



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Tuesday, January 19, 2021
WELL WORK PERMIT
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359
SPRING, TX 773914954

Re: Permit approval for STATE OF WV DNR C BRK 5H
47-009-00326-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.


James A. Martin
Chief

Operator's Well Number: STATE OF WV DNR C BRK 5H
Farm Name: STATE OF WEST VIRGINIA, WV
U.S. WELL NUMBER: 47-009-00326-00-00
Horizontal 6A New Drill
Date Issued: 1/19/2021

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: _____

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: SWN Production Co., LLC 494512924 009-Brooke 4-Cross 620-Steubenville
Operator ID County District Quadrangle

2) Operator's Well Number: State of WV DNR C BRK 5H Well Pad Name: State of WV DNR C BRK

3) Farm Name/Surface Owner: State of WV DNR Public Road Access: Putney Ridge Road

4) Elevation, current ground: 993' Elevation, proposed post-construction: 990'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal _____

6) Existing Pad: Yes or No No

C. M. 11-19-20

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Down-Dip Well to the South, Target Top TVD- 5588', Target Base TVD- 5650', Anticipated Thickness- 62', Associated Pressure- 3672

8) Proposed Total Vertical Depth: 5632'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 23,134'

11) Proposed Horizontal Leg Length: 16105.77'

12) Approximate Fresh Water Strata Depths: 371'

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13) Method to Determine Fresh Water Depths: nearby water well

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14) Approximate Saltwater Depths: 575' salinity profile analysis

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15) Approximate Coal Seam Depths: 6'

16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No

(a) If Yes, provide Mine Info: Name: _____

Depth: _____

Seam: _____

Owner: _____

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	J-55	94#	100'	100' ✓	CTS
Fresh Water	13 3/8"	New	H-40	48#	496'	496' ✓	459 sx/CTS
Coal	See	Conductor	Casing				
Intermediate	9 5/8"	New	J-55	36#	1380'	1380' ✓	460 sx/CTS
Production	5 1/2"	New	P-110 HP	20#	23134'	23134'	1st 4253sx/100' inside intermediate
Tubing							
Liners							

C. BLO 11-19-20

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	81	Class A	1.20/30% Excess
Fresh Water	13 3/8"	17.5"	0.380	2730	633	Class A	1.20/30% Excess
Coal	See	Conductor	Casing				
Intermediate	9 5/8"	12 1/4"	0.352	3950	1768	Class A	1.19/40% Excess
Production	5 1/2"	8 3/4"-8 1/2"	0.361	14360	10500	Class A	1.19/5% Excess
Tubing							
Liners							

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PACKERS

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Kind:				
Sizes:				
Depths Set:				

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and stimulate any potential zones between and including the Benson to Marcellus. **If we should encounter a void place basket above and below void area- balance cement to bottom of void and grout from basket to surface or run external casing packer/cementing stage tool above void interval and perform 2 stage cementing operation dependent upon depth of void. Run casing not less than 20' below void nor more than 75' below void. (*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts.)

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. In some instances, additional toe prep may be performed by pumping additional water in the toe of the well prior to perforating and pumping Stage 1 to ensure that the toe guns/toe sleeves are fully open prior to pumping stage 1. The well is produced through surface facilities consisting of high pressure production unites, horizontal separation units, water and oil storage tanks. Max press and anticipated max rate- 9000 lbs @ 100 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 15.72

22) Area to be disturbed for well pad only, less access road (acres): 12.13

23) Describe centralizer placement for each casing string:

All casing strings will be ran with a centralizer at a minimum of 1 per every 3 joints of casing.

24) Describe all cement additives associated with each cement type:

See Attachment ***

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25) Proposed borehole conditioning procedures:

All boreholes will be conditioned with circulation and rotation for a minimum of one bottoms up and continuing until operator is satisfied with borehole conditions.

*Note: Attach additional sheets as needed.

CEMENT ADDITIVES						
INTERVAL	SCHLUMBERGER PRODUCT NAME	BJ PRODUCT NAME	NEXTIER PRODUCT NAME	PRODUCT USE	CHEMICAL NAME	CAS-Number
SURFACE (FRESHWATER) <i>up to 3%</i>	 	INTEGRA SEAL	CJ600	LOST CIRC MATERIAL	CELLOPHANE FLAKES	9005-81-6
	S001	A-7P	CJ110	ACCELERATOR	CALCIUM CHLORIDE	10043-52-4
COAL PROTECTION <i>up to 3%</i>	 	INTEGRA SEAL	CJ600	LOST CIRC MATERIAL	CELLOPHANE FLAKES	9005-81-6
	S001	A-7P	CJ110	ACCELERATOR	CALCIUM CHLORIDE	10043-52-4
INTERMEDIATE	D020	BENTONITE	CJ020	EXTENDER	BENTONITE	1302-78-9
	D047	FP 28L	 	LIQUID ANTIFOAM AGENT	POLYPROPYLENE GLYCOL	25322-69-4
	 	INTEGRA SEAL	CJ600	LOST CIRC MATERIAL	CELLOPHANE FLAKES	9005-81-6
	CemNet	 	 	LOST CIRC MATERIAL	COATED FIBERGLASS FIBERS	PROPRIETARY
	SUGAR	SUGAR	CJ795	CMT RETARDER	SUCROSE	57-50-1
	S001	A-7P	CJ110	ACCELERATOR	CALCIUM CHLORIDE	10043-52-4
PRODUCTION	 	 	CJ111	ACCELERATOR	SODIUM CHLORIDE	7440-23-5
	 	SS-11W	CJ880	SURFACTANT	NONIONIC SURFACTANT	6540-99-4
	D047	FP 28L	 	LIQUID ANTIFOAM AGENT	POLYPROPYLENE GLYCOL	25322-69-4
	 	 	CJX157011	SOLID ANTIFOAM AGENT	FULLERS EARTH(ATTAPULGITE)	8031-18-3
	 	 	CJ540	HP FLUID LOSS ADDITIVE	ALIPHATIC AMIDE POLYMER	PROPRIETARY
	D255	 	 	MED TEMP FLUID LOSS ADDITIVE	POLYACRILIC POLYMER	PROPRIETARY
	 	 	CJ213	RETARDER	CHRYSTALLINE SILICA	14808-60-7
	 	FL-66	CJ501	LOW TEMP FLUID LOSS ADD	POWDERED POLYSACCHARIDE	PROPRIETARY
	 	BENTONITE	CJ020	EXTENDER	BENTONITE	1302-78-9
	D208	ASA-301	 	VISCOSIFIER/ANTI- SETTLING AGENT	REFINED POLYMER/ CHRYSTALLINE SILICA	PROPRIETARY
	D198	R-3		CEMENT RETARDER	LIGNIN	8068-51-6
SUGAR	SUGAR	CJ795	CEMENT RETARDER	SUCROSE	57-50-1	

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Southwestern Energy Company

Proposed Drilling Program

Well: STATE OF WV DNR C BRK 5

Re-entry Rig: TBD

Field: PANHANDLE FIELD WET

Prospect: Marcellus Shale

County: BROOKE

State: WV



SHL: 40.3024 Latitude -80.5378 Longitude

BHL: 40.3460 Latitude -80.5545 Longitude

KB Elev: 1,016 ft MSL

KB: 26 ft AGL

GL Elev: 990 ft MSL

PROD TOC Lead @ 1,500' MD

PROD TOC Tail @ 5,187' MD

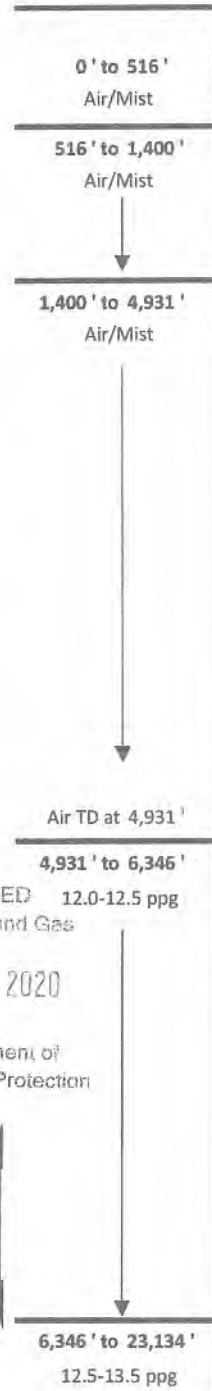
CRH
11-19-20

TUBULAR DETAIL

Casing String	Casing Size (in)	Weight (Min)	Grade (Min)	Planned Interval	
				From	To
Cond/Coal	20	94.0 #	J-55	0'	100'
Surface	13.375	48.0 #	H-40	0'	496'
Intermediate	9.625	36.0 #	J-55	0'	1,380'
Production	5.5	20.0 #	P-110 HP	0'	23,134'

CEMENT DETAIL

	Sacks	Class	Density
Conductor:	151	A	19.3
Surface:	459	A	15.6
Intermediate:	460	A	15.6
Production:	4253	A	15.6



KOP at 4,931' MD

Freshwater Depth - 371' TVD

Coal Depth - 6' TVD

Saltwater Depth - 575' TVD

TVD - 5,632'

TMD - 23,134'

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TD at 23,134' MD

5,427' TVD

5,632' TVD Target Center

EOB at 6,346' MD

EOB at 5,632' TVD

SHL Onondaga 5,650' TVD

Onondaga 5,445' TVD

6,346' to 23,134'

12.5-13.5 ppg

November 16, 2020

Ms. Laura Adkins
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

RE: Proposed New State of WV DNR C BRK 5H

Dear Ms. Adkins

SWN has reviewed the area of the above mentioned well and discovered no shallow wells within 500' of the lateral. This well is situated on the DNR C's property, in Cross Creek District, Brooke County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1613.

Thank you.

Sincerely,



Brittany Woody
Senior Regulatory Analyst
Southwestern Energy Production Company, LLC

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Co., LLC OP Code 494512924

Watershed (HUC 10) North Fork Cross Creek- Cross Creek Quadrangle Steubenville East

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number Various Approved Facilities)
- Reuse (at API Number At the next anticipated well)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain recovery and solidification on site)

Will closed loop system be used? If so, describe: Yes- See Attachment 3A

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air drill to KOP, fluid drill with SOBMs from KOP to TD

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Oil Base

Additives to be used in drilling medium? Attachment 3B

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? Meadowfill SWF- 1032, Short Creek SWF-1034, Carbon Limestone MSWL018781, Wetzel County 1021

Apex Sanitary Landfill 06-08438, Brooke Co SWF-1013,

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

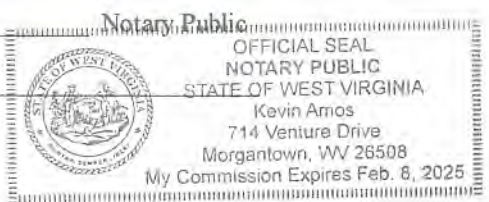
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Brittany Woody*
Company Official (Typed Name) Brittany Woody
Company Official Title Senior Regulatory Analyst

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Subscribed and sworn before me this 11th day of DECEMBER, 2020

My commission expires FEB 8, 2025



SWN Production Co., LLC

Proposed Revegetation Treatment: Acres Disturbed 15.72 Prevegetation pH _____

Lime as determined by pH test min.2 Tons/acre or to correct to pH 12.13

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay/Straw Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre

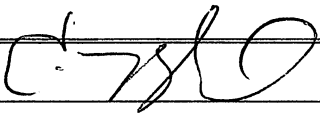
Seed Type lbs/acre

Attachment 3B

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:  11.19.20

Comments: _____

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Title: Oil & Gas Inspector

Date: 11.19.20

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Field Reviewed? Yes No

Attachment 3A

CLOSED LOOP SYSTEM

The closed loop system is designed to eliminate the use of reserve pits by providing a higher level of solids control processing and using steel pits for capture of drill cuttings. The cuttings are then processed to achieve landfill requirements before hauling to approved landfills. The liquids are processed to recycle into the active mud system or to transfer to onsite temporary storage as needed.

The closed loop system consists of several sets of a shale gas separator (often called a 'methana'), several banks of solids shakers, high speed centrifuges (1 or 2) used to process the fluid portion of the mud system to remove low gravity solids, low speed centrifuge used for barite recovery in high weight liquid drilling systems, a dewatering system (for air intervals and if freshwater mud systems are in use) used to further clean liquids by flocculation and additional mechanical separation, associated open top tanks for processing liquids and capturing solids for disposal, and transfer pumps to move fluids through the processes. There is an area adjacent to the cuttings tanks (Red Zone) where a track hole is utilized to recover the processed cuttings for loading into containers for hauloff. (See attached schematic of a generic closed loop system layout)

Below are discussions of the processes used when drilling the air interval or liquids interval.

AIR DRILLING INTERVALS

During air drilling operations, flow from the rig will pass down the flowline to the Shale Gas Separator (sometimes called a methane) where gas and liquids/solids are separated. Gas is sent to the flare scrubber tank and is flared at the flare stack. Solids and fluids pass across a shaker system to separate solids from liquids. Solids pass into the cuttings tanks where they are captured for drying and hauloff to an approved landfill site. Liquids fall into a shaker tank and are collected by a centrifugal pump to be processed by the high speed centrifuge to further separate liquids and solids. Solids are then dumped into the cuttings tank for drying and hauloff. Liquids are further processed to remove additional low gravity solids before being reused or transferred to onsite storage.

LIQUIDS DRILLING (FRESHWATER, BRINE, SOBM)

When drilling is converted to liquids drilling, the shale gas separator and associated shaker tank are bypassed, and the liquids system is processed over the primary and drying shaker systems. Cuttings drop into the cuttings tank for additional processing. Any recoverable associated liquids attached to the cutting are recovered out the tank and processed through the low gravity (high speed) and barite recovery centrifuges (low speed) to further remove low gravity solids and to recover barite for reuse in the mud systems.

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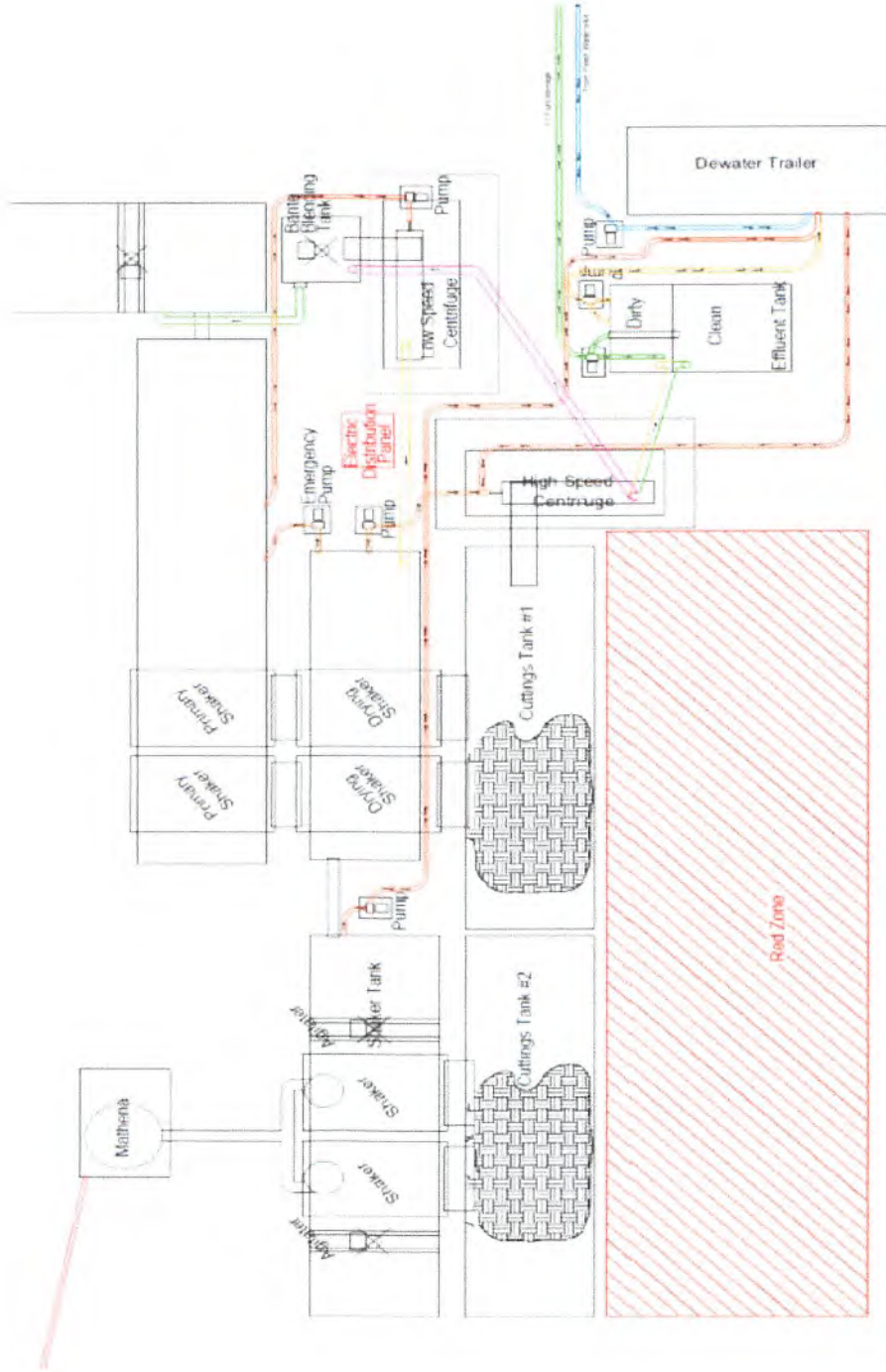
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EXAMPLE SCHEMATIC FOR CLOSED LOOP SOLIDS CONTROL SYSTEM



Solids Control Layout



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Attachment 3B

Drilling Mediums

Surface/Coal(if present)/Freshwater Intervals:

Air

Freshwater (if needed based on conditions)

Intermediate/Coal (if present):

Air

Production Hole:

Air

Synthetic Oil (Base Fluid for mud system)

Barite

Calcium Chloride

Lime

Organophilic Bentonite

Primary and Secondary Emulsifiers

Gilsonite

Calcium Carbonate

Friction Reducers

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WVD Seeding Specification

R₂V⁺
A

To Order Seed contact Lyndsi Eddy Flippo office 570-996-4271 cell 501-269-5451 lyndsi_eddy@swn.com (please allow 7 to 10 days for delivery)

NON-ORGANIC PROPERTIES	
Seed Mixture: ROW Mix	SWN Supplied
Orchardgrass	40%
Timothy	15%
Annual Ryegrass	15%
Brown Top Millet	5%
Red Top	5%
Medium Red Clover	5%
White Clover	5%
Birdsfoot Trefoil	5%
Rough Bluegrass	5%
All legumes are inoculated at 5x normal rate	
Apply @ 100lbs per acre April 16th- Oct. 14th	
Apply @ 200lbs per acre Oct. 15th- April 15th PLUS 50lbs per acre of Winter Wheat	

SOIL AMENDMENTS	
10-20-20 Fertilizer	*Apply @ 500lbs per Acre
Pelletized Lime	Apply @ 2 Tons per Acre
*unless otherwise dictated by soil test results	

Seeding Calculation Information:
1452' of 30' ROW/LOD is One Acre
871' of 50' ROW/LOD is One Acre
622' of 70' ROW/LOD is One Acre

Synopsis:
Every 622 linear feet in a 70' ROW/LOD, you should be using (2) 50lb bags of seed, (4) 50lb bags of fertilizer and (80) 50lb bags of Lime (2x seed in winter months + 50lb Winter Wheat/ac).

Special Considerations:
Landowner Special Considerations including CREP program participants require additional guidance that is not given here. Discuss these requirements with SWN supervision at the beginning of the project to allow time for special seed delivery.

ORGANIC PROPERTIES	
Seed Mixture: SWN Production Organic Mix	SWN Supplied
Organic Timothy	50%
Organic Red or White Clover	50%
OR	
Organic Perennial Ryegrass	50%
Organic Red or White Clover	50%
Apply @ 100lbs per acre April 16th- Oct. 14th	
Apply @ 200lbs per acre Oct. 15th- April 15th	
Organic Fertilizer @ 200lbs per Acre	Pelletized Lime @ 2 Tons per Acre

WETLANDS (delineated as jurisdictional wetlands)	
Seed Mixture: Wetland Mix	SWN Supplied
VA Wild Ryegrass	20%
Annual Ryegrass	20%
Fowl Bluegrass	20%
Cosmos 'Sensation'	10%
Redtop	5%
Golden Tickseed	5%
Maryland Senna	5%
Showy Tickseed	5%
Fox Sedge	2.5%
Soft Rush	2.5%
Woolgrass	2.5%
Swamp Verbena	2.5%
Apply @ 25lbs per acre April 16th- Oct. 14th	
Apply @ 50lbs per acre Oct. 15th- April 15th	
NO FERTILIZER OR LIME INSIDE WETLAND LIMITS	

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MARCELLUS WELL DRILLING PROCEDURES AND WELL SITE SAFETY PLAN



SWN Production Company, LLC
1300 Fort Pierpont Drive, Suite 201
Morgantown, West Virginia 26508

API NO. 47-XXX-XXXXX
WELL NAME: State of WV DNR C BRK 5H
Steubenville East QUAD
Cross Creek DISTRICT
BROOKE COUNTY, WEST VIRGINIA

Submitted by:

Name: Brittany Woody

Brittany Woody

Date: 11/16/2020

Title: Senior Regulatory Analyst

SWN Production Co., LLC

Approved by:

Name: *[Signature]*

Date: 11-19-20

Title: *Oil and Gas Inspector*

Approved by:

Name: _____

Date: _____

Title: _____

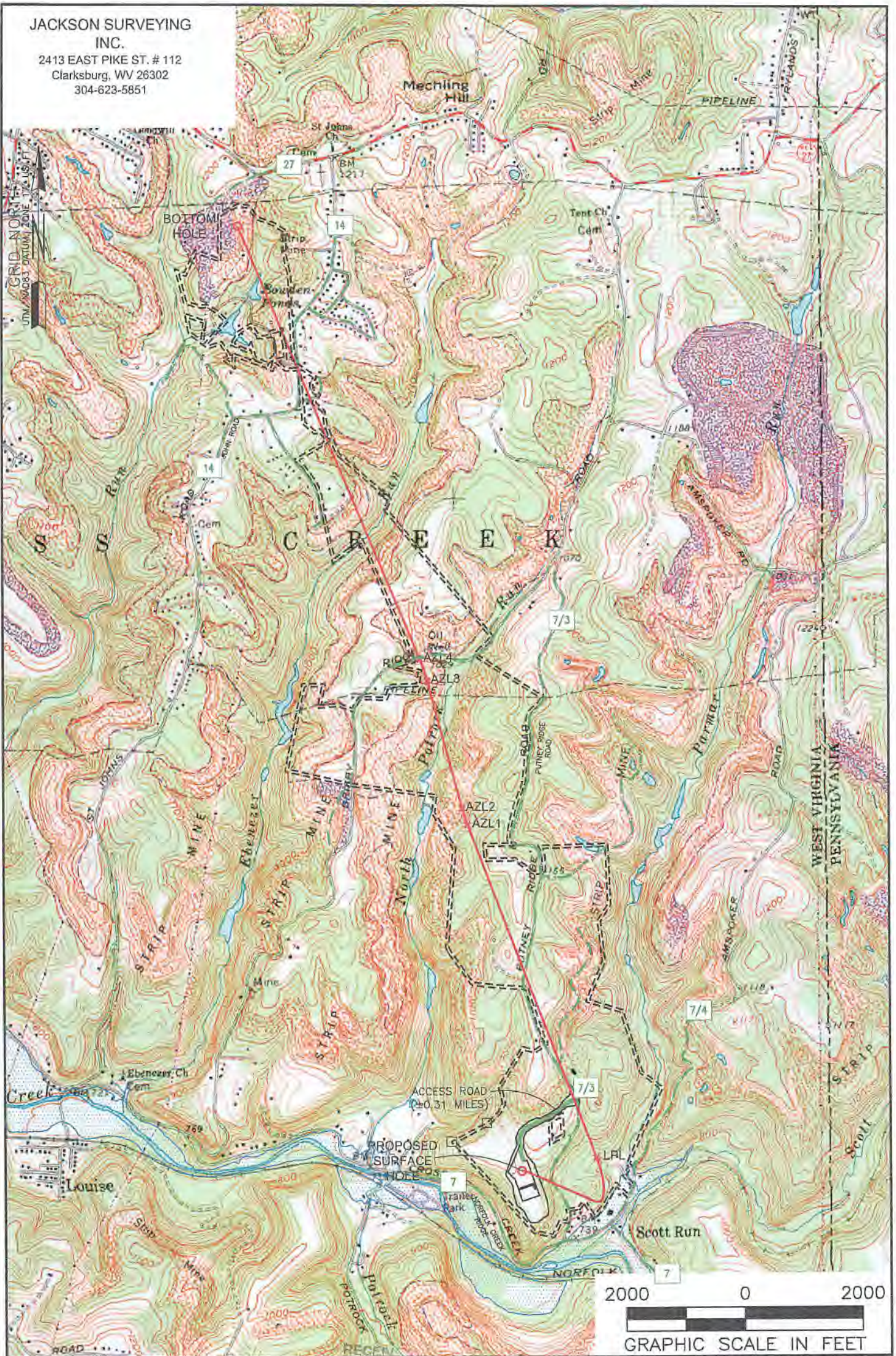
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**JACKSON SURVEYING
INC.**

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



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.

Office of
DEP 14 2011
W. Department of
Environmental Protection

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
- PROPOSED PATH
- AZMUTH POINT LOCATION

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WELL (FARM) NAME: STATE OF WV DNR C BRK	WELL # 5H	SERIAL #
ADDRESS: 1300 FORT PIERPONT ROAD, SUITE 200 MORGANTOWN, WV 26508	COUNTY - CODE BROOKE - 009	DISTRICT; CROSS CREEK	
SURFACE OWNER: STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	USGS 7 1/2 QUADRANGLE MAP NAME STEBENVILLE EAST, WV	API #: 047-009-00257	

May 6, 2020

Ms. Laura Adkins
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

RE: SWN's proposed New Well: State of WV DNR C BRK 5H in Brooke County, West Virginia, Drilling under St. Johns Road, Putney Ridge Road, Pleasant Valley Lane, and Tent Church Road.

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill under St. Johns Road, Putney Ridge Road, Pleasant Valley Lane, and Tent Church Road.. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,



Bailey Brougher
Landman – SW Appalachia
SWN Production Company, LLC

RECEIVED
Office of Oil and Gas
DEC 14 2020
WV Department of
Environmental Protection



The Right People doing the Right Things,
wisely Investing the cash flow from our
underlying Assets, will create Value+®

Latitude: 40°20'00"

SURFACE HOLE 10527'

Latitude: 40°22'30" BOTTOM HOLE

3574'

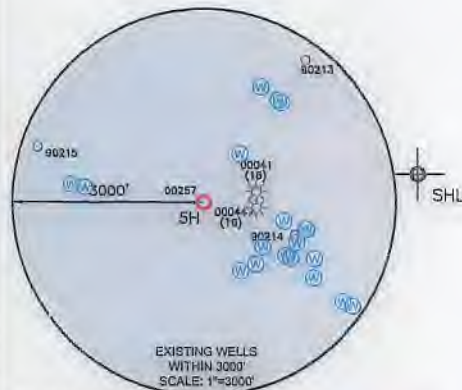
JACKSON SURVEYING INC.

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

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 67°38'24" W	1288.14'	SHL TO LANDMARK	2" IRON PIPE FOUND
L2	N 36°20'10" W	997.64'	SHL TO LANDMARK	STONE FOUND
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L3	N 80°04'19" E	1280.50'	2191.66'	SHL TO LP
L4	N 18°06'31" W	293.19'	293.31'	AZL1 TO AZL2
L5	N 18°59'35" W	381.40'	381.67'	AZL3 TO AZL4

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,461,420.366 EASTING: 539,282.414
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,461,487.657 EASTING: 539,666.865
AZIMUTH POINT LOCATION-1 (AZL1):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,463,190.495 EASTING: 539,011.708
AZIMUTH POINT LOCATION-2 (AZL2):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,463,275.434 EASTING: 538,983.932
AZIMUTH POINT LOCATION-3 (AZL3):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,463,930.652 EASTING: 538,806.227
AZIMUTH POINT LOCATION-4 (AZL4):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,464,040.575 EASTING: 538,768.392
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,466,258.042 EASTING: 537,835.699

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.
4. 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



COMPANY: **SWN** **SWN** ^{RT-V+U}
Production Company, LLC Production Company™

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)	STATE OF WV DNR C BRK OPERATOR'S WELL #: 5H API WELL #: 47 009 00326 STATE COUNTY PERMIT
-------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------



WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	WATERSHED: NORTH FORK CROSS CREEK - CROSS CREEK (HUC-10) ELEVATION: 990.0'
DISTRICT: CROSS CREEK COUNTY: BROOKE	QUADRANGLE: STEUBENVILLE EAST, WV
SURFACE OWNER: NATURAL RESOURCES, PUBLIC LAND CORPORATION	ACREAGE: ±83.858
OIL & GAS ROYALTY OWNER: NATURAL RESOURCES, PUBLIC LAND CORPORATION	ACREAGE: ±83.858
DRILL <input checked="" type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	
CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) MODIFICATION	
TARGET FORMATION: MARCELLUS	ESTIMATED DEPTH: 5,632 TVD 23,134 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: PROPOSED SURFACE HOLE / BOTTOM HOLE EXISTING / PRODUCING WELLHEAD LPL: LANDING POINT LOCATION EXISTING WATER WELL EXISTING SPRING SURVEYED BOUNDARY DRILLING UNIT LEASE BOUNDARY PROPOSED PATH AZL: AZIMUTH POINT LOCATION	REVISIONS: REVISED REFERENCES 06-05-2020 DATE: 05-07-2020 DRAWN BY: N. MANO SCALE: 1" = 3000' DRAWING NO: WELL LOCATION PLAT
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JACKSON SURVEYING
 INC.
 2413 EAST PIKE ST. # 112
 Clarksburg, WV 26302
 304-623-5851



REVISIONS: ▲ REVISED REFERENCES 06-05-2020		COMPANY: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>SWN Production Company, LLC</p> </div> <div style="text-align: center;">  <p>SWN ^{R²}/_A → V⁺ Production Company™</p> </div> </div>	
OPERATOR'S STATE OF WV DNR C BRK		API #: 047-009-00324	DATE: 05-07-2020
WELL #: 5H		DRAWN BY: N. MANO	
DISTRICT: CROSS CREEK	COUNTY: BROOKE	STATE: WV	SCALE: N/A
			DRAWING NO: WELL LOCATION PLAT 2

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	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION (S/R)	4-CC20-06
	SURFACE OWNER (S)	
2	EDWARD L. CARTER & DEBORAH C. CARTER (S)	4-CC20-18
3	EDWARD L. CARTER & DEBORAH C. CARTER (S)	4-CC20-17
4	ERIC T. GALIANO (S)	4-CC20-16
5	ERIC T. GALIANO (S)	4-CC20-14
6	ERIC T. GALIANO (S)	4-CC20-15
7	LINDY L. GALIANO & SANTY GALIANO (S)	4-CC20-19.1
8	WILLIAM MORGAN ROUSE & DORIS J. ROUSE (S)	4-CC20-20
9	COLLIER'S SPORTSMAN CLUB (S)	4-CC20-21
10	SUSAN D. BREEN & DENNIS M. BREEN (S)	4-CC20-22
11	SUSAN D. BREEN & DENNIS BREEN (S)	4-CC20-23.1
12	SUSAN BREEN & KELLY HANNAOUI, TRUSTEES OF THE WILLIAM C. SAUNDERS 2019 IRREVOCABLE TRUST DATED NOVEMBER 21, 2019 (S)	4-CC20-23
13	COLLIER'S SPORTSMAN CLUB (S)	4-CC20-24
14	STACI BREEN & PATRICIA BREEN (S)	4-CC20-03
15	SUSAN BREEN & KELLY HANNAOUI, TRUSTEES OF THE WILLIAM C. SAUNDERS 2019 IRREVOCABLE TRUST DATED NOVEMBER 21, 2019 (S)	4-CC20-02
16	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION (S)	4-CC16-06
17	PETER D. BLASKOVICH & RUTH M. BLASKOVICH (S)	4-CC15-71
18	LENORA J. RINEHART (S)	4-CC15-74
19	RONALD A. REED (S)	4-CC15-68.3
20	LARRY E. REED (S)	4-CC15-68.1
21	ROSE VAN HEMERT (S)	4-C15H-12
22	GORDON KIGER (S)	4-C15H-13
23	FRANK PAESANO & CYNTHIA PASEANO (S)	4-C15H-14
24	MIKE E. BAILEY & MARY E. BLAKE (S)	4-C15H-15
25	DALE W. GAYNOR JR. (S)	4-C15H-16
26	VAL JEAN DELONG, TRUSTEE OF THE DELONG FAMILY KEYSTONE TRUST DATED DECEMBER 30, 2016 (S)	4-C15D-40
27	WILLIAM C. BLACK (S)	4-C15D-39
28	GLENN THOMPSON (S)	4-C15D-36
29	BURL DELEE WARRICK & JAMES KENNETH WARRICK (S)	4-C15D-35
30	JOSHUA A. ROBERTS (S)	4-C15D-34
31	DESIRRAE W. WELLS, ET AL (LE-LAURA RIGGS) (S)	4-C15D-04
32	DESIRRAE W. WELLS, ET AL (LE-HOBERT & LAURA RIGGS) (S)	4-C15D-06
33	MADLINE C. BROZSTEK (S)	4-C15D-07
34	MADLINE C. BROZSTEK (S)	4-C15D-8.1
35	CLIFFORD MILLER (S)	4-C15D-08
36	CLIFFORD LEE MILLER (S)	4-C15D-10
37	TROY A. LUCAS (S)	4-C11S-23
38	RAMON L. BOWEN, TRUSTEE OF THE RAMON L. BOWEN IRREVOCABLE TRUST DATED FEBRUARY 3, 2020 (S)	4-CC11-91
39	RAMON L. BOWEN & YVONNE BOWEN (S)	4-CC11-90
40	RAMON L. BOWEN & YVONNE BOWEN (S)	4-CC11-89
41	RAMON L. BOWEN & YVONNE BOWEN (S)	4-CC11-88

REVISIONS:

△ REVISED REFERENCES 06-05-2020

COMPANY:

SWN
 Production Company, LLC

SWN ^{R+} _A V+¹¹
 Production Company™

OPERATOR'S STATE OF WV DNR C BRK

WELL #: 5H

DISTRICT:
 CROSS CREEK

COUNTY:
 BROOKE

API #:
 047-009-00326

STATE:
 WV

DATE: 05-07-2020

DRAWN BY: N. MANO

SCALE: N/A

DRAWING NO:



WELL LOCATION PLAT 3

**JACKSON SURVEYING
INC.**

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



ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNERS	TAX PARCEL
A	JOHN ERNEST MILLER & JESSE ANDREW MILLER	4-CC20-04
B	GRETCHEN MOORE LANGEVIN, TRUSTEE & WESTBANCO BANK, INC.	4-CC20-05
C	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC19-168
D	JASON P. NUZUM	4-CC19-113
E	JASON P. NUZUM	4-CC15-70
F	GARY LEE LOAR & SANDRA L. LOAR	4-CC15-52
G	RUTH M. BLASKOVICH	4-CC15-69
H	PETER D. BLAKOVICH & HELEN S. BLASKOVICH	4-CC15-72
I	RYAN POWELL, & KELLY POWELL	4-CC15-73
J	FRANK REED LARKEY	4-CC15-68.2
K	LARRY REED	4-CC15-67
L	LARRY REED	4-C15H-09
M	BETTY S. LANCASTER & LINDA K. LANCASTER	4-C15H-11
N	LARRY E. REED	4-C15H-20
O	CHARLIE I. DULANEY & ANGELA J. DULANEY	4-C15H-08
P	CHARLIE I. DULANEY & ANGELA J. DULANEY	4-C15H-07
Q	REVA AMANDA ALLMAN YOST	4-C15H-06
R	LARRY ALLEN HOOD	4-C15H-03
S	JOHN MESTER	4-C15H-02
T	LARRY D. PRATT & JOYCE E. PRATT	4-C15H-01
U	ROBERT L. DODSON III	4-C15H-17
V	HAROLD WAYNE BEATTY JR. & NATALIE ROSE BEATTY	4-C15D-49
W	GERALD L. ARACICH	4-C15D-43
X	JAMES A. RAHR & GERALDINE A. RAHR	4-C15D-41
Y	DONNA DELONG	4-C15D-01
Z	DONNA DELONG	4-C15D-02
A2	JIM HEIDENREICH	4-C15D-03
B2	THOMAS G. MOORE & KATHY J MOORE	4-C15C-04
C2	GARY A. DENNIS & LORI ANN DENNIS	4-C15C-05
D2	GARY E. DENNIS & LORI ANN DENNIS	4-C15C-06
E2	TYRA CLARK	4-C15D-05

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNERS	TAX PARCEL
F2	MICHAEL J. CLARK SR. & TYRA S. CLARK	4-C15D-09
G2	MICHAEL J. CLARK SR. & TYRA S. CLARK	4-C15D-50
H2	JAMES E. HEIDENREICH & DEBRA R. ARTHUR	4-C15C-03
I2	RAMON MARSHALL BOWEN	4-C15C-02
J2	CHARLES DAVID JOHNSON & SANDRA K. JOHNSON	4-C15C-22
K2	CHAD A. RICCELLI	4-C15C-22.1
L2	RAYMOND MARSHALL BOWEN	4-C15C-01
M2	FRED WELSHANS JR. & CHRIS E. WELSHANS	4-CC11-95
N2	DONALD E. SIPPEL & DOREEN E. SIPPEL	4-CC11-94
O2	JACK KAROL BOWEN	4-CC11-97
P2	DONALD E. SIPPEL & DOREEN E. SIPPEL	4-CC11-93
Q2	DONALD G. CONAWAY	4-CC11-92
R2	DWIGHT & MARY DICKEY	4-C11L-14
S2	ST. JOHN'S CEMETERY CO.	4-C11S-01
T2	WILLIAM A. HERCULES & VICKY L. HERCULES	4-C11S-9.1
U2	WVMP LLC	4-C11S-10
V2	ROGER BENNETT & LAURA BENNETT	4-C11S-12
W2	ANDREA N. DOMICK	4-C11S-13
X2	GERALD GOURLEY (L/E: GLORIA F KIGER)	4-C11S-14
Y2	TRAVIS CORBIN	4-C11S-15
Z2	STEVEN D. MORAN & BETHANY A. MORAN	4-C11S-20
A3	WILLIAM H. MORAN JR. & JOSIE L. MORAN	4-C11S-20.1
B3	KODY GREEN	4-C11S-21
C3	VALERIE A. WELLS, ET AL (LE- LAURA RIGGS)	4-C11S-22
D3	CHRISTOPHER E. SMITH	4-C15D-20
E3	EMURI HOME AND GARDEN, LLC.(L/C: SHERRY TACKETT)	4-C15D-21
F3	TROY A. LUCAS	4-C15D-23
G3	CHARLES D. BEATTY JR.	4-C15D-26
H3	SHAFFER FAMILY IRREVOCABLE INCOME ONLY TRUST	4-C15D-27
I3	KEITH R. SHAFFER	p/o 4-C15D-27
J3	KEITH RICHARD SHAFFER & MARY JO SHAFFER	4-C15D-29
K3	DOUGLAS SWAIN	4-C15D-30.3
L3	WILLIAM THOMAS LAW & JANE LAW	4-C15D-33

REVISIONS:	COMPANY:		
△ REVISED REFERENCES 06-05-2020	 		
	OPERATOR'S STATE OF WV DNR C BRK	API #:	DATE: 05-07-2020
	WELL #: 5H	047-009-00326	DRAWN BY: N. MANO
	DISTRICT: CROSS CREEK	COUNTY: BROOKE	SCALE: N/A
		STATE: WV	DRAWING NO:
			WELL LOCATION PLAT 4

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

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNERS	TAX PARCEL
M3	VAUGHN R. DAVIS & MARY L. DAVIS	4-C15D-32
N3	GLENN THOMPSON	4-C15D-37
O3	LAURA J. STEUDEBAKER & STUART STEUDEBAKER	4-C15D-30
P3	REED-GEHRLING FAMILY TRUST DATED 10/17/08	4-CC16-32
Q3	THE DENNIS PALFALVY III IRREVOCABLE TRUST	4-CC16-5
R3	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC16-8.1
S3	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC16-7.1
T3	DAVID C. DAMI	4-CC20-1.1
U3	DAVID C. DAMI	4-CC20-2.1
V3	FREDA M. DUNN - (LIFE) SAUNDRA L. DUNN & ROBERT W. DUNN	4-CC20-01
W3	COLLIERS SPORTSMAN CLUB	4-CC20-45
X3	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC20-25.1
Y3	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC20-25
Z3	DEBORAH K. SLIDAY	4-CC20-32
A4	NICKOLES 3, LLC.	4-CC20-33
B4	ROBERT CLINE & DELORIS CLINE	4-CC20-34
C4	WILLIAM MARINO & MILDRED T. MARINO	4-CC20-35
D4	MILDRED T. MARINO & WILLIAM MARINO	4-CC20-36
E4	WAYNE L. HENDERSON & BETHANY A. HENDERSON	4-CC20-37
F4	SANTY GALIANO & LINDY GALIANO	4-CC20-38
G4	ERIC T. GALIANO	4-CC20-13
H4	BARBARA A. SMITH	4-CC20-12
I4	ERIC T. GALIANO	4-CC20-19
J4	KEVIN MCCONNELL	4-CC20-11
K4	BARBARA J. MCCONNELL	4-CC20-10
L4	SUSAN K. PRONCHIK	4-CC20-08
M4	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC19-169
N4	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION	4-CC19-168
O4	LINDY L. BLACK	4-CC20-07

REVISIONS:	COMPANY:		
△ REVISED REFERENCES 06-05-2020			
	OPERATOR'S STATE OF WV DNR C BRK	API #:	DATE: 05-07-2020
	WELL #: 5H	047-009-06326	DRAWN BY: N. MANO
	DISTRICT: CROSS CREEK	COUNTY: BROOKE	SCALE: N/A
		STATE: WV	DRAWING NO:
			WELL LOCATION PLAT 5

WW-6A1
(5/13)

Operator's Well No. STATE OF WV DNR C BRK 5H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that -

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See Exhibit "A"				

*Co-tenancy utilization - At least 7 mineral owners in tract and at least 75% of those owners are leased

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

RECEIVED
Office of Oil and Gas
DEC 14 2020
WV Department of
Environmental Protection

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: SWN Production Company, LLC
 By: Barley Ringer
 Its: Landman - SW Appalachia

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by SWN Production Company, LLC, Operator
 State of WV DNR C BRK 5H
 Brooke County, West Virginia

#	TMP	LESSOR	LESSEE	ROYALTY	BK/PG	Interest Not Leased by SWN Production Company, LLC
1)	04-CC20-0006-0000	Starvaggi Industries, Incorporated	Fortuna Energy, Inc. Range Resources - Appalachia, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	9/532 10/226 10/541 30/480	0.00%
2)	04-CC20-0018-0000	Edward L. Carter and Deborah C. Carter, his wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	14.00%	11/33 30/480	0.00%
3)	04-CC20-0017-0000	Edward L. Carter and Deborah C. Carter, his wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	14.00%	11/29 30/480	0.00%
4)	04-CC20-0016-0000	Eric T. Galiano and Wylsie Lynn Galiano, husband and wife, and Lindy L. Galiano, a widow	SWN Production Company, LLC	18.00%	51/548	0.00%
5)	04-CC20-0014-0000	Eric T. Galiano and Wylsie Lynn Galiano, husband and wife, and Lindy L. Galiano, a widow	SWN Production Company, LLC	18.00%	51/548	0.00%
6)	04-CC20-0015-0000	Eric T. Galiano and Wylsie Lynn Galiano, husband and wife, and Lindy L. Galiano, a widow	SWN Production Company, LLC	18.00%	51/548	0.00%
7)	04-CC20-0019-0001	Santy Galiano and Lindy L. Galiano, husband and wife	SWN Production Company, L.L.C.	18.00%	35/501	0.00%
8)	04-CC20-0020-0000	William Morgan Rouse and Doris Jean Rouse, husband and wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	14.00%	20/680 30/480	0.00%
9)	04-CC20-0021-0000	Starvaggi Industries, Incorporated	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	22/514 30/480	0.00%
10)	04-CC20-0022-0000	Starvaggi Industries, Incorporated	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	22/514 30/480	0.00%
11)	04-CC20-0023-0001	Starvaggi Industries, Incorporated, a Corporation organized and existing by virtue of the laws of the State of West Virginia	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	21/534 30/480	0.00%
12)	04-CC20-0023-0000	Starvaggi Industries, Incorporated, a Corporation organized and existing by virtue of the laws of the State of West Virginia	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	21/534 30/480	0.00%
13)	04-CC20-0024-0000	Starvaggi Industries, Incorporated	Fortuna Energy, Inc. Range Resources - Appalachia, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	9/532 10/226 10/541 30/480	0.00%
14)	04-CC20-0003-0000	William C. Saunders, single	Great Lakes Energy Partners, L.L.C. Range Resources-Appalachia, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	14.00%	10/133 20/733 10/552 30/480	0.00%
15)	04-CC20-0002-0000	William C. Saunders, single	Great Lakes Energy Partners, L.L.C. Range Resources - Appalachia, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	14.00%	10/133 20/733 10/552 30/480	0.00%

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Richard G. Hlinka and Mary Lou Hagerty Hlinka, husband and wife	SWN Production Company, L.L.C.	16.00%	41/113
Orie N. Young and Bernie A. Young, wife and husband	SWN Production Company, L.L.C.	16.00%	51/9
Patricia A. Garcar, a single woman	SWN Production Company, L.L.C.	16.00%	46/525
Patricia L. Fish, a widow	SWN Production Company, L.L.C.	16.00%	42/364
Patrick Hagerty and Dalene Hagerty, husband and wife	SWN Production Company, L.L.C.	16.00%	52/307
Rebecca Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	50/74
Renee Kellar, a single woman	SWN Production Company, L.L.C.	16.00%	45/9
Robert D. Barnes and Rhonda L. Barnes, husband and wife	SWN Production Company, L.L.C.	16.00%	39/654
Rita K. Wineman, a widow	SWN Production Company, L.L.C.	16.00%	42/520
Connie Lou Gilmore, a widow	SWN Production Company, L.L.C.	16.00%	45/109
Robert Lee Marciano, a/k/a Robert Lee Mayer, an incarcerated person located in the Texas Department of Criminal Justice's Gib Lewis Unit, Woodville, Texas 75990, and his court appointed Guardian ad litem, Tyler L. Cline, Esq., of Weirton, West Virginia, 26062-4500	SWN Production Company, LLC	18.00%	56/110
Robert R. Darrow	SWN Production Company, L.L.C.	16.00%	42/372
Robyn Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	51/658
Ronald Mayer and Debra Mayer, husband and wife	SWN Production Company, L.L.C.	16.00%	46/1
Sandra Salkovich and Ronald J. Salkovick II, wife and husband	SWN Production Company, LLC	16.00%	50/536
Sara A. Fulton, a single woman	SWN Production Company, L.L.C.	16.00%	40/564
Shelli Wheeler and Anthony R. Wheeler, wife and husband	SWN Production Company, L.L.C.	16.00%	50/411
Stephen C. Emery and Cathy J. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	47/549
Terri J. Brock and Steve E. Brock, wife and husband	SWN Production Company, L.L.C.	16.00%	42/512
Robert A. Tessean, Richard I. Tessean and Patricia A. Harnar, acting as Trustees of the Tessean Family Revocable Living Trust, dated December 29th, 1993	SWN Production Company, L.L.C.	16.00%	52/639
Lisa R. Emery, a single woman	SWN Production Company, LLC	18.00%	56/577
David Drake and Vicki Drake, husband and wife	SWN Production Company, LLC	18.00%	56/472
Dennis A. Strauss and Vicky M. Strauss, husband and wife	SWN Production Company, LLC	18.00%	56/561
Kathleen L. Robertson, a widow	SWN Production Company, LLC	18.00%	56/569
Michelle Campbell, a single woman	SWN Production Company, LLC	18.00%	56/735
Sharron Larrison and Thomas Larrison, wife and husband	SWN Production Company, LLC	18.00%	56/751
Anita Williams, divorced and not remarried	SWN Production Company, LLC	18.00%	56/743
SWN Production Company, LLC (Company Owned Minerals)		12.50%	395/400 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/696 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	391/405 (Mineral Deed)

SWN Production Company, LLC (Company Owned Minerals)	12.50%	382/105 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	389/567 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	388/629 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/47 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/226 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/138 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/51 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	388/564 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/143 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/218 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/222 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	400/464 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	399/307 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	399/304 (Mineral Deed)
Royalty Owners	N/A	N/A

22) 04-C15H-0013-0000

David W. Null (Life Estate), a single man, Gordon Kiger
(Remainderman), a married man dealing in his sole and separate
property
Betty White and Stuart White, wife and husband
Bonnie Lou Gruber, a widow
Charles Douglas Lane, a widower
Larry Green and Cindy Green, husband and wife
Crystal M. Hooker and James M. Hooker, wife and husband
Debbie Lysecki and Gerald Lysecki, wife and husband
Dolores J. Bobovnik and Donald S. Bobovnik, wife and husband

Dorothy Duke and Edward Duke, wife and husband
Frank E. Cominotti and Marilyn Cominotti, husband and wife

Chesapeake Appalachia, L.L.C.
SWN Production Company, LLC

SWN Production Company, L.L.C.
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SWN Production Company, L.L.C.
SWN Production Company, L.L.C.

18.00%

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18.00%

16.00%
16.00%

21/49
30/480

44/317
43/517
40/697
40/705
50/787
47/557
46/624

40/540
47/686

1.15%

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Gary F. Obloy and Denise I. Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	45/117
James Neal Emery and Renee R. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	43/509
Joann Hagerty, a widow	SWN Production Company, L.L.C.	16.00%	51/167
John W. Obloy, Jr. and Janet Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	46/666
Karen Rich and Richard Rich, wife and husband	SWN Production Company, L.L.C.	16.00%	42/528
Keith Jay Fischer and Dawn Marie Fischer, husband and wife	SWN Production Company, L.L.C.	16.00%	47/541
Kenda Learn and Todd Learn, husband and wife	SWN Production Company, L.L.C.	16.00%	47/756
Kimberly Cox, a single woman	SWN Production Company, L.L.C.	16.00%	51/59
Loretta J. Barker, a widow	SWN Production Company, L.L.C.	16.00%	42/504
Marion David Ott and Janice L. Ott, husband and wife	SWN Production Company, L.L.C.	16.00%	40/475
Marquita Clyburn, a single woman	SWN Production Company, L.L.C.	16.00%	45/17
Mary Catherine Thoms-Ott, a widow	SWN Production Company, L.L.C.	16.00%	40/713
Richard G. Hlinka and Mary Lou Hagerty Hlinka, husband and wife	SWN Production Company, L.L.C.	16.00%	41/113
Orie N. Young and Bernie A. Young, wife and husband	SWN Production Company, L.L.C.	16.00%	51/9
Patricia A. Garcar, a single woman	SWN Production Company, L.L.C.	16.00%	46/525
Patricia L. Fish, a widow	SWN Production Company, L.L.C.	16.00%	42/364
Patrick Hagerty and Dalene Hagerty, husband and wife	SWN Production Company, L.L.C.	16.00%	52/307
Rebecca Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	50/74
Renee Kellar, a single woman	SWN Production Company, L.L.C.	16.00%	45/9
Robert D. Barnes and Rhonda L. Barnes, husband and wife	SWN Production Company, L.L.C.	16.00%	39/654
Rita K. Wineman, a widow	SWN Production Company, L.L.C.	16.00%	42/520
Connie Lou Gilmore, a widow	SWN Production Company, L.L.C.	16.00%	45/109
Robert Lee Marciano, a/k/a Robert Lee Mayer, an incarcerated person located in the Texas Department of Criminal Justice's Gib Lewis Unit, Woodville, Texas 75990, and his court appointed Guardian ad litem, Tyler L. Cline, Esq., of Weirton, West Virginia, 76067-4500	SWN Production Company, LLC	18.00%	56/110
Robert R. Darrow	SWN Production Company, L.L.C.	16.00%	42/372
Robyn Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	51/658
Ronald Mayer and Debra Mayer, husband and wife	SWN Production Company, L.L.C.	16.00%	46/1
Sandra Salkovich and Ronald J. Salkovick II, wife and husband	SWN Production Company, LLC	16.00%	50/536
Sara A. Fulton, a single woman	SWN Production Company, L.L.C.	16.00%	40/564
Shelli Wheeler and Anthony R. Wheeler, wife and husband	SWN Production Company, L.L.C.	16.00%	50/411
Stephen C. Emery and Cathy J. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	47/549
Terri J. Brock and Steve E. Brock, wife and husband	SWN Production Company, L.L.C.	16.00%	42/512
Robert A. Tessean, Richard I. Tessean and Patricia A. Harnar, acting as Trustees of the Tessean Family Revocable Living Trust, dated December 29th, 1993	SWN Production Company, L.L.C.	16.00%	52/639

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Lisa R. Emery, a single woman	SWN Production Company, LLC	18.00%	56/577	
David Drake and Vicki Drake, husband and wife	SWN Production Company, LLC	18.00%	56/472	
Dennis A. Strauss and Vicky M. Strauss, husband and wife	SWN Production Company, LLC	18.00%	56/561	
Kathleen L. Robertson, a widow	SWN Production Company, LLC	18.00%	56/569	
Michelle Campbell, a single woman	SWN Production Company, LLC	18.00%	56/735	
Sharron Larrison and Thomas Larrison, wife and husband	SWN Production Company, LLC	18.00%	56/751	
Anita Williams, divorced and not remarried	SWN Production Company, LLC	18.00%	56/743	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	395/400	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/696	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	391/405	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	382/105	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/567	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	388/629	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/47	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	381/226	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/138	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/51	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	388/564	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/143	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	381/218	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	381/222	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	400/464 (Mineral	
			Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	399/307	
			(Mineral Deed)	
SWN Production Company, LLC (Company Owned Minerals)		12.50%	399/304 (Mineral	
			Deed)	
Royalty Owners	N/A	N/A	N/A	
Frank Paesano and Cynthia Paesano, husband and wife	SWN Production Company, L.L.C.	17.00%	35/479	1.15%



Betty White and Stuart White, wife and husband	SWN Production Company, L.L.C.	16.00%	44/317
Bonnie Lou Gruber, a widow	SWN Production Company, L.L.C.	16.00%	43/517
Charles Douglas Lane, a widower	SWN Production Company, L.L.C.	16.00%	40/697
Larry Green and Cindy Green, husband and wife	SWN Production Company, L.L.C.	16.00%	40/705
Crystal M. Hooker and James M. Hooker, wife and husband	SWN Production Company, L.L.C.	16.00%	50/787
Debbie Lyseski and Gerald Lyseski, wife and husband	SWN Production Company, L.L.C.	16.00%	47/557
Dolores J. Bobovnik and Donald S. Bobovnik, wife and husband	SWN Production Company, L.L.C.	18.00%	46/624
Dorothy Duke and Edward Duke, wife and husband	SWN Production Company, L.L.C.	16.00%	40/540
Frank E. Cominotti and Marilyn Cominotti, husband and wife	SWN Production Company, L.L.C.	16.00%	47/686
Gary F. Obloy and Denise I. Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	45/117
James Neal Emery and Renee R. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	43/509
Joann Hagerty, a widow	SWN Production Company, L.L.C.	16.00%	51/167
John W. Obloy, Jr. and Janet Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	46/666
Karen Rich and Richard Rich, wife and husband	SWN Production Company, L.L.C.	16.00%	42/528
Keith Jay Fischer and Dawn Marie Fischer, husband and wife	SWN Production Company, L.L.C.	16.00%	47/541
Kenda Learn and Todd Learn, husband and wife	SWN Production Company, L.L.C.	16.00%	47/756
Kimberly Cox, a single woman	SWN Production Company, L.L.C.	16.00%	51/59
Loretta J. Barker, a widow	SWN Production Company, L.L.C.	16.00%	42/504
Marion David Ott and Janice L. Ott, husband and wife	SWN Production Company, L.L.C.	16.00%	40/475
Marquita Clyburn, a single woman	SWN Production Company, L.L.C.	16.00%	45/17
Mary Catherine Thoms-Ott, a widow	SWN Production Company, L.L.C.	16.00%	40/713
Richard G. Hlinka and Mary Lou Hagerty Hlinka, husband and wife	SWN Production Company, L.L.C.	16.00%	41/113
Orie N. Young and Bernie A. Young, wife and husband	SWN Production Company, L.L.C.	16.00%	51/9
Patricia A. Garcar, a single woman	SWN Production Company, L.L.C.	16.00%	46/525
Patricia L. Fish, a widow	SWN Production Company, L.L.C.	16.00%	42/364
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Rebecca Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	50/74
Renee Kellar, a single woman	SWN Production Company, L.L.C.	16.00%	45/9
Robert D. Barnes and Rhonda L. Barnes, husband and wife	SWN Production Company, L.L.C.	16.00%	39/654
Rita K. Wineman, a widow	SWN Production Company, L.L.C.	16.00%	42/520
Connie Lou Gilmore, a widow	SWN Production Company, L.L.C.	16.00%	45/109
Robert Lee Marciano, a/k/a Robert Lee Mayer, an incarcerated person located in the Texas Department of Criminal Justice's Gib Lewis Unit, Woodville, Texas 75990, and his court appointed Guardian ad litem, Tyler L. Cline, Esq., of Weirton, West Virginia, 26062-4500	SWN Production Company, LLC	18.00%	56/110
Robert R. Darrow	SWN Production Company, L.L.C.	16.00%	42/372

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Robyn Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	51/658
Ronald Mayer and Debra Mayer, husband and wife	SWN Production Company, L.L.C.	16.00%	46/1
Sandra Salkovich and Ronald J. Salkovick II, wife and husband	SWN Production Company, LLC	16.00%	50/536
Sara A. Fulton, a single woman	SWN Production Company, L.L.C.	16.00%	40/564
Shelli Wheeler and Anthony R. Wheeler, wife and husband	SWN Production Company, L.L.C.	16.00%	50/411
Stephen C. Emery and Cathy J. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	47/549
Terri J. Brock and Steve E. Brock, wife and husband	SWN Production Company, L.L.C.	16.00%	42/512
Robert A. Tessean, Richard I. Tessean and Patricia A. Harnar, acting as Trustees of the Tessean Family Revocable Living Trust, dated December 29th, 1993	SWN Production Company, L.L.C.	16.00%	52/639
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Kathleen L. Robertson, a widow	SWN Production Company, LLC	18.00%	56/569
Michelle Campbell, a single woman	SWN Production Company, LLC	18.00%	56/735
Sharron Larrison and Thomas Larrison, wife and husband	SWN Production Company, LLC	18.00%	56/751
Anita Williams, divorced and not remarried	SWN Production Company, LLC	18.00%	56/743
SWN Production Company, LLC (Company Owned Minerals)		12.50%	395/400
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/696
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	391/405
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	382/105
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/567
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	388/629
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/47
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	381/226
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/138
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/51
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	388/564
			(Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	383/143
			(Mineral Deed)

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SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/218 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/222 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	400/464 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	399/307 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	399/304 (Mineral Deed)
Royalty Owners	N/A	N/A

24) 04-C15H-0015-0000	Mike E. Bailey and Mary E. Bailey, husband and wife	SWN Production Company, L.L.C.	17.00%	35/535	1.15%
	Betty White and Stuart White, wife and husband	SWN Production Company, L.L.C.	16.00%	44/317	
	Bonnie Lou Gruber, a widow	SWN Production Company, L.L.C.	16.00%	43/517	
	Charles Douglas Lane, a widower	SWN Production Company, L.L.C.	16.00%	40/697	
	Larry Green and Cindy Green, husband and wife	SWN Production Company, L.L.C.	16.00%	40/705	
	Crystal M. Hooker and James M. Hooker, wife and husband	SWN Production Company, L.L.C.	16.00%	50/787	
	Debbie Lyseski and Gerald Lyseski, wife and husband	SWN Production Company, L.L.C.	16.00%	47/557	
	Dolores J. Bobovnik and Donald S. Bobovnik, wife and husband	SWN Production Company, L.L.C.	18.00%	46/624	
	Dorothy Duke and Edward Duke, wife and husband	SWN Production Company, L.L.C.	16.00%	40/540	
	Frank E. Cominotti and Marilyn Cominotti, husband and wife	SWN Production Company, L.L.C.	16.00%	47/686	
	Gary F. Obloy and Denise I. Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	45/117	
	James Neal Emery and Renee R. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	43/509	
	Joann Hagerty, a widow	SWN Production Company, L.L.C.	16.00%	51/167	
	John W. Obloy, Jr. and Janet Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	46/666	
	Karen Rich and Richard Rich, wife and husband	SWN Production Company, L.L.C.	16.00%	42/528	
	Keith Jay Fischer and Dawn Marie Fischer, husband and wife	SWN Production Company, L.L.C.	16.00%	47/541	
	Kenda Learn and Todd Learn, husband and wife	SWN Production Company, L.L.C.	16.00%	47/756	
	Kimberly Cox, a single woman	SWN Production Company, L.L.C.	16.00%	51/59	
	Loretta J. Barker, a widow	SWN Production Company, L.L.C.	16.00%	42/504	
	Marion David Ott and Janice L. Ott, husband and wife	SWN Production Company, L.L.C.	16.00%	40/475	
	Marquita Clyburn, a single woman	SWN Production Company, L.L.C.	16.00%	45/17	
	Mary Catherine Thoms-Ott, a widow	SWN Production Company, L.L.C.	16.00%	40/713	
	Richard G. Hlinka and Mary Lou Hagerty Hlinka, husband and wife	SWN Production Company, L.L.C.	16.00%	41/113	
	Orie N. Young and Bernie A. Young, wife and husband	SWN Production Company, L.L.C.	16.00%	51/9	
	Patricia A. Garcar, a single woman	SWN Production Company, L.L.C.	16.00%	46/525	
	Patricia L. Fish, a widow	SWN Production Company, L.L.C.	16.00%	42/364	

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Patrick Hagerty and Dalene Hagerty, husband and wife	SWN Production Company, L.L.C.	16.00%	52/307
Rebecca Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	50/74
Renee Kellar, a single woman	SWN Production Company, L.L.C.	16.00%	45/9
Robert D. Barnes and Rhonda L. Barnes, husband and wife	SWN Production Company, L.L.C.	16.00%	39/654
Rita K. Wineman, a widow	SWN Production Company, L.L.C.	16.00%	42/520
Connie Lou Gilmore, a widow	SWN Production Company, L.L.C.	16.00%	45/109
Robert Lee Marciano, a/k/a Robert Lee Mayer, an incarcerated person located in the Texas Department of Criminal Justice's Gib Lewis Unit, Woodville, Texas 75990, and his court appointed Guardian ad litem, Tyler L. Ciine, Esq., of Weirton, West Virginia, 76067-4500	SWN Production Company, LLC	18.00%	56/110
Robert R. Darrow	SWN Production Company, L.L.C.	16.00%	42/372
Robyn Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	51/658
Ronald Mayer and Debra Mayer, husband and wife	SWN Production Company, L.L.C.	16.00%	46/1
Sandra Salkovich and Ronald J. Salkovick II, wife and husband	SWN Production Company, LLC	16.00%	50/536
Sara A. Fulton, a single woman	SWN Production Company, L.L.C.	16.00%	40/564
Shelli Wheeler and Anthony R. Wheeler, wife and husband	SWN Production Company, L.L.C.	16.00%	50/411
Stephen C. Emery and Cathy J. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	47/549
Terri J. Brock and Steve E. Brock, wife and husband	SWN Production Company, L.L.C.	16.00%	42/512
Robert A. Tessean, Richard I. Tessean and Patricia A. Harnar, acting as Trustees of the Tessean Family Revocable Living Trust, dated December 29th, 1993	SWN Production Company, L.L.C.	16.00%	52/639
Lisa R. Emery, a single woman	SWN Production Company, LLC	18.00%	56/577
David Drake and Vicki Drake, husband and wife	SWN Production Company, LLC	18.00%	56/472
Dennis A. Strauss and Vicky M. Strauss, husband and wife	SWN Production Company, LLC	18.00%	56/561
Kathleen L. Robertson, a widow	SWN Production Company, LLC	18.00%	56/569
Michelle Campbell, a single woman	SWN Production Company, LLC	18.00%	56/735
Sharron Larrison and Thomas Larrison, wife and husband	SWN Production Company, LLC	18.00%	56/751
Anita Williams, divorced and not remarried	SWN Production Company, LLC	18.00%	56/743
SWN Production Company, LLC (Company Owned Minerals)		12.50%	395/400 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/696 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	391/405 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	382/105 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)		12.50%	389/567 (Mineral Deed)

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SWN Production Company, LLC (Company Owned Minerals)	12.50%	388/629 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/47 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/226 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/138 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/51 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	388/564 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	383/143 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/218 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	381/222 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	400/464 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	399/307 (Mineral Deed)
SWN Production Company, LLC (Company Owned Minerals)	12.50%	399/304 (Mineral Deed)

Royalty Owners	N/A	N/A	N/A
25) 04-C15H-0016-0000			
Dale W. Gaynor, Jr. and Karen S. Gaynor, husband and wife	SWN Production Company, L.L.C.	17.00%	35/527
Betty White and Stuart White, wife and husband	SWN Production Company, L.L.C.	16.00%	44/317
Bonnie Lou Gruber, a widow	SWN Production Company, L.L.C.	16.00%	43/517
Charles Douglas Lane, a widower	SWN Production Company, L.L.C.	16.00%	40/697
Larry Green and Cindy Green, husband and wife	SWN Production Company, L.L.C.	16.00%	40/705
Crystal M. Hooker and James M. Hooker, wife and husband	SWN Production Company, L.L.C.	16.00%	50/787
Debbie Lyseski and Gerald Lyseski, wife and husband	SWN Production Company, L.L.C.	16.00%	47/557
Dolores J. Bobovnik and Donald S. Bobovnik, wife and husband	SWN Production Company, L.L.C.	18.00%	46/624
Dorothy Duke and Edward Duke, wife and husband	SWN Production Company, L.L.C.	16.00%	40/540
Frank E. Cominotti and Marilyn Cominotti, husband and wife	SWN Production Company, L.L.C.	16.00%	47/686
Gary F. Obloy and Denise I. Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	45/117
James Neal Emery and Renee R. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	43/509
Joann Hagerty, a widow	SWN Production Company, L.L.C.	16.00%	51/167
John W. Obloy, Jr. and Janet Obloy, husband and wife	SWN Production Company, L.L.C.	16.00%	46/666
Karen Rich and Richard Rich, wife and husband	SWN Production Company, L.L.C.	16.00%	42/528

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Keith Jay Fischer and Dawn Marie Fischer, husband and wife	SWN Production Company, L.L.C.	16.00%	47/541
Kenda Learn and Todd Learn, husband and wife	SWN Production Company, L.L.C.	16.00%	47/756
Kimberly Cox, a single woman	SWN Production Company, L.L.C.	16.00%	51/59
Loretta J. Barker, a widow	SWN Production Company, L.L.C.	16.00%	42/504
Marion David Ott and Janice L. Ott, husband and wife	SWN Production Company, L.L.C.	16.00%	40/475
Marquita Clyburn, a single woman	SWN Production Company, L.L.C.	16.00%	45/17
Mary Catherine Thoms-Ott, a widow	SWN Production Company, L.L.C.	16.00%	40/713
Richard G. Hlinka and Mary Lou Hagerty Hlinka, husband and wife	SWN Production Company, L.L.C.	16.00%	41/113
Orie N. Young and Bernie A. Young, wife and husband	SWN Production Company, L.L.C.	16.00%	51/9
Patricia A. Garcar, a single woman	SWN Production Company, L.L.C.	16.00%	46/525
Patricia L. Fish, a widow	SWN Production Company, L.L.C.	16.00%	42/364
Patrick Hagerty and Dalene Hagerty, husband and wife	SWN Production Company, L.L.C.	16.00%	52/307
Rebecca Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	50/74
Renee Kellar, a single woman	SWN Production Company, L.L.C.	16.00%	45/9
Robert D. Barnes and Rhonda L. Barnes, husband and wife	SWN Production Company, L.L.C.	16.00%	39/654
Rita K. Wineman, a widow	SWN Production Company, L.L.C.	16.00%	42/520
Connie Lou Gilmore, a widow	SWN Production Company, L.L.C.	16.00%	45/109
Robert Lee Marciano, a/k/a Robert Lee Mayer, an incarcerated person located in the Texas Department of Criminal Justice's Gib Lewis Unit, Woodville, Texas 75990, and his court appointed Guardian ad litem, Tyler L. Cline, Esq., of Weirton, West Virginia, 76062-4500	SWN Production Company, LLC	18.00%	56/110
Robert R. Darrow	SWN Production Company, L.L.C.	16.00%	42/372
Robyn Hagerty, a single woman	SWN Production Company, L.L.C.	16.00%	51/658
Ronald Mayer and Debra Mayer, husband and wife	SWN Production Company, L.L.C.	16.00%	46/1
Sandra Salkovich and Ronald J. Salkovick II, wife and husband	SWN Production Company, LLC	16.00%	50/536
Sara A. Fulton, a single woman	SWN Production Company, L.L.C.	16.00%	40/564
Shelli Wheeler and Anthony R. Wheeler, wife and husband	SWN Production Company, L.L.C.	16.00%	50/411
Stephen C. Emery and Cathy J. Emery, husband and wife	SWN Production Company, L.L.C.	16.00%	47/549
Terri J. Brock and Steve E. Brock, wife and husband	SWN Production Company, L.L.C.	16.00%	42/512
Robert A. Tessean, Richard I. Tessean and Patricia A. Harnar, acting as Trustees of the Tessean Family Revocable Living Trust, dated December 29th, 1993	SWN Production Company, L.L.C.	16.00%	52/639
Lisa R. Emery, a single woman	SWN Production Company, LLC	18.00%	56/577
David Drake and Vicki Drake, husband and wife	SWN Production Company, LLC	18.00%	56/472
Dennis A. Strauss and Vicky M. Strauss, husband and wife	SWN Production Company, LLC	18.00%	56/561
Kathleen L. Robertson, a widow	SWN Production Company, LLC	18.00%	56/569
Michelle Campbell, a single woman	SWN Production Company, LLC	18.00%	56/735

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		Sharron Larrison and Thomas Larrison, wife and husband	SWN Production Company, LLC	18.00%	56/751	
		Anita Williams, divorced and not remarried	SWN Production Company, LLC	18.00%	56/743	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	395/400	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 389/696	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 391/405	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 382/105	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 389/567	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 388/629	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 383/47	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 381/226	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 383/138	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 383/51	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 388/564	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 383/143	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 381/218	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 381/222	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 400/464 (Mineral Deed)	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	399/307	
		SWN Production Company, LLC (Company Owned Minerals)		12.50%	(Mineral Deed) 399/304 (Mineral Deed)	
		Royalty Owners	N/A	N/A	N/A	✓
26)	04-C15D-0040-0000	Val Jean Delong, Trustee of the 2011 Delong Keystone Family Trust dated April 20, 2011	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	28/182 30/480	0.00% ✓
27)	04-C15D-0039-0000	William C. Black and Heather N. Black, Husband and Wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	28/427 30/480	0.00% ✓
28)	04-C15D-0036-0000	Dolly's LLC	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	28/437 30/480	0.00% ✓

29)	04-C15D-0035-0000	James K. Warrick, a single man, and Burl D. Warrick, a single man	SWN Production Company, L.L.C.	17.00%	45/187	0.00%	✓
30)	04-C15D-0034-0000	Clondell Barkley, a Widow	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	28/412 30/480	0.00%	✓
31)	04-C15D-0004-0000	John M. Kafton, a married man dealing in his sole and separate property Karen E. Kafton a/k/a Karen K. Kafton, a single woman Mark A. Kafton, a married man dealing in his sole and separate property Linda J. Meadows, a married woman dealing in her sole and separate property John D. Kafton, Jr., married Diana R. Soltis, married Richard J. Kafton, married Linda L. Gereg, married Marsha J. Bland, single Joyce L Surbaugh, single	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00% 15.00% 15.00% 12.50% 18.00% 18.00% 18.00% 18.00% 18.00% 18.00% 18.00%	19/626 30/480 19/634 30/480 19/622 30/480 19/630 30/480 55/149 55/155 55/173 55/179 55/167 55/161	0.00%	✓
32)	04-C15D-0006-0000	John M. Kafton, a married man dealing in his sole and separate property Karen E. Kafton a/k/a Karen K. Kafton, a single woman Mark A. Kafton, a married man dealing in his sole and separate property Linda J. Meadows, a married woman dealing in her sole and separate property John D. Kafton, Jr., married Diana R. Soltis, married Richard J. Kafton, married Linda L. Gereg, married Marsha J. Bland, single Joyce L Surbaugh, single	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc. SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00% 15.00% 15.00% 12.50% 18.00% 18.00% 18.00% 18.00% 18.00% 18.00%	19/626 30/480 19/634 30/480 19/622 30/480 19/630 30/480 55/149 55/155 55/173 55/179 55/167 55/161	0.00%	✓

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33) 04-C15D-0007-0000	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	18.00%	19/626	0.00%
	Karen E. Kafton a/k/a Karen K. Kafton, a single woman	SWN Production Company, LLC		30/480	
		Chesapeake Appalachia, L.L.C.	15.00%	19/634	
		SWN Production Company, LLC		30/480	
	Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	15.00%	19/622	
	Linda J. Meadows, a married woman dealing in her sole and separate property	SWN Production Company, LLC		30/480	
		Chesapeake Appalachia, L.L.C.	12.50%	19/630	
		SWN Production Company, LLC		30/480	
	John D. Kafton, Jr., married	SWN Production Company, LLC and Equinor	18.00%	55/149	
		USA Onshore Properties Inc.			
Diana R. Soltis, married	SWN Production Company, LLC and Equinor	18.00%	55/155		
	USA Onshore Properties Inc.				
Richard J. Kafton, married	SWN Production Company, LLC and Equinor	18.00%	55/173		
	USA Onshore Properties Inc.				
Linda L. Gereg, married	SWN Production Company, LLC and Equinor	18.00%	55/179		
	USA Onshore Properties Inc.				
Marsha J. Bland, single	SWN Production Company, LLC and Equinor	18.00%	55/167		
	USA Onshore Properties Inc.				
Joyce L Surbaugh, single	SWN Production Company, LLC and Equinor	18.00%	55/161		
	USA Onshore Properties Inc.				
34) 04-C15D-0008-0001	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	18.00%	19/626	0.00%
	Karen E. Kafton a/k/a Karen K. Kafton, a single woman	SWN Production Company, LLC		30/480	
		Chesapeake Appalachia, L.L.C.	15.00%	19/634	
		SWN Production Company, LLC		30/480	
	Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	15.00%	19/622	
	Linda J. Meadows, a married woman dealing in her sole and separate property	SWN Production Company, LLC		30/480	
		Chesapeake Appalachia, L.L.C.	12.50%	19/630	
		SWN Production Company, LLC		30/480	
	John D. Kafton, Jr., married	SWN Production Company, LLC and Equinor	18.00%	55/149	
		USA Onshore Properties Inc.			
Diana R. Soltis, married	SWN Production Company, LLC and Equinor	18.00%	55/155		
	USA Onshore Properties Inc.				
Richard J. Kafton, married	SWN Production Company, LLC and Equinor	18.00%	55/173		
	USA Onshore Properties Inc.				
Linda L. Gereg, married	SWN Production Company, LLC and Equinor	18.00%	55/179		
	USA Onshore Properties Inc.				
Marsha J. Bland, single	SWN Production Company, LLC and Equinor	18.00%	55/167		
	USA Onshore Properties Inc.				
Joyce L Surbaugh, single	SWN Production Company, LLC and Equinor	18.00%	55/161		
	USA Onshore Properties Inc.				
35) 04-C15D-0008-0000	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	18.00%	19/626	0.00%
		SWN Production Company, LLC		30/480	
	Karen E. Kafton a/k/a Karen K. Kafton, a single woman	Chesapeake Appalachia, L.L.C.	15.00%	19/634	
		SWN Production Company, LLC		30/480	

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	Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	15.00%	19/622 30/480		
	Linda J. Meadows, a married woman dealing in her sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	19/630 30/480		
	John D. Kafton, Jr., married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/149		
	Diana R. Soltis, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/155		
	Richard J. Kafton, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/173		
	Linda L. Gereg, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/179		
	Marsha J. Bland, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/167		
	Joyce L Surbaugh, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/161	✓	
36)	04-C15D-0010-0000	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	19/626 30/480	0.00%
		Karen E. Kafton a/k/a Karen K. Kafton, a single woman	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	15.00%	19/634 30/480	
		Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	15.00%	19/622 30/480	
		Linda J. Meadows, a married woman dealing in her sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	19/630 30/480	
		John D. Kafton, Jr., married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/149	
		Diana R. Soltis, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/155	
		Richard J. Kafton, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/173	
		Linda L. Gereg, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/179	
		Marsha J. Bland, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/167	
		Joyce L Surbaugh, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/161	✓
37)	04-C115-0023-0000	Troy A. Lucas, a single man	SWN Production Company, LLC	18.00%	55/105	0.00%
38)	04-CC11-0091-0000	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	19/626 30/480	0.00%
		Karen E. Kafton a/k/a Karen K. Kafton, a single woman	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	15.00%	19/634 30/480	
		Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	15.00%	19/622 30/480	

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	Linda J. Meadows, a married woman dealing in her sole and separate property	Chesapeake Appalachia, L.L.C.	12.50%	19/630	
	John D. Kafton, Jr., married	SWN Production Company, LLC		30/480	
		SWN Production Company, LLC and Equinor	18.00%	55/149	
	Diana R. Soltis, married	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/155	
	Richard J. Kafton, married	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/173	
	Linda L. Gereg, married	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/179	
	Marsha J. Bland, single	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/167	
	Joyce L Surbaugh, single	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/161	✓
39) 04-CC11-0090-0000	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	18.00%	19/626	0.00%
	Karen E. Kafton a/k/a Karen K. Kafton, a single woman	SWN Production Company, LLC		30/480	
		Chesapeake Appalachia, L.L.C.	15.00%	19/634	
		SWN Production Company, LLC		30/480	
	Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	15.00%	19/622	
		SWN Production Company, LLC		30/480	
	Linda J. Meadows, a married woman dealing in her sole and separate property	Chesapeake Appalachia, L.L.C.	12.50%	19/630	
	John D. Kafton, Jr., married	SWN Production Company, LLC		30/480	
		SWN Production Company, LLC and Equinor	18.00%	55/149	
	Diana R. Soltis, married	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/155	
	Richard J. Kafton, married	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/173	
	Linda L. Gereg, married	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/179	
	Marsha J. Bland, single	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/167	
	Joyce L Surbaugh, single	USA Onshore Properties Inc.			
		SWN Production Company, LLC and Equinor	18.00%	55/161	✓
		USA Onshore Properties Inc.			
40) 04-CC11-0089-0000	John M. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	18.00%	19/626	0.00%
	Karen E. Kafton a/k/a Karen K. Kafton, a single woman	SWN Production Company, LLC		30/480	
		Chesapeake Appalachia, L.L.C.	15.00%	19/634	
		SWN Production Company, LLC		30/480	
	Mark A. Kafton, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	15.00%	19/622	
		SWN Production Company, LLC		30/480	
	Linda J. Meadows, a married woman dealing in her sole and separate property	Chesapeake Appalachia, L.L.C.	12.50%	19/630	
	John D. Kafton, Jr., married	SWN Production Company, LLC		30/480	
		SWN Production Company, LLC and Equinor	18.00%	55/149	
		USA Onshore Properties Inc.			

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	Diana R. Soltis, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/155		
	Richard J. Kafton, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/173		
	Linda L. Gereg, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/179		
	Marsha J. Bland, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/167		
	Joyce L Surbaugh, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	18.00%	55/161	✓	
41)	04-CC11-0088-0000	Ramon L. Bowen, a widower	SWN Production Company, LLC	17.00%	51/699	0.00% ✓

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MARK A. O'NEAL & ASSOCIATES
TAYLOR HARRIS
480 JOHNSON ROAD, STE 220
WASHINGTON PA 15301-8936

Brooke County
Kimberly M. Barbetta, Clerk
Instrument 94902
06/17/2020 @ 03:36:43 PM
AGREEMENT
Book 402 @ Page 683
Pages Recorded 4
Recording Cost \$ 11.00

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement is entered into June 1st, 2020, between SWN Production Company, LLC, a Texas limited liability company, whose address is 10000 Energy Drive, Spring, Texas, 77389 ("SWN"), and Equinor USA Onshore Properties Inc., a Delaware corporation, whose address is 6300 Bridge Point Parkway, Building 2, Suite 100, Austin, TX 78730 ("EQNR").

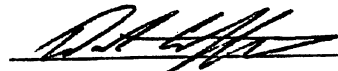
1. **PARTIES AND AGREEMENT REFERENCE:** SWN and EQNR entered into a letter agreement ("*Letter Agreement*") dated June 1st, 2020, (the "Commencement Date") outlining their intent to allow SWN to proceed with permitting certain wells with the West Virginia Department of Environmental Protection while SWN and EQNR pursue definitive agreements allowing SWN to develop those certain tracts of land identified on "Exhibit A" attached hereto and made a part hereof.

2. **TERM:** The rights granted in the Letter Agreement will terminate upon the earlier of (i) one year from the Commencement Date, or (ii) the parties entering into any definitive agreement(s) described in the Letter Agreement.


3. **MEMORANDUM FOR RECORDING PURPOSES ONLY:** This Memorandum is for recording purposes only and does not supplement or supersede the parties' respective rights set forth in the Letter Agreement.

IN WITNESS WHEREOF, the parties have signed their names hereto as of the date first above written.

SWN PRODUCTION COMPANY, LLC


By: Derek Cutright
Its: Senior Vice President
msb 6/17

EQUINOR USA ONSHORE PROPERTIES INC.


By: Jarad Guynes
Its: Leader Land

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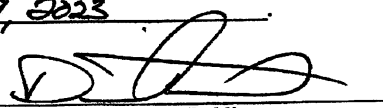
CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS)
COUNTY OF HARRIS)

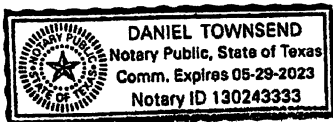
On this, the 15th day of June, 2020, before me the undersigned officer, personally appeared Derek Cutright who acknowledged himself to be the **Senior Vice President** of **SWN Production Company, LLC**, a Texas limited liability company, that he as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the company by himself as **Senior Vice President**.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My commission expires: May 29, 2023



Notary Public



CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS)
COUNTY OF TRAVIS)

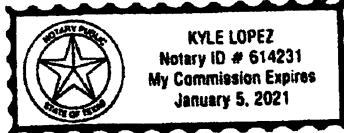
On this, the 9th day of June, 2020, before me the undersigned officer, personally appeared Jarad Guynes, who acknowledged himself to be the Leader Land, of **Equinor USA Onshore Properties Inc.**, a Delaware corporation, and that he as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the company by himself as Leader Land.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My commission expires: 1/5/21



Notary Public



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Exhibit "A"

Addendum to Memorandum of Agreement dated the 1st day of June, 2020, between SWN Production Company, LLC, and Equinor USA Onshore Properties Inc.

LESSOR	LESSEE	BK/PG	County	District	Lease Date	Tax Parcel IDs
Richard J. Kafton, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	55/173	Brooke	Cross Creek	7/1/2019	04-C15C-0004-0000, 04-C15C-0005-0000, 04-C15C-0006-0000, 04-C15C-0002-0000, 04-C15D-0004-0000, 04-C15D-0006-0000, 04-C15D-0007-0000, 04-C15D-0008-0001, 04-C15D-0008-0000, 04-C15D-0010-0000, 04-CC11-0091-0000, 04-CC11-0090-0000, 04-CC11-0089-0000
John D. Kafton, Jr., married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	55/149	Brooke	Cross Creek	7/1/2019	04-C15C-0004-0000, 04-C15C-0005-0000, 04-C15C-0006-0000, 04-C15C-0002-0000, 04-C15D-0004-0000, 04-C15D-0006-0000, 04-C15D-0007-0000, 04-C15D-0008-0001, 04-C15D-0008-0000, 04-C15D-0010-0000, 04-CC11-0091-0000, 04-CC11-0090-0000, 04-CC11-0089-0000
Diana R. Soltis, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	55/155	Brooke	Cross Creek	7/1/2019	04-C15C-0004-0000, 04-C15C-0005-0000, 04-C15C-0006-0000, 04-C15C-0002-0000, 04-C15D-0004-0000, 04-C15D-0006-0000, 04-C15D-0007-0000, 04-C15D-0008-0001, 04-C15D-0008-0000, 04-C15D-0010-0000, 04-CC11-0091-0000, 04-CC11-0090-0000, 04-CC11-0089-0000
Linda L. Gereg, married	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	55/179	Brooke	Cross Creek	7/1/2019	04-C15C-0004-0000, 04-C15C-0005-0000, 04-C15C-0006-0000, 04-C15C-0002-0000, 04-C15D-0004-0000, 04-C15D-0006-0000, 04-C15D-0007-0000, 04-C15D-0008-0001, 04-C15D-0008-0000, 04-C15D-0010-0000, 04-CC11-0091-0000, 04-CC11-0090-0000, 04-CC11-0089-0000

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Exhibit "A"

Addendum to Memorandum of Agreement dated the 1st day of June, 2020, between SWN Production Company, LLC, and Equinor USA Onshore Properties Inc.

LESSOR	LESSEE	BK/PG	County	District	Lense Date	Tax Parcel IDs
Marsha J. Bland, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	55/167	Brooke	Cross Creek	7/1/2019	04-C15C-0004-0000, 04-C15C-0005-0000, 04-C15C-0006-0000, 04-C15C-0002-0000, 04-C15D-0004-0000, 04-C15D-0006-0000, 04-C15D-0007-0000, 04-C15D-0008-0001, 04-C15D-0008-0000, 04-C15D-0010-0000, 04-CC11-0091-0000, 04-CC11-0090-0000, 04-CC11-0089-0000
Joyce L. Surbaugh, single	SWN Production Company, LLC and Equinor USA Onshore Properties Inc.	55/161	Brooke	Cross Creek	7/1/2019	04-C15C-0004-0000, 04-C15C-0005-0000, 04-C15C-0006-0000, 04-C15C-0002-0000, 04-C15D-0004-0000, 04-C15D-0006-0000, 04-C15D-0007-0000, 04-C15D-0008-0001, 04-C15D-0008-0000, 04-C15D-0010-0000, 04-CC11-0091-0000, 04-CC11-0090-0000, 04-CC11-0089-0000

End of Exhibit "A"

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May 6, 2020

Ms. Laura Adkins
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

RE: SWN's proposed New Well: State of WV DNR C BRK 5H in Brooke County, West Virginia, Drilling under St. Johns Road, Putney Ridge Road, Pleasant Valley Lane, and Tent Church Road.

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill under St. Johns Road, Putney Ridge Road, Pleasant Valley Lane, and Tent Church Road.. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,



Bailey Brougher
Landman – SW Appalachia
SWN Production Company, LLC

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**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 12/11/20

API No. 47- 009 - _____
Operator's Well No. State of WV DNR C BRK 5H
Well Pad Name: State of WV DNR C BRK

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>539282.414</u>
County:	<u>009-Brooke</u>		Northing:	<u>4461420.366</u>
District:	<u>Cross Creek</u>	Public Road Access:	<u>Putney Ridge Road</u>	
Quadrangle:	<u>Steubenville East</u>	Generally used farm name:	<u>State of WV DNR C BRK</u>	
Watershed:	<u>North Fork Cross Creek</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY		OOG OFFICE USE ONLY
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED		<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION	RECEIVED Office of Oil and Gas	<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 5. PUBLIC NOTICE	DEC 14 2020	<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION	WV Department of Environmental Protection	<input type="checkbox"/> RECEIVED

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Certification of Notice is hereby given:

THEREFORE, I _____, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>SWN Production Co., LLC</u>	Address:	<u>1300 Fort Pierpont Dr., Suite 201</u>
By:	<u>Brittany Woody</u>		<u>Morgantown, WV 26508</u>
Its:	<u>Senior Regulatory Analyst</u>	Facsimile:	<u>304-884-1690</u>
Telephone:	<u>304-884-1610</u>	Email:	<u>Brittany_Woody@swn.com</u>

Brittany Woody



Subscribed and sworn before me this 11th day of DECEMBER 2020

[Signature] Notary Public

My Commission Expires FEB 8 2025

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 12/11 Date Permit Application Filed: 12/11
Notice of:

- PERMIT FOR ANY WELL WORK CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: State of WV Dept. of Commerce Division of Natural Resources
Address: 324 4th Ave, Rm 200
Charleston, WV 25303
Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: Starvaggi Industries, INC.
Address: 401 Pennsylvania Ave
Weirton, WV 26062
 COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: _____
Address: _____
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: See Attachment 13A
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: _____
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: _____ **Date Permit Application Filed:** _____

Notice of:

- PERMIT FOR ANY WELL WORK CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: _____
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Monongahela Power Company
Address: 5001 Nasa Blvd
Fairmont, WV 26554

COAL OPERATOR

Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: _____
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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Notice is hereby given by:

Well Operator: SWN Production Co., LLC
Telephone: 304-884-1610
Email: Brittany_Woody@swn.com

Brittany Woody

Address: 1300 Fort Pierpont Dr., Suite 201
Morgantown, WV 26508
Facsimile: 304-884-1690

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this 11th day of DECEMBER, 2020

[Signature]

Notary Public

My Commission Expires FEB 8, 2025

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ATTACHMENT 13

OWNER	ADDRESS	CITY	STATE	ZIP
MARINO MILDRED T & WILLIAM	1020 CROSS CREEK RD	COLLIERS	WV	26035
HENDERSON WAYNE L & BETHANY A (SURV)	1048 CROSS CREEK RD	COLLIERS	WV	26035
MCCONNELL BARBARA J	44 PUNTNEY RIDGE RD	COLLIERS	WV	26035

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

Date of Notice: 12/10/2019 **Date of Planned Entry:** 12/17/2019

Delivery method pursuant to West Virginia Code § 22-6A-10a

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

SURFACE OWNER(s)

Name: State of WV-DNR Attn: Steve Rausch ✓

Address: PO Box 99, 1110 Railroad Street ✓

Farmington, WV 26571

Name: _____

Address: _____

Name: _____

Address: _____

COAL OWNER OR LESSEE

Name: Starvaggi Industries, INC. ✓

Address: 401 Pennsylvania Ave

Weirton, WV 26062

MINERAL OWNER(s)

Name: Starvaggi Industries, INC. ✓

Address: Weirton, WV 26062

Weirton, WV 26062

*please attach additional forms if necessary

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>4461365.21, 539282.70</u>
County: <u>Brooke</u>	Public Road Access: <u>Putney Ridge Road</u>
District: <u>Cross Creek</u>	Watershed: <u>North Fork Cross Creek</u>
Quadrangle: <u>Steubenville East</u>	Generally used farm name: <u>State of WV DNR C</u>

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: SWN PRODUCTION COMPANY, LLC

Telephone: 304-884-1610

Email: brittany_woody@swn.com

Address: 1300 Fort Pierpont Dr., Suite 201

Morgantown, WV 26508

Facsimile: 304-884-1690

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Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

Date of Notice: 11/18/2020 **Date Permit Application Filed:** 11/18/20

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

- HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: St of WV Dept of Commerce Div of Natural Resources
Address: 324 4th Ave, Rm 200
Charleston, WV 25303

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>539,282.414</u>
County: <u>Brooke</u>		Northing: <u>4,461,420.366</u>
District: <u>Cross Creek</u>	Public Road Access: <u>Putney Ridge Rd</u>	
Quadrangle: <u>Steubenville East, WV</u>	Generally used farm name: <u>State of WV DNR C BRK</u>	
Watershed: <u>North Fork Cross Creek-Cross Creek (HUC-10)</u>		

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: SWN Production Company, LLC
Address: 1300 Fort Pierpont Dr., Suite 201
Morgantown, WV 26508
Telephone: 304-231-8329
Email: Reid_Croft@swn.com
Facsimile: 304-884-1691

Authorized Representative: Reid Croft
Address: 1300 Fort Pierpont Dr., Suite 201
Jane Lew, WV 26508
Telephone: 304-231-8329
Email: Reid_Croft@swn.com
Facsimile: 304-884-1691

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Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

Attachment VI Frac Additives

Product Name	Product Use	Chemical Name	CDS Number
AI-303 (U.S. Well Services)	Mixture	Ethylene glycol	107-21-1
		Cinnamaldehyde	104-55-2
		Butyl cellosolve	111-76-2
		Formic acid	64-18-6
		Polyether	Proprietary
Acetophenone, thiourea, formaldehyde polymer	68527-49-1		
AP ONE (U.S. Well Services)	Breaker	Ammonium persulfate	7727-54-0
Bactron K-139 (Champion Technologies)	Biocide	Glutaraldehyde	111-30-8
		Quaternary Ammonium Compounds, Benzyl-C12-16-Alkyldimethyl, Chlorides	68424-85-1
		Ethanol	64-17-5
Bactron K-219 (Champion Technologies)	Biocide	Methanol	67-56-1
		Quaternary Ammonium Compounds, Benzyl-C12-16-Alkyldimethyl, Chlorides	68424-85-1
CarboNRT	Tracer	Ceramic Proppant	66402-68-4
EC6486A (Nalco Champion)	Scale Inhibitor	Amine Triphosphate	Proprietary
		Ethylene Glycol	107-21-1
EC6734A (Champion Technologies)	Biocide	Hydrogen Peroxide	7722-84-1
		Acetic Acid	64-19-7
		Peroxyacetic Acid	79-21-0
Econo-CI200 (SWN Well Services)	Corrosion Inhibitor	Methanol	67-56-1
		Oxyalkylated fatty acid	68951-67-7
		Fatty acids	61790-12-3
		Modified thiourea polymer	68527-49-1
		Water	7732-18-5
		Hydrochloric acid	7647-01-0
		Potassium acetate	127-08-2
		Formaldehyde	50-00-0
Ecopol-FEAC (SWN Well Services)	Iron Control	Acetic Acid	64-19-7
		Citric Acid	77-92-9
		Water	7732-18-5
FDP-S1176-15 (Halliburton)	Friction Reducer	Polyacrylate	Proprietary
		Hydrotreated light petroleum distillate	64742-47-8
FLOJET DR900 LPP (SWN Well Services)	Friction Reducer	Distillates (petroleum) hydrotreated light	64674-47-8
		Ethylene Glycol	107-21-1
		Alcohols, C12-16, Exoxylated propoxylated	68213-24-1
		Fatty Alcohols ethoxylated	Proprietary
		Water	7732-18-5
FLOJET DRP 1130X (SWN Well Services)	Friction Reducer	Proprietary	Proprietary
FR-76 (Halliburton)	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8
		Inorganic Salt	Proprietary
GYPTRON T-390 (Champion Technologies)	Scale Inhibitor	Methanol	67-56-1
		Nonylphenol Ethoxylate	Proprietary
HAI-150E (Halliburton)	Corrosion Inhibitor	No hazardous substance	N/A
HCL (SWN Well Services)	Hydrochloric Acid	Hydrochloric Acid	7647-01-0
		Water	7732-18-5
LP-65 MC (Halliburton)	Scale Inhibitor	Organic phosphonate	Proprietary
		Ammonium Chloride	12125-02-9
OPTI-FLEX (U.S. Well Services)	Viscosifying Agent	Distillates, petroleum, hydrotreated light	64742-47-8
Plexslick 930	Friction Reducer	Copolymer of 2-propenamide	Proprietary
		Hydrotreated Distillate	64742-47-8
		Sodium Chloride	7647-14-5
		Alcohols, C12-16, Exoxylated	68551-12-2
		Oleic Acid Diethanolamide	93-83-4
Ammonium Chloride	12125-02-9		
Plexslick 953	Friction Reducer	Petroleum Distillate	64742-47-8
		Sodium Chloride	7647-14-5
		Ammonium Chloride	12125-02-9
		N,N-bis (2-hydroxyethyl) oleamide	93-83-4
Plexslick 957	Friction Reducer	Petroleum Distillate	64742-47-8
		Ammonium Chloride	12125-02-9
		Oleic Acid Diethanolamide	93-83-4
		Alcohols, C12-16, Exoxylated	68551-12-2
		Water	7732-15-5
WFRA-2000 (U.S. Well Services)	Anionic Friction Reducer	Hydrotreated light distillate (petroleum)	64742-47-8
		Propenoic acid, polymer with propenamide	9003-06-9
Plexaid 655 NM	Scale Inhibitor	Diethylenetriamine penta (methylene phosphonic acid)	15827-30-8
Plexslick 922	no data available	Copolymer of 2-propenamide	69418-26-4
		Distillates (petroleum), hydrotreated light	64742-47-8
		Ammonium chloride ((NH4)Cl)	12125-02-9
		Oleic Acid Diethanolamide	93-83-4
Tolcide P550A	Biocidal product	Tetrakis (hydroxymethyl) phosphonium sulphate	55566-30-8
		Acrylic acid terpolymer containing carboxylate phosphonate and sulfonate groups	397256-50-7
LD-2950	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8
		Ethoxylated alcohol	Proprietary
Legend LD-7750W	Scale Control	Poly (oxy-1,2-ethanediyl) alpha.-tridecyl.-omega.-hydroxy-, branched	69011-36-5
		Methanol	67-56-1
		Phosphonic Acid Salt	Proprietary
MC MX 8-4743	Specialty Product	Sodium Nitrate	7631-99-4

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STATE OF WV DNR C

SITE DESIGN, EROSION AND SITE RESTORATION PLANS

PUTNEY RIDGE ROAD (CR 7/3)
BROOKE COUNTY, WV

PREPARED FOR:

SWN PRODUCTION COMPANY, LLC.

10000 ENERGY DRIVE
SPRING, TX 77389

TOTAL LIMITS OF DISTURBED AREA			
PROPERTY OWNER	TOTAL PARCEL AREA (AC)	DISTURBED AREA (AC)	CLEARING AREA (AC)
WEST VIRGINIA ST OF BUREAU OF COMM DIV OF NAT RES PUB LD CORP TAX ID 04-0522-0000	83.85	15.72	3.37
TOTAL	83.85	15.72	3.37

COORDINATE LABEL	SITE COORDINATES			
	ACCESS ROAD ENTRANCE		WELL PAD CENTER	
	LAT	LOD	LAT	LOD
WB3-NF-DMS	40°18'20.34"N	80°32'03.01"W	40°18'07.93"N	80°32'15.80"W
WB3-NF-DECIMAL DEGREES	40.30565°	80.53434°	40.3022°	80.53772°

SHEET	TITLE
1	COVER SHEET
2-3	PREVAILING WINDS AND EVACUATION ROUTES
4-5	INDEX SHEETS
6-8	EXISTING CONDITIONS PLANS
9-11	PROPOSED CONDITION PLANS
12-18	CROSS SECTIONS
19	PAD LAYOUT
20-22	RECLAMATION PLANS
23-41	DETAILS

ENGINEER'S ESTIMATE OF QUANTITIES		
CUT/FILL DATA		
DESCRIPTIONS	ESTIMATED QTY	UNIT
CUT (EXCLUDES TOPSOIL)	31,710	CY
FILL (EXCLUDES TOPSOIL)	14,891	CY
WELL PAD DATA		
DESCRIPTIONS	ESTIMATED QTY	UNIT
PAD SUMP	2	EA
SUMP DISCHARGE PIPE (4" PLASTIC PIPE)	207	LF
1.5:1 BERM (2' TALL)	1814	LF
5:1 BERM (2' TALL)	50	LF
BASE COURSE (9" AASHTO #1)	6,205	CY
SURFACE COURSE (3" WV DOH 307-03)	2,068	CY
GEOTEXTILE	8,274	SY
ACCESS ROAD DATA		
DESCRIPTIONS	ESTIMATED QTY	UNIT
WVDOH TYPE 1 GUARDRAIL, CLASS III	243	LF
18" DIAMETER HDPE CURVERT	101	LF
TURNOUTS	1	EA
GEOTEXTILE	1,079	SY
BASE COURSE (1.2" AASHTO #1)	1,079	CY
SURFACE COURSE (4" WV DOH 307-03)	359	CY
EROSION AND SEDIMENT CONTROL ITEMS		
DESCRIPTIONS	ESTIMATED QTY	UNIT
COMPOST FILTER SOCK 12"	1338	LF
COMPOST FILTER SOCK 18"	948	LF
COMPOST FILTER SOCK 24"	1106	LF
COMPOST FILTER SOCK 32"	425	LF
ORANGE CONSTRUCTION FENCE	107	LF
OUTLET PROTECTION / ROCK APRON R-3	9.06	CY
ROCK CHECK DAM	10	EA
TBM CHANNEL	639	LF
ECB CHANNEL	1234	LF
ADDITIONAL ITEMS		
DESCRIPTIONS	ESTIMATED QTY	UNIT
PAVED CONSTRUCTION ENTRANCE	1	EA
MOBILIZATION/DEMOLITION	1	EA
ENTRANCE GATE	1	EA
TRENCH SAFETY PLAN/PROTECTION	1	EA
CLEARING/GRUBBING		
DESCRIPTIONS	ESTIMATED QTY	UNIT
TOTAL FORESTED CLEARING AND GRUBBING	3.37	AC
TOTAL NON FORESTED CLEARING AND GRUBBING	12.35	AC
RECLAMATION ITEMS		
DESCRIPTIONS	ESTIMATED QTY	UNIT
BERM BREACH	3	EA
EROSION CONTROL FABRIC	234	SF
OUTLET PROTECTION / ROCK APRON R-3	5.56	CY

C-Blc
2.4.20
C-Blc
5-7-18

RECEIVED
Office of Oil and Gas
DEC 14 2020

WV Department of Environmental Protection
 APPROVED FOR PERMITS DATE: _____ BY: _____
 APPROVED FOR BIDS DATE: _____ BY: _____
 APPROVED FOR CONSTRUCTION DATE: _____ BY: _____



DESIGN CERTIFICATION
THE DRAWINGS, CONSTRUCTION NOTES, AND REFERENCE DIAGRAMS ATTACHED HERETO HAVE BEEN PREPARED IN ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS CRS 35-80.

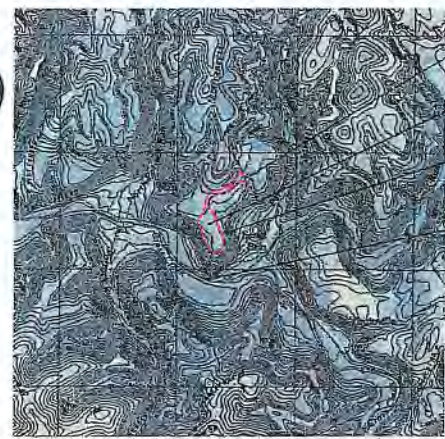
PREPARED BY:
AECOM
FOSTER PLAZA 6
681 ANDERSEN DRIVE
SUITE 400
PITTSBURGH, PA 15220
PHONE: (412) 503-4700
FAX: (412) 503-4701

DRIVING DIRECTIONS FROM ROCKDALE:
1.) TAKE CROSS CREEK ROAD FOR 3 MILES.
2.) TURN LEFT ONTO PUTNEY RIDGE ROAD
3.) SITE WILL BE ON LEFT AFTER 0.5 MILES.

OPERATOR
SWN PRODUCTION COMPANY, LLC.
179 INNOVATION DRIVE
JANE LEW, WV 26378
(304) 884-1610



HIGHWAY MAP SCALE



SITE LOCATION MAP
USGS 7.5' TOPOGRAPHIC QUADRANGLE MAP
STEBENVILLE EAST, OH-WV-PA 1997

PROPOSED LIMITS OF DISTURBANCE

ACCESS ROAD ENTRANCE
WELL PAD CENTER
PROPOSED LIMITS OF DISTURBANCE
CROSS CREEK

PROJECT LOCATION



NOT ALL UTILITIES ARE SHOWN
THE LOCATION OF ALL UTILITIES (ABOVE OR BELOW GROUND) SHOWN ON THESE DRAWINGS ARE APPROXIMATE & WERE OBTAINED FROM USGS TOPO MAPS AND/OR UTILITY OWNERS. AECOM DOES NOT GUARANTEE THAT LOCATION SHOWN ON THE DRAWINGS ARE CORRECT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE LOCATIONS OF EXISTING UTILITIES (ABOVE OR BELOW GROUND) & TO NOTIFY THE RESPECTIVE UTILITY OWNERS BEFORE BEGINNING CONSTRUCTION.

CALL BEFORE YOU DIG
WEST VIRGINIA LAW REQUIRES
AT LEAST 2 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
WEST VIRGINIA ONE CALL SYSTEM INC.
DIAL 811 IN WEST VIRGINIA OR
1-800-245-4444