

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

API 47-069-00289 County OHIO District LIBERTY
Quad BETHANY, WV Pad Name MICHAEL RATCLIFFE-OHI-PAD1 Field/Pool Name PANHANDLE FIELD WET
Farm name MICHAEL T. RATCLIFFE Well Number MICHAEL RATCLIFFE UD OHI 7H
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 4,444,318.76 Easting 536,884.06
Landing Point of Curve Northing 4,444,230.21 Easting 537,144.52
Bottom Hole Northing 4,441,914.48 Easting 538,204.83

Elevation (ft) 1281.3' 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 11/26/2018 Date drilling commenced 03/23/2019 Date drilling ceased 04/06/2019
Date completion activities began 04/13/2019 Date completion activities ceased 06/16/2019
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft 402' Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 755' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 611' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:

Reviewed

C. [Signature] 10.16.19

9810.16.19

API 47- 069 - 00289 Farm name MICHAEL T. RATCLIFFE Well number MICHAEL RATCLIFFE UD OHI 7H

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	687'	NEW	J-55/54.50#	455' / 412.6'	Y; 1 BBLS
Coal	SURFACE						
Intermediate 1	12.25	9.625	2014'	NEW	J-55/36#		Y; 45 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	14,936'	NEW	HCP-110/20#		Y
Tubing		2.375	6,529'	NEW	P-110/4.7#		N
Packer type and depth set							

Comment Details _____

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	128	15.60	1.20	153.60	SURFACE	8
Coal	SURFACE						
Intermediate 1	CLASS A	780	15.60	1.18	920.4	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,702	15.60	1.19	3,215.38	SURFACE	24
Tubing							

Drillers TD (ft) 14,936' Loggers TD (ft) 14,936'
 Deepest formation penetrated BURKET Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,662'

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

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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API 47- 069 - 00289 Farm name MICHAEL T. RATCLIFFE Well number MICHAEL RATCLIFFE UD OHI 7H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>BURKET</u>	<u>6,156'</u> TVD	<u>6,489'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1850 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 4,760 mcfpd Oil 478 bpd NGL _____ bpd Water 1,171 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<u>0</u>		<u>0</u>		
	<u>SEE</u>	<u>ATTACHMENT</u>	<u>3</u>		

Please insert additional pages as applicable.

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

Logging Company BAKER HUGHES
Address 9110 GROGANS MILL RD City THE WOODLANDS State TX Zip 77478

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

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

Please insert additional pages as applicable.

Completed by DENISE GRANTHAM Telephone 832-796-6139 SEP 13 2019
Signature *Denise Grantham* Title REGULATORY TECHNICIAN Date 9/11/2019

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

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SOUTHWESTERN ENERGY

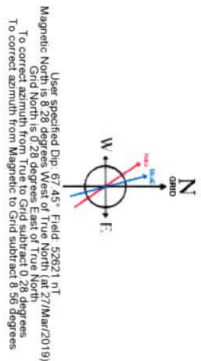
Location: Ohio County, WV Slot: Slot 7H
 Field: Ohio Well: Michael Ratcliffe OHI 7H
 Facility: Michael Ratcliffe OHI PadWellbore: Michael Ratcliffe OHI 7H PWB

Pit reference wellpath is Michael Ratcliffe OHI 7H PWP Rev-A-0 Grid System: NAD83 / UTM Zone 17 North, US feet
 True vertical depths are referenced to SDC 41 (RKB) North Reference Grid north
 Measured depths are referenced to SDC 41 (RKB) Scale: True distance
 SDC 41 (RKB) to Mean Sea Level: 1307.3 feet Depths are in feet
 Mean Sea Level to Ground level (AI Slot: Slot 7H): -1281.3 feet Created By: atempen on 2019-04-04
 Coordinates are in feet referenced to Slot Database: WA_MPL_EASTERNUS_Defm



Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude
Michael Ratcliffe OHI Pad	1761519.275	14581031.088	40°08'53.876"N
Slot	Local N (ft)	Local E (ft)	Longitude
Slot 7H	38.07	-92.19	80°33'56.872"W
SDC 41 (RKB) to Ground level (AI Slot: Slot 7H)	1761427.119	14581069.139	SDC 41 (RKB)
Mean Sea Level to Ground level (AI Slot: Slot 7H)			-1281.3 feet
SDC 41 (RKB) to Mean Sea Level			1307.3 feet

Comments
 API: 47-069-00289-0000
 BH Job #: 109666350
 Rig: SDC 41
 Duration: 03/31/2019 - 04/01/2019

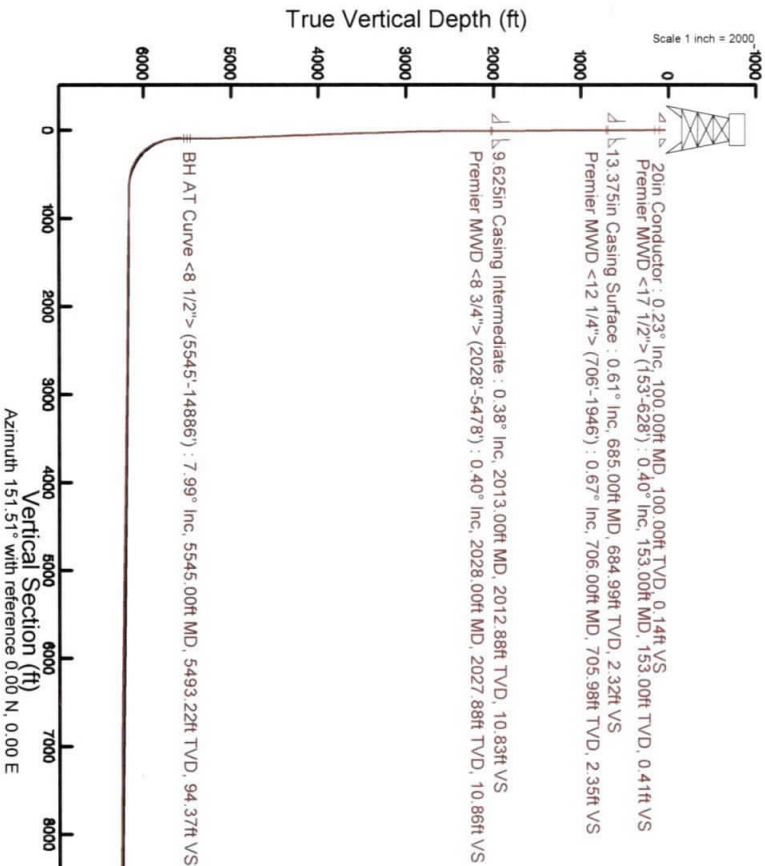


User specified Dip: 87.45° Field: 53831 NT
 Magnetic North is 8.26 degrees West of True North
 Grid North is 0.28 degrees East of True North
 To correct Azimuth from Magnetic to Grid subtracted 8.56 degrees

Premier MWD <17 1/2"> (153-628) : 153.00ft TVD, 0.44ft S, 0.05ft E
 Premier MWD <12 1/4"> (706-1946) : 705.98ft TVD, 3.48ft S, 1.48ft W
 Premier MWD <8 3/4"> (2028-5478) : 2027.88ft TVD, 12.17ft S, 0.34ft E
 BH AT Curve <8 1/2"> (5545-14886) : 5493.22ft TVD, 188.89ft N, 545.87ft E



True Vertical Depth (ft)



Vertical Section (ft)
 Azimuth 151.51° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000

Projection to Bit : 6262.31ft TVD, 7891.08ft S, 4384.91ft E

Northing (ft)

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/28/2019
Job End Date:	5/16/2019
State:	West Virginia
County:	Ohio
API Number:	47-069-02890-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Michael Ratcliffe 7H
Latitude:	40.14840000
Longitude:	-80.56690000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,215
Total Base Water Volume (gal):	8,743,811
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	Halliburton	Base Fluid					
Produced Water	Halliburton	Base Fluid	Water	7732-18-5	100.00000	72.17195	Density = 8.34
			Water	7732-18-5	100.00000	13.56527	Density = 8.34

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Ingredients	Listed Above	Listed Above	Listed Above										
				Water				7732-18-5	100.00000	0.03019			
Sand-Premium White-40/70	Halliburton	Proppant						Listed Below					
Nalco SCAL 16486A	Nalco	Scale Inhibitor						Listed Below					
FSTI-CI-01	FSTI	Acid Corrosion Inhibitor						Listed Below					
BE-9W	Halliburton	Biocide						Listed Below					
Excelerate LX-1	Halliburton	Friction Reducer						Listed Below					
FSTI HCl	FSTI	Acid						Listed Below					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant						Listed Below					
	MultiChem	Friction Reducer						Listed Below					

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BE-9	Halliburton	Biocide			Listed Below			
FSTI-IC-001	FSTI	Iron Control Agent			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	12.73164		
			Hydrochloric acid	7647-01-0	7.50000	0.10637		
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02527		
			Ethaniminium, N,N,N-trimethyl-2-[(1-oxo-2-propen-1-yl)oxy]-, chloride (1:1), polymer with 2-propenamide	69418-26-4	30.00000	0.02273		
			Ammonium chloride	12125-02-9	10.00000	0.00800		
			Sodium chloride	7647-14-5	10.00000	0.00800		
			Castor oil, ethoxylated	61791-12-6	10.00000	0.00758		
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	5.00000	0.00379		
			9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00379		
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00379		
			Polyacrylate	Proprietary	30.00000	0.00254		
			Acetic acid	64-19-7	60.00000	0.00210		
			Ethylene glycol	107-21-1	30.00000	0.00200		
			Amine triphosphate	Proprietary	30.00000	0.00200		
			Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00175		
			Citric acid	77-92-9	40.00000	0.00140		

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			Propylene glycol	57-55-6	60.00000	0.00106
			Methanol	67-56-1	80.00000	0.00085
			Ethoxylated fatty acid	Proprietary	5.00000	0.00042
			Fatty acid ester	Proprietary	5.00000	0.00042
			Fatty acids	Trade Secret	10.00000	0.00010
			Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.10000	0.00008
			Formaldehyde	50-00-0	0.10000	0.00008
			Diethanolamine	111-42-2	0.10000	0.00008
			1,4-Dioxane	123-91-1	0.10000	0.00008
			Nitrotriacetic acid, trisodium salt monohydrate	5064-31-3	0.10000	0.00008
			Hydroquinone monomethyl ether	150-76-5	0.10000	0.00008
			Sodium glycollate	2836-32-0	0.10000	0.00008

* 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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**MICHAEL RATCLIFFE UD OHI 7H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	4/11/2019	14,890	14,888	12
2	4/28/2019	14,854	14,677	18
3	4/29/2019	14,644	14,467	18
4	4/30/2019	14,434	14,257	18
5	5/2/2019	14,224	14,047	18
6	5/2/2019	14,014	13,837	18
7	5/3/2019	13,804	13,627	18
8	5/3/2019	13,594	13,417	18
9	5/4/2019	13,384	13,207	18
10	5/4/2019	13,174	12,997	18
11	5/4/2019	12,964	12,787	18
12	5/5/2019	12,754	12,577	18
13	5/6/2019	12,544	12,367	18
14	5/6/2019	12,334	12,157	18
15	5/6/2019	12,124	11,947	18
16	5/7/2019	11,914	11,737	18
17	5/7/2019	11,704	11,527	18
18	5/7/2019	11,494	11,317	18
19	5/8/2019	11,284	11,107	18
20	5/8/2019	11,074	10,897	18
21	5/8/2019	10,864	10,687	18
22	5/8/2019	10,648	10,477	18
23	5/8/2019	10,444	10,267	18
24	5/9/2019	10,234	10,057	18
25	5/9/2019	10,026	9,847	18
26	5/9/2019	9,814	9,637	18
27	5/10/2019	9,604	9,427	18
28	5/10/2019	9,394	9,217	18
29	5/10/2019	9,184	9,007	18
30	5/11/2019	8,976	8,797	18
31	5/11/2019	8,764	8,587	24
32	5/12/2019	8,554	8,377	24
33	5/12/2019	8,344	8,167	30
34	5/13/2019	8,134	7,957	30
35	5/13/2019	7,924	7,747	36
36	5/14/2019	7,714	7,537	36
37	5/14/2019	7,504	7,327	18
38	5/14/2019	7,294	7,120	18
39	5/15/2019	7,084	6,907	18
40	5/16/2019	6,874	6,697	18
41	5/16/2019	6,664	6,487	18

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**MICHAEL RATCLIFFE UD OHI 7H
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	4/28/2019	75.3	7,904	7,342	2,733	265,620	5,525	0
2	4/28/2019	88.5	7,720	5,856	3,301	263,530	5,972	0
3	4/30/2019	83.1	7,984	6,342	3,907	262,817	5,635	0
4	5/1/2019	87.9	8,010	5,252	3,151	265,044	5,985	0
5	5/2/2019	90.8	8,249	6,548	3,179	262,430	6,088	0
6	5/3/2019	86.2	8,364	5,406	3,555	264,370	5,728	0
7	5/3/2019	88.7	8,144	5,790	3,372	262,120	5,693	0
8	5/3/2019	87.5	8,108	5,823	3,238	272,100	5,708	0
9	5/4/2019	89.9	8,425	5,337	3,775	267,250	5,894	0
10	5/4/2019	80.9	8,104	5,246	3,283	266,791	5,827	0
11	5/4/2019	75.7	8,246	5,411	3,342	263,520	5,194	0
12	5/6/2019	84.8	8,354	5,890	3,307	262,580	5,211	0
13	5/6/2019	80.7	8,084	5,686	3,210	263,800	5,523	0
14	5/6/2019	88	8,435	6,041	3,277	264,000	5,124	0
15	5/7/2019	87.4	8,353	5,087	3,332	264,920	5,140	0
16	5/7/2019	80.8	8,102	5,941	3,356	263,906	5,239	0
17	5/7/2019	81.1	8,087	5,979	3,326	267,346	5,059	0
18	5/7/2019	88.8	8,046	6,010	3,190	263,210	5,082	0
19	5/8/2019	92	8,470	6,250	3,425	260,680	5,031	0
20	5/8/2019	86.7	8,106	5,509	3,456	264,546	4,947	0
21	5/8/2019	87.2	8,076	5,721	3,266	265,057	5,154	0
22	5/8/2019	94.2	8,098	5,924	3,398	263,880	4,974	0
23	5/9/2019	72.5	7,598	5,708	3,206	262,840	4,954	0
24	5/9/2019	86.7	8,097	4,764	3,337	263,983	4,800	0
25	5/9/2019	90.8	8,204	5,332	3,478	263,975	4,780	0
26	5/9/2019	91.7	8,307	6,354	3,512	263,640	4,727	0
27	5/10/2019	79.8	8,419	5,782	3,408	262,150	4,743	0
28	5/10/2019	7920	7,920	3,906	3,344	264,069	4,825	0
29	5/10/2019	97	8,007	5,753	3,270	262,580	4,848	0
30	5/11/2019	94.6	7,936	5,166	3,453	263,800	4,710	0
31	5/11/2019	98.9	7,282	5,721	3,544	265,270	4,880	0
32	5/12/2019	96.6	7,545	5,285	3,554	264,173	4,663	0
33	5/12/2019	100	7,161	5,243	3,293	262,580	4,643	0
34	5/13/2019	96.9	7,423	5,242	3,434	263,896	4,634	0
35	5/13/2019	100.3	6,878	4,988	3,434	262,140	4,672	0
36	5/14/2019	98.3	7,075	5,000	3,175	265,333	4,596	0
37	5/14/2019	84.1	8,353	5,185	3,395	262,850	4,822	0
38	5/15/2019	77.4	8,241	5,093	3,568	260,960	4,776	0
39	5/15/2019	47.6	7,823	5,573	3,220	262,288	6,100	0
40	5/16/2019	92.5	7,519	5,100	5,052	262,600	4,822	0
41	5/16/2019	90.4	7,267	3,995	3,281	270,191	4,631	0

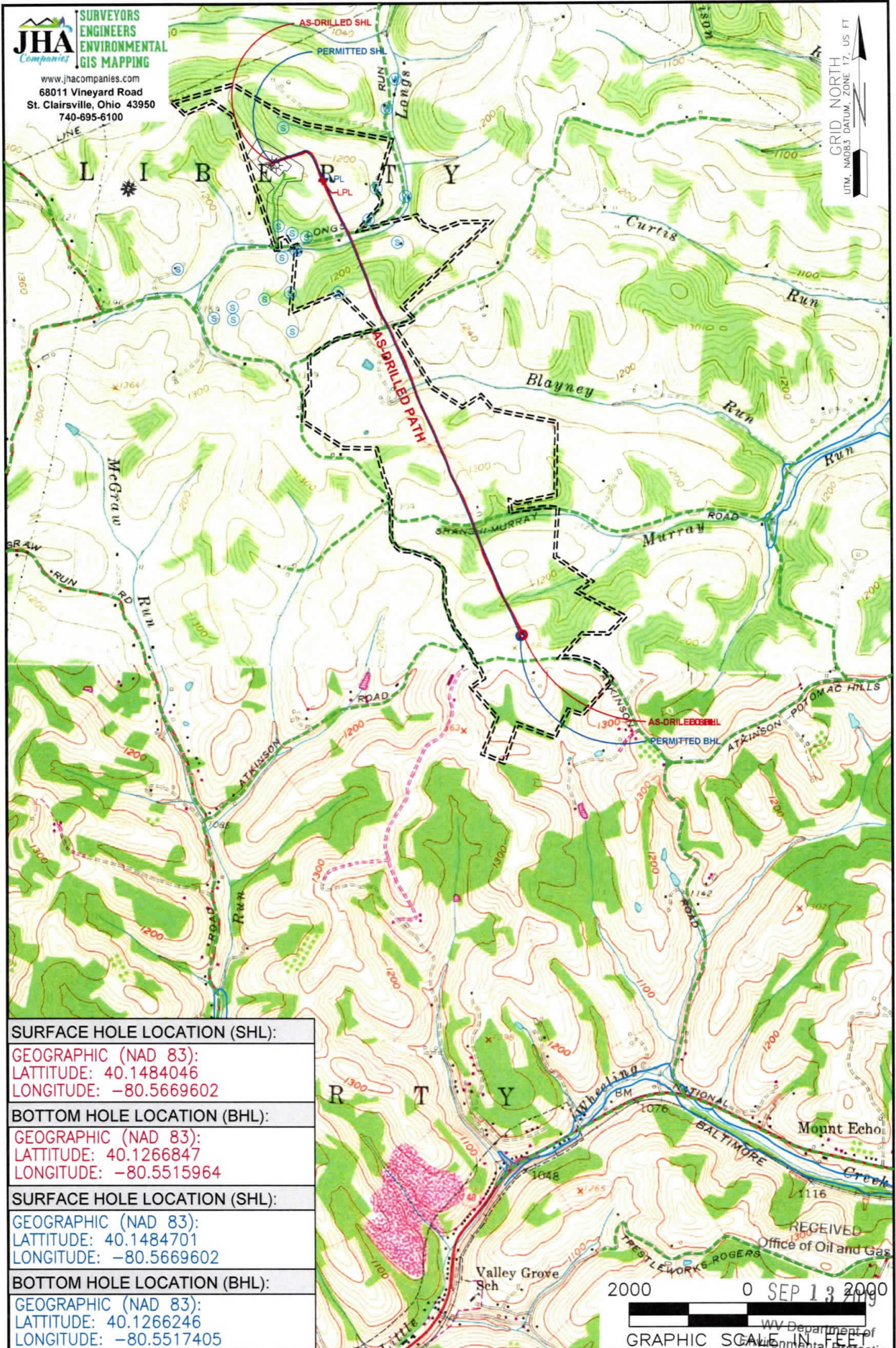
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JHA Companies
**SURVEYORS
 ENGINEERS
 ENVIRONMENTAL
 GIS MAPPING**
 www.jhacompanies.com
 68011 Vineyard Road
 St. Clairsville, Ohio 43950
 740-695-6100

GRID NORTH
 UTM, NAD83 DATUM, ZONE 17, US FT



SURFACE HOLE LOCATION (SHL):
GEOGRAPHIC (NAD 83): LATITUDE: 40.1484046 LONGITUDE: -80.5669602
BOTTOM HOLE LOCATION (BHL):
GEOGRAPHIC (NAD 83): LATITUDE: 40.1266847 LONGITUDE: -80.5515964
SURFACE HOLE LOCATION (SHL):
GEOGRAPHIC (NAD 83): LATITUDE: 40.1484701 LONGITUDE: -80.5669602
BOTTOM HOLE LOCATION (BHL):
GEOGRAPHIC (NAD 83): LATITUDE: 40.1266246 LONGITUDE: -80.5517405

2000 0 SEP 13 2000
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NOTES ON SURVEY	LEGEND:	ACCESS ROAD
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.	● EXISTING BOTTOM HOLE	— PUBLIC ROAD
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.	⊗ EXISTING / PRODUCING WELLHEAD	— FLOOD PLAIN
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.	⊗ LPL EXISTING LANDING POINT LOCATION	— LEASE BOUNDARY
	● PROPOSED SURFACE HOLE / BOTTOM HOLE	— AS-DRILLED PATH
	⊗ LPL PROPOSED LANDING POINT LOCATION	— PROPOSED PATH

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WELL (FARM) NAME: MICHAEL RATCLIFFE UD OHI	WELL # 7H	SERIAL # XXXX
ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201, MORGANTOWN, WV 26508	COUNTY - CODE OHIO - 069	DISTRICT; LIBERTY	
SURFACE OWNER: MICHAEL T. RATCLIFFE	USGS 7 1/2 QUADRANGLE MAP NAME BETHANY, WV		

LATITUDE: 40°10'00" SURFACE HOLE

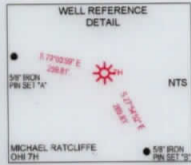
7076'

LATITUDE: 40°10'00" BOTTOM HOLE

2798'

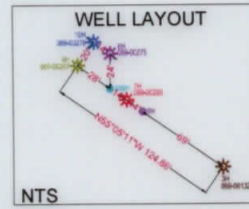


www.jhacompanies.com
68011 Vineyard Road
St. Clairsville, Ohio 43950
740-695-6100

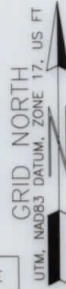


NOTES ON SURVEY

- COORDINATE SYSTEM IS UTM NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- 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.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS OR BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF THE LIMITS OF DISTURBANCE.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.



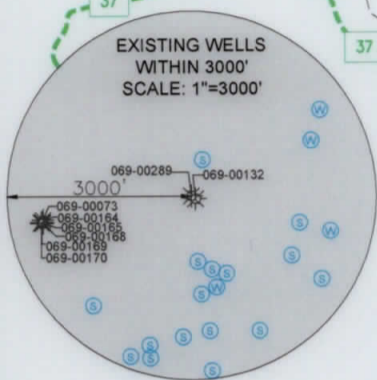
LINE	BEARING	DISTANCE
L1	N64°31'48"W	844.14'
L2	N02°29'28"W	1425.72'



LONGITUDE: -80°32'30" BOTTOM HOLE

6656'

LONGITUDE: -80°32'30" SURFACE HOLE



SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4444318.76 EASTING: 536884.06
LANDING POINT (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4444230.21 EASTING: 537144.52
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4441914.48 EASTING: 538204.83
SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4444318.76 EASTING: 536884.06
LANDING POINT (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4444237.48 EASTING: 537149.68
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4441907.75 EASTING: 538192.59

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. 2041



2000 0 2000

GRAPHIC SCALE IN FEET

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

MICHAEL RATCLIFFE UD
OPERATOR'S WELL #: OHI 7H
API WELL #: 47 STATE 069 COUNTY 289 PERMIT

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

WATERSHED: OHIO UPPER SOUTH ELEVATION: 1,281.3'

DISTRICT: LIBERTY COUNTY: OHIO QUADRANGLE: BETHANY, WV

SURFACE OWNER: MICHAEL T. RATCLIFFE ACREAGE: ±55.835

OIL & GAS ROYALTY OWNER: MICHAEL T. RATCLIFFE ACREAGE: ±55.835

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: BURKET ESTIMATED DEPTH: 6,262' TVD 14,936' TMD



WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: 1300 FORT PIERPONT DRIVE CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

DESIGNATED AGENT: BRITTANY WOODY ADDRESS: 1300 FORT PIERPONT DRIVE CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

LEGEND:	EXISTING WATER WELL	REVISIONS:	DATE: 09-06-2019
EXISTING BOTTOM HOLE	EXISTING SPRING		
EXISTING / PRODUCING WELLHEAD	SURVEYED BOUNDARY		
LPL* EXISTING LANDING POINT LOCATION	LEASE BOUNDARY		DRAWN BY: D. REED
PROPOSED SURFACE HOLE / BOTTOM HOLE	ASDRILLED PATH		SCALE: 1" = 2000'
LPL* PROPOSED LANDING POINT LOCATION	PROPOSED PATH		DRAWING NO: 2017-637
			WELL LOCATION PLAT

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	MICHAEL T. RATCLIFFE (S/R)	03-L5-12.4
TRACT	SURFACE OWNER	TAX PARCEL
2	TRAVIS C. RATCLIFFE	03-L5-12
3	JOSEPH G. PRINCE	03-L5-25
4	DONALD D. PRINCE	03-L5-24
5	SUSAN NORTHWOOD SMITH & RICHARD ALAN SMITH	03-L5-23.1
6	WALTER W. KNOLLINGER, JR. & MONA DEE KNOLLINGER	03-L5-23.4
7	DONALD L. & DEBORAH JO WADDELL	03-L5-23.6
8	DONALD L. & DEBORAH JO WADDELL	03-L5-23
9	BERNARD T. & MARJORIE A. RAAB	03-L8-7
10	ROBERT C. JONES	03-L8-11

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	JOSEPH P. & SHIRLEY J. TAGGART	03-L5-3
B	DONALD F. & J.L. DOLENCE	03-L5-11
C	TRAVIS CHRISTOPHER RATCLIFFE	03-L5-12.1
D	JOSEPH G. PRINCE & DONALD D. PRINCE	03-L5-11.2
E	GEORGE F. SMITH	03-L5-27
F	DALE R. & JACKIE A. RITCHEA	03-L5-23.2
G	GLENN A. DILLE	03-L8-9.7
H	NEAL P. BROWN	03-L8-9.6
I	PETER, JR. & D.J. COTTAGE, THE COTTAGE FAMILY REV TRUST)	03-L8-8
J	DONALD L. & D.J. WADDELL	03-L8-39
K	SCOTT A. & JILL L. DILLE	03-L8-9.3
L	GEORGE E., III & M.A. PORTER	03-L8-9.5
M	ROBERT F. & N.C. REASS	03-L9-1
N	JODY LEE SHILLING	03-L8-10
O	RANDY J. CREIGHTON	03-L8-11.2
P	PAUL A. MAIN	03-L8-10.1
Q	RICHARD C. & K.J. WHEAT	03-L8-10.2
R	DAVID E. DAVIS, JR.	03-L8-35
S	ROBERT C. JONES	03-L8-11.1
T	ROBERT A. SHILLING, SR.	03-L8-33.9
U	JOSEPH T. KLUG	03-L8-34.1
V	ROBERT A. SHILLING, SR.	03-L8-33
W	THOMAS P. & TERESA HUDRLIK	03-L8-12.12
X	BILL RAILING	03-L8-12.8
Y	VICKI L. & DANIEL P. TUSTIN	03-L8-12.6
Z	DANIEL P. TUSTIN, JR.	03-L8-12.9
AA	DANIEL PAUL TUSTIN, JR.	03-L8-12.11
AB	RICHARD R. & L.L. BLOOMFIELD	03-L8-12.10
AC	BARNETT E. & LAURIE L. BECK	03-L8-12.5
AD	KATHY J. HUNTER	03-L8-6
AE	A.R. & Z.I. NIXON	03-L8-5
AF	JENNIFER G. BURROWS	03-L8-4.1
AG	DAVID PAUL & DAWN M. DOYLE	03-L8-4
AH	RICHARD C. LINK (LIFE ESTATE: ROBERT W., JR. & D.M. LINK)	03-L5-22.6
AI	DAVID A. WADDELL	03-L5-23.5
AJ	EDWARD & ELIZABETH LINK	03-L5-23.7
AK	JASON & RACHEL MILLER	03-L5-23.3
AL	EDWARD R. & ELIZABETH A. LINK	03-L5-22
AM	MICHAEL T. RATCLIFFE	03-L5-12.3
AN	CASEY P. & DEVAN M. YOUNG	03-L5-13
AO	MARK & ANNELIESE KAUFMAN	03-L5-1.1

REVISIONS:	COMPANY:		DATE: 09-06-2019	
				
				
	OPERATOR'S			MICHAEL RATCLIFFE UD
	WELL #:			OHI 7H
DISTRICT:	COUNTY:	STATE:	DRAWN BY: D. REED	
LIBERTY	OHIO	WV	SCALE: N/A	
			DRAWING NO: 2017-637	
			WELL LOCATION PLAT	