

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

API 47-009-00160 County BROOKE District BUFFALO
Quad STUEBENVILLE Pad Name MILDRED MANI BRK PAD Field/Pool Name PANHANDLE
Farm name MILDRED MANI & ERICK PHILIP Well Number MILDRED MANI BRK 3H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY LLC
Address PO BOX 12359 City SPRING State TX Zip 77397-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4456024.703 Easting 534907.106
Landing Point of Curve Northing 4456101.403 Easting 534795.525
Bottom Hole Northing 4457555.759 Easting 534254.269

Elevation (ft) 1073' 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 07/30/2015 Date drilling commenced 08/09/2015 Date drilling ceased 09/12/2015
Date completion activities began 11/30/2015 Date completion activities ceased 01/12/2016
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 300' Open mine(s) (Y/N) depths N
Salt water depth(s) ft ~~588'~~ 802' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 140' Cavern(s) encountered (Y/N) depths Received

Is coal being mined in area (Y/N) N

APPROVED

NAME: Jackie Johnston
DATE: 7/5/16

Office of Oil & Gas
Reviewed by
JUL 05 2016

AK RBDM
10/21/2016
10/18/16

API 47-009 - 00160 Farm name MILDRED MANI & ERICK PHILIP Well number MILDRED MANI BRK 3H

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	190'	N	J-55/ 94#		Y
Surface	17.5	13.375	419'	N	J-55/ 54.50#		Y
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1498'	N	J-55/ 40#		Y
Intermediate 2							
Intermediate 3							
Production	8.75 TO 8.50	5.5	11147'	N	P-110/20#		Y
Tubing		2.375	5997'	N	P-110/4.70#		N
Packer type and depth set		N/A					

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	A	435	15.7	1.29	561	SURFACE	24
Surface	A	464	15.6	1.20	557	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	A	570	15.6	1.18	673	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	A	859/1159	15.6	1.24/1.19	2444	SURFACE	24
Tubing							

Drillers TD (ft) 11147' Loggers TD (ft) 11147'

Deepest formation penetrated MARCELLUS Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) 5045'

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 _____

ALL CASING STRINGS RAN WITH A CENTRALIZER AT A MINIMUM OF 1 PER EVERY 3RD JOINT OF CASING

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- 009 - 00160 Farm name MILDRED MANI & ERICK PHILIP Well number MILDRED MANI BRK 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>5662'</u> TVD	<u>5859'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1136 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 1837.97 mcfpd Oil 243.52 bpd NGL _____ bpd Water 246.97 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		
		SEE ATTACHED			

Please insert additional pages as applicable.

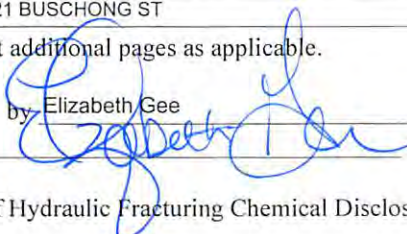
Drilling Contractor SWN DRILLING
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Logging Company NINE ENERGY SERVICES
Address 16945 NORTHCHASE DR, STE 1600 City HOUSTON State TX Zip 77060

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

Stimulating Company DOWELL SCHLUMBERGER
Address 1121 BUSCHONG ST City HOUSTON State TX Zip 77039

Please insert additional pages as applicable.

Completed by Elizabeth Gee Telephone 832-796-7632
Signature  Title Sr. Regulatory Analyst Date 06/30/2016 05 2016

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

WR-36
Rev. 5/08

Date: 06/30/2016
Operators Well Number: MILDRED MANI BRK 3H
API Well No: 47-09 - 00160

**State of West Virginia
Department of Environmental Protection
Office of Oil and Gas**

Well Operator's Report of
Initial Gas-Oil Ratio

Well Operator SWN PRODUCTION COMPANY LLC Designated Agent _____
Address PO BOX 12359 Address _____
SPRING, TX 77391-2359 _____

Geological Target Formation: MARCELLUS Depth 5662'TVD/5859'MD feet
Perforation Interval 6149' - 11026' MD feet

Guidelines for testing:

1. A minimum of gas vented or flared.
2. A 24 hour pre-flow into pipelines or tanks.
3. Uniform producing rate during the 24 hour test per test period.
4. Measurement standards as for Form WR-39, "Report of Annual Production" (see 35CSR4-15)
5. Separate Form WR-36 for each producing formation in a multiple completion.

TEST DATA

Start of Test Date	Time	End of Test Date	Time	Duration of Test
Tubing Pressure	Casing Pressure	Separator Pressure	Separator Temperature	
Oil Production During Test	Gas Production During Test	Water Production During Test		
BBLs	MCF	BBLs	-Salinity	
Oil Gravity	Producing Method (flowing, pumping, gas lift etc.)			
API				

GAS PRODUCTION

Measurement Method Flange Tap <input type="checkbox"/> Pipe Tap <input type="checkbox"/> L-10 <input type="checkbox"/>		Positive Choke <input checked="" type="checkbox"/>
		Positive flow prover <input type="checkbox"/>
Orifice diameter	Pipe Diameter (inside)	Nominal Choke Size inches 17
Differential Pressure range	Max. Static pressure range	Prover and Orifice diameter - inches
Differential		Static
Gas Gravity (Air = 1.0)	Flowing Temperature	Gas Temperature
Measured	Estimated	
24 Hour Coefficient	24 Hour coefficient pressure PSIA	

TEST RESULTS

Daily Oil	Daily Water	Daily Gas	Gas-Oil Ratio
243.52	246.97	1837.97	

SWN PRODUCTION COMPANY LLC
Well Operator
BY Elizabeth Gee *Received*
ITS: Designated Representative *Office of Oil & Gas*
JUL 05 2016

10/21/2016

MILDRED MANI BRK 3H

LITHOLOGY/FORMATION	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, TVD (FT)	TOP DEPTH, MD (FT)	BOTTOM DEPTH, MD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	N.A.	300.00	N.A.	300.00	
Top of Salt Water	802.00	N.A.	802.00	N.A.	
Pittsburgh Coal	132.98	139.98	133.00	140.00	
Big Injun (ss)	1214.89	1765.16	1215.00	1765.30	
Berea (siltstone)	1765.16	5142.86	1765.30	5154.54	
Rhinestreet (shale)	5142.86	5379.40	5154.54	5402.09	
Cashaqua (shale)	5379.40	5430.50	5402.09	5461.71	
Middlesex (shale)	5430.50	5479.32	5461.71	5522.33	
Burket (shale)	5479.32	5503.96	5522.33	5555.70	
Tully (ls)	5503.96	5562.89	5555.70	5643.04	
Mahantango (shale)	5562.89	5662.80	5643.04	5859.49	
Marcellus (shale)	5662.80	N.A.	5859.49	N.A.	

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MILDRED MANI BRK 3 - PERFORATION RECORD

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	11/30/2015	10,829	11,026	42
2	11/30/2015	10,574	10,766	42
3	11/30/2015	10,309	10,506	42
4	12/1/2015	10,049	10,246	42
5	12/1/2015	9,789	9,981	42
6	12/1/2015	9,529	9,726	42
7	12/1/2015	9,269	9,466	42
8	12/2/2015	9,009	9,206	42
9	12/2/2015	8,749	8,946	42
10	12/2/2015	8,491	8,691	42
11	12/2/2015	8,229	8,426	42
12	12/2/2015	7,969	8,166	42
13	12/3/2015	7,709	7,906	42
14	12/3/2015	7,449	7,646	42
15	12/3/2015	7,186	7,386	72
16	12/3/2015	6,929	7,126	42
17	12/4/2015	6,669	6,866	42
18	12/4/2015	6,409	6,606	42
19	12/4/2015	6,149	6,346	42

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MILDRED MANI BRK 3 - STIMULATION INFORMATION

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdow n Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/ other
1	11/30/2015	2	7,998	9,249	3,668	500,900	7,617	
2	11/30/2015	2	7,343	7,830	3,950	498,660	7,106	
3	11/30/2015	2	7,318	8,535	4,055	496,820	7,305	
4	12/1/2015	2	8,010	9,057	5,049	40,140	5,028	
5	12/1/2015	2	6,707	8,235	4,040	503,280	7,238	
6	12/1/2015	2	7,654	9,014	4,527	504,840	7,061	
7	12/1/2015	2	7,608	8,786	4,008	501,880	6,929	
8	12/2/2015	2	7,442	8,993	4,207	499,420	6,868	
9	12/2/2015	2	7,398	9,361	4,390	501,920	7,910	
10	12/2/2015	2	7,212	8,119	4,528	498,140	7,006	
11	12/2/2015	2	7,332	7,851	4,400	500,620	7,049	
12	12/2/2015	2	7,441	7,865	4,422	500,760	6,935	
13	12/3/2015	2	7,140	7,966	4,500	500,760	6,962	
14	12/3/2015	2	7,115	8,443	4,472	500,200	6,877	
15	12/3/2015	2	7,212	9,269	4,450	500,320	10,383	
16	12/3/2015	2	7,043	9,165	4,391	500,280	9,510	
17	12/4/2015	2	7,322	9,014	4,252	503,920	6,964	
18	12/4/2015	2	6,655	7,278	4,253	500,380	7,048	
19	12/4/2015	2	6,771	7,738	4,334	499,440	7,025	
TOTAL			7,301	9,361	4,310	9,052,680	138,821	

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/30/2015
Job End Date:	12/4/2015
State:	West Virginia
County:	Brooke
API Number:	47-009-00160-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Mildred Mani 3H
Longitude:	-80.58953400
Latitude:	40.25395100
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	5,654
Total Base Water Volume (gal):	5,830,482
Total Base Non Water Volume:	0



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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
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Proppant Transport	Schlumberger	Corrosion Inhibitor, Acid Corrosion Inhibitor, Acid, Breaker, Gelling Agent, Friction Reducer, Fluid Loss Additive, Propping Agent					
			Water (Including Mix Water Supplied by Client)*	NA		84.13798	
			Quartz, Crystalline silica	14808-60-7	98.31587	15.59488	
			Hydrochloric acid	7647-01-0	1.38102	0.21906	
			Ammonium sulfate	7783-20-2	0.13700	0.02173	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.10112	0.01604	
			Guar gum	9000-30-0	0.03684	0.00584	
			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.01083	0.00172	
			Urea	57-13-6	0.00665	0.00105	
			Propan-2-ol	67-63-0	0.00246	0.00039	
			Sodium sulfate	7757-82-6	0.00155	0.00025	

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			Water (Including Mix Water Supplied by Client)*	NA		84.13798	
			Quartz, Crystalline silica	14808-60-7	98.31587	15.59488	
			Hydrochloric acid	7647-01-0	1.38102	0.21906	
			Ammonium sulfate	7783-20-2	0.13700	0.02173	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.10112	0.01604	
			Guar gum	9000-30-0	0.03684	0.00584	
			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.01083	0.00172	
			Urea	57-13-6	0.00665	0.00105	
			Propan-2-ol	67-63-0	0.00246	0.00039	
			Sodium sulfate	7757-82-6	0.00155	0.00025	

		Non-crystalline silica (impurity)	7631-86-9	0.00148	0.00023
		Diammonium peroxodisulphate	7727-54-0	0.00119	0.00019
		Fatty acid, tall-oil reaction products with acetophenone	68188-40-9	0.00096	0.00015
		Alcohols, C12-C16, ethoxylated	68551-12-2	0.00080	0.00013
		Isodecanol w/6-7 Moles Ethylene Oxide	26183-52-8	0.00054	0.00009
		Cinnamaldehyde	104-55-2	0.00035	0.00006
		2-Propenamid (impurity)	79-06-1	0.00033	0.00005
		Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00017	0.00003
		Amines, tallow alkyl, ethoxylated	61791-26-2	0.00010	0.00002
		Dimethyl siloxanes and silicones	63148-62-9	0.00009	0.00002
		Methanol	67-56-1	0.00011	0.00002
		Fatty acids, tall-oil	61790-12-3	0.00008	0.00001
		Dodecyl poly(oxyethylene) ether	9002-92-0	0.00004	0.00001
		Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00006	0.00001
		Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00003	
		Decamethyl cyclopentasiloxane	541-02-6	0.00001	
		Hexadec-1-ene	629-73-2	0.00001	
		Formaldehyde	50-00-0		
		Copper(II) sulfate	7758-98-7		
		Glycols, polyethylene, monotetradecyl ether	27306-79-2	0.00003	
		Octamethylcyclotetrasiloxane	556-67-2	0.00001	
		Siloxanes and silicones, dimethyl, reaction products with silica	67762-90-7	0.00001	
		Dodecamethylcyclohexasiloxane	540-97-6		
		1-Octadecene (C18)	112-88-9		
		Propargyl alcohol	107-19-7	0.00002	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

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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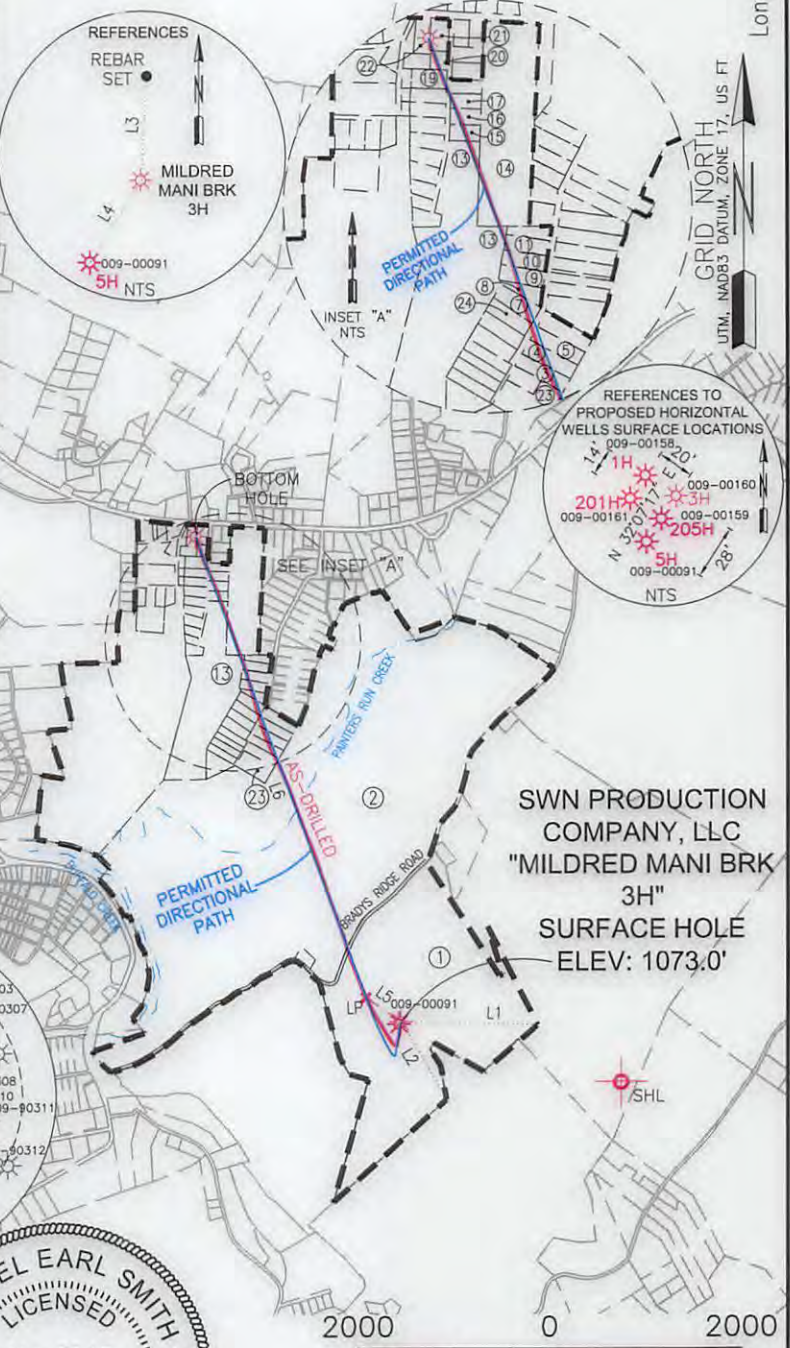
320 O'Bryan Lane • Van Buren, AR 72956
Office: 479.474.7916 • Fax: 479.474.2450
Surveying • handa-inc.com

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	S 89°02'06" E	1425.82'	SHL TO LANDMARK	FOUND IRON PIPE
L2	S 47°57'10" E	995.08'	SHL TO LANDMARK	FOUND IRON PIPE
L3	N 02°51'19" E	165.27'	SHL TO REF. PNT.	1/2"Ø REBAR SET
L4	S 31°54'52" W	27.50'	SHL TO REF. PNT.	MILDRED MANI BRK 5H WELL HEAD 009-00091
LINE	CHORD BEARING	CORD DIST.	CURVE LENGTH	DESCRIPTION
L5	N 55°29'45" W	444.23'		SHL TO LP
L6	N 20°24'48" W	5091.22'		LP TO BHL

Latitude: 40°17'30"

Longitude: 80°35'00"

TRACT	SURFACE OWNER (S) ROYALTY OWNER (R)	TAX PARCEL	ACRES	LEASE NUMBER
1	MILDRED MANI (S/R)	B27-26	95.00	1-324207-001
1	MILES BAUER (R)	B27-26	95.00	1-324207-002
1	ERIK PHILIP BAUER (S/R)	B27-26	95.00	1-329350-002
2	MILDRED MANI (S/R)	B27-21	204.94	1-324207-001
2	MILES BAUER (R)	B27-21	204.94	1-324207-002
2	ERIK PHILIP BAUER (S/R)	B27-21	204.94	1-329350-002
3	GERALD E. WELLMAN, JR. (S/R)	B27L-42	0.853	1-329373-000
4	DONALD R. MYERS, II & LISA R. MYERS (S/R)	B27L-43	0.840	47-000482-000
5	THOMAS W. SHRINER & BARBARA J. SHRINER (S/R)	B27L-44	0.830	1-329506-000
7	RANDY J. WEAVER & CYNTHIA G. WEAVER (S/R)	B27L-31	0.690	47-000171-000
8	JAMES WEAVER (S)	B27L-30	0.680	
8	JAMES WEAVER, a widower (R)	B27L-30	0.680	47-000277-000
9	JOHN M. WHITE & TONIE A. WHITE (S/R)	B27L-29	0.688	47-000053-000
10	JOHN J. ECKERSBERG (S/R)	B27L-28	0.688	1-345226-000
11	TIMOTHY J. DAVIS SPECIAL NEEDS TRUST (S)	B27L-27	0.690	
11	ARTHUR APITZSCH & RENEE APITZSCH (R)	B27L-27	0.690	47-000604-000
13	DAVID E. SMITH (S/R)	B27G-40	18.60	1-329401-002
13	JAMES LOUIS WEAVER (S)	B27G-40	18.60	
13	JAMES WEAVER, a widower (R)	B27G-40	18.60	1-329401-001
14	THE MALONEY FAMILY TRUST (S/R)	B27G-49	11.21	47-000498-000
15	JEREMIAH J. STEIN (S/R)	B27G-41	0.420	47-000355-000
16	GARY E. SEAVOLT (S/R)	B27G-42	0.420	47-000357-000
17	GARY L. WILSON & DIANE L. WILSON (S/R)	B27G-43	0.420	47-000234-000
19	CARLENE S. MORGAN (S/R)	B27G-30.1	0.243	47-000226-000
20	FINLEY C. AMOS & NAOMI R. AMOS (S/R)	B27G-29	0.410	1-329231-000
21	WILLIAM MARK CIPOLETTI & DEBORAH K. CIPOLETTI (S/R)	B27G-28	0.520	47-000539-000
22	EUGENE CIPOLETTI & JUDY LYNN CIPOLETTI (S/R)	B27G-27	0.560	47-000512-000
23	STACE ANN WEST, TRUSTEE FOR THE KYANKO KEYSTONE INHERITANCE TRUST, DATED JUNE 25, 2009	B27L-40	1.950	1-313935-000
24	PATRICIA T. HARRIS (S/R)	B27L-32	0.670	1-329497-000



- 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 OCCUPIED DWELLINGS AND AGRICULTURE BUILDINGS GREATER THAN 2500 SQ FT. WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
 - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
 - NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
 - NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
 - NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,456,024.703
EASTING: 534,907.106
LANDING POINT (LP):
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,456,101.403
EASTING: 534,795.525
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,457,555.759
EASTING: 534,254.269

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



GRAPHIC SCALE IN FEET

COMPANY: **SWN** Production Company, LLC

P.S. 2315

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

MINIMUM DEGREE OF ACCURACY: 1/200

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

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

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

WATERSHED: BUFFALO CREEK
DISTRICT: BUFFALO COUNTY: BROOKE
SURFACE OWNER: MILDRED MANI & ERIK PHILIP BAUER
OIL & GAS ROYALTY OWNER: MILDRED MANI & ERIK PHILIP BAUER

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

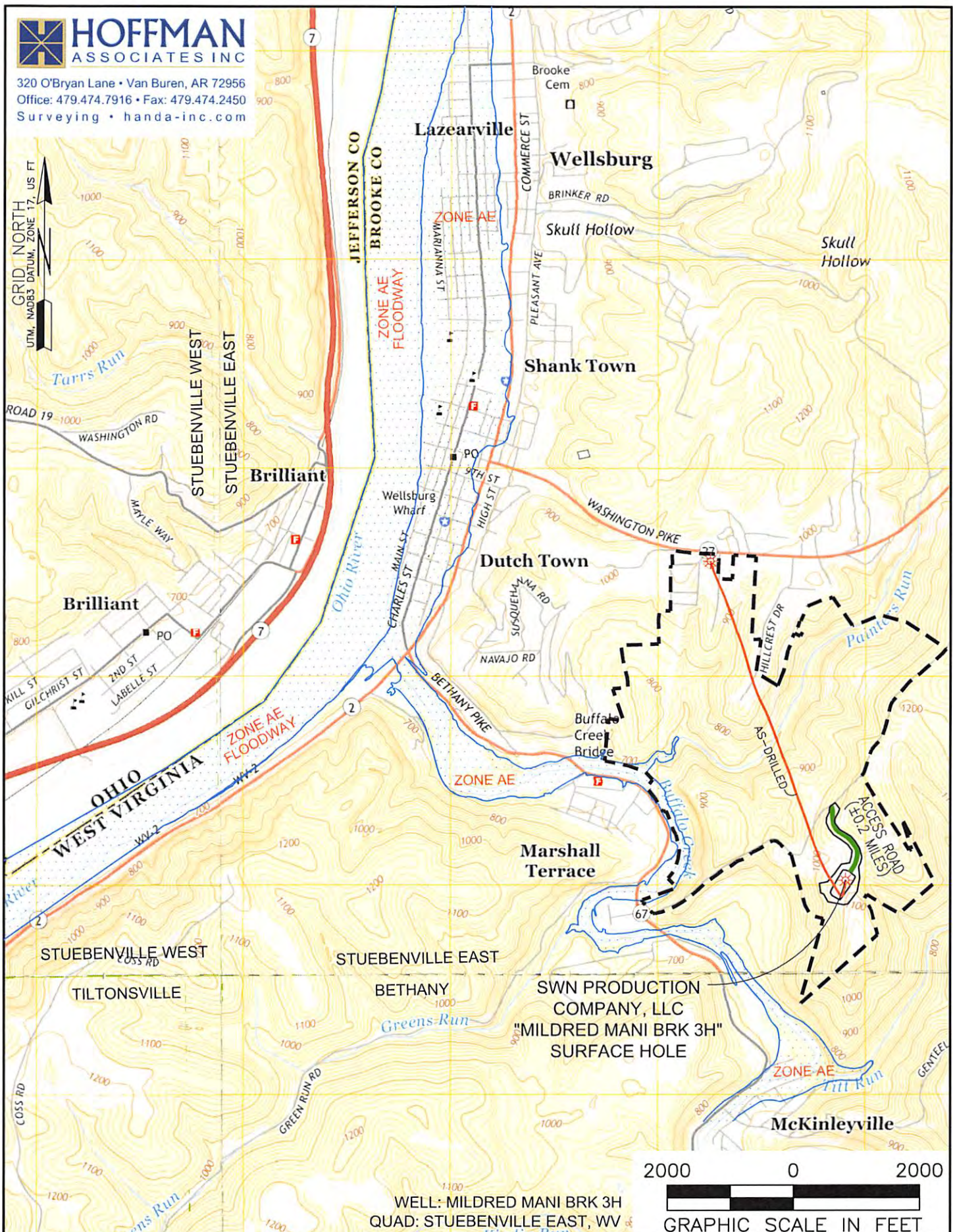
TARGET FORMATION: MARCELLUS DEPTH: 5,691' TVD 11,147' IMD

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

DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:	--- LEASE BOUNDARY	--- AS-DRILLED PATH	--- PERMITTED DIRECTIONAL PATH	--- DIRECTIONAL PATH	--- ABANDONED PATH
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	⊙ EXISTING / PRODUCING WELLHEAD	⊘ ABANDONED WELL	⊙ PLUGGED & ABANDONED WELL	△ CUT CONDUCTOR	
REVISIONS:	△ REVISED SHL, LP, & BHL FOR ASDRILLED	△ REVISED ASDRILLED & PERMITTED DIRECTIONAL PATH	COLOR, ADDED LP COORDINATES. 01-29-2016	DATE: 10-21-2015	
				DRAWN BY: J. HARNESS	SCALE: 1" = 2000'
				DRAWING NO: 59392	WELL LOCATION PLAT

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



WELL: MILDRED MANI BRK 3H
QUAD: STUEBENVILLE EAST, WV



NAME AND DISTANCE TO THE NEAREST STREAM: TIT RUN IS LOCATED ±0.31 MILES SOUTHEAST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: 	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LAGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S MILDRED MANI BRK		WELL #: 3H	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM UNINCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBERS 54009C0090 D, 54009C0130 D, & 54009C0088 D; EFFECTIVE DATE APRIL, 19, 2010.		LOCATION: BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.253951° LONGITUDE: -80.589535° 10/21/2016	
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ⊗ EXISTING / PRODUCING WELLHEAD ⊘ ABANDONED WELL ⊙ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR		○ EXISTING WATER WELL — ACCESS ROAD — ACCESS ROAD TO PREV. SITE — HIGHWAY/INTERSTATE — COUNTY ROAD		BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.267771° LONGITUDE: -80.597129°	
REVISIONS:		DATE: 10-21-2015		DRAWN BY: J. HARNISS	
				SCALE: 1" = 2000'	
				DRAWING NO: 59392	
				TOPOGRAPHIC MAP	



320 O'Bryan Lane • Van Buren, AR 72956
Office: 479.474.7916 • Fax: 479.474.2450
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LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	S 89°02'06" E	1425.82'	SHL TO LANDMARK	FOUND IRON PIPE
L2	S 47°57'10" E	995.08'	SHL TO LANDMARK	FOUND IRON PIPE
L3	N 02°51'19" E	165.27'	SHL TO REF. PNT.	1/2"Ø REBAR SET
L4	S 31°54'52" W	27.50'	SHL TO REF. PNT.	MILDRED MANI BRK 5H WELL HEAD 009-00091
LINE	CHORD BEARING	CORD DIST.	CURVE LENGTH	DESCRIPTION
L5	N 55°29'45" W	444.23'		SHL TO LP
L6	N 20°24'48" W	5091.22'		LP TO BHL

Latitude: 40°17'30"

Longitude: 80°35'00"

TRACT	SURFACE OWNER (S) ROYALTY OWNER (R)	TAX PARCEL	ACRES	LEASE NUMBER
1	MILDRED MANI (S/R)	B27-26	95.00	1-324207-001
1	MILES BAUER (R)	B27-26	95.00	1-324207-002
1	ERIK PHILIP BAUER (S/R)	B27-26	95.00	1-329350-002
2	MILDRED MANI (S/R)	B27-21	204.94	1-324207-001
2	MILES BAUER (R)	B27-21	204.94	1-324207-002
2	ERIK PHILIP BAUER (S/R)	B27-21	204.94	1-329350-002
3	GERALD E. WELLMAN, JR. (S/R)	B27L-42	0.853	1-329373-000
4	DONALD R. MYERS, II & LISA R. MYERS (S/R)	B27L-43	0.840	47-000482-000
5	THOMAS W. SHRINER & BARBARA J. SHRINER (S/R)	B27L-44	0.830	1-329506-000
7	RANDY J. WEAVER & CYNTHIA G. WEAVER (S/R)	B27L-31	0.690	47-000171-000
8	JAMES WEAVER (S)	B27L-30	0.680	
8	JAMES WEAVER, a widower (R)	B27L-30	0.680	47-000277-000
9	JOHN M. WHITE & TONIE A. WHITE (S/R)	B27L-29	0.688	47-000053-000
10	JOHN J. ECKERSBERG (S/R)	B27L-28	0.688	1-345226-000
11	TIMOTHY J DAVIS SPECIAL NEEDS TRUST (S)	B27L-27	0.690	
11	ARTHUR APITZSCH & RENEE APITZSCH (R)	B27L-27	0.690	47-000604-000
13	DAVID E. SMITH (S/R)	B27G-40	18.60	1-329401-002
13	JAMES LOUIS WEAVER (S)	B27G-40	18.60	
13	JAMES WEAVER, a widower (R)	B27G-40	18.60	1-329401-001
14	THE MALONEY FAMILY TRUST (S/R)	B27G-49	11.21	47-000498-000
15	JEREMIAH J. STEIN (S/R)	B27G-41	0.420	47-000355-000
16	GARY E. SEAVOLT (S/R)	B27G-42	0.420	47-000357-000
17	GARY L. WILSON & DIANE L. WILSON (S/R)	B27G-43	0.420	47-000234-000
19	CARLENE S. MORGAN (S/R)	B27G-30.1	0.243	47-000226-000
20	FINLEY C. AMOS & NAOMI R. AMOS (S/R)	B27G-29	0.410	1-329231-000
21	WILLIAM MARK CIPOLETTI & DEBORAH K. CIPOLETTI (S/R)	B27G-28	0.520	47-000539-000
22	EUGENE CIPOLETTI & JUDY LYNN CIPOLETTI (S/R)	B27G-27	0.560	47-000512-000
23	STACE ANN WEST, TRUSTEE FOR THE KYANKO KEYSTONE INHERITANCE TRUST, DATED JUNE 25, 2009	B27L-40	1.950	1-313935-000
24	PATRICIA T HARRIS (S/R)	B27L-32	0.670	1-329497-000

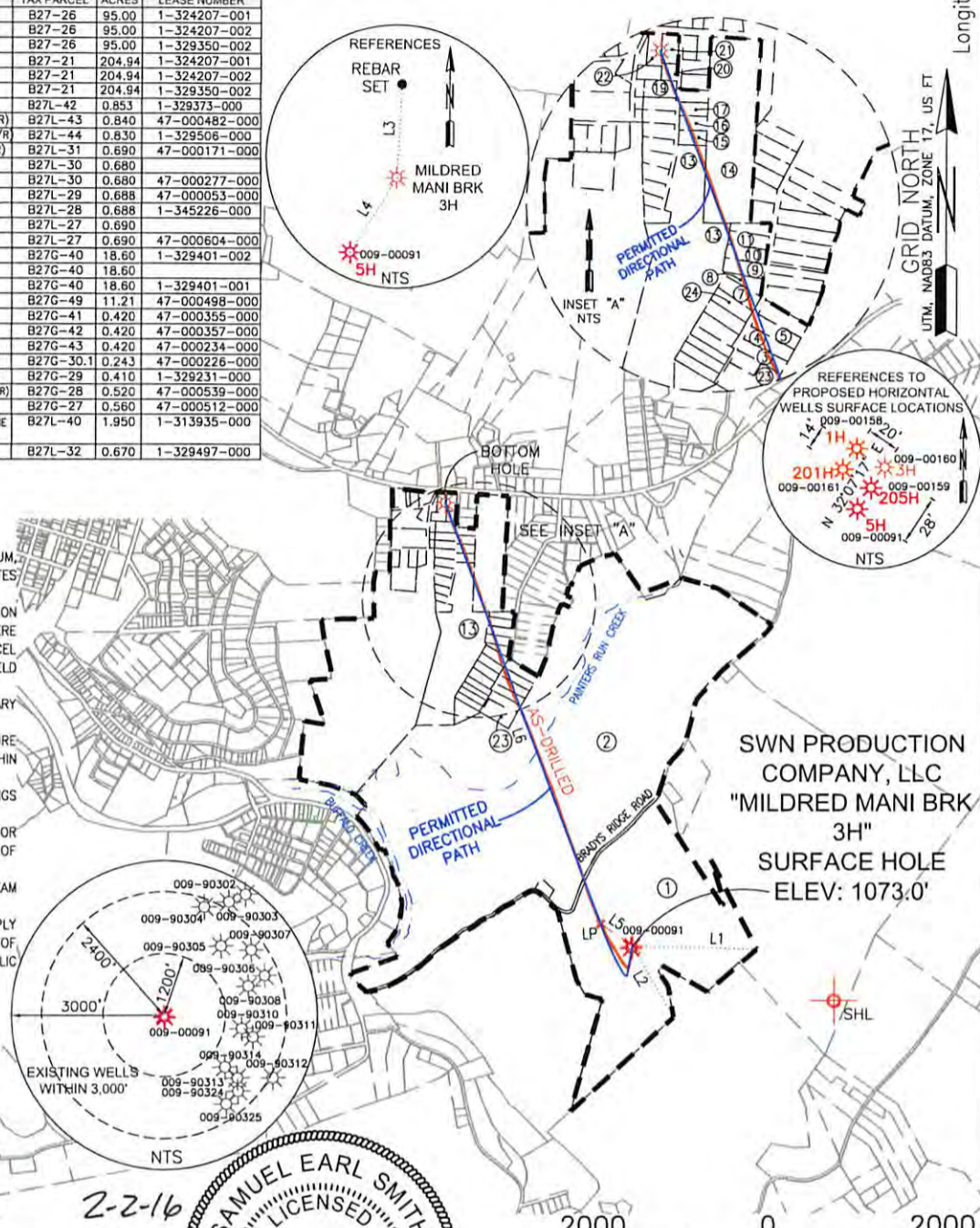
NOTES ON SURVEY

- 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 OCCUPIED DWELLINGS AND AGRICULTURE BUILDINGS GREATER THAN 2500 SQ FT. WITHIN 625 FEET OF PROPOSED OF CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
- NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,024.703 EASTING: 534,907.106
LANDING POINT (LP): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,101.403 EASTING: 534,795.525
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,457,555.759 EASTING: 534,254.269

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P.S. 2315



GRAPHIC SCALE IN FEET

COMPANY:	SWN Production Company, LLC	SWN Production Company™
OPERATOR'S WELL #:	MILDRED MANI BRK 3H	
API WELL #:	47	09 00160
	STATE	COUNTY PERMIT

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

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

WATERSHED: BUFFALO CREEK ELEVATION: 1073.0'

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: STUEBENVILLE EAST WV.

SURFACE OWNER: MILDRED MANI & ERIK PHILIP BAUER ACREAGE: 95.00±

OIL & GAS ROYALTY OWNER: MILDRED MANI & ERIK PHILIP BAUER ACREAGE: 95.00±

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 DEPTH: 5,691' TVD 11,147 TMD

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

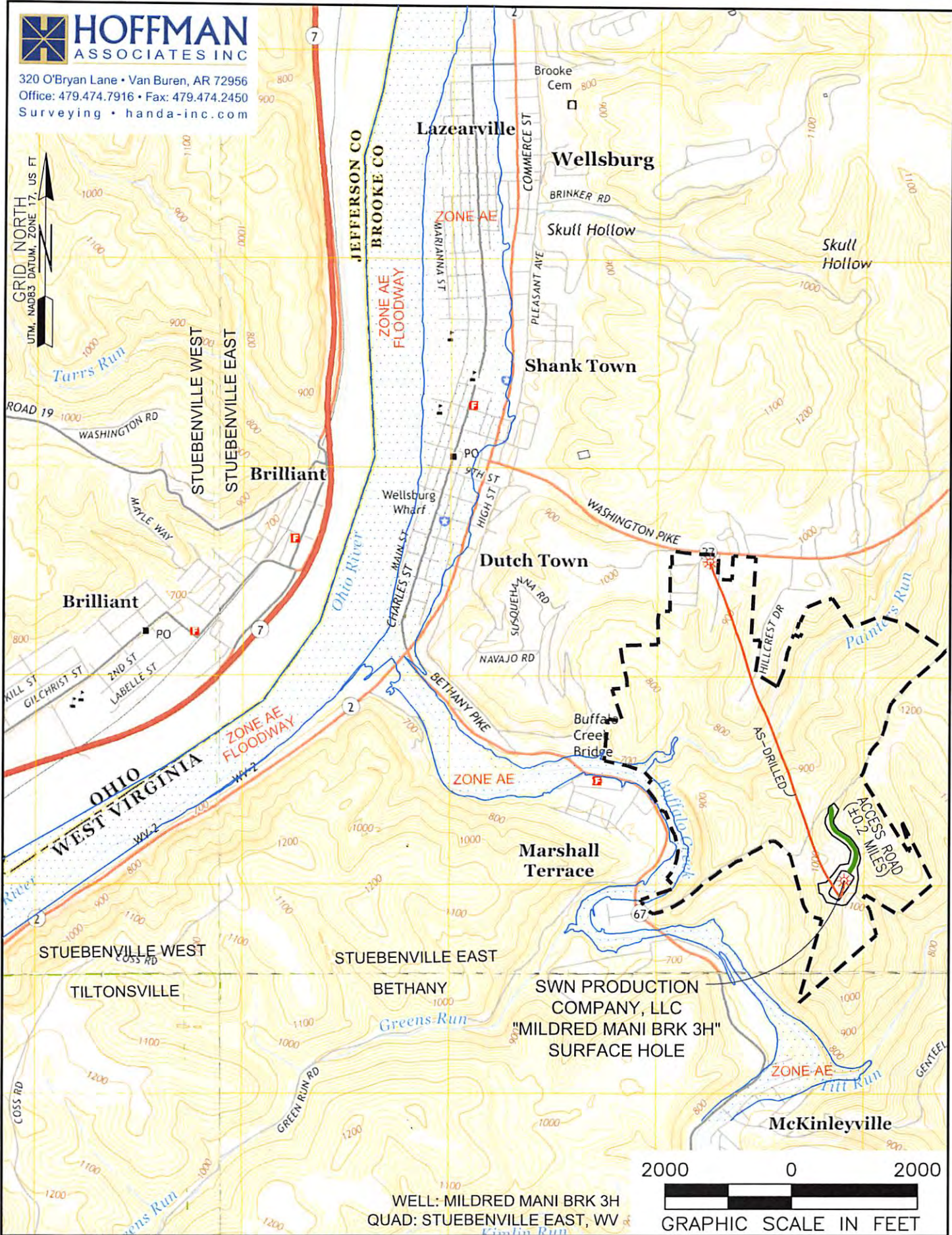
DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD ⊗ ABANDONED WELL ⊗ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR	REVISIONS: △ REVISED SHL, LP, & BHL FOR ASDRILLED DIRECTIONAL PATH 11-04-2015 △ REVISED ASDRILLED & PERMITTED DIRECTIONAL PATH COLOR, ADDED LP COORDINATES. 01-29-2016	DATE: 10-21-2015 DRAWN BY: J. HARNESS SCALE: 1" = 2000' DRAWING NO: 59392 WELL LOCATION PLAT
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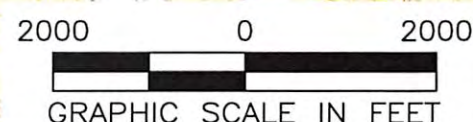


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 Surveying • handa-inc.com

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



WELL: MILDRED MANI BRK 3H
 QUAD: STUEBENVILLE EAST, WV



NAME AND DISTANCE TO THE NEAREST STREAM: TITT RUN IS LOCATED ±0.31 MILES SOUTHEAST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: 	
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				DRAWN BY: J. HARNESS SCALE: 1" = 2000' DRAWING NO: 59392 TOPOGRAPHIC MAP	