



# Edward Nichols OHI 1H Ohio County, WV Quail 9

## Plan Data for Edward Nichols OHI 1H

Field: SOUTHWESTERN OHIO CO, WV UTM NAD 83 (17N)  
Vertical Reference Datum (VRD): Mean Sea Level  
Projected Coordinate System: NAD83 / UTM zone 17N

Map Unit: USft  
Site: Edward Nichols Pad  
Unit: USfeet TVD Reference:  
Company Name: SOUTHWESTERN ENERGY  
Position: Northing: 14563684.96USft Latitude: 40.100966°  
Easting: 1743803.84USft Longitude: -80.630277°  
North Reference: Grid Grid Convergence: 0.24°  
Elevation Above VRD: 1310.00USft

Slot: Edward Nichols OHI 1H  
Position:  
Offset is from Site centre  
+N/-S: 29.57USft Northing: 14563714.54USft Latitude: 40.100966°  
+E/-W: 1.47USft Easting: 1743805.31USft Longitude: -80.630277°  
Elevation Above VRD: 1310.00USft

Well: Edward Nichols OHI 1H  
Type: Main-Well  
File Number:

Plan Folder: P2 Plan: P2:V2  
Vertical Section: Position offset of origin from Slot centre:  
+N/-S: 0.00USft Azimuth: 329.40°  
+E/-W: 0.00USft

Magnetic Parameters:  
Model: Field Strength: Declination: Dip: Date:  
bggm2017 52368(N1) -8.79° 67.17° 2017-09-22

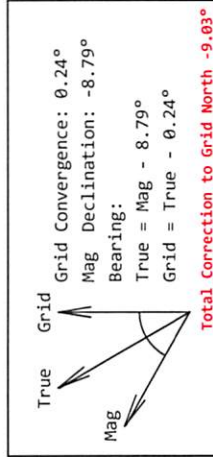
## Plan Data for Edward Nichols OHI 1H

Plan Point Information:

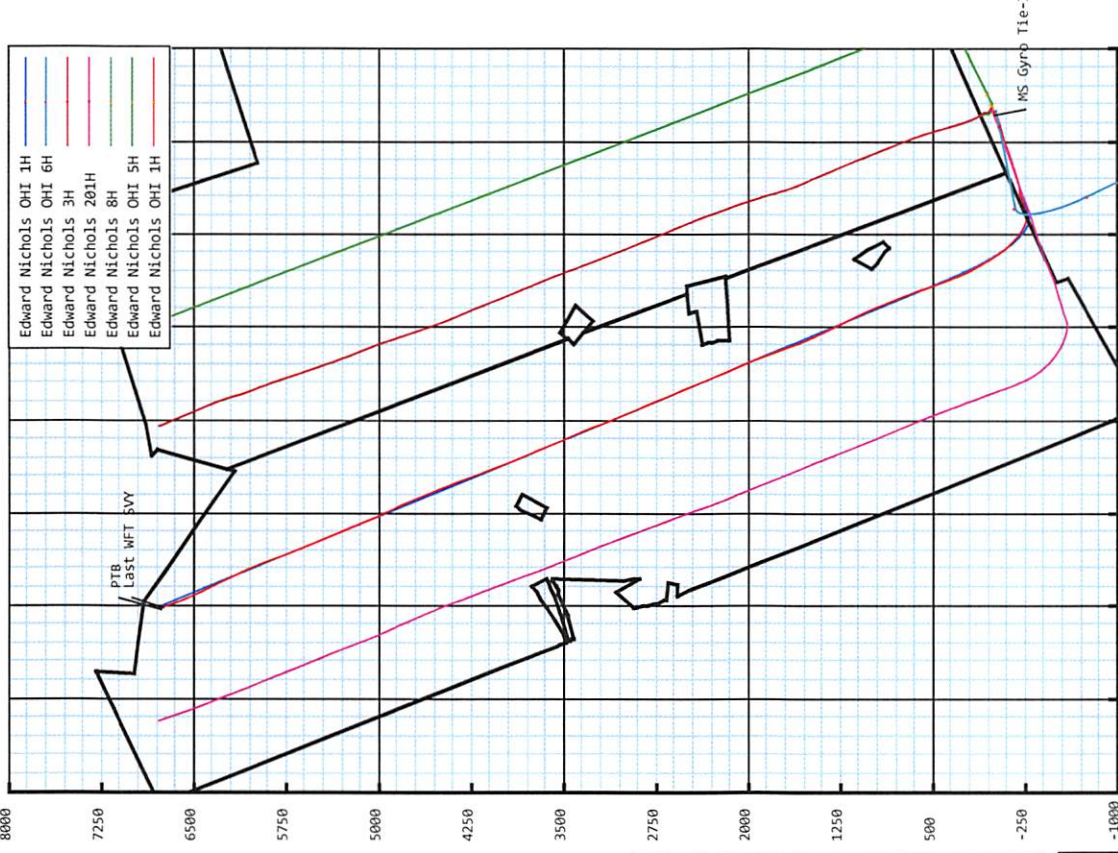
Dogleg Severity (USft)	MD Inc (USft)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	VSec (USft)	Position offsets from Slot centre (USft)	DLS Tool-face Comments
4502.00	17.04	253.52	4430.74	-181.30	-541.43	119.57	1.41	356.2 Last WFT SVY
4585.00	18.12	253.29	4509.86	-188.46	-565.46	125.64	1.30	356.2 PTB
5560.93	18.12	253.29	5437.39	-275.74	-856.17	198.51	0.00	0.0 Curve KOP 7° DLS
6528.81	70.00	332.73	6147.00	134.10	-1256.45	755.04	7.00	86.4 Build/Turn 9° DLS
6763.29	90.56	337.58	6187.00	342.77	-1352.73	983.66	9.00	13.6 Landing Point
13717.14	90.56	337.58	6119.00	6770.80	-4804.47	7866.35	0.00	0.0 PBHL ENIH

## Target Set Information:

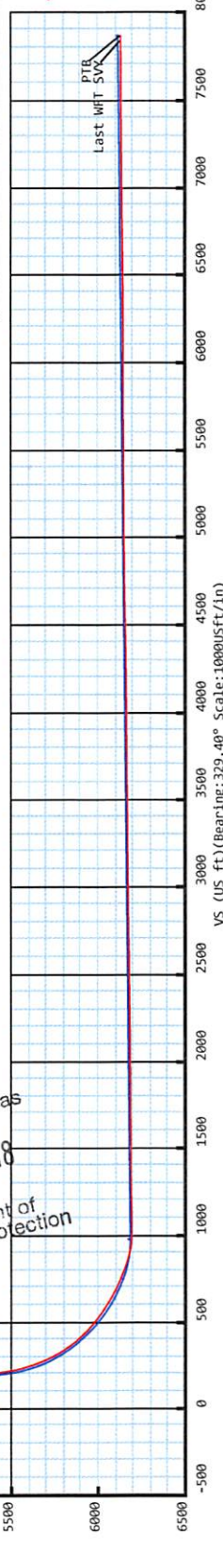
Name: Edward Nichols OHI 1H  
Position offsets from Slot centre  
Name TVD (USft) +N/-S (USft) +E/-W (USft) Northing (USft) Easting (USft) Lat (°) Long (°)  
LP ENIH 6187.00 179.26 -1285.28 14563893.80 1742520.03 40.101473 -80.634871  
PBHL ENIH 6119.00 6770.80 -4804.47 14570485.34 1739800.84 40.119604 -80.644500



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Drawing By: Gary Rhodes Date: 23 September 2017  
Office Name: MicCon DS  
Address: 7725 W. Reno Ave, Ste. #220  
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Phone: +1.405.720.4257



**5D Survey Report****SOUTHWESTERN ENERGY**

**Field Name:** *SOUTHWESTERN\_OHIO CO, WV UTM NAD 83 (17N)*  
**Site Name:** *Edward Nichols Pad*  
**Well Name:** *Edward Nichols OHI 1H*  
**Survey:** *Definitive survey*

29 September 2017

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Environmental Protection**Weatherford®**



# Weatherford®

## Edward Nichols OHI 1H

<b>Field Name:</b> SOUTHWESTER N_OHIO 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> Edward Nichols Pad	<b>Units:</b> US ft	<b>North Reference:</b> Grid	<b>Convergence Angle:</b> 0.24
	<b>Position:</b>	<b>Northing:</b> 14563684.97 US ft	<b>Latitude:</b> 40° 6' 3.19"
		<b>Easting:</b> 1743803.84 US ft	<b>Longitude:</b> -80° 37' 49.02"
<b>Elevation above MSL:</b> 1310.00 US ft		<b>Comment:</b>	

<b>Slot:</b> Edward Nichols OHI 1H	<b>Position (Relative to Site Centre)</b>		
	<b>+N/-S:</b> 29.57 US ft	<b>Northing:</b> 14563714.54 US ft	<b>Latitude:</b> 40°6'3.48"
	<b>+E/-W:</b> 1.47 US ft	<b>Easting:</b> 1743805.31 US ft	<b>Longitude:</b> -80°37'49.00"
<b>Elevation above MSL:</b> 1310.00 US ft		<b>Comment:</b>	

<b>Well:</b> Edward Nichols OHI 1H	<b>Type:</b> Main well	<b>UWI:</b>
	<b>File Number:</b>	<b>Comment:</b>
	<b>Closure Distance:</b> 7865.27 US ft	<b>Closure Azimuth:</b> 329.29°
<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> 329.40°

<b>Drill floor: Survey Name: Definitive Survey</b>			
<b>Rig Height (Well TVD Reference):</b> 26.00 US ft	<b>Elevation above MSL:</b> 1336.00 US ft	<b>Inclination:</b> 0.00°	<b>Azimuth:</b> 0.00°

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<b>Survey Name: Definitive Survey</b>					
<b>Date:</b> 06/Jul/2017	<b>Survey Tool:</b> See Survey Tool Ranges below.	<b>Comment:</b>	<b>Company:</b>		
<b>Magnetic Model:</b>					
<b>Model Name:</b> bggm2017	<b>Date:</b> 22/Sep/2017	<b>Field Strength:</b> 52368.4 nT	<b>Declination:</b> -8.79°	<b>Dip:</b> 67.17°	
<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

<b>Survey Tool Ranges:</b>			
Name	Start MD(USft)	End MD(USft)	Source Survey
GYRO-NS_OW	0.00	1242.00	Gyro_02
MFAC_US_V2	1242.00	2174.00	WFT MWD_02-MFAC2
MWD	2174.00	4502.00	WFT MWD_02-MWD2
MWD	4502.00	13700.00	WFT MWD_03

## 5D Survey Report

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	0.00	0.00	-0.00	0.00	14563714.54	1743805.31	0.00	
113.00	0.48	289.93	113.00	0.37	0.16	-0.44	14563714.70	1743804.86	0.42	
213.00	0.53	294.64	212.99	1.07	0.50	-1.26	14563715.04	1743804.05	0.06	
313.00	0.53	295.98	312.99	1.83	0.89	-2.10	14563715.43	1743803.21	0.01	
413.00	0.57	294.58	412.99	2.63	1.30	-2.96	14563715.84	1743802.35	0.04	
513.00	0.79	291.44	512.98	3.58	1.76	-4.06	14563716.30	1743801.25	0.22	
566.99	0.87	291.32	566.96	4.20	2.05	-4.79	14563716.59	1743800.52	0.15	Pittsburgh Coal :
613.00	0.94	291.23	612.97	4.77	2.31	-5.46	14563716.85	1743799.85	0.15	
671.00	1.58	277.97	670.95	5.64	2.59	-6.70	14563717.13	1743798.61	1.21	Top of Salt Water :
713.00	2.07	273.64	712.93	6.43	2.72	-8.03	14563717.26	1743797.28	1.21	
813.00	3.44	259.57	812.81	8.48	2.29	-12.78	14563716.83	1743792.53	1.52	
913.00	4.77	253.79	912.56	10.55	0.59	-19.73	14563715.13	1743785.58	1.39	
1013.00	3.50	230.62	1012.30	11.12	-2.51	-26.08	14563712.03	1743779.23	2.07	
1113.00	2.65	194.99	1112.16	9.03	-6.68	-29.04	14563707.86	1743776.27	2.05	
1213.00	1.14	190.48	1212.11	6.67	-9.89	-29.82	14563704.65	1743775.49	1.52	
1242.00	1.09	184.31	1241.10	6.22	-10.45	-29.89	14563704.09	1743775.42	0.45	MS Gyro Tie- In
1298.00	0.66	207.86	1297.10	5.62	-11.27	-30.08	14563703.27	1743775.23	0.99	
1342.00	0.69	200.48	1341.09	5.32	-11.74	-30.29	14563702.80	1743775.02	0.21	
1387.00	0.67	203.16	1386.09	4.99	-12.23	-30.49	14563702.31	1743774.82	0.08	
1430.00	0.64	199.92	1429.09	4.69	-12.69	-30.67	14563701.85	1743774.64	0.11	
1474.00	0.75	191.53	1473.08	4.32	-13.20	-30.81	14563701.34	1743774.50	0.34	
1518.00	0.69	200.43	1517.08	3.94	-13.73	-30.96	14563700.81	1743774.35	0.29	
1562.00	0.70	212.61	1561.08	3.65	-14.21	-31.20	14563700.33	1743774.11	0.34	
1606.00	0.79	210.56	1605.07	3.39	-14.70	-31.50	14563699.84	1743773.81	0.21	
1650.00	0.83	219.87	1649.07	3.13	-15.20	-31.86	14563699.34	1743773.45	0.31	
1739.00	0.80	221.12	1738.06	2.72	-16.16	-32.68	14563698.38	1743772.63	0.04	
1825.00	0.51	224.75	1824.05	2.44	-16.89	-33.34	14563697.65	1743771.97	0.34	
1901.98	0.67	226.45	1901.03	2.25	-17.44	-33.91	14563697.10	1743771.40	0.21	Base Big Injun :
1912.00	0.69	226.61	1911.05	2.22	-17.52	-34.00	14563697.02	1743771.31	0.21	
1973.00	0.87	233.30	1972.04	2.09	-18.05	-34.63	14563696.49	1743770.68	0.33	
2085.00	1.18	235.03	2084.03	1.91	-19.22	-36.26	14563695.32	1743769.05	0.28	
2130.00	0.99	237.06	2129.02	1.86	-19.70	-36.97	14563694.84	1743768.34	0.43	
2174.00	1.05	243.74	2173.01	1.88	-20.08	-37.65	14563694.46	1743767.66	0.30	
2246.05	1.80	258.06	2245.04	2.29	-20.61	-39.34	14563693.93	1743765.96	1.14	
2262.00	1.97	259.73	2260.98	2.47	-20.71	-39.86	14563693.83	1743765.45	1.14	
2350.00	3.44	253.12	2348.88	3.62	-21.75	-43.87	14563692.79	1743761.44	1.70	
2438.00	4.67	251.66	2436.66	5.00	-23.64	-49.80	14563690.90	1743755.51	1.40	
2528.00	6.08	248.22	2526.26	6.51	-26.56	-57.71	14563687.98	1743747.60	1.61	
2615.00	7.43	252.40	2612.65	8.49	-29.97	-67.35	14563684.57	1743737.96	1.65	
2702.00	8.66	253.20	2698.80	11.31	-33.57	-78.98	14563680.97	1743726.33	1.42	
2791.00	10.48	253.13	2786.55	14.83	-37.85	-93.14	14563676.69	1743712.17	2.04	
2879.00	11.78	253.28	2872.90	18.89	-42.76	-109.40	14563671.78	1743695.91	1.48	
2965.00	13.63	253.94	2956.79	23.54	-48.09	-127.55	14563666.45	1743677.76	2.16	
3053.00	15.58	255.28	3041.94	29.38	-53.96	-148.95	14563660.58	1743656.36	2.25	
3142.00	16.86	256.58	3127.40	36.46	-59.99	-173.06	14563654.55	1743632.25	1.49	
3230.00	16.20	255.12	3211.76	43.56	-66.11	-197.34	14563648.43	1743607.97	0.89	
3317.00	16.65	254.04	3295.21	50.00	-72.65	-221.05	14563641.89	1743584.26	0.63	
3404.00	16.94	250.56	3378.50	55.60	-80.30	-244.99	14563634.24	1743560.32	1.20	
3492.00	17.03	248.45	3462.66	60.11	-89.30	-269.06	14563625.24	1743536.25	0.71	
3578.00	16.82	248.33	3544.94	64.02	-98.52	-292.34	14563616.02	1743512.97	0.25	
3666.00	16.74	249.47	3629.19	68.21	-107.66	-316.04	14563606.88	1743489.27	0.38	
3753.00	16.42	250.57	3712.57	72.79	-116.15	-339.37	14563598.39	1743465.94	0.52	
3841.00	16.20	251.42	3797.03	77.75	-124.20	-362.73	14563590.34	1743442.58	0.37	
3928.00	15.98	250.99	3880.62	82.69	-131.96	-385.56	14563582.58	1743419.75	0.29	

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## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
4018.00	16.79	252.96	3966.97	88.23	-139.81	-409.70	14563574.73	1743395.61	1.09	
4106.00	18.48	253.15	4050.83	94.52	-147.58	-435.20	14563566.96	1743370.11	1.92	
4193.00	17.65	251.87	4133.54	100.65	-155.68	-460.94	14563558.86	1743344.37	1.06	
4282.00	15.22	251.02	4218.90	105.92	-163.68	-484.81	14563550.86	1743320.50	2.74	
4370.00	14.92	252.56	4303.87	110.82	-170.83	-506.54	14563543.71	1743298.77	0.57	
4458.00	16.42	253.66	4388.60	116.47	-177.72	-529.28	14563536.82	1743276.02	1.74	
4502.00	17.04	253.52	4430.74	119.57	-181.30	-541.43	14563533.24	1743263.88	1.41	
4625.00	15.72	254.50	4548.74	128.31	-190.87	-574.77	14563523.67	1743230.54	1.10	
4721.00	15.35	259.49	4641.24	136.06	-196.66	-599.80	14563517.88	1743205.51	1.44	
4817.00	17.98	263.17	4733.20	146.40	-200.74	-627.01	14563513.80	1743178.30	2.95	
4913.00	19.47	265.81	4824.12	159.49	-203.67	-657.68	14563510.87	1743147.63	1.79	
5009.00	17.40	251.28	4915.24	169.57	-209.45	-687.25	14563505.09	1743118.06	5.23	
5105.00	18.17	245.90	5006.65	174.22	-220.17	-714.51	14563494.37	1743090.80	1.89	
5201.00	19.71	257.03	5097.48	180.82	-229.92	-743.96	14563484.62	1743061.35	4.08	
5296.00	18.14	251.48	5187.35	188.77	-238.22	-773.60	14563476.32	1743031.71	2.51	
5391.00	17.60	250.61	5277.77	194.66	-247.68	-801.17	14563466.86	1743004.14	0.63	
5486.00	17.96	257.24	5368.24	201.94	-255.69	-829.01	14563458.85	1742976.30	2.16	
5582.00	17.83	266.10	5459.61	213.08	-259.96	-858.11	14563454.58	1742947.20	2.84	
5630.00	19.40	276.26	5505.11	221.17	-259.59	-873.37	14563454.95	1742931.94	7.49	
5678.00	20.63	284.58	5550.22	231.95	-256.59	-889.48	14563457.95	1742915.83	6.46	
5726.00	22.71	289.08	5594.83	245.02	-251.43	-906.43	14563463.11	1742898.88	5.54	
5766.28	24.10	291.96	5631.80	257.47	-245.81	-921.40	14563468.73	1742883.91	4.47	Upper Thinestreet :
5774.00	24.37	292.48	5638.84	260.00	-244.61	-924.34	14563469.93	1742880.97	4.47	
5822.00	26.73	295.38	5682.14	276.87	-236.20	-943.24	14563478.34	1742862.07	5.56	
5870.00	29.44	298.23	5724.49	295.91	-225.99	-963.39	14563488.55	1742841.92	6.30	
5904.62	31.47	301.62	5754.33	311.19	-217.23	-978.59	14563497.31	1742826.72	7.67	Lower Rhinstreet :
5918.00	32.27	302.83	5765.70	317.47	-213.46	-984.56	14563501.08	1742820.75	7.67	
5966.00	35.53	307.13	5805.54	341.85	-198.09	-1006.46	14563516.45	1742798.85	8.43	
5982.62	36.56	308.35	5818.98	350.94	-192.10	-1014.19	14563522.44	1742791.12	7.54	Basal Rhinstreet :
6014.00	38.53	310.50	5843.86	368.91	-179.95	-1028.95	14563534.59	1742776.36	7.54	
6062.00	41.21	312.68	5880.69	398.21	-159.52	-1051.95	14563555.02	1742753.36	6.30	
6071.08	41.81	313.13	5887.49	403.97	-155.42	-1056.36	14563559.12	1742748.95	7.39	Cashaqu :
6110.00	44.41	314.94	5915.90	429.62	-136.93	-1075.47	14563577.61	1742729.84	7.39	
6148.88	47.20	316.36	5943.00	456.70	-116.99	-1094.95	14563597.54	1742710.36	7.64	Middlesex :
6158.00	47.86	316.67	5949.16	463.26	-112.11	-1099.58	14563602.43	1742705.73	7.64	
6192.42	50.32	318.96	5971.71	488.74	-92.83	-1117.04	14563621.71	1742688.27	8.73	Lower Middlesex :
6206.00	51.30	319.82	5980.29	499.10	-84.84	-1123.89	14563629.69	1742681.42	8.73	
6250.29	53.58	322.97	6007.28	533.86	-57.41	-1145.77	14563657.13	1742659.54	7.65	Burket :
6254.00	53.78	323.23	6009.48	536.83	-55.01	-1147.57	14563659.53	1742657.74	7.65	
6289.49	55.66	325.50	6029.98	565.69	-31.47	-1164.44	14563683.07	1742640.87	7.43	Tully :
6302.00	56.33	326.27	6036.98	576.04	-22.88	-1170.26	14563691.66	1742635.05	7.43	
6350.00	58.71	327.43	6062.75	616.49	11.02	-1192.39	14563725.56	1742612.92	5.36	
6378.71	60.58	328.39	6077.26	641.25	32.01	-1205.55	14563746.55	1742599.76	7.13	
6398.00	61.84	329.02	6086.55	658.16	46.45	-1214.33	14563760.99	1742590.98	7.13	
6446.00	64.17	329.72	6108.34	700.92	83.25	-1236.12	14563797.79	1742569.19	5.03	
6494.00	66.49	330.54	6128.37	744.53	121.08	-1257.84	14563835.62	1742547.47	5.08	
6542.00	68.79	331.37	6146.63	788.91	159.88	-1279.39	14563874.42	1742525.92	5.05	
6590.00	71.50	332.11	6162.93	834.01	199.65	-1300.76	14563914.19	1742504.55	5.83	
6638.58	74.93	334.35	6176.96	880.41	241.17	-1321.69	14563955.71	1742483.61	8.33	Levanna :
6639.00	74.96	334.37	6177.07	880.81	241.53	-1321.87	14563956.07	1742483.44	8.33	
6687.00	80.08	338.36	6187.44	927.30	284.45	-1340.63	14563998.99	1742464.68	13.40	
6687.34	80.11	338.37	6187.50	927.63	284.76	-1340.76	14563999.30	1742464.55	10.24	Upper Marcellus :
6735.00	84.81	339.71	6193.75	974.20	328.87	-1357.65	14564043.41	1742447.66	10.24	
6783.00	89.88	339.34	6195.98	1021.38	373.77	-1374.42	14564088.31	1742430.89	10.59	
6831.00	90.31	339.54	6195.90	1068.65	418.72	-1391.27	14564133.26	1742414.04	0.99	

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## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (%/100US ft)	Comment
6927.00	91.66	339.97	6194.25	1163.07	508.77	-1424.49	14564223.31	1742380.82	1.48	
7022.00	90.86	342.07	6192.16	1256.09	598.58	-1455.38	14564313.12	1742349.93	2.36	
7118.00	90.86	339.27	6190.72	1350.22	689.15	-1487.15	14564403.69	1742318.16	2.92	
7214.00	90.55	337.26	6189.53	1445.06	778.31	-1522.69	14564492.85	1742282.62	2.12	
7310.00	90.12	338.95	6188.97	1539.95	867.38	-1558.49	14564581.92	1742246.82	1.82	
7406.00	90.37	337.55	6188.56	1634.80	956.54	-1594.06	14564671.08	1742211.25	1.48	
7502.00	90.31	336.19	6187.99	1729.98	1044.82	-1631.77	14564759.36	1742173.54	1.42	
7599.00	90.37	333.98	6187.42	1826.50	1132.79	-1672.63	14564847.33	1742132.68	2.28	
7695.00	90.18	333.63	6186.96	1922.21	1218.93	-1715.01	14564933.47	1742090.30	0.41	
7791.00	90.49	334.27	6186.40	2017.91	1305.17	-1757.16	14565019.71	1742048.15	0.74	
7887.00	90.25	335.21	6185.78	2113.49	1391.99	-1798.13	14565106.53	1742007.18	1.01	
7983.00	90.62	336.58	6185.05	2208.87	1479.62	-1837.33	14565194.16	1741967.98	1.48	
8079.00	90.74	337.80	6183.91	2303.97	1568.10	-1874.55	14565282.64	1741930.76	1.28	
8175.00	90.62	340.18	6182.77	2398.62	1657.71	-1908.96	14565372.25	1741896.35	2.48	
8272.00	90.74	339.94	6181.62	2493.94	1748.88	-1942.04	14565463.42	1741863.27	0.28	
8368.00	90.86	339.26	6180.28	2588.41	1838.85	-1975.50	14565553.39	1741829.81	0.72	
8464.00	90.99	339.43	6178.73	2682.95	1928.67	-2009.36	14565643.21	1741795.95	0.22	
8560.00	90.56	336.93	6177.43	2777.81	2017.78	-2045.03	14565732.32	1741760.28	2.64	
8656.00	90.37	337.74	6176.65	2872.89	2106.36	-2082.02	14565820.90	1741723.28	0.87	
8753.00	90.43	338.12	6175.97	2968.81	2196.25	-2118.47	14565910.79	1741686.84	0.40	
8849.00	90.62	338.48	6175.09	3063.65	2285.44	-2153.97	14565999.98	1741651.34	0.42	
8945.00	90.56	338.43	6174.10	3158.45	2374.73	-2189.22	14566089.27	1741616.09	0.08	
9041.00	90.31	337.15	6173.37	3253.42	2463.60	-2225.50	14566178.14	1741579.81	1.36	
9137.00	90.62	337.11	6172.60	3348.54	2552.05	-2262.81	14566266.59	1741542.50	0.33	
9234.00	90.68	338.82	6171.49	3444.45	2641.96	-2299.20	14566356.50	1741506.11	1.76	
9330.00	90.68	337.79	6170.36	3539.28	2731.15	-2334.69	14566445.69	1741470.62	1.07	
9425.00	90.56	337.34	6169.33	3633.32	2818.96	-2370.94	14566533.50	1741434.37	0.49	
9521.00	90.43	336.86	6168.50	3728.45	2907.39	-2408.29	14566621.93	1741397.02	0.52	
9617.00	90.31	337.55	6167.88	3823.55	2995.89	-2445.49	14566710.43	1741359.82	0.73	
9714.00	90.31	337.55	6167.35	3919.57	3085.53	-2482.53	14566800.07	1741322.78	0.00	
9810.00	90.49	337.77	6166.68	4014.57	3174.33	-2519.02	14566888.87	1741286.29	0.30	
9906.00	90.49	339.65	6165.86	4109.30	3263.77	-2553.87	14566978.31	1741251.44	1.96	
10003.00	90.55	336.81	6164.98	4205.14	3353.84	-2589.84	14567068.38	1741215.47	2.93	
10099.00	90.55	336.05	6164.06	4300.41	3441.82	-2628.23	14567156.36	1741177.08	0.79	
10195.00	91.23	337.59	6162.57	4395.59	3530.06	-2666.01	14567244.60	1741139.30	1.75	
10291.00	91.29	338.02	6160.46	4490.54	3618.92	-2702.26	14567333.46	1741103.05	0.45	
10387.00	90.92	337.28	6158.61	4585.52	3707.69	-2738.76	14567422.23	1741066.55	0.86	
10484.00	90.80	337.74	6157.15	4681.54	3797.31	-2775.86	14567511.85	1741029.45	0.49	
10580.00	90.68	337.86	6155.91	4776.50	3886.18	-2812.13	14567600.72	1740993.18	0.18	
10676.00	90.80	338.16	6154.67	4871.41	3975.19	-2848.08	14567689.73	1740957.23	0.34	
10773.00	90.62	338.33	6153.47	4967.25	4065.28	-2884.02	14567779.82	1740921.29	0.26	
10869.00	90.43	339.34	6152.59	5061.95	4154.80	-2918.68	14567869.33	1740886.63	1.07	
10965.00	90.25	340.11	6152.02	5156.39	4244.84	-2951.95	14567959.38	1740853.36	0.82	
11060.00	90.62	339.72	6151.30	5249.79	4334.06	-2984.57	14568048.60	1740820.74	0.57	
11156.00	90.37	337.55	6150.47	5344.54	4423.46	-3019.54	14568138.00	1740785.77	2.28	
11253.00	90.18	337.65	6150.00	5440.54	4513.14	-3056.51	14568227.68	1740748.80	0.22	
11349.00	90.25	337.67	6149.64	5535.55	4601.93	-3093.00	14568316.47	1740712.31	0.08	
11445.00	90.00	337.47	6149.43	5630.57	4690.67	-3129.62	14568405.21	1740675.68	0.33	
11542.00	90.25	336.48	6149.22	5726.72	4779.94	-3167.56	14568494.48	1740637.75	1.05	
11638.00	90.00	335.09	6149.01	5822.13	4867.49	-3206.94	14568582.03	1740598.37	1.47	
11735.00	90.25	333.98	6148.80	5918.73	4955.07	-3248.64	14568669.61	1740556.67	1.17	
11831.00	90.12	336.72	6148.49	6014.21	5042.31	-3288.68	14568756.85	1740516.63	2.86	
11927.00	90.25	338.45	6148.18	6109.22	5131.05	-3325.28	14568845.59	1740480.03	1.81	
12023.00	90.25	336.07	6147.76	6204.31	5219.58	-3362.39	14568934.12	1740442.92	2.48	
12120.00	90.37	336.84	6147.24	6300.58	5308.50	-3401.14	14569023.04	1740404.17	0.80	
12215.00	90.06	337.70	6146.88	6394.68	5396.12	-3437.84	14569110.66	1740367.47	0.96	
12312.00	90.74	338.33	6146.20	6490.58	5486.07	-3474.16	14569200.61	1740331.15	0.96	
12408.00	90.43	336.72	6145.22	6585.61	5574.77	-3510.85	14569289.31	1740294.46	1.71	
12504.00	90.43	337.39	6144.50	6680.75	5663.17	-3548.28	14569377.71	1740257.03	0.70	

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## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
12601.00	90.92	338.62	6143.36	6776.65	5753.10	-3584.60	14569467.64	1740220.71	1.36	
12697.00	90.86	339.04	6141.87	6871.34	5842.61	-3619.27	14569557.15	1740186.04	0.44	
12794.00	90.62	339.02	6140.62	6966.97	5933.18	-3653.98	14569647.72	1740151.33	0.25	
12890.00	90.62	337.74	6139.58	7061.78	6022.42	-3689.35	14569736.96	1740115.96	1.33	
12986.00	90.18	334.29	6138.91	7157.13	6110.11	-3728.36	14569824.65	1740076.95	3.62	
13082.00	90.49	334.55	6138.35	7252.75	6196.70	-3769.81	14569911.24	1740035.50	0.42	
13178.00	90.55	333.61	6137.47	7348.43	6283.04	-3811.77	14569997.58	1739993.54	0.98	
13274.00	90.80	333.11	6136.34	7444.19	6368.84	-3854.81	14570083.38	1739950.50	0.58	
13371.00	89.82	335.38	6135.82	7540.84	6456.20	-3896.96	14570170.74	1739908.35	2.55	
13467.00	90.31	336.22	6135.71	7636.24	6543.76	-3936.31	14570258.30	1739869.00	1.01	
13563.00	90.18	340.50	6135.30	7731.04	6632.97	-3971.70	14570347.51	1739833.61	4.46	
13660.00	89.94	341.12	6135.20	7826.12	6724.58	-4003.59	14570439.12	1739801.72	0.69	
13677.00	90.25	341.38	6135.17	7842.76	6740.68	-4009.05	14570455.22	1739796.26	2.38	Last WFT SVY
13700.00	90.25	341.38	6135.07	7865.26	6762.48	-4016.40	14570477.02	1739788.91	0.00	PTB

Formation Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name	Comment	
N/A	0.69	201.30	6238.00	-11.68	-30.27	14563702.86	1743775.04	Onondaga Limestone		
566.99	0.87	291.32	566.96	2.05	-4.79	14563716.59	1743800.52	Pittsburgh Coal		
671.00	1.58	277.97	670.95	2.59	-6.70	14563717.13	1743798.61	Top of Salt Water		
1901.98	0.67	226.45	1901.03	-17.44	-33.91	14563697.10	1743771.40	Base Big Injun		
2246.05	1.80	258.06	2245.04	-20.61	-39.34	14563693.93	1743765.96	Berea		
5766.28	24.10	291.96	5631.80	-245.81	-921.40	14563468.73	1742883.91	Upper Thinestreet		
5904.62	31.47	301.62	5754.33	-217.23	-978.59	14563497.31	1742826.72	Lower Rhinstreet		
5982.62	36.56	308.35	5818.98	-192.10	-1014.19	14563522.44	1742791.12	Basal Rhinstreet		
6071.08	41.81	313.13	5887.49	-155.42	-1056.36	14563559.12	1742748.95	Cashaqu		
6148.88	47.20	316.36	5943.00	-116.99	-1094.95	14563597.54	1742710.36	Middlesex		
6192.42	50.32	318.96	5971.71	-92.83	-1117.04	14563621.71	1742688.27	Lower Middlesex		
6250.29	53.58	322.97	6007.28	-57.41	-1145.77	14563657.13	1742659.54	Burket		
6289.49	55.66	325.50	6029.98	-31.47	-1164.44	14563683.07	1742640.87	Tully		
6378.71	60.58	328.39	6077.26	32.01	-1205.55	14563746.55	1742599.76	Mahantango		
6638.58	74.93	334.35	6176.96	241.17	-1321.69	14563955.71	1742483.61	Levanna		
6687.34	80.11	338.37	6187.50	284.76	-1340.76	14563999.30	1742464.55	Upper Marcellus		

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