WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 069 - 00240 County OHIO District TRIADELPHIA
Quad VALLEY GROVE Pad Name MASON COTTRELL PAD Field/Pool Name PANHANDLE FIELD WET
Farm name MELVIN W. & CAROL M. KAHLE Well Number MASON COTTRELL OHI 10H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY, LLC
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4,436,247.32	Easting	532,604.47
Landing Point of Curve	Northing	4,436,279.75	Easting	532,890.60
Bottom Hole	Northing	4,432,842.81	Easting	534,876.02

Elevation (ft) 1296.6 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole ■ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
SOBM

Date permit issued 09/07/2017 Date drilling commenced 10/26/2017 Date drilling ceased 12/18/2017
Date completion activities began 03/23/2018 Date completion activities ceased 05/12/2018
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 387 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 752 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 604 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed
8/30/18

Reviewed by:
CB 8/30/18

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API 47- 069 - 00240 Farm name MELVIN W. & CAROL M. KAHLE Well number MASON COTTRELL OHI 10H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24	20	126	NEW	J-55/94#		Y
Surface	17.5	13.375	661	NEW	J-55/54.5#	635'; 614'	Y
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	2039	NEW	J-55/36#		Y, 24
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	19950	NEW	HCP-110/23#		Y
Tubing		2.375	7071	NEW	L-80/4.7#		N
Packer type and depth set							

Comment Details Cmt bskt 20' top of jt - 635; Cmt bskt 1' f/bottom - 614'

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	122	15.60	1.20	716.4	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	749	15.60	1.19	891.31	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	3702	15.60	1.19	4405.38	SURFACE	24
Tubing							

Drillers TD (ft) 19950 Loggers TD (ft) 19950
Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 5465

Check all wireline logs run ■ caliper ■ density ■ deviated/directional □ induction
■ neutron ■ resistivity ■ gamma ray ■ temperature □ sonic

Well cored □ Yes ■ No Conventional Sidewall Were cuttings collected □ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING
INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING
PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

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WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	SEE	ATTACHMENT	1		

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
		SEE	ATTACHMENT	2				

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PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	6353 TVD	6781 MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown □ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2494 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 4154 mcfpd Oil 423 bpd NGL _____ bpd Water 3 bpd GAS MEASURED BY □ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
	SEE	ATTACHMENT	3		

Please insert additional pages as applicable.

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Drilling Contractor SWN DRILLING COMPANY
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Logging Company WEATHERFORD
Address 121 HILLPOINTE DRIVE STE 300 City CANONSBURG State PA Zip 15317

Cementing Company SCHLUMBERGER WELL SERVICES
Address 110 SCHLUMBERGER DRIVE City SUGARLAND State TX Zip 77478

Stimulating Company HALLIBURTON ENERGY SERVICES
Address 14851 MILNER ROAD, GATE 5A City HOUSTON State TX Zip 77032

Please insert additional pages as applicable.

Completed by BOBBY WILLIS Telephone 832-796-2884
Signature _____ Title REGULATORY ANALYST Date 08/01/2018

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

SWN Southwestern Energy

Weatherford

Mason Cottrell OHI 10H

Ohio Co, WV

SDC 41

Plan vs Actual

Plan Data for Mason Cottrell OHI 10H

Plan Point Information:

DogLeg Severity Unit: °/100.00ft Position offsets from Slot centre

MD (USft)	Inc (°)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	VSec (USft)	DLS (DLSU)	Toolface (°)	Comments
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	KB Offset
1000.00	0.00	0.00	1000.00	-0.00	0.00	0.00	0.00	0.0	Nudge KOP
1350.00	7.00	105.00	1349.13	-5.53	20.63	16.05	2.00	105.0	Hold
2100.00	7.00	105.00	2093.54	-29.18	108.91	84.75	0.00	0.0	Build/Turn
2854.13	14.00	19.84	2837.96	45.16	184.70	65.00	2.00	247.9	Hold
5547.85	14.00	19.84	5451.67	658.14	405.90	-321.96	0.00	0.0	Curve KOP Build 7's
6522.31	60.00	142.80	6266.65	401.91	741.64	77.57	7.00	128.5	Build/Turn 9's
6867.83	89.42	153.38	6357.00	121.37	913.75	406.45	9.00	20.8	Landing Point
15484.33	89.42	153.38	6443.70	-7581.33	4774.43	8956.26	0.00	0.0	TPL1 MC10H Turn
16025.36	89.42	142.56	6449.17	-8039.29	5060.94	9496.22	2.00	269.9	Hold
19965.48	89.42	142.56	6489.00	-11167.48	7456.23	13427.88	0.00	0.0	PBHL MC10H

Target Set Information:

Name: Mason Cottrell OHI 10H

Position offsets from Slot centre

Name	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	Lat (°)	Long (°)
LP MC10H	6357.00	259.20	845.12	14554847.23	1748231.68	40.076564	-80.614586
TPL1 MC10H	6443.70	-7581.33	4774.43	14547006.70	1752160.99	40.054986	-80.600666
PBHL MC10H	6489.00	-11167.48	7456.23	14543420.55	1754842.79	40.045104	-80.591141

Plan Data for Mason Cottrell OHI 10H

Field: SOUTHWESTERN_OHIO CO, WV UTM NAD 83 (17N)

Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level

Projected Coordinate System: NAD83 / UTM zone 17N

Site: Mason Cottrell Pad

Unit: USFeet TVD Reference:

Company Name: SOUTHWESTERN ENERGY

Position: Northing: 14554576.20USft Latitude: 40.075830°

Easting: 1747378.82USft Longitude: -80.617639°

North Reference: Grid Grid Convergence: 0.25°

Elevation Above VRD: 1295.80USft

Slot: Mason Cottrell OHI 10H

Position:

Offset is from Site centre

+N/-S: 11.83USft Northing: 14554588.03USft Latitude: 40.075862°

+E/-W: 7.74USft Easting: 1747386.56USft Longitude: -80.617611°

Elevation Above VRD: 1296.00USft

Well: Mason Cottrell OHI 10H

Type: Main-Well

File Number:

Plan Folder: P1 Plan: P1:V3

Vertical Section: Position offset of origin from Slot centre:

+N/-S: -0.00USft Azimuth: 146.27°

+E/-W: 0.00USft

Magnetic Parameters:

Model:	Field Strength:	Declination:	Dip:	Date:
HDGM	52710(nT)	-8.17°	67.45°	2017-10-16

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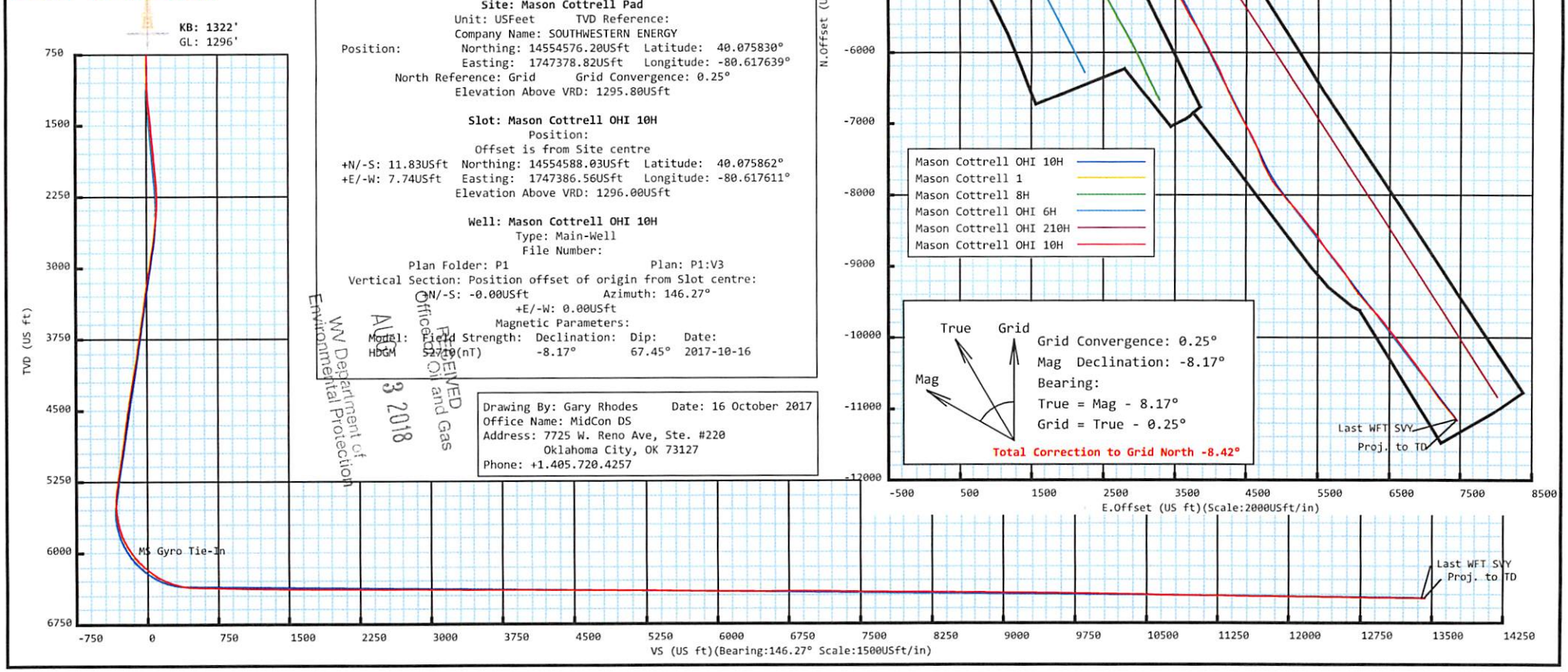
Drawing By: Gary Rhodes Date: 16 October 2017
Office Name: MidCon DS
Address: 7725 W. Reno Ave, Ste. #220
Oklahoma City, OK 73127
Phone: +1.405.720.4257

Plan Data for Mason Cottrell OHI 10H

Formation Point Information:

Name	TVD (USft)	TVD SS (USft)	MD (USft)
Onondaga Limestone	6385.00	0.00	-1.00
Base of Fresh Water	387.00	935.00	387.00
Pittsburgh Coal	610.00	712.00	610.00
Top of Salt Water	752.00	570.00	752.00
Base Big Injun	1972.00	-650.00	1978.22
Berea	2231.00	-909.00	2239.26
Upper Rhinestreet	5741.00	-4419.00	5841.29
Lower Rhinestreet	5874.00	-4552.00	5983.28
Basal Rhinestreet	5939.00	-4617.00	6056.19
Cashaqua	6014.00	-4692.00	6144.79
Middlesex	6078.00	-4756.00	6225.72
Lower Middlesex	6109.00	-4787.00	6267.32
Burket	6148.00	-4826.00	6322.55
Tully	6185.00	-4863.00	6378.77
Mahantango	6222.00	-4900.00	6440.01
Levanna	6332.00	-5010.00	6699.12
Upper Marcellus	6347.00	-5025.00	6776.52



Southwestern Energy®

5D Survey Report

SOUTHWESTERN ENERGY

Field Name: *SOUTHWESTERN_OHIO CO, WV UTM NAD 83 (17N)*
Site Name: *Mason Cottrell Pad*
Well Name: *Mason Cottrell OHI 10H*
Survey: *Definitive survey*

15 December 2017

Weatherford®

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Mason Cottrell OHI 10H

Field Name: SOUTHWESTERN_OHIO CO, WV UTM NAD 83 (17N)

Map Units: US ft **Company Name:** SOUTHWESTERN ENERGY

Vertical Reference Datum (VRD): Mean Sea Level

Projected Coordinate System: NAD83 / UTM zone 17N

Comment:

Site: Mason Cottrell Pad

Units: US ft **North Reference:** Grid **Convergence Angle:** 0.25

Position: **Northing:** 14554576.20 US ft **Latitude:** 40.075830 **Easting:** 1747378.82 US ft **Longitude:** -80.617639

Elevation above MSL: 1295.80 US ft

Comment:

Slot: Mason Cottrell OHI 10H

Position (Relative to Site Centre)

+N/-S: 11.83 US ft **Northing:** 14554588.03 US ft **Latitude:** 40.075862

+E/-W: 7.74 US ft **Easting:** 1747386.56 US ft **Longitude:** -80.617611

Slot TVD Reference: Ground Elevation

Elevation above MSL: 1296.00 US ft

Comment:

Well: Mason Cottrell OHI 10H

Type: Main well **UWI:**

File Number: **Comment:**

Closure Distance: 13427.6US ft **Closure Azimuth:** 146.29°

Vertical Section: Position of Origin (Relative to Slot centre)

+N/-S: -0.00 US ft **+E/-W:** 0.00 US ft **Az:** 146.27°

Drill floor: Survey Name: Definitive Survey

Rig Height (Drill Floor): 26.00US ft **Elevation above MSL:** 1322.00US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Survey Name: Definitive Survey

Date: 03/Oct/2017 **Survey Tool:** *See Survey Tool Ranges below.* **Comment:** **Company:**

Magnetic Model:

Model Name: HDGM **Date:** 16/Oct/2017 **Field Strength:** 52710.0nT **Declination:** -8.17° **Dip:** 67.45°

Tie Point:

MD: 0.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00° **TVD:** 0.00 US ft **North Offset:** -0.00 US ft **East Offset:** 0.00 US ft

Survey Tool Ranges:

Name	Start MD(USFt)	End MD(USFt)	Source Survey
GYRO_GC_WIR+DPIPE_GYD	0.00	6150.00	Gyro_02
MWD	6150.00	6283.00	WFT MWD_03-2
MWD	6283.00	19950.00	WFT MWD_04

Wellpath created using minimum curvature.

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Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)

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	40.075862	-80.617611	0.00	
100.00	0.12	185.46	100.00	0.08	-0.10	-0.01	40.075862	-80.617611	0.12	
200.00	0.24	224.33	200.00	0.21	-0.36	-0.17	40.075861	-80.617612	0.16	
300.00	0.08	248.23	300.00	0.23	-0.53	-0.38	40.075861	-80.617613	0.17	
400.00	0.13	346.67	400.00	0.11	-0.45	-0.47	40.075861	-80.617613	0.16	
500.00	0.13	358.85	500.00	-0.09	-0.23	-0.50	40.075862	-80.617613	0.03	
600.00	0.16	2.89	600.00	-0.30	0.03	-0.49	40.075862	-80.617613	0.03	
700.00	0.20	329.84	700.00	-0.58	0.32	-0.57	40.075863	-80.617613	0.11	
800.00	0.25	309.47	800.00	-0.97	0.61	-0.83	40.075864	-80.617614	0.09	
900.00	0.20	305.47	900.00	-1.34	0.85	-1.14	40.075865	-80.617615	0.05	
1000.00	1.71	106.57	999.98	-0.35	0.52	0.15	40.075864	-80.617611	1.90	
1100.00	4.52	106.67	1099.83	3.83	-1.03	5.35	40.075859	-80.617592	2.81	
1200.00	7.03	106.00	1199.31	11.54	-3.85	15.01	40.075852	-80.617558	2.51	
1300.00	8.04	104.53	1298.45	21.43	-7.29	27.67	40.075842	-80.617512	1.03	
1400.00	8.53	102.15	1397.40	31.97	-10.61	41.69	40.075833	-80.617462	0.60	
1500.00	7.11	103.11	1496.47	41.81	-13.57	54.96	40.075824	-80.617415	1.43	
1600.00	7.00	103.50	1595.71	50.80	-16.40	66.92	40.075816	-80.617372	0.12	
1700.00	7.55	102.47	1694.91	60.01	-19.24	79.26	40.075809	-80.617328	0.57	
1800.00	7.21	104.17	1794.08	69.41	-22.19	91.76	40.075800	-80.617284	0.40	
1900.00	7.54	103.23	1893.25	78.86	-25.23	104.23	40.075792	-80.617239	0.35	
2000.00	8.19	99.38	1992.31	88.52	-27.89	117.64	40.075784	-80.617191	0.84	
2100.00	8.19	95.85	2091.29	97.93	-29.78	131.75	40.075779	-80.617141	0.50	
2200.00	7.82	77.42	2190.33	104.92	-29.03	145.48	40.075781	-80.617092	2.58	
2300.00	7.67	50.90	2289.45	106.75	-23.33	157.30	40.075796	-80.617049	3.55	
2400.00	8.41	31.28	2388.49	103.04	-12.87	166.28	40.075825	-80.617017	2.83	
2500.00	9.49	25.64	2487.27	95.75	0.81	173.65	40.075862	-80.616990	1.39	
2600.00	10.49	25.46	2585.75	86.89	16.46	181.13	40.075905	-80.616963	1.00	
2700.00	12.15	23.38	2683.80	76.51	34.34	189.22	40.075954	-80.616934	1.71	
2800.00	14.11	18.42	2781.19	63.31	55.57	197.25	40.076013	-80.616905	2.26	
2900.00	13.93	16.47	2878.21	48.13	78.68	204.51	40.076076	-80.616879	0.51	
3000.00	13.39	15.22	2975.38	32.82	101.39	210.96	40.076138	-80.616855	0.62	
3100.00	12.79	12.51	3072.78	17.56	123.37	216.40	40.076199	-80.616836	0.86	
3200.00	12.39	10.52	3170.38	2.22	144.73	220.76	40.076257	-80.616820	0.59	
3300.00	13.06	18.57	3267.93	-12.38	165.99	226.31	40.076315	-80.616800	1.89	
3400.00	12.77	18.15	3365.40	-26.11	187.20	233.35	40.076374	-80.616774	0.30	
3500.00	13.29	19.24	3462.83	-39.85	208.55	240.59	40.076432	-80.616748	0.58	
3600.00	13.26	19.14	3560.15	-53.70	230.24	248.13	40.076492	-80.616721	0.04	
3700.00	14.33	20.00	3657.27	-67.94	252.70	256.13	40.076553	-80.616692	1.09	
3800.00	14.05	18.55	3754.22	-82.69	275.84	264.22	40.076617	-80.616662	0.45	
3900.00	13.64	16.86	3851.31	-97.60	298.63	271.50	40.076679	-80.616636	0.58	
4000.00	14.43	18.05	3948.33	-112.80	321.76	278.78	40.076743	-80.616610	0.84	
4100.00	14.59	17.06	4045.14	-128.47	345.65	286.34	40.076808	-80.616582	0.30	
4200.00	14.04	16.72	4142.03	-144.15	369.31	293.52	40.076873	-80.616556	0.56	
4300.00	13.29	15.09	4239.20	-159.45	392.02	300.01	40.076935	-80.616533	0.84	
4400.00	12.71	12.19	4336.64	-174.67	413.87	305.32	40.076995	-80.616513	0.87	
4500.00	13.29	16.19	4434.08	-189.72	435.67	310.85	40.077055	-80.616493	1.07	
4600.00	13.15	18.53	4531.43	-204.08	457.49	317.67	40.077115	-80.616469	0.55	
4700.00	12.54	20.38	4628.92	-217.41	478.45	325.06	40.077172	-80.616442	0.74	
4800.00	13.24	22.70	4726.40	-230.11	499.19	333.26	40.077229	-80.616412	0.87	
4900.00	13.42	22.45	4823.71	-242.90	520.48	342.11	40.077288	-80.616380	0.19	
5000.00	14.44	23.11	4920.77	-256.18	542.68	351.44	40.077348	-80.616347	1.03	
5100.00	14.43	23.25	5017.61	-269.79	565.59	361.25	40.077411	-80.616311	0.04	
5200.00	14.65	20.44	5114.41	-283.98	588.89	370.59	40.077475	-80.616277	0.74	
5300.00	14.61	20.31	5211.17	-298.79	612.57	379.38	40.077540	-80.616246	0.05	
5400.00	14.23	22.10	5308.02	-313.10	635.78	388.38	40.077604	-80.616213	0.59	
5500.00	13.27	33.79	5405.17	-324.39	656.71	399.39	40.077661	-80.616173	2.93	
5600.00	13.63	61.59	5502.53	-327.69	671.87	416.16	40.077702	-80.616113	6.42	
5700.00	13.03	91.14	5599.95	-320.14	677.26	437.82	40.077717	-80.616036	6.77	
5800.00	14.81	114.40	5697.08	-302.83	671.75	460.75	40.077702	-80.615954	5.83	

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Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)

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
5900.00	20.43	122.12	5792.36	-276.03	657.18	487.19	40.077661	-80.615859	6.07	
6000.00	27.15	129.07	5883.83	-238.25	633.49	519.73	40.077596	-80.615744	7.27	
6100.00	34.06	132.73	5969.86	-189.17	600.06	558.06	40.077504	-80.615607	7.15	
6150.00	36.90	134.06	6010.57	-160.88	580.12	579.14	40.077449	-80.615532	5.89	MS Gyro Tie-In
6203.00	39.39	136.82	6052.25	-128.73	556.79	602.09	40.077384	-80.615450	5.69	
6251.00	42.81	137.20	6088.42	-97.59	533.71	623.60	40.077321	-80.615374	7.14	
6283.00	44.97	136.59	6111.48	-75.71	517.51	638.76	40.077276	-80.615320	6.88	
6342.00	49.13	138.04	6151.67	-33.06	485.76	668.01	40.077188	-80.615216	7.28	
6389.00	51.56	140.05	6181.66	2.84	458.43	691.72	40.077113	-80.615131	6.13	
6436.00	52.95	141.80	6210.43	39.84	429.58	715.14	40.077034	-80.615048	4.17	
6483.00	56.49	142.51	6237.58	78.10	399.28	738.67	40.076950	-80.614964	7.63	
6531.00	60.68	142.36	6262.59	118.96	366.82	763.64	40.076861	-80.614876	8.73	
6578.00	64.43	142.60	6284.25	160.57	333.74	789.04	40.076769	-80.614785	7.99	
6626.00	67.61	143.28	6303.75	204.35	298.75	815.46	40.076673	-80.614692	6.75	
6673.00	70.77	144.80	6320.45	248.24	263.19	841.25	40.076575	-80.614600	7.37	
6720.00	74.33	146.30	6334.54	293.07	226.22	866.61	40.076473	-80.614510	8.16	
6767.00	76.17	147.70	6346.51	338.51	188.10	891.36	40.076368	-80.614422	4.86	
6816.00	79.46	149.87	6356.85	386.35	147.15	916.17	40.076256	-80.614334	7.99	
6863.00	84.44	152.21	6363.43	432.71	106.44	938.69	40.076143	-80.614254	11.69	
6911.00	86.86	153.63	6367.07	480.25	63.83	960.47	40.076026	-80.614177	5.84	
7005.00	89.57	156.73	6370.00	573.05	-21.43	999.90	40.075792	-80.614037	4.38	
7100.00	88.89	155.82	6371.28	666.59	-108.39	1038.12	40.075552	-80.613902	1.20	
7195.00	88.89	154.70	6373.12	760.41	-194.65	1077.87	40.075315	-80.613761	1.18	
7289.00	89.01	152.94	6374.84	853.57	-278.99	1119.33	40.075083	-80.613614	1.88	
7385.00	87.97	154.01	6377.37	948.78	-364.86	1162.19	40.074847	-80.613462	1.55	
7480.00	88.58	154.20	6380.23	1042.85	-450.28	1203.66	40.074612	-80.613315	0.67	
7574.00	89.82	155.59	6381.54	1135.77	-535.39	1243.54	40.074377	-80.613174	1.98	
7669.00	89.14	154.45	6382.41	1229.66	-621.49	1283.65	40.074140	-80.613032	1.40	
7764.00	89.32	154.65	6383.68	1323.66	-707.27	1324.47	40.073904	-80.612888	0.28	
7858.00	89.14	153.04	6384.95	1416.83	-791.63	1365.90	40.073672	-80.612741	1.72	
7953.00	89.82	150.87	6385.81	1511.35	-875.47	1410.56	40.073441	-80.612582	2.39	
8048.00	89.51	149.14	6386.36	1606.14	-957.74	1458.05	40.073215	-80.612414	1.85	
8142.00	89.57	148.99	6387.12	1700.03	-1038.37	1506.37	40.072993	-80.612243	0.17	
8237.00	89.14	150.56	6388.19	1794.84	-1120.44	1554.19	40.072767	-80.612073	1.71	
8332.00	89.32	153.50	6389.46	1889.34	-1204.33	1598.74	40.072536	-80.611915	3.10	
8427.00	90.06	156.69	6389.98	1983.21	-1290.48	1638.74	40.072299	-80.611773	3.45	
8521.00	90.06	156.53	6389.88	2075.68	-1376.76	1676.06	40.072062	-80.611641	0.17	
8616.00	89.88	154.74	6389.93	2169.41	-1463.29	1715.25	40.071824	-80.611503	1.89	
8711.00	89.88	152.90	6390.13	2263.58	-1548.54	1757.16	40.071589	-80.611354	1.94	
8805.00	89.63	153.52	6390.53	2356.89	-1632.45	1799.53	40.071358	-80.611204	0.71	
8900.00	89.88	154.20	6390.94	2451.06	-1717.73	1841.38	40.071123	-80.611056	0.76	
8994.00	89.75	154.08	6391.24	2544.17	-1802.32	1882.38	40.070891	-80.610910	0.19	
9089.00	89.94	153.13	6391.50	2638.39	-1887.42	1924.61	40.070656	-80.610761	1.02	
9184.00	89.82	152.62	6391.70	2732.76	-1971.97	1967.92	40.070424	-80.610607	0.55	
9279.00	89.75	152.16	6392.05	2827.22	-2056.15	2011.95	40.070192	-80.610451	0.49	
9373.00	89.82	152.96	6392.41	2920.65	-2139.57	2055.27	40.069962	-80.610298	0.85	
9468.00	89.63	152.77	6392.86	3015.02	-2224.11	2098.60	40.069730	-80.610144	0.28	
9563.00	89.63	152.84	6393.47	3109.40	-2308.61	2142.01	40.069497	-80.609990	0.07	
9657.00	89.69	152.74	6394.03	3202.79	-2392.21	2184.99	40.069267	-80.609838	0.12	
9756.00	89.38	155.00	6394.84	3300.91	-2481.08	2228.59	40.069022	-80.609684	2.30	
9851.00	89.82	156.78	6395.50	3394.57	-2567.79	2267.39	40.068784	-80.609546	1.93	
9946.00	89.69	156.06	6395.91	3488.08	-2654.85	2305.40	40.068544	-80.609412	0.77	
10040.00	89.82	155.55	6396.31	3580.78	-2740.59	2343.92	40.068308	-80.609275	0.56	
10135.00	89.94	152.49	6396.51	3674.90	-2825.98	2385.53	40.068073	-80.609128	3.22	
10230.00	89.82	151.62	6396.71	3769.42	-2909.90	2430.05	40.067842	-80.608970	0.92	
10324.00	89.88	154.86	6396.95	3862.71	-2993.83	2472.37	40.067611	-80.608820	3.45	
10419.00	89.88	156.55	6397.15	3956.42	-3080.41	2511.45	40.067373	-80.608682	1.78	
10513.00	89.81	155.45	6397.41	4049.07	-3166.28	2549.68	40.067137	-80.608547	1.17	

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10608.00	89.57	155.25	6397.92	4142.88	-3252.62	2589.31	40.066899	-80.608406	0.33	
10702.00	89.63	155.52	6398.58	4235.69	-3338.08	2628.46	40.066664	-80.608268	0.29	
10796.00	89.57	154.14	6399.23	4328.64	-3423.15	2668.43	40.066430	-80.608126	1.47	
10891.00	89.57	154.48	6399.94	4422.70	-3508.76	2709.62	40.066195	-80.607980	0.36	
10986.00	89.75	151.84	6400.51	4517.00	-3593.51	2752.50	40.065961	-80.607829	2.79	
11080.00	89.69	151.15	6400.97	4610.61	-3676.12	2797.36	40.065734	-80.607669	0.74	
11175.00	89.51	151.68	6401.63	4705.23	-3759.53	2842.82	40.065504	-80.607508	0.59	
11269.00	89.51	153.01	6402.44	4798.69	-3842.79	2886.44	40.065275	-80.607354	1.41	
11363.00	89.75	153.13	6403.04	4892.03	-3926.60	2929.02	40.065044	-80.607203	0.29	
11457.00	89.63	152.15	6403.55	4985.45	-4010.08	2972.21	40.064815	-80.607050	1.05	
11552.00	89.51	151.02	6404.26	5080.03	-4093.63	3017.42	40.064585	-80.606890	1.20	
11647.00	89.69	152.09	6404.93	5174.63	-4177.16	3062.67	40.064355	-80.606729	1.14	
11742.00	89.81	152.45	6405.34	5269.10	-4261.24	3106.87	40.064123	-80.606572	0.40	
11837.00	89.69	149.50	6405.76	5363.77	-4344.30	3152.96	40.063895	-80.606409	3.11	
11931.00	88.64	151.20	6407.13	5457.52	-4425.98	3199.45	40.063670	-80.606244	2.13	
12026.00	89.32	155.19	6408.82	5551.79	-4510.74	3242.28	40.063437	-80.606092	4.26	
12120.00	89.26	154.93	6409.98	5644.68	-4595.97	3281.91	40.063202	-80.605952	0.28	
12215.00	89.01	152.88	6411.42	5738.82	-4681.27	3323.69	40.062967	-80.605804	2.17	
12310.00	89.14	151.28	6412.95	5833.32	-4765.20	3368.17	40.062736	-80.605647	1.69	
12405.00	89.88	152.06	6413.76	5927.89	-4848.82	3413.25	40.062506	-80.605487	1.13	
12500.00	89.75	155.58	6414.07	6022.05	-4934.06	3455.15	40.062271	-80.605338	3.71	
12596.00	89.63	158.35	6414.59	6116.38	-5022.40	3492.71	40.062028	-80.605206	2.89	
12689.00	89.88	158.64	6414.99	6207.27	-5108.92	3526.80	40.061790	-80.605085	0.41	
12784.00	89.57	158.09	6415.44	6300.16	-5197.23	3561.83	40.061548	-80.604961	0.66	
12878.00	89.63	153.37	6416.10	6392.85	-5282.89	3600.46	40.061312	-80.604825	5.02	
12973.00	89.88	153.22	6416.51	6487.14	-5367.76	3643.15	40.061078	-80.604673	0.31	
13067.00	90.71	152.01	6416.02	6580.56	-5451.22	3686.38	40.060849	-80.604520	1.56	
13162.00	90.37	148.34	6415.13	6675.31	-5533.62	3733.62	40.060622	-80.604353	3.88	
13257.00	90.00	148.66	6414.82	6770.24	-5614.62	3783.26	40.060399	-80.604177	0.51	
13352.00	90.18	150.07	6414.67	6865.10	-5696.36	3831.67	40.060174	-80.604005	1.50	
13446.00	90.12	151.12	6414.42	6958.83	-5778.25	3877.82	40.059948	-80.603841	1.12	
13540.00	89.47	151.66	6414.76	7052.45	-5860.77	3922.83	40.059721	-80.603682	0.90	
13635.00	89.12	153.07	6415.93	7146.91	-5944.92	3966.89	40.059489	-80.603526	1.53	
13730.00	89.12	153.95	6417.39	7241.14	-6029.94	4009.26	40.059255	-80.603376	0.93	
13825.00	88.95	153.36	6418.99	7335.34	-6115.06	4051.41	40.059021	-80.603226	0.65	
13920.00	89.08	152.52	6420.62	7429.68	-6199.65	4094.62	40.058788	-80.603073	0.89	
14015.00	89.38	155.62	6421.90	7523.78	-6285.06	4136.15	40.058553	-80.602926	3.28	
14109.00	89.57	156.27	6422.76	7616.44	-6370.90	4174.47	40.058317	-80.602791	0.72	
14204.00	89.69	157.04	6423.37	7709.88	-6458.12	4212.11	40.058077	-80.602657	0.82	
14298.00	89.63	155.75	6423.93	7802.41	-6544.25	4249.75	40.057840	-80.602524	1.37	
14392.00	89.75	153.92	6424.44	7895.36	-6629.32	4289.72	40.057606	-80.602383	1.95	
14487.00	89.51	153.12	6425.05	7989.60	-6714.35	4332.08	40.057372	-80.602233	0.88	
14581.00	89.57	152.53	6425.81	8082.98	-6797.97	4375.00	40.057142	-80.602081	0.63	
14675.00	89.75	152.43	6426.37	8176.42	-6881.34	4418.44	40.056912	-80.601927	0.22	
14769.00	89.32	151.96	6427.13	8269.92	-6964.48	4462.28	40.056683	-80.601771	0.68	
14863.00	89.38	150.36	6428.20	8363.57	-7046.81	4507.62	40.056457	-80.601611	1.70	
14957.00	89.57	152.15	6429.06	8457.20	-7129.22	4552.82	40.056230	-80.601450	1.91	
15052.00	89.82	153.28	6429.56	8551.60	-7213.65	4596.37	40.055998	-80.601296	1.22	
15148.00	89.51	156.52	6430.12	8646.50	-7300.57	4637.09	40.055758	-80.601152	3.39	
15242.00	89.57	158.73	6430.88	8738.65	-7387.48	4672.87	40.055519	-80.601026	2.35	
15337.00	89.29	160.47	6431.82	8831.08	-7476.52	4705.98	40.055274	-80.600909	1.86	
15431.00	88.71	156.04	6433.46	8923.00	-7563.79	4740.79	40.055034	-80.600786	4.75	
15526.00	89.57	152.82	6434.89	9017.01	-7649.47	4781.78	40.054798	-80.600641	3.51	
15621.00	89.57	151.45	6435.60	9111.51	-7733.45	4826.18	40.054567	-80.600483	1.44	
15715.00	89.75	145.33	6436.16	9205.40	-7813.46	4875.43	40.054347	-80.600309	6.51	
15810.00	89.88	141.63	6436.47	9300.27	-7889.80	4931.95	40.054137	-80.600108	3.90	
15905.00	89.51	141.18	6436.98	9394.93	-7964.04	4991.21	40.053932	-80.599897	0.61	
15999.00	89.07	141.99	6438.14	9488.60	-8037.69	5049.61	40.053729	-80.599690	0.98	
16095.00	89.20	138.52	6439.59	9584.05	-8111.48	5110.98	40.053526	-80.599472	3.62	

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16190.00	89.08	139.96	6441.02	9678.32	-8183.43	5172.99	40.053327	-80.599251	1.52	
16284.00	89.01	140.93	6442.58	9771.82	-8255.90	5232.85	40.053128	-80.599038	1.03	
16378.00	88.89	141.57	6444.30	9865.45	-8329.19	5291.67	40.052926	-80.598829	0.69	
16473.00	89.12	140.73	6445.95	9960.05	-8403.17	5351.25	40.052722	-80.598618	0.92	
16567.00	88.83	140.14	6447.64	10053.55	-8475.62	5411.12	40.052522	-80.598405	0.70	
16662.00	89.14	144.73	6449.32	10148.30	-8550.89	5469.01	40.052315	-80.598199	4.84	
16755.00	89.01	147.39	6450.82	10241.27	-8628.03	5520.92	40.052102	-80.598015	2.86	
16850.00	88.89	144.50	6452.56	10336.25	-8706.71	5574.11	40.051885	-80.597826	3.04	
16944.00	88.71	140.45	6454.53	10430.00	-8781.23	5631.34	40.051680	-80.597623	4.31	
17038.00	88.46	140.76	6456.85	10523.51	-8853.85	5690.98	40.051480	-80.597411	0.42	
17132.00	88.21	140.94	6459.58	10617.05	-8926.72	5750.30	40.051279	-80.597200	0.33	
17227.00	89.26	143.00	6461.68	10711.76	-9001.52	5808.81	40.051073	-80.596992	2.43	
17321.00	88.46	146.68	6463.55	10805.69	-9078.35	5862.92	40.050861	-80.596800	4.01	
17416.00	89.94	146.10	6464.88	10900.68	-9157.45	5915.50	40.050643	-80.596614	1.67	
17510.00	89.63	147.05	6465.23	10994.68	-9235.90	5967.28	40.050427	-80.596430	1.06	
17604.00	89.82	144.86	6465.68	11088.67	-9313.79	6019.90	40.050213	-80.596243	2.34	
17699.00	89.38	141.33	6466.35	11183.50	-9389.74	6076.94	40.050003	-80.596041	3.74	
17794.00	89.38	140.03	6467.37	11278.04	-9463.23	6137.13	40.049801	-80.595827	1.37	
17888.00	88.64	140.64	6469.00	11371.53	-9535.57	6197.12	40.049601	-80.595613	1.02	
17984.00	89.08	139.04	6470.91	11466.90	-9608.93	6259.02	40.049399	-80.595393	1.73	
18079.00	88.71	137.88	6472.74	11561.00	-9680.02	6322.00	40.049203	-80.595170	1.28	
18173.00	89.45	140.28	6474.25	11654.24	-9751.03	6383.56	40.049007	-80.594951	2.67	
18267.00	89.75	142.32	6474.91	11747.88	-9824.39	6442.33	40.048805	-80.594742	2.19	
18362.00	89.38	141.84	6475.63	11842.62	-9899.33	6500.71	40.048599	-80.594535	0.64	
18457.00	89.51	142.24	6476.55	11937.36	-9974.22	6559.14	40.048392	-80.594327	0.44	
18551.00	89.20	142.83	6477.61	12031.15	-10048.83	6616.32	40.048187	-80.594124	0.71	
18645.00	89.57	142.23	6478.62	12124.95	-10123.43	6673.50	40.047981	-80.593921	0.75	
18740.00	89.32	142.97	6479.54	12219.75	-10198.90	6731.20	40.047773	-80.593716	0.82	
18834.00	89.32	142.42	6480.65	12313.56	-10273.66	6788.16	40.047567	-80.593514	0.59	
18930.00	89.20	144.29	6481.89	12409.42	-10350.67	6845.45	40.047355	-80.593310	1.95	
19025.00	88.89	144.12	6483.47	12504.35	-10427.72	6901.01	40.047143	-80.593113	0.37	
19121.00	88.89	143.73	6485.33	12600.25	-10505.30	6957.53	40.046929	-80.592912	0.41	
19215.00	89.08	143.74	6487.00	12694.14	-10581.08	7013.12	40.046720	-80.592715	0.20	
19310.00	89.45	146.74	6488.22	12789.11	-10659.11	7067.27	40.046505	-80.592523	3.18	
19404.00	89.38	146.27	6489.18	12883.10	-10737.49	7119.14	40.046289	-80.592338	0.51	
19499.00	89.32	144.42	6490.26	12978.08	-10815.63	7173.16	40.046074	-80.592147	1.95	
19594.00	89.38	140.52	6491.33	13072.84	-10890.95	7231.02	40.045867	-80.591941	4.11	
19688.00	89.32	140.60	6492.40	13166.37	-10963.54	7290.73	40.045666	-80.591729	0.11	
19784.00	89.57	141.21	6493.33	13261.95	-11038.04	7351.26	40.045461	-80.591514	0.69	
19878.00	89.57	143.03	6494.04	13355.69	-11112.23	7408.98	40.045257	-80.591309	1.94	
19927.00	89.20	142.65	6494.56	13404.60	-11151.28	7438.57	40.045149	-80.591204	1.08	Last WFT SVY
19950.00	89.20	142.65	6494.88	13427.55	-11169.56	7452.52	40.045099	-80.591154	0.00	Proj. to TD

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MASON COTTRELL OHI 10H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	2/2/2018	19,833	19,726	42
2	3/21/2018	19,693	19,586	42
3	3/22/2018	19,553	19,446	42
4	3/22/2018	19,413	19,306	42
5	3/23/2018	19,273	19,166	42
6	3/24/2018	19,133	19,026	42
7	3/24/2018	18,993	18,886	42
8	3/24/2018	18,853	18,746	42
9	3/25/2018	18,713	18,606	42
10	3/25/2018	18,573	18,466	42
11	3/26/2018	18,433	18,326	42
12	3/26/2018	18,293	18,186	42
13	3/26/2018	18,153	18,046	42
14	3/26/2018	18,013	17,906	42
15	3/27/2018	17,873	17,766	42
16	3/27/2018	17,733	17,626	42
17	3/27/2018	17,593	17,486	42
18	3/28/2018	17,453	17,346	42
19	3/28/2018	17,313	17,206	42
20	3/29/2018	17,173	17,066	42
21	3/29/2018	17,033	16,926	42
22	3/29/2018	16,893	16,786	42
23	3/29/2018	16,753	16,646	42
24	3/30/2018	16,613	16,506	42
25	3/30/2018	16,473	16,366	42
26	3/30/2018	16,333	16,226	42
27	3/31/2018	16,193	16,086	42
28	3/31/2018	16,053	15,946	42
29	3/31/2018	15,913	15,806	42
30	3/31/2018	15,773	15,666	42
31	4/1/2018	15,633	15,526	42
32	4/1/2018	15,493	15,386	42
33	4/1/2018	15,353	15,246	42
34	4/2/2018	15,213	15,106	42
35	4/2/2018	15,073	14,966	42
36	4/2/2018	14,933	14,826	42
37	4/3/2018	14,793	14,686	42
38	4/3/2018	14,653	14,546	42
39	4/4/2018	14,513	14,406	42
40	4/5/2018	14,373	14,266	42
41	4/5/2018	14,233	14,126	66
42	4/7/2018	14,093	13,986	42
43	4/7/2018	13,953	13,846	42

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MASON COTTRELL OHI 10H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	4/7/2018	13,813	13,706	42
45	4/7/2018	13,673	13,566	42
46	4/8/2018	13,533	13,426	42
47	4/8/2018	13,393	13,286	42
48	4/8/2018	13,253	13,146	42
49	4/9/2018	13,113	13,006	42
50	4/9/2018	12,973	12,872	42
51	4/9/2018	12,833	12,726	42
52	4/10/2018	12,693	12,586	42
53	4/10/2018	12,553	12,446	42
54	4/11/2018	12,413	12,306	42
55	4/11/2018	12,273	12,166	42
56	4/11/2018	12,133	12,026	42
57	4/12/2018	11,993	11,886	42
58	4/12/2018	11,853	11,746	42
59	4/13/2018	11,713	11,606	42
60	4/13/2018	11,573	11,466	42
61	4/14/2018	11,433	11,326	42
62	4/14/2018	11,293	11,186	42
63	4/15/2018	11,153	11,046	42
64	4/15/2018	11,013	10,906	42
65	4/16/2018	10,873	10,766	42

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MASON COTTRELL OHI 10H
ATTACHMENT 2
STIM REPORT

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/other
1	3/21/2018	92.3	9,719	5,715	4,229	304,100	7,034	0
2	3/22/2018	97.4	10,238	5,561	4,455	279,545	6,335	0
3	3/22/2018	98.8	9,786	6,126	4,586	267,300	5,543	0
4	3/22/2018	99.8	10,678	6,038	4,800	284,205	5,796	0
5	3/24/2018	99.7	10,049	5,507	4,727	282,285	5,735	0
6	3/24/2018	83.5	9,685	6,555	4,320	282,845	5,192	0
7	3/24/2018	100.1	10,075	5,562	4,419	276,520	5,738	0
8	3/25/2018	100.1	10,074	5,806	4,798	280,240	5,367	0
9	3/25/2018	98.8	10,318	6,843	4,812	280,240	5,245	0
10	3/25/2018	96.9	10,177	5,408	4,508	282,870	5,426	0
11	3/26/2018	94.7	9,398	5,342	4,386	279,020	5,419	0
12	3/26/2018	100.4	9,853	5,261	4,750	278,800	4,993	0
13	3/26/2018	97.9	9,489	5,830	4,925	275,200	6,427	0
14	3/27/2018	100	9,757	5,976	4,744	275,040	5,252	0
15	3/27/2018	100.3	9,517	5,814	4,573	279,040	4,802	0
16	3/27/2018	100.5	9,728	5,580	5,000	289,910	5,175	0
17	3/28/2018	100.1	9,619	5,448	4,576	275,840	4,688	0
18	3/28/2018	99.9	9,557	5,531	4,878	274,940	4,641	0
19	3/28/2018	100.8	9,850	6,023	5,131	276,260	5,025	0
20	3/29/2018	94.4	10,338	5,348	4,168	275,980	4,814	0
21	3/29/2018	99.4	9,386	5,512	4,457	275,580	4,709	0
22	3/29/2018	100.3	9,463	5,965	4,857	251,610	5,096	0
23	3/29/2018	99.9	9,407	5,825	4,639	281,950	4,734	0
24	3/30/2018	98.9	9,484	7,155	4,984	273,000	4,536	0
25	3/30/2018	99.8	9,731	5,367	4,446	273,000	4,605	0
26	3/30/2018	99.8	9,260	5,442	4,725	267,880	4,614	0
27	3/31/2018	100.1	9,396	5,382	4,311	272,260	4,656	0
28	3/31/2018	94.7	8,614	5,608	4,893	270,960	4,641	0
29	3/31/2018	97.6	8,965	5,713	4,736	283,890	4,858	0
30	4/1/2018	99.8	9,108	5,768	4,893	291,150	4,585	0
31	4/1/2018	91.1	9,154	6,354	4,604	275,480	4,542	0
32	4/1/2018	93	8,796	5,494	4,969	295,399	5,444	0
33	4/1/2018	99.7	9,477	6,404	4,594	289,460	4,823	0
34	4/2/2018	83.6	8,699	7,180	4,561	270,040	4,344	0
35	4/2/2018	99.3	9,448	5,648	4,940	278,880	5,621	0
36	4/3/2018	99.4	9,886	5,873	4,828	274,440	4,607	0
37	4/3/2018	88.3	8,511	6,844	4,743	274,820	4,609	0
38	4/4/2018	81.1	8,095	6,082	4,899	282,920	6,509	0
39	4/4/2018	97	9,072	5,828	4,856	269,500	6,394	0
40	4/5/2018	84.6	8,401	5,581	4,977	272,020	8,026	0
41	4/6/2018	65.9	11,247	5,410	11,470	19,650	8,414	0
42	4/7/2018	93.7	8,233	5,120	4,692	287,830	6,550	0
43	4/7/2018	90.3	8,309	5,627	4,769	272,520	5,851	0
44	4/7/2018	98.5	8,757	6,320	4,535	272,780	4,890	0
45	4/8/2018	99.1	9,085	6,280	4,502	271,590	4,637	0
46	4/8/2018	94.8	8,583	6,199	4,465	275,380	4,861	0
47	4/8/2018	96.9	8,620	5,735	4,539	274,200	4,579	0
48	4/8/2018	88.7	8,052	6,531	4,598	272,540	6,780	0
49	4/9/2018	95.2	8,369	5,960	4,717	278,680	4,910	0
50	4/9/2018	87.5	7,789	5,279	4,669	271,400	6,095	0
51	4/10/2018	99.6	9,149	6,092	4,281	279,080	4,899	0
52	4/10/2018	99	8,264	6,050	4,038	281,260	5,421	0
53	4/11/2018	97.9	8,160	5,929	4,405	273,100	4,532	0
54	4/11/2018	99.7	8,064	5,799	4,696	274,780	4,688	0
55	4/11/2018	96.5	7,562	5,633	4,479	274,600	6,196	0
56	4/12/2018	99.3	7,673	5,703	4,610	278,020	5,130	0
57	4/12/2018	98.3	7,574	5,723	4,674	276,360	4,222	0
58	4/13/2018	100	7,564	5,033	4,295	267,700	4,606	0
59	4/13/2018	99.8	7,715	5,690	4,464	278,680	4,316	0
60	4/14/2018	98.8	7,483	6,146	4,749	290,000	4,658	0
61	4/14/2018	99.9	7,706	5,399	4,585	278,160	4,308	0
62	4/15/2018	100.3	8,255	5,785	4,612	272,540	4,265	0
63	4/16/2018	99.8	7,669	5,370	4,354	264,840	3,955	0
64	4/16/2018	99.8	7,662	5,707	4,343	276,060	3,964	0
65	4/16/2018	99.7	8,232	5,440	4,678	274,600	4,179	0

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swn
Southwestern Energy®

Well Name: **Mason Cottrell OHI 10H** **47069002400000**

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	0.00	0.00	387.00	387.00	
Top of Salt Water	752.00	752.00	NA	NA	
Pittsburgh Coal	604.00	604.00	NA	NA	
Pottsville (ss)	744.00	744.00	806.00	806.00	
Mauch Chunk (shale)	NA	NA	NA	NA	
Raven Cliff (ss)	1057.00	1057.00	1284.00	1284.00	
Maxton (ss)	1486.00	1486.00	1762.00	1762.00	
Greenbriar (ls)	NA	NA	NA	NA	
Big Injun (ss)	1762.00	1762.00	1967.00	1967.00	
Berea (siltstone)	NA	NA	NA	NA	
Rhinestreet (shale)	NA	NA	NA	NA	
Cashaqua (shale)	NA	NA	NA	NA	
Middlesex (shale)	6297.00	6124.00	6384.00	6182.00	
Burket (shale)	6384.00	6182.00	6400.00	6192.00	
Tully (ls)	6400.00	6192.00	6467.00	6232.00	
Mahantango (shale)	6467.00	6232.00	6781.00	6353.00	
Marcellus (shale)	6781.00	6353.00	NA	NA	GAS

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/21/2018
Job End Date:	4/29/2018
State:	West Virginia
County:	Ohio
API Number:	47-069-00240-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Mason Cottrell 10H
Latitude:	40.07579835
Longitude:	-80.61766667
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,423
Total Base Water Volume (gal):	17,972,811
Total Base Non Water Volume:	0

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	84.01781	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	1.60557	

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3rd Party Scale Inh	Nalco	Scale Inhibitor					
				Listed Below			
FDP-S1016-11	Halliburton	Friction Reducer					
				Listed Below			
HAI-150E	Halliburton	Corrosion Inhibitor					
				Listed Below			
SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant					
				Listed Below			
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
3rd Party Biocide	Nalco	Biocide					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica, quartz	14808-60-7	100.00000	14.32144	
			Hydrochloric acid	7647-01-0	15.00000	0.23396	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02291	

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			Polyacrylate	Proprietary	30.00000	0.02291	
			Methanol	67-56-1	60.00000	0.01131	
			Benzyl-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00565	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00382	
			Salts	Proprietary	5.00000	0.00382	
			Amide	Proprietary	5.00000	0.00382	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Glutaraldehyde	111-30-8	10.00000	0.00188	
			Amine Triphosphate	Proprietary	30.00000	0.00159	
			Ethylene Glycol	107-21-1	30.00000	0.00159	
			Inorganic salt	Proprietary	1.00000	0.00076	
			Fatty acid ester	Proprietary	1.00000	0.00076	
			Non-hazardous food substance	Proprietary	100.00000	0.00048	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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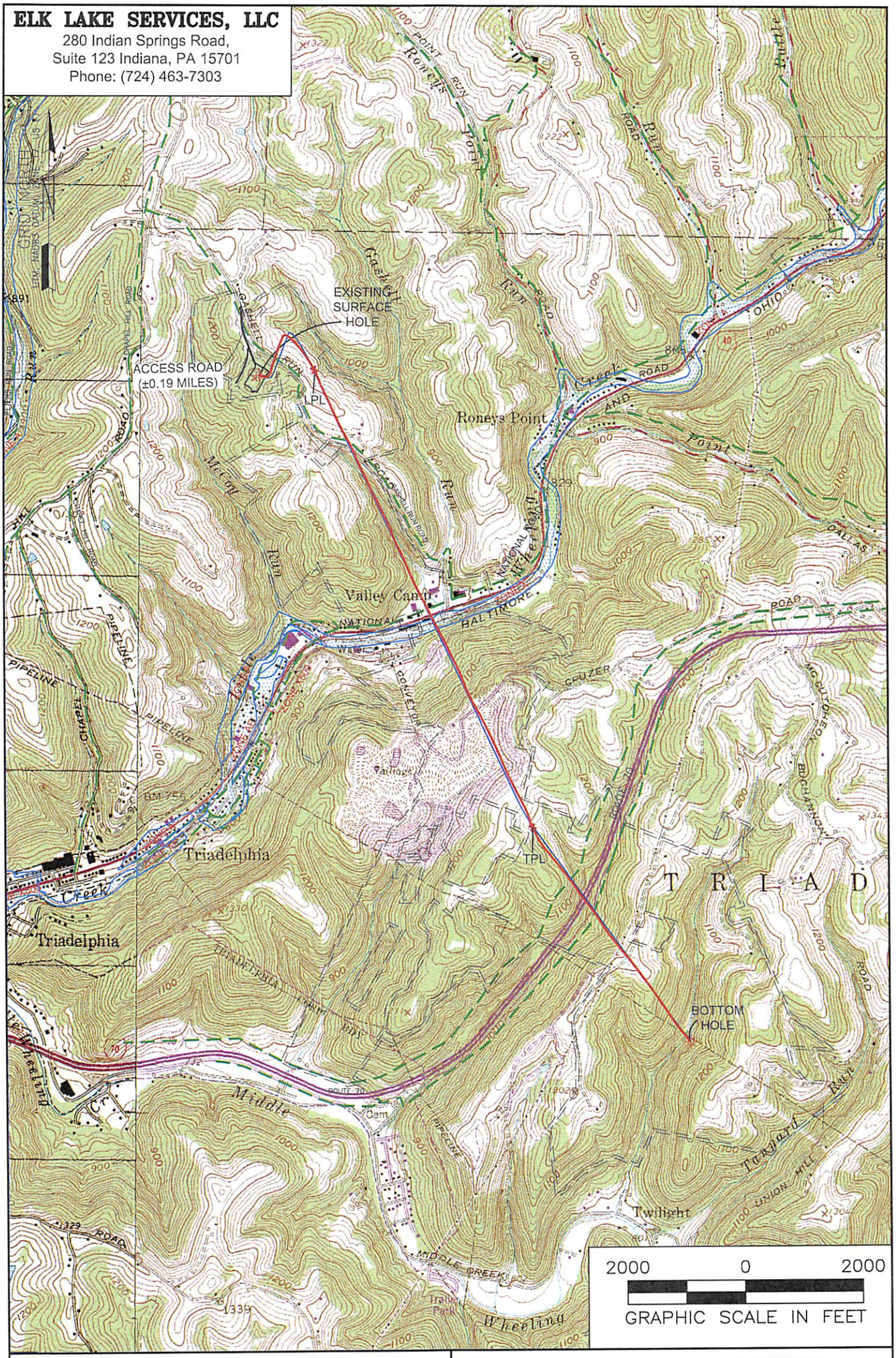
ELK LAKE SERVICES, LLC
280 Indian Springs Road,
Suite 123 Indiana, PA 15701
Phone: (724) 463-7303



NOTES ON SURVEY
1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:
- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- LPL LANDING POINT LOCATION
- FLOOD PLAIN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- LEASE BOUNDARY
- ASDRILLED PATH
- PROPOSED PATH

WELL OPERATOR:	WELL (FARM) NAME:	WELL #	SERIAL #
SWN PRODUCTION COMPANY, LLC	MASON COTTRELL OHI	10H	XXXX
ADDRESS: P.O. BOX 1300 JANE LEW, WV 26378	COUNTY: OHIO COUNTY – 69	DISTRICT: TRIADELPHIA	
SURFACE OWNER: LOUIS COTTRELL, JR. AS TRUSTEE FOR MASON LOUIS COTTRELL TRUST	USGS 7 1/2 QUADRANGLE MAP NAME: VALLEY GROVE, WV		

U:\2016\SOUTHWESTERN ENERGY\16-53 MASON COTTRELL\ASDRILLED\10H\10H MASON COTTRELL – AS-DRILLED.DWG
THURSDAY JULY 26 2018 12:09PM

WV DEP REGULATORY PLAT

PROPERTY NUMBER 2501164237
PAD ID 3001156338

ELK LAKE SERVICES, LLC

280 Indian Springs Road,
Suite 123 Indiana, PA 15701
Phone: (724) 463-7303

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,247.32 EASTING: 532,604.47
LANDING POINT (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,279.75 EASTING: 532,890.60
TURNING POINT (TPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,433,941.86 EASTING: 534,049.48
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,432,842.81 EASTING: 534,876.02

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,247.30 EASTING: 532,604.49
LANDING POINT (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,326.31 EASTING: 532,862.08
TURNING POINT (TPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,433,936.51 EASTING: 534,059.74
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,432,843.45 EASTING: 534,877.15

WELL RESTRICTIONS

1. NO OCCUPIED DWELLINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
2. NO AGRICULTURE BUILDINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
3. WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 868 FEET OF PROPOSED WELL.
4. PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS ARE WITHIN THE LIMITS OF DISTURBANCE.
5. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
6. NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2164

JEFFREY ALAN HORNEMAN LICENSED No. 2164 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

COMPANY: SWN Production Company, LLC — SWN Production Company™

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

OPERATOR'S WELL #: MASON COTTRELL OHI 10H

API WELL #: 47 (STATE) 069 (COUNTY) 00240 (PERMIT)

WELL TYPE: OIL ☐ WASTE DISPOSAL ☐ PRODUCTION ☒ DEEP ☐ GAS ☒ LIQUID INJECTION ☐ STORAGE ☐ SHALLOW ☒

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1296.6'

DISTRICT: TRIADELPHIA COUNTY: OHIO COUNTY QUADRANGLE: VALLEY GROVE, WV

SURFACE OWNER: LOUIS COTTRELL, JR. AS TRUSTEE FOR MASON LOUIS COTTRELL TRUST ACREAGE: ±37.475

OIL & GAS ROYALTY OWNER: LOUIS COTTRELL, JR. AS TRUSTEE FOR MASON LOUIS COTTRELL TRUST ACREAGE: ±37.475

DRILL ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☐ PLUG OFF OLD FORMATION ☐ PERFORATE NEW FORMATION ☐

CONVERT ☐ PLUG & ABANDON ☐ CLEAN OUT & REPLUG ☐ OTHER CHANGE ☒ (SPECIFY) AS-DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,495' TVD 19,950' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:
- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- LPL LANDING POINT LOCATION
- EXISTING WATER WELL
- EXISTING SPRING
- SURVEYED BOUNDARY
- DRILLING UNIT
- LEASE BOUNDARY
- ASDRILLED PATH
- PROPOSED PATH

REVISIONS:	
	DATE: 7/27/2018
	FILE NO: 16-53
	DRAWN BY: JMB
	SCALE: 1" = 2000'
	DRAWING NO: 1
	WELL LOCATION PLAT 1

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FRIDAY JULY 27 2018 08:54AM

PROPERTY NUMBER 2501164237
PAD ID 3001156338