51	301.14	6984.39	487.31	35.50	-579.47	39.688771	-80.700176	7.65	
7253.00	73.14	300.82	6999.11	530.69	57.93	-616.82	39.688832	-80.700309	7.92	
7299.00	77.12	301.26	7010.92	574.94	80.85	-654.91	39.688896	-80.700444	8.70	
7346.00	80.84	301.82	7019.90	620.90	104.98	-694.22	39.688962	-80.700583	8.00	
7392.00	83.76	303.21	7026.06	666.37	129.48	-732.65	39.689030	-80.700719	7.02	
7439.00	86.54	303.58	7030.04	713.13	155.25	-771.75	39.689101	-80.700858	5.97	
7485.00	90.00	305.21	7031.42	759.07	181.22	-809.68	39.689173	-80.700992	8.31	
7578.00	90.74	307.86	7030.82	852.06	236.58	-884.40	39.689325	-80.701257	2.96	
7670.00	90.49	306.39	7029.84	944.05	292.10	-957.75	39.689478	-80.701517	1.62	
7763.00	90.86	310.09	7028.74	1036.98	349.65	-1030.77	39.689637	-80.701776	4.00	
7856.00	90.86	311.44	7027.34	1129.70	410.37	-1101.20	39.689804	-80.702025	1.45	
7946.00	90.99	310.48	7025.89	1219.41	469.36	-1169.16	39.689967	-80.702266	1.08	
8039.00	91.11	310.38	7024.19	1312.16	529.66	-1239.93	39.690133	-80.702517	0.17	

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## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) (Scale factor 0.999608)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Latitude (° ' ")	Longitude (° ' ")	DLS (°/100US ft)	Comment
8132.00	91.17	310.72	7022.34	1404.90	590.11	-1310.59	39.690300	-80.702767	0.37	
8224.00	90.99	309.39	7020.60	1496.70	649.30	-1380.99	39.690463	-80.703017	1.46	
8317.00	91.54	307.75	7018.55	1589.61	707.27	-1453.68	39.690623	-80.703274	1.86	
8410.00	91.29	308.72	7016.25	1682.54	764.80	-1526.71	39.690781	-80.703533	1.08	
8502.00	91.29	309.18	7014.18	1774.42	822.63	-1598.24	39.690941	-80.703787	0.50	
8595.00	90.68	308.67	7012.58	1867.32	881.05	-1670.58	39.691102	-80.704043	0.85	
8688.00	90.86	308.40	7011.33	1960.25	938.98	-1743.32	39.691261	-80.704301	0.35	
8781.00	90.80	307.51	7009.99	2053.21	996.17	-1816.64	39.691419	-80.704561	0.96	
8874.00	90.80	309.25	7008.69	2146.14	1053.91	-1889.53	39.691578	-80.704819	1.87	
8966.00	90.92	311.08	7007.31	2237.93	1113.24	-1959.83	39.691742	-80.705068	1.99	
9059.00	90.74	311.51	7005.96	2330.58	1174.60	-2029.69	39.691911	-80.705316	0.50	
9152.00	90.74	311.66	7004.76	2423.20	1236.33	-2099.25	39.692081	-80.705562	0.16	
9242.00	90.74	310.64	7003.60	2512.89	1295.54	-2167.01	39.692244	-80.705802	1.13	
9335.00	90.74	311.21	7002.39	2605.59	1356.46	-2237.27	39.692412	-80.706051	0.61	
9427.00	90.68	310.37	7001.25	2697.32	1416.56	-2306.92	39.692578	-80.706298	0.92	
9520.00	90.92	310.83	6999.96	2790.06	1477.07	-2377.53	39.692744	-80.706548	0.56	
9613.00	90.88	312.70	6998.50	2882.64	1539.01	-2446.88	39.692915	-80.706794	2.01	
9706.00	90.62	312.75	6997.28	2975.08	1602.10	-2515.20	39.693089	-80.707036	0.28	
9799.00	90.37	310.33	6996.47	3067.70	1663.77	-2584.80	39.693259	-80.707283	2.62	
9891.00	90.31	308.73	6995.93	3159.56	1722.32	-2655.75	39.693420	-80.707534	1.74	
9984.00	90.49	307.93	6995.28	3252.50	1780.00	-2728.70	39.693579	-80.707793	0.88	
10077.00	90.74	308.52	6994.28	3345.45	1837.54	-2801.76	39.693738	-80.708052	0.69	
10170.00	90.62	311.52	6993.18	3438.25	1897.33	-2872.97	39.693902	-80.708304	3.23	
10263.00	90.56	310.66	6992.22	3530.94	1958.45	-2943.06	39.694071	-80.708552	0.93	
10352.00	90.74	312.52	6991.21	3619.57	2017.52	-3009.61	39.694234	-80.708788	2.10	
10445.00	90.68	313.41	6990.06	3711.96	2080.90	-3077.66	39.694408	-80.709029	0.96	
10537.00	90.68	313.43	6988.97	3803.26	2144.13	-3144.48	39.694582	-80.709266	0.02	
10630.00	90.68	312.72	6987.86	3895.63	2207.64	-3212.41	39.694757	-80.709507	0.76	
10720.00	90.56	309.43	6986.89	3985.32	2266.76	-3280.24	39.694920	-80.709747	3.66	
10813.00	90.62	309.70	6985.93	4078.18	2326.00	-3351.93	39.695084	-80.710001	0.30	
10906.00	90.49	310.13	6985.03	4171.00	2385.67	-3423.26	39.695248	-80.710254	0.48	
10998.00	90.25	308.90	6984.43	4262.86	2444.20	-3494.23	39.695409	-80.710505	1.36	
11091.00	90.49	308.34	6983.83	4355.79	2502.25	-3566.89	39.695569	-80.710763	0.66	
11184.00	90.49	309.25	6983.04	4448.71	2560.51	-3639.37	39.695730	-80.711020	0.98	
11276.00	90.56	310.06	6982.20	4540.56	2619.22	-3710.20	39.695892	-80.711271	0.88	
11369.00	90.31	309.52	6981.49	4633.39	2678.74	-3781.65	39.696056	-80.711524	0.64	
11462.00	89.94	307.99	6981.29	4726.32	2736.95	-3854.18	39.696216	-80.711781	1.69	
11554.00	90.18	308.82	6981.19	4818.26	2794.10	-3926.27	39.696374	-80.712037	0.94	
11647.00	90.00	308.09	6981.04	4911.20	2851.94	-3999.10	39.696533	-80.712295	0.81	
11740.00	89.88	309.77	6981.14	5004.11	2910.37	-4071.44	39.696694	-80.712551	1.81	
11833.00	90.12	310.20	6981.14	5096.93	2970.13	-4142.70	39.696859	-80.712804	0.53	
11925.00	90.00	310.46	6981.05	5188.72	3029.68	-4212.83	39.697023	-80.713052	0.31	
12018.00	90.00	310.94	6981.05	5281.46	3090.32	-4283.34	39.697190	-80.713302	0.52	
12111.00	90.00	311.66	6981.05	5374.12	3151.70	-4353.21	39.697359	-80.713550	0.77	
12201.00	90.00	311.41	6981.05	5463.76	3211.38	-4420.58	39.697524	-80.713789	0.28	
12293.00	90.25	310.98	6980.84	5555.45	3271.97	-4489.80	39.697690	-80.714034	0.54	
12383.00	90.12	309.60	6980.55	5645.24	3330.17	-4558.45	39.697851	-80.714277	1.54	
12473.00	90.19	310.37	6980.31	5735.07	3388.00	-4627.41	39.698010	-80.714522	0.86	
12565.00	90.06	310.73	6980.11	5826.83	3447.81	-4697.31	39.698175	-80.714769	0.42	
12658.00	90.18	311.47	6979.92	5919.52	3508.95	-4767.39	39.698343	-80.715018	0.81	
12751.00	90.06	310.99	6979.72	6012.19	3570.24	-4837.34	39.698512	-80.715266	0.53	
12843.00	89.91	309.18	6979.74	6104.00	3629.48	-4907.72	39.698676	-80.715515	1.97	
12872.00	89.91	308.82	6979.79	6132.97	3647.73	-4930.26	39.698726	-80.715595	1.24	
12895.00	89.91	308.82	6979.83	6155.95	3662.15	-4948.18	39.698766	-80.715658	0.00	Last WFT SVY PTB

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# Weatherford®

## SURVEY REPORT

Report Date: 7/2/2018  
 Customer: SWN Production Co., LLC Field: Victory  
 Job Name: NE-13141516 Rig: SDC 40  
 Well Name: Margaret Sue Kelley Wtz Rig Loc: Wetzel Co., WV

Survey Calculation Method: <b>Minimum Curvature</b>						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	310.21 deg	52273 nT	66.88 deg	-7.97 deg	0.19 deg	-8.16 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	0.00 ft	0.00 deg	0.00 deg	0.00 ft	0.00 ft	0.00 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head			Dogleg (deg/100ft)
				NS (ft)	EW (ft)	Vsect (ft)	
100.00	0.10	141.29	100.00	-0.07	0.05	-0.09	0.10
200.00	0.22	14.62	200.00	0.05	0.16	-0.09	0.29
300.00	0.18	19.85	300.00	0.38	0.26	0.05	0.04
400.00	0.21	52.81	400.00	0.64	0.46	0.06	0.11
500.00	0.13	117.63	500.00	0.70	0.71	-0.09	0.19
600.00	0.15	305.75	600.00	0.72	0.70	-0.07	0.28
779.00	1.69	260.94	778.97	0.44	-2.10	1.89	0.89
872.00	2.57	297.84	871.91	1.20	-5.30	4.82	1.70
961.00	3.84	312.20	960.77	4.14	-9.27	9.75	1.68
1054.00	5.22	308.47	1053.48	8.86	-14.89	17.09	1.52
1147.00	6.23	305.44	1146.01	14.42	-22.31	26.35	1.13
1236.00	6.53	311.67	1234.46	20.58	-30.03	36.22	0.85
1329.00	6.64	316.97	1326.85	28.03	-37.65	46.84	0.66
1422.00	6.07	322.56	1419.28	35.86	-44.30	56.99	0.90
1515.00	5.83	327.85	1511.78	43.77	-49.81	66.29	0.64
1607.00	5.27	331.56	1603.35	51.44	-54.31	74.68	0.72
1700.00	3.60	336.41	1696.06	57.87	-57.51	81.28	1.84
1793.00	2.09	317.31	1788.95	61.79	-59.83	85.58	1.90
1886.00	2.20	268.76	1881.89	63.00	-62.76	88.60	1.90
1978.00	1.44	253.50	1973.85	62.63	-65.63	90.56	0.97
2071.00	0.84	215.81	2066.83	61.75	-67.15	91.15	1.00
2162.00	0.75	175.86	2157.82	60.61	-67.50	90.68	0.60
2252.00	0.39	115.66	2247.82	59.89	-67.18	89.97	0.72
2344.00	0.25	60.79	2339.81	59.86	-66.73	89.60	0.35
2437.00	0.47	91.35	2432.81	59.95	-66.17	89.23	0.31
2530.00	1.17	88.02	2525.80	59.97	-64.84	88.23	0.75
2622.00	2.08	86.89	2617.76	60.09	-62.23	86.32	0.99
2712.00	1.90	81.24	2707.71	60.41	-59.13	84.15	0.30
2797.00	1.28	44.00	2792.68	61.31	-57.07	83.17	1.38
2902.00	1.72	15.72	2897.64	63.67	-55.83	83.74	0.81
2994.00	0.80	302.96	2989.63	65.35	-56.00	84.95	1.81
3087.00	0.81	298.93	3082.62	66.02	-57.12	86.24	0.06
3180.00	0.95	298.28	3175.61	66.70	-58.37	87.64	0.15
3273.00	1.13	303.60	3268.59	67.57	-59.81	89.30	0.22
3365.00	1.14	297.05	3360.57	68.49	-61.38	91.10	0.14

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
3458.00	1.26	260.51	3453.55	68.74	-63.22	92.66	0.82
3551.00	1.32	266.59	3546.53	68.51	-65.29	94.09	0.16
3644.00	1.29	262.15	3639.51	68.31	-67.40	95.57	0.11
3736.00	1.09	296.44	3731.49	68.55	-69.21	97.11	0.79
3829.00	1.10	300.09	3824.47	69.39	-70.77	98.85	0.08
3922.00	1.05	321.84	3917.45	70.51	-72.07	100.56	0.44
4012.00	1.07	324.34	4007.44	71.84	-73.07	102.19	0.06
4104.00	1.05	324.26	4099.42	73.23	-74.07	103.84	0.02
4197.00	1.04	310.93	4192.41	74.47	-75.20	105.51	0.26
4290.00	1.05	316.02	4285.39	75.64	-76.43	107.20	0.10
4383.00	0.93	306.57	4378.38	76.70	-77.63	108.80	0.22
4475.00	0.95	319.80	4470.37	77.73	-78.72	110.30	0.24
4568.00	0.72	304.79	4563.36	78.65	-79.70	111.64	0.34
4661.00	0.63	314.89	4656.35	79.34	-80.54	112.73	0.16
4754.00	0.72	321.56	4749.34	80.16	-81.27	113.81	0.13
4846.00	0.67	314.88	4841.34	80.99	-82.01	114.92	0.10
4939.00	0.14	351.86	4934.33	81.49	-82.41	115.54	0.61
5029.00	0.09	16.59	5024.33	81.67	-82.40	115.65	0.08
5121.00	0.31	21.21	5116.33	81.97	-82.29	115.76	0.24
5211.00	0.47	345.44	5206.33	82.55	-82.30	116.14	0.32
5304.00	0.37	315.89	5299.33	83.14	-82.60	116.75	0.25
5396.00	0.51	319.86	5391.32	83.66	-83.07	117.45	0.16
5489.00	0.63	325.11	5484.32	84.40	-83.63	118.36	0.14
5582.00	0.93	328.45	5577.31	85.46	-84.32	119.57	0.33
5674.00	0.31	330.78	5669.31	86.31	-84.83	120.51	0.67
5767.00	0.10	311.53	5762.30	86.59	-85.01	120.83	0.23
5867.00	0.39	342.32	5862.30	86.97	-85.18	121.20	0.31
5913.00	0.35	317.64	5908.30	87.22	-85.33	121.47	0.35
5959.00	0.43	327.31	5954.30	87.47	-85.51	121.78	0.22
6099.00	3.37	313.21	6094.21	90.73	-88.80	126.39	2.11
6145.00	4.72	300.22	6140.09	92.61	-91.42	129.60	3.53
6235.00	4.88	291.04	6229.78	95.85	-98.19	136.87	0.87
6328.00	6.07	300.51	6322.36	99.77	-106.12	145.45	1.60
6374.00	6.60	298.06	6368.08	102.24	-110.55	150.43	1.29
6420.00	8.85	291.57	6413.66	104.79	-116.17	156.37	5.24
6467.00	10.17	297.16	6460.01	108.01	-123.23	163.84	3.42
6513.00	12.06	297.03	6505.15	112.05	-131.12	172.47	4.11
6570.00	15.58	294.14	6560.49	117.89	-143.41	185.63	6.29
6617.00	18.50	297.94	6605.42	123.97	-155.77	198.99	6.65
6663.00	22.22	302.69	6648.54	132.09	-169.54	214.75	8.84
6710.00	25.26	307.00	6691.56	142.92	-185.03	233.58	7.44
6753.00	27.68	311.29	6730.06	155.04	-199.87	252.73	7.17
6800.00	30.70	316.06	6771.09	170.89	-216.40	275.58	8.11
6846.00	34.03	316.58	6809.94	188.70	-233.40	300.06	7.26
6892.00	37.89	314.21	6847.17	207.90	-252.38	329.96	6.82
6939.00	39.88	312.64	6883.75	228.18	-273.81	356.41	4.72
6985.00	43.01	310.95	6918.23	248.45	-296.52	386.81	4.23
7032.00	46.94	310.68	6951.47	270.16	-321.65	420.06	8.37
7078.00	52.28	310.50	6981.27	292.95	-348.25	455.88	15.51
7124.00	56.24	310.23	7008.13	317.12	-376.70	492.41	8.62

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
7171.00	57.87	310.63	7033.69	342.70	-406.72	531.85	3.54
7217.00	59.74	311.09	7057.51	368.44	-436.47	571.19	4.15
7264.00	64.99	311.22	7079.31	395.84	-467.81	612.81	11.17
7310.00	68.89	311.51	7097.32	423.80	-499.57	655.12	8.50
7356.00	70.67	311.44	7113.22	452.39	-531.91	698.27	3.87
7403.00	71.84	311.70	7128.32	481.92	-565.21	742.76	2.54
7449.00	74.09	312.06	7141.80	511.28	-597.95	786.72	4.95
7495.00	76.14	312.37	7153.61	541.15	-630.88	831.15	4.50
7542.00	79.91	312.59	7163.36	572.20	-664.78	877.08	8.03
7588.00	85.37	313.24	7169.25	603.25	-698.18	922.64	11.95
7635.00	89.45	313.66	7171.38	635.53	-732.25	969.50	8.73
7681.00	91.05	316.13	7171.18	667.99	-764.84	1015.34	6.40
7774.00	90.68	314.59	7169.77	734.16	-830.17	1107.96	1.70
7864.00	90.00	310.89	7169.24	795.23	-896.26	1197.85	4.18
7956.00	90.18	308.89	7169.09	854.22	-966.85	1289.84	2.18
8049.00	90.12	309.34	7168.85	912.90	-1039.00	1382.83	0.49
8142.00	90.06	308.78	7168.71	971.50	-1111.22	1475.81	0.61
8231.00	90.79	307.94	7168.04	1026.73	-1181.00	1564.76	1.25
8324.00	91.17	310.27	7166.45	1085.38	-1253.15	1657.72	2.54
8417.00	91.23	312.48	7164.51	1146.83	-1322.92	1750.67	2.38
8510.00	90.86	310.88	7162.81	1208.66	-1392.36	1843.62	1.77
8602.00	91.29	308.46	7161.08	1267.37	-1463.16	1935.60	2.67
8695.00	91.29	308.85	7158.99	1325.45	-1535.77	2028.54	0.42
8788.00	91.17	308.80	7156.99	1383.74	-1608.20	2121.49	0.14
8880.00	90.99	308.60	7155.26	1441.25	-1679.99	2213.44	0.29
8973.00	90.86	307.94	7153.76	1498.85	-1753.00	2306.38	0.72
9066.00	91.05	306.97	7152.21	1555.40	-1826.81	2399.25	1.06
9158.00	90.86	308.49	7150.67	1611.68	-1899.56	2491.15	1.66
9251.00	90.86	309.69	7149.28	1670.32	-1971.74	2584.12	1.29
9344.00	90.62	310.23	7148.08	1730.04	-2043.01	2677.11	0.64
9437.00	90.99	310.44	7146.77	1790.23	-2113.90	2770.10	0.46
9529.00	91.05	310.53	7145.13	1849.95	-2183.86	2862.09	0.12
9622.00	91.29	310.04	7143.23	1910.07	-2254.79	2955.07	0.59
9712.00	90.86	311.32	7141.55	1968.73	-2323.03	3045.05	1.50
9805.00	90.79	311.82	7140.21	2030.43	-2392.60	3138.01	0.54
9894.00	90.55	311.82	7139.17	2089.77	-2458.92	3226.97	0.27
9984.00	90.86	311.16	7138.06	2149.39	-2526.33	3316.94	0.81
10076.00	90.49	310.22	7136.97	2209.36	-2596.08	3408.93	1.10
10169.00	90.55	309.60	7136.13	2269.03	-2667.42	3501.92	0.67
10262.00	90.35	309.70	7135.40	2328.37	-2739.02	3594.92	0.24
10355.00	90.35	310.59	7134.83	2388.33	-2810.11	3687.91	0.96
10447.00	90.31	310.17	7134.30	2447.93	-2880.19	3779.91	0.46
10540.00	90.49	311.95	7133.65	2509.01	-2950.31	3872.90	1.92
10633.00	90.68	311.52	7132.70	2570.92	-3019.70	3965.86	0.51
10726.00	90.25	309.37	7131.95	2631.24	-3090.47	4058.85	2.36
10818.00	90.12	308.41	7131.65	2689.00	-3162.08	4150.82	1.05
10911.00	90.06	308.50	7131.51	2746.84	-3234.91	4243.78	0.12
11004.00	90.62	309.35	7130.95	2805.27	-3307.26	4336.75	0.09
11096.00	90.68	309.56	7129.91	2863.73	-3378.29	4428.74	0.24
11189.00	90.68	309.62	7128.81	2922.99	-3449.95	4521.73	0.06

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
11282.00	90.62	308.70	7127.75	2981.71	-3522.06	4614.70	0.99
11374.00	90.62	309.98	7126.76	3040.03	-3593.20	4706.69	1.39
11467.00	90.88	310.06	7125.54	3099.83	-3664.42	4799.68	0.29
11560.00	90.92	310.05	7124.08	3159.67	-3735.59	4892.67	0.04
11652.00	90.44	309.35	7122.99	3218.43	-3806.37	4984.65	0.92
11745.00	90.37	310.00	7122.33	3277.80	-3877.95	5077.65	0.70
11838.00	89.94	310.64	7122.08	3337.98	-3948.86	5170.65	0.83
11931.00	90.25	310.38	7121.92	3398.39	-4019.56	5263.64	0.44
12023.00	90.18	310.48	7121.58	3458.05	-4089.59	5355.64	0.13
12116.00	90.31	310.53	7121.18	3518.46	-4160.31	5448.64	0.15
12209.00	90.31	309.40	7120.68	3578.19	-4231.58	5541.64	1.22
12301.00	89.57	308.99	7120.77	3636.33	-4302.88	5633.62	0.92
12394.00	89.57	310.57	7121.47	3695.83	-4374.35	5726.61	1.70
12487.00	89.32	309.87	7122.37	3755.88	-4445.36	5819.61	0.80
12580.00	89.26	309.10	7123.52	3815.01	-4517.13	5912.59	0.83
12672.00	89.63	309.11	7124.42	3873.04	-4588.51	6004.57	0.40
12720.00	89.21	308.65	7124.90	3903.17	-4625.88	6052.56	1.30
Projected to Total Depth:							
12743.00	89.21	308.65	7125.22	3917.53	-4643.84	6075.55	0.00

- \* MS Survey surveys from 100.00 ft MF to 600.00 ft MD \*
- \* Weatherford surveys from 779.00 ft MD to 12720.00 ft MD \*
- \* TD at 12743.00 ft MD \*
- \* The total correction is -8.16 deg relative to Grid North \*

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