

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

API 47103035750000 County WETZEL District PROCTOR
 Quad WILLEYVILLE, WV Pad Name WILLIAM RITCHEA-WTZ-PAD1 Field/Pool Name VICTORY FIELD WET
 Farm Name WILLIAM D. RITCHEA & SHIRLEY E. RITCHEA Well Number WILLIAM RITCHEA WTZ 210H
 Operator (as registered with the OOG) SWN Production Company LLC
 Address PO Box 12359 City Spring State TX
 Zip 77391-2359

As Drilled Location NAD83/UTM Attach an as-drilled plat, profile view, and deviation survey
 Top Hole Northing 4,391,135.86 Easting 529,209.29
 Landing Point of Curve Northing 4,391,054.13 Easting 529,604.01
 Bottom Hole Northing 4,388,879.80 Easting 532,004.15

Elevation (ft) 1,563.1' GL Type of Well New Existing Type of Report Interim Final
 Permit Type Deviate Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
 Type of Operation Convert Deepen Drill Plug Back Redrill Re-Wor Stimulate
 Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other
 Type of Completion Single Multiple Fluids Produce 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

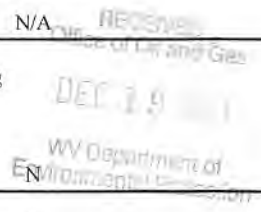
Mud Type(s) and Additive(s) SOBM
 See attached Mud Summary Report

Date permit issued 2023-04-19 Date drilling commenced 2023-06-28 Date drilling ceased 2023-07-12
 Date Completion activities began 2023-08-17 Date Completion activities ceased 2023-09-29
 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 541' Oprn mine(s) (Y/N) depths
 Salt water depth(s) ft 1,556' Void(s) encountered (Y/N) depths N
 Coal depth(s) ft 1,500' Cavern(s) encountered (Y/N) depths N
 Is coal being mined in area (Y/N) N

Reviewed by: [Signature]
02/16/2024



API 47103035750000 Farm name WILLIAM D. RITCHEA & SHIRLEY E. RITCHEA Well number WILLIAM RITCHEA WTZ 210H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Wt lb/ft	Grade	Basket Depth	Did cement circulate (Y/N) *Provide details below*	
Conductor	24.000	20.000	136	NEW	94.00	J-55		Y	
Surface	17.500	13.375	595	NEW	54.50	J-55		Y/	35 BBLs
Coal									
Intermediate 1	12.250	9.625	2974	NEW	36.00	J-55		Y/	35 BBLs
Intermediate 2									
Intermediate 3									
Production	8.500	5.500	18738	NEW	20.00	P-110 HP		Y/	10 BBLs
Tubing									
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 ²)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	560	15.6	1.19	666.4	SURFACE	8
Coal							
Intermediate 1	CLASS A	1043	15.6	1.18	1230.74	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	3305	14.5	1.29	4263.45	SURFACE	8
Tubing							

Drillers TD (ft) 18,738 Loggers TD (ft) 18,738
 Deepest formation penetrated MARCELLUS Plug back to (ft) 18,648
 Plug back procedure N/A

Kick off depth (ft) 6,990 MD

Check all wireline logs run caliper density deviated/directional induction sonic
 neutron resistivity gamma ray temperature
 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: 36 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 PRODUCTION: 432 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 AS OPEN HOLE Yes No Details _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

RECEIVED
 Office of Oil and Gas
 DEC 10 2013
 WV Department of Environmental Protection

02/16/2024

JMK
 F31-4

API 47103035750000 Farm name WILLIAM D. RITCHEA & SHIRLEY E. RITCHEA Well number WILLIAM RITCHEA WTZ 210H

PRODUCING FORMATION(S)	DEPTHS		
<u>MARCELLUS</u>	<u>7,570</u> TVD	<u>7,848'</u>	<u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,050 psi Bottom Hole _____ psi DURATION OF TEST (hrs) _____

OPEN FLOW GAS 22,808 mcpd OIL 7 bpd NGL 819 bpd WATER _____ bpd GAS MEASURED BY Estimate 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 (FRESH WATER, BRINE, OIL, GAS, H2S, ETC)

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 (FRESH WATER, BRINE, OIL, GAS, H2S, ETC)
	SEE ATTACHMENT 3				

RECEIVED
Office of Oil and Gas
DEC 10 2023

Please insert additional pages as applicable

WV Department of
Environmental Protection

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 77380

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

Stimulating Company SWN WELL SERVICES
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Please insert additional pages as applicable.

Completed by DENJSE GRANTHAM Telephone 832-796-6139
Signature *Denjse Grantham* Title REGULATORY SPECIALIST Date 12.13.2023

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry

02/16/2024
573729

Latitude: 39°42'30"

SURFACE HOLE 9691'

Latitude: 39°40'00"

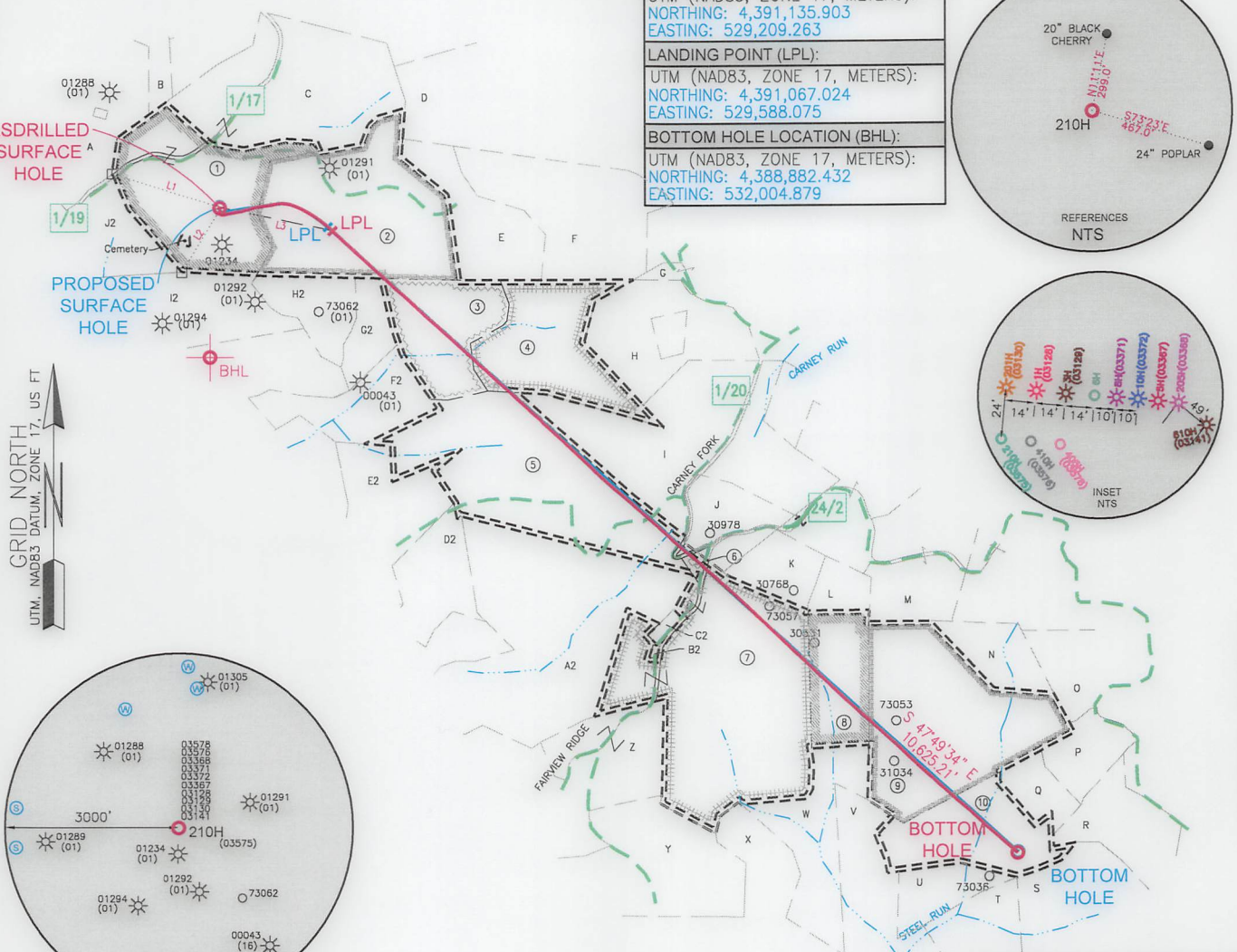
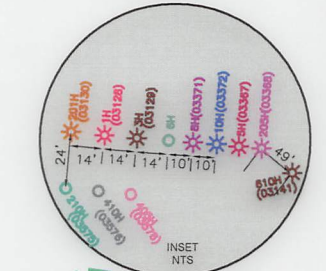
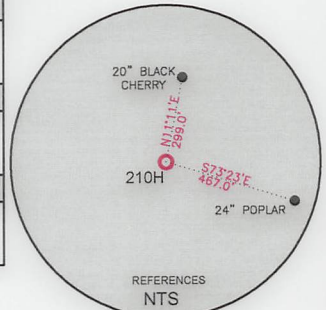
BOTTOM HOLE 12,285'

JACKSON SURVEYING INC.

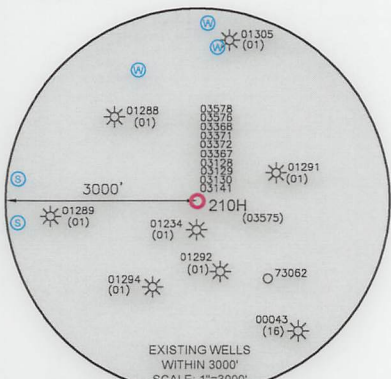
2413 EAST PIKE ST. # 112
Clarksburg, WV 26302
304-623-5851

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 72°20'49" W	1298.60'	SHL TO LANDMARK	FD. 5/8" REBAR
L2	S 30°22'35" W	865.29'	SHL TO LANDMARK	FD. 5/8" REBAR
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L3	S 78°18'06" E	1,322.50'	1,467.88'	SHL TO LPL

SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,391,135.903	
EASTING: 529,209.263	
LANDING POINT (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,391,067.024	
EASTING: 529,588.075	
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,388,882.432	
EASTING: 532,004.879	



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



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. NO WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 250 FEET OF PROPOSED WELL.
4. NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF 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.

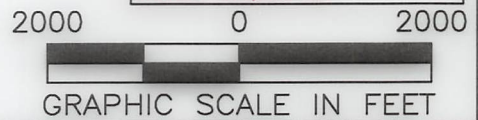
NOTES ON SURVEY

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. 708

David L Jackson



(+) 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)

COMPANY: SWN Production Company, LLC

WILLIAM RITCHEA WTZ
OPERATOR'S WELL #: 210H
API WELL #: 47 STATE 103 COUNTY 03575 PERMIT

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

WATERSHED: FISH CREEK (HUC-10) ELEVATION: 1563.1' STAKED

DISTRICT: PROCTOR COUNTY: WETZEL QUADRANGLE: WILEYVILLE, WV

SURFACE OWNER: WILLIAM D. RITCHEA & SHIRLEY E. RITCHEA ACREAGE: ±62.00

OIL & GAS ROYALTY OWNER: WILLIAM D. RITCHEA & SHIRLEY E. RITCHEA ACREAGE: ±62.00

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

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) ASDRILLED 02/16/2024

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,708' TVD 18,738' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY
ADDRESS: 1300 FORT PIERPONT ROAD, SUITE 200 ADDRESS: 1300 FORT PIERPONT ROAD, SUITE 200
CITY: MORGANTOWN STATE: WV ZIP CODE: 26508 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

LEGEND:	<ul style="list-style-type: none"> 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 	<p>REVISIONS:</p> <p>DATE: 08-08-2023</p> <p>DRAWN BY: N. MANO</p> <p>SCALE: 1" = 2000'</p> <p>DRAWING NO:</p> <p>WELL LOCATION PLAT</p>
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JACKSON SURVEYING
 INC.
 2413 EAST PIKE ST. # 112
 Clarksburg, WV 26302
 304-623-5851

WELL BORE TRACTS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	RITCHEA WILLIAM D & SHIRLEY E (S/R)	12-15-21
TRACT	SURFACE OWNER (S)	
2	CHRISTY MICHAEL M JR ETAL & HALL SUSAN (S)	12-15-22
3	BROWN SANDY K (S)	12-15-28
4	YOHO KIMBERLY & KEITH ALLEN (S)	12-15-29
5	MELOTT TERREL LEMOYN (S)	01-10-22
6	WYKERT ERIC D (S)	01-10-23
7	MCCRAY LINDA ETAL (S)	01-10-33
8	MCMILLEN SHARON J (S)	01-10-34
9	MCMILLEN SHARON J (S)	01-10-35
10	MCMILLEN SHARON J (S)	01-10-49

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	PITOSCIA WILLIAM R	12-14-16
B	URBANEK SCOTT J & CHRYSTAL A	12-15-13
C	LEMASTERS H C HRS & MANKER CHARLES V REVOC LIVING TR	12-15-18
D	LEMASTERS DOLLY G EST	12-15-19
E	HEETER HAROLD JR ETAL	12-15-23
F	FERRELL HANNAH RAINE & FERRELL JOSEPH ROSS	12-15-24
G	WYKERT WAYNE & ASHLEY	01-10-14
H	WOOD GLENN & TAMELA P	01-10-09
I	MELOTT TERREL L	01-10-10
J	BARD VANESSA	01-10-11.1
K	?	
L	?	
M	CRANE DONALD N	01-10-24
N	?	
O	HENDERSON AMIE LEE	01-10-36
P	HENDERSON AMIE LEE	01-10-37
Q	MCMILLEN SHARON J	01-10-51
R	MILLER JOHN G ETAL	01-10-52
S	COASTAL FOREST RESOURCES CO	01-14-05
T	COASTAL FOREST RESOURCES CO	01-14-04
U	COASTAL FOREST RESOURCES CO	01-10-50
V	COASTAL FOREST RESOURCES CO	01-14-03
W	FLEMING DEAN & ETAL	01-10-48
X	COASTAL FOREST RESOURCES CO	01-10-47
Y	CAIN SAMUEL EST & CAIN GLEN JR	01-10-46
Z	JARRELL WILMA & JEFFREY	01-10-45
A2	YEATER CHESTER C JR & LORENE REVOCABLE TRUST	01-10-32
B2	RICHTER ROMIEY & CAROL	01-10-33.1
C2	SNIDER GARNET & HUGH	01-10-21
D2	MILLS RITCHIE W & NELSON B	01-09-16
E2	MILLS RITCHIE W & NELSON B	01-09-15
F2	LEMASTERS HAROLD E & BETTY L	12-15-32
G2	BROWN SANDY K	12-15-27
H2	CHRISTY MICHAEL M JR ETAL & HALL SUSAN	12-15-26
I2	CHRISTY MICHAEL M JR ETAL & HALL SUSAN	12-15-25
J2	PITOSCIA WILLIAM R	12-14-27

02/16/2024

REVISIONS:	COMPANY:			
	OPERATOR'S	WILLIAM RITCHEA WTZ	API #:	DATE: 08-08-2023
	WELL #:	210H	47-103-03575	DRAWN BY: N. MANO
	DISTRICT:	COUNTY:	STATE:	SCALE: N/A
	PROCTOR	WETZEL	WV	DRAWING NO: WELL LOCATION PLAT 2

WILLIAM RICHA WTZ 210H
ATTACHMENT 2
STIM REPORT


STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment	Max Breakdown	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/othe
1	8/17/2023	74.6	7,967	8,191	4,524	192,500	6,111	0
2	8/18/2023	74.4	8,150	5,463	4,821	315,000	9,097	0
3	8/18/2023	79.5	8,369	5,995	4,752	315,000	9,423	0
4	8/18/2023	84	8,567	5,548	4,652	315,000	8,910	0
5	8/19/2023	77.2	8,825	6,140	4,600	315,000	8,758	0
6	8/19/2023	81.1	8,256	9,260	4,600	315,000	9,293	0
7	8/20/2023	90.3	8,859	6,119	4,700	315,000	9,033	0
8	8/20/2023	94	9,337	6,020	4,256	315,000	9,432	0
9	8/20/2023	94.8	9,403	7,213	4,250	315,000	8,268	0
10	8/20/2023	98.5	9,305	5,227	4,285	315,000	8,987	0
11	8/21/2023	98.4	9,464	6,930	4,582	315,000	8,641	0
12	8/21/2023	94.5	9,051	5,941	4,365	315,000	8,326	0
13	8/21/2023	90.2	9,101	5,363	4,850	315,000	7,948	0
14	8/21/2023	96.8	9,355	6,917	4,500	315,000	8,023	0
15	8/22/2023	98	9,474	6,712	4,700	315,000	7,859	0
16	8/22/2023	92.2	9,283	7,384	4,420	315,000	7,824	0
17	8/22/2023	95.2	9,477	7,148	4,582	315,000	8,917	0
18	8/23/2023	98.4	9,324	6,452	4,892	315,000	7,535	0
19	8/23/2023	90.1	9,100	6,820	4,815	315,000	8,109	0
20	8/23/2023	69.9	6,901	6,612	5,348	315,000	9,283	0
21	8/23/2023	76.4	8,875	6,428	4,985	315,000	9,348	0
22	8/24/2023	97.4	8,576	6,760	4,536	315,000	7,844	0
23	8/24/2023	84.8	8,350	6,566	4,359	315,000	8,088	0
24	8/24/2023	98	8,890	6,421	4,800	315,000	7,780	0
25	8/25/2023	90.2	8,502	6,720	4,334	315,000	8,593	0
26	8/25/2023	99	8,690	5,729	4,852	315,000	7,722	0
27	8/25/2023	98.9	8,584	6,104	4,652	315,000	7,693	0
28	8/26/2023	98.5	8,504	5,931	4,685	315,000	7,818	0
29	8/26/2023	82.6	7,651	6,180	4,600	314,820	7,639	0
30	8/26/2023	93.1	8,366	6,579	4,725	315,000	8,080	0
31	8/26/2023	99.1	8,317	6,241	5,100	315,000	7,765	0
32	8/27/2023	94.3	8,121	6,407	4,700	315,000	7,556	0
33	8/27/2023	77.4	7,760	6,034	4,851	311,720	7,587	0
34	8/27/2023	94.9	8,437	6,007	3,789	308,680	7,769	0
35	8/27/2023	96.2	8,141	5,217	4,892	314,520	7,582	0
36	8/27/2023	91.4	7,975	5,960	4,872	315,000	7,600	0
37	8/28/2023	89.4	7,651	5,772	4,528	311,620	7,296	0
38	8/28/2023	90.6	8,174	6,359	4,320	313,240	7,405	0
39	8/28/2023	84.9	7,408	6,322	4,322	315,000	8,284	0
40	8/28/2023	88	7,961	6,360	4,800	315,000	8,225	0
41	8/28/2023	95.1	7,755	6,012	4,600	315,000	8,157	0
42	8/29/2023	99	8,197	6,328	4,698	312,500	8,399	0
43	8/29/2023	95.9	8,320	6,465	4,756	312,220	8,204	0
44	8/29/2023	97.5	8,370	6,534	4,751	315,000	8,447	0
45	8/29/2023	98.8	8,151	6,245	4,525	313,620	8,233	0
46	8/29/2023	99.3	8,045	6,071	4,358	314,440	8,110	0
47	8/30/2023	88.2	7,479	6,005	4,428	309,120	7,937	0
48	8/30/2023	94.7	7,807	6,241	5,147	315,000	8,353	0
49	8/30/2023	81.9	7,322	6,245	5,147	312,980	8,694	0
50	8/30/2023	82.3	7,081	5,829	4,555	315,000	9,683	0
51	8/31/2023	80	6,975	5,741	5,179	312,540	8,794	0
52	8/31/2023	80	6,989	5,635	5,048	307,100	9,749	0

02/16/2024 

**WILLIAM RITCHEA WTZ 210H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
1	7/31/2023	18,648	18,554	36
2	8/18/2023	18,520	18,344	36
3	8/18/2023	18,311	18,135	36
4	8/18/2023	18,102	17,926	36
5	8/19/2023	17,893	17,717	36
6	8/19/2023	17,684	17,508	36
7	8/19/2023	17,475	17,298	36
8	8/20/2023	17,266	17,089	36
9	8/20/2023	17,057	16,880	36
10	8/20/2023	16,848	16,671	36
11	8/20/2023	16,638	16,462	36
12	8/21/2023	16,429	16,253	36
13	8/21/2023	16,220	16,044	36
14	8/21/2023	16,011	15,835	36
15	8/21/2023	15,802	15,626	36
16	8/22/2023	15,593	15,417	36
17	8/22/2023	15,384	15,208	36
18	8/22/2023	15,175	14,999	36
19	8/23/2023	14,966	14,790	36
20	8/23/2023	14,757	14,581	36
21	8/23/2023	14,548	14,372	36
22	8/23/2023	14,339	14,163	36
23	8/24/2023	14,130	13,954	36
24	8/24/2023	13,921	13,744	36
25	8/24/2023	13,712	13,535	36
26	8/25/2023	13,503	13,326	36
27	8/25/2023	13,294	13,117	36
28	8/26/2023	13,084	12,908	36
29	8/26/2023	12,875	12,699	36
30	8/26/2023	12,666	12,490	36
31	8/26/2023	12,457	12,281	36
32	8/26/2023	12,248	12,072	36
33	8/27/2023	12,039	11,863	36
34	8/27/2023	11,830	11,654	36
35	8/27/2023	11,621	11,445	36
36	8/27/2023	11,412	11,236	36
37	8/27/2023	11,203	11,027	36
38	8/28/2023	10,994	10,818	36
39	8/28/2023	10,785	10,609	36
40	8/28/2023	10,576	10,400	36
41	8/28/2023	10,367	10,190	36
42	8/29/2023	10,158	9,981	36

RECEIVED
Department of Oil and Gas
August 19 2023
Department of
Environment and
Natural Resources

02/16/2024 

**WILLIAM RITCHEA WTZ 210H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
43	8/29/2023	9,949	9,772	36
44	8/29/2023	9,740	9,563	36
45	8/29/2023	9,530	9,354	36
46	8/29/2023	9,321	9,145	36
47	8/29/2023	9,112	8,936	36
48	8/30/2023	8,903	8,727	36
49	8/30/2023	8,694	8,518	36
50	8/30/2023	8,485	8,309	36
51	8/31/2023	8,276	8,100	36
52	8/31/2023	8,067	7,891	36

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02/16/2024



Well Name: **William Ritchea WTZ 210H** **47103035750000**

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	541.00	541.00	
Top of Salt Water	1556.00	1556.00	NA	NA	
Pittsburgh Coal	1500.00	1496.00	1509.00	1505.00	
Raven Cliff (ss)	1985.00	1979.00	2343.00	2333.00	
Maxton (ss)	2547.00	2536.00	2639.00	2628.00	
Big Injun (ss)	2669.00	2657.00	2926.00	2914.00	
Berea (siltstone)	3281.00	3266.00	3304.00	3289.00	
Rhinestreet (shale)	6932.00	6893.00	7276.00	7222.00	
Cashaqua (shale)	7276.00	7222.00	7404.00	7327.00	
Middlesex (shale)	7404.00	7327.00	7540.00	7425.00	
Burket (shale)	7540.00	7425.00	7584.00	7452.00	
Tully (ls)	7584.00	7452.00	7626.00	7477.00	
Mahantango (shale)	7626.00	7477.00	7848.00	7570.00	
Marcellus (shale)	7848.00	7570.00	NA	NA	GAS

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/17/2023
Job End Date:	8/31/2023
State:	West Virginia
County:	Wetzel
API Number:	47-103-03575-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	WILLIAM RITCHEA WTZ 210
Latitude:	39.66955137
Longitude:	-80.65944468
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,707
Total Base Water Volume (gal):	18,022,212
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
Base Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	89.96347	Density = 8.345
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	45.00000	0.24776	

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			Water	7732-18-5	100.00000	0.24776	
			Water	7732-18-5	85.00000	0.24776	
Plexslick V996	SWN Well Services	Friction Reducer					
				Listed Below			
Tolicide 4Frac	SWN Well Services	Biocide					
				Listed Below			
Plexaid 655NM	SWN Well Services	Scale Inhibitor					
				Listed Below			
Sand	SWN Well Services	Proppant					
				Listed Below			
Ferriplex 80	SWN Well Services	Iron Control					
				Listed Below			
FSTI-CI-02	SWN Well Services	Corrosion Inhibitor					
				Listed Below			
HCL	SWN Well Services	Solvent					
				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	9.70046	
			Hydrochloric Acid	7647-01-0	15.00000	0.03738	

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			Tetrakis(Hydroxymethyl) Phosphonium Sulfate	55566-30-8	45.00000	0.00528	
			Sodium Erythorbate	6381-77-7	100.00000	0.00133	
			Quaternary ammonium compounds	68424-85-1	7.50000	0.00088	
			Ethanol	64-17-5	2.50000	0.00029	
			Ethylene glycol	107-21-1	40.00000	0.00015	
			Cinnamaldehyde	104-55-2	10.00000	0.00004	
			N,N-Dimethylformamide	68-12-2	10.00000	0.00004	
			Poly(oxy-1,2-ethanediyl), .alpha.-(nonylphenyl)-.omega.-hydroxy-	9016-45-9	10.00000	0.00004	
			benzyl chloridequaternized	72480-70-7	5.00000	0.00002	
			1-Octanol	111-87-5	5.00000	0.00002	
			1-Decanol	112-30-1	5.00000	0.00002	
			Triethyl phosphate	78-40-0	5.00000	0.00002	
			2-Butoxyethanol	111-76-2	5.00000	0.00002	
			Isopropyl alcohol	67-63-0	5.00000	0.00002	

* 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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