



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

Friday, May 3, 2019
WELL WORK PERMIT
Horizontal / Re-Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit approval for MARGARET CORBIN BRK 5H
47-009-00090-00-00

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: MARGARET CORBIN BRK 5H
Farm Name: LOUIS W. HENSLER, JR. & N
U.S. WELL NUMBER: 47-009-00090-00-00
Horizontal Re-Drill
Date Issued: 5/3/2019

PERMIT CONDITIONS**4700900090**

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.

PERMIT CONDITIONS

4700900090

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 | 03-Buffalo | 247-Bethany
Operator ID County District Quadrangle

2) Operator's Well Number: Margaret Corbin BRK 5H Well Pad Name: Margaret Corbin BRK

3) Farm Name/Surface Owner: Louis W. Hensler, Jr. & Margaret Hensler Public Road Access: Camp Run Road

4) Elevation, current ground: 1150' Elevation, proposed post-construction: 1150'

5) Well Type (a) Gas X Oil Underground Storage

Other

(b) If Gas Shallow X Deep

Horizontal X

[Handwritten Signature] 3-7-19

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Up-Dip Well to the North, Target Top TVD- 6058', Target Base TVD- 6095', Anticipated Thickness- 37', Associated Pressure- 3962

8) Proposed Total Vertical Depth: 6078'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 11030'

11) Proposed Horizontal Leg Length: 4034.04'

12) Approximate Fresh Water Strata Depths: 372'

13) Method to Determine Fresh Water Depths: Nearby Water Well & Salinity Profile

14) Approximate Saltwater Depths: 495' Salinity Profile Analysis

15) Approximate Coal Seam Depths: 328'

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 X

(a) If Yes, provide Mine Info: Name: Depth: Seam: Owner:

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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	H-40	94#	97'	97'	CTS
Fresh Water	13 3/8"	New	H-40	48#	423'	423'	413 sx/CTS
Coal	See	Surface	Casing				
Intermediate	9 5/8"	New	J-55	36#	1774'	1774'	689 sx/CTS
Production	5 1/2"	New	HCP-110	20#	11030'	11030'	had 739sx Tub 1322sx Inside Intermediate
Tubing							
Liners							

C. J. [Signature] 3-7-19

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	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	See	Surface	Casing				
Intermediate	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/50% Excess
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW-6B
(10/14)

4700900090
05/03/2019
API NO. 47-009 -
OPERATOR WELL NO. Margaret Corbin BRK SH
Well Pad Name: Margaret Corbin BRK

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

As the proposed wellwork is a frac of an existing well, no proposed drilling or plugback of a pilot hole work is planned.

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. The well is produced through surface facilities consisting of high pressure production units, 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): 18.1

22) Area to be disturbed for well pad only, less access road (acres): 13.3

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.

Schlumberger Cement Additives

	Product Name	Product Use	Chemical Name	CAS Number
Surface Intermediate	S001	accelerator	calcium chloride up to 3%	10043-52-4
	S001	accelerator	calcium chloride	10043-52-4
Kick Off Plug	D080	dispersant	sodium polynaphthalene sulfonate	9008-63-3
	D801	retarder	aromatic polymer derivative	proprietary
	D047	antifoam	polypropylene glycol	25322-69-4
Production-Lead	D167	fluid loss	aliphatic amide polymer	proprietary
	D154	extender	non-crystalline silica	7631-86-9
	D400	gas migration	boric acid	10043-35-3
	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgate)	8031-18-3
	D201	retarder	chrySTALLINE silica	14808-60-7
			metal oxide	proprietary
	D202	dispersant	sulphonated synthetic polymer	proprietary
formaldehyde (impurity)			proprietary	
Production-Tail	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgate)	8031-18-3
	D167	fluid loss	aliphatic amide polymer	proprietary
	D065	dispersant	sodium polynaphthalene sulfonate	9008-63-3
			sodium sulfate	7757-82-6
	D201	retarder	chrySTALLINE silica	14808-60-7
metal oxide			proprietary	
D153	anti-settling	chrySTALLINE silica	14808-60-7	

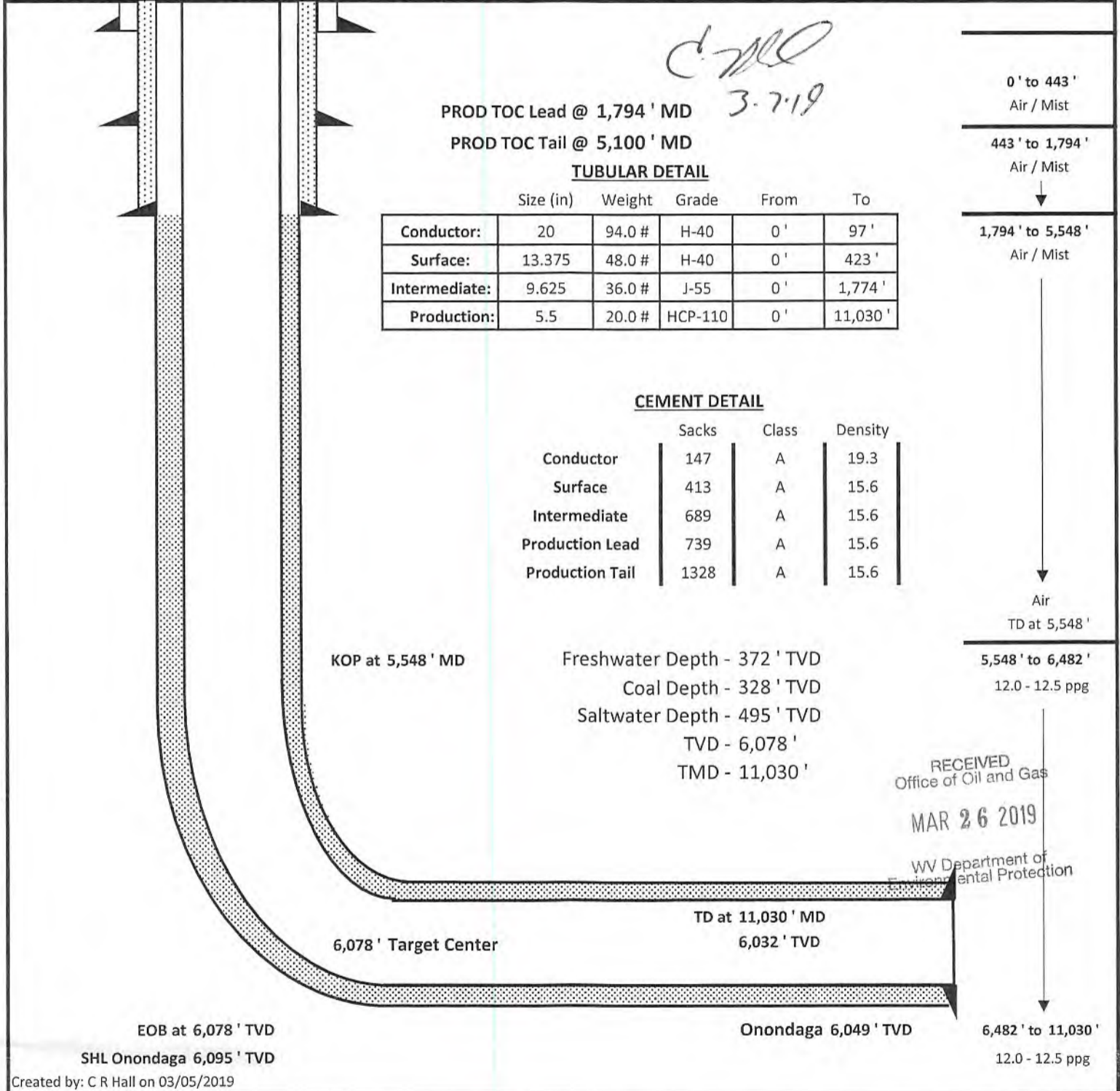
Rev. 5/18/2018

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05/03/2019

Southwestern Energy Company **Proposed Drilling Program**

Well: MARGARET CORBIN 5 Re-entry Rig: TBD
 Field: PANHANDLE FIELD WET Prospect: PANHANDLE
 County: BROOKE State: WV
 SHL: 40.2311 Latitude -80.5223 Longitude
 BHL: 40.2441 Latitude -80.5257 Longitude
 KB Elev: 1,170 ft MSL KB: 26 ft AGL GL Elev: 1,150 ft MSL



PROD TOC Lead @ 1,794 ' MD
 PROD TOC Tail @ 5,100 ' MD

C. R. Hall
 3-7-19

TUBULAR DETAIL

	Size (in)	Weight	Grade	From	To
Conductor:	20	94.0 #	H-40	0'	97'
Surface:	13.375	48.0 #	H-40	0'	423'
Intermediate:	9.625	36.0 #	J-55	0'	1,774'
Production:	5.5	20.0 #	HCP-110	0'	11,030'

CEMENT DETAIL

	Sacks	Class	Density
Conductor	147	A	19.3
Surface	413	A	15.6
Intermediate	689	A	15.6
Production Lead	739	A	15.6
Production Tail	1328	A	15.6

0' to 443' Air / Mist
 443' to 1,794' Air / Mist
 1,794' to 5,548' Air / Mist
 Air TD at 5,548'
 5,548' to 6,482' 12.0 - 12.5 ppg
 6,482' to 11,030' 12.0 - 12.5 ppg

KOP at 5,548 ' MD

Freshwater Depth - 372 ' TVD
 Coal Depth - 328 ' TVD
 Saltwater Depth - 495 ' TVD
 TVD - 6,078 '
 TMD - 11,030 '

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6,078 ' Target Center

TD at 11,030 ' MD
 6,032 ' TVD

EOB at 6,078 ' TVD

SHL Onondaga 6,095 ' TVD

Onondaga 6,049 ' TVD

4700900090
05/03/2019

WR-35
Rev (9-11)

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

DATE: 1-31-2012
API #: 47-009-00090

Farm name: Margaret Corbin Operator Well No.: 5H (832967)

LOCATION: Elevation: 1150' Quadrangle: Bethany WV

District: Buffalo County: Brooke
Latitude: 6240' Feet South of 40 Deg. 15 Min. 00 Sec.
Longitude 6880' Feet West of 80 Deg. 30 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	20"	97'	97'	Driven
Agent: Eric Gillespie	13 3/8"	443'	443'	240 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	1794'	1794'	706 Cu. Ft.
Date Permit Issued: <u>2/4/2011</u>	5 1/2"	11022'	11022'	5842 Cu. Ft.
Date Well Work Commenced: <u>4/29/2011</u>				
Date Well Work Completed: <u>10/10/2011</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>6,059'</u>				
Total Measured Depth (ft): <u>11,030'</u>				
Fresh Water Depth (ft.): <u>342'</u>				
Salt Water Depth (ft.): <u>1100'</u>				
Is coal being mined in area (N/Y)? <u>None</u>				
Coal Depths (ft.): <u>323</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 6,715'-10,897'

Gas: Initial open flow 0 MCF/d Oil: Initial open flow 0 Bbl/d

Final open flow 1,614 MCF/d Final open flow 173 Bbl/d

Time of open flow between initial and final tests 27 Hours

Static rock Pressure 3,920 psig (surface pressure) after Hours

Second producing formation Pay zone depth (ft)

Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d

Final open flow MCF/d Final open flow Bbl/d

Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) after Hours

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

Marlene Williams
Signature

7-30-2012
Date

05/03/2019

Were core samples taken? Yes _____ No

Were cuttings caught during drilling? Yes No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list induction, GR, density, neutron

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

(see attached)

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered:	Top Depth	/	Bottom Depth
Surface:			

(see attached)

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PERFORATION RECORD ATTACHMENT

Well Name and Number: Margaret Corbin 5H (832967)

PERFORATION RECORD			STIMULATION RECORD							
Date	Interval Perforated		Date	Interval Treated		Fluid		Propping Agent		Average Injection
	From	To		Type	Amount	Type	Amount			
10/5/2011	10,515	10,897	10/5/2011	10,515	10,897	Sik Wtr	9,830	Sand	571,816	88
10/6/2011	10,040	10,422	10/6/2011	10,040	10,422	Sik Wtr	9,659	Sand	571,756	88
10/6/2011	9,565	9,947	10/6/2011	9,565	9,947	Sik Wtr	9,703	Sand	570,093	88
10/8/2011	9,090	9,472	10/8/2011	9,090	9,472	Sik Wtr	11,867	Sand	572,249	87
10/8/2011	8,615	8,997	10/8/2011	8,615	8,997	Sik Wtr	9,579	Sand	567,846	86
10/8/2011	8,140	8,522	10/8/2011	8,140	8,522	Sik Wtr	9,627	Sand	569,595	87
10/9/2011	7,665	8,047	10/9/2011	7,665	8,047	Sik Wtr	9,302	Sand	570,557	86
10/9/2011	7,190	7,572	10/9/2011	7,190	7,572	Sik Wtr	9,395	Sand	572,318	86
10/9/2011	6,715	7,097	10/9/2011	6,715	7,097	Sik Wtr	9,645	Sand	578,669	87

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LATERAL SIDETRACK WELLBORE (no pilot hole associated with this pad)				
Maximum TVD of wellbore:	6078 ft TVD @ 7308 ft MD			
Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
LS and SS	0	0	200	200
Shale and LS	200	200	323	323
Pittsburgh Coal	323	323	335	335
LS and Shale	335	335	450	450
SS	450	450	1350	1350
Big Injun	1350	1350	1633	1633
Shale	1633	1633	2360	2360
Shale and SS	2360	2360	2490	2490
Shale	2490	2490	2900	2900
Shale and SS	2900	2900	3020	3020
Shale	3020	3020	3310	3310
Shale and minor SS	3310	3310	3370	3370
Shale	3370	3370	4900	4900
Shale and minor LS	4900	4900	6400	5952
Shale and LS	6400	5952	6600	6028
Shale	6600	6028	6715	6051
Geneseo	6715	6051	6730	6053
Tully	6730	6053	6780	6059
Marcellus	6780	6059		
End of Well			11030	6032

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REGISTRATION
Office of Oil & Gas

JUL 31 2012

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WW-9
(2/15)

API Number 47 - 009 -
Operator's Well No. Margaret Corbin BRK 5H

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) Camp Run of Buffalo Creek Quadrangle Bethany

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 34-155-22403, 34-069-24067, 34-119-28776, 34-167-22862 34-155-23795, 34-121-23995, 34-155-21893)
- Reuse (at API Number _____ at next anticipated well, API# will be included with the WR-34/DDMR &/or permit addendum.)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain flow back fluids will be put in steel tanks and reused or taken to a permitted disposal facility)

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 SOBEM 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

Arden Landfill 10072, Apex Sanitary Landfill 06-08438, Brooke Co SWF-1013, Valley 100280

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.

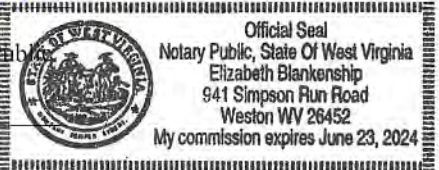
Company Official Signature Brittany Woody
Company Official (Typed Name) Brittany Woody
Company Official Title Regulatory Analyst

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Subscribed and sworn before me this 28 day of Feb, 20 19

Elizabeth Blankenship Notary Public

My commission expires 6/23/2024



SWN Production Co., LLC

Proposed Revegetation Treatment: Acres Disturbed 18.1 Prevegetation pH

Lime as determined by pH test min. 2 Tons/acre or to correct to pH 13.3

Fertilizer type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch Hay/Straw 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre

Seed Type lbs/acre

Attachment 3C

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature] 3-7-19

Comments:

Title: Oil and Gas Inspector

Date: 3-7-19

Field Reviewed? (X) Yes () No

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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

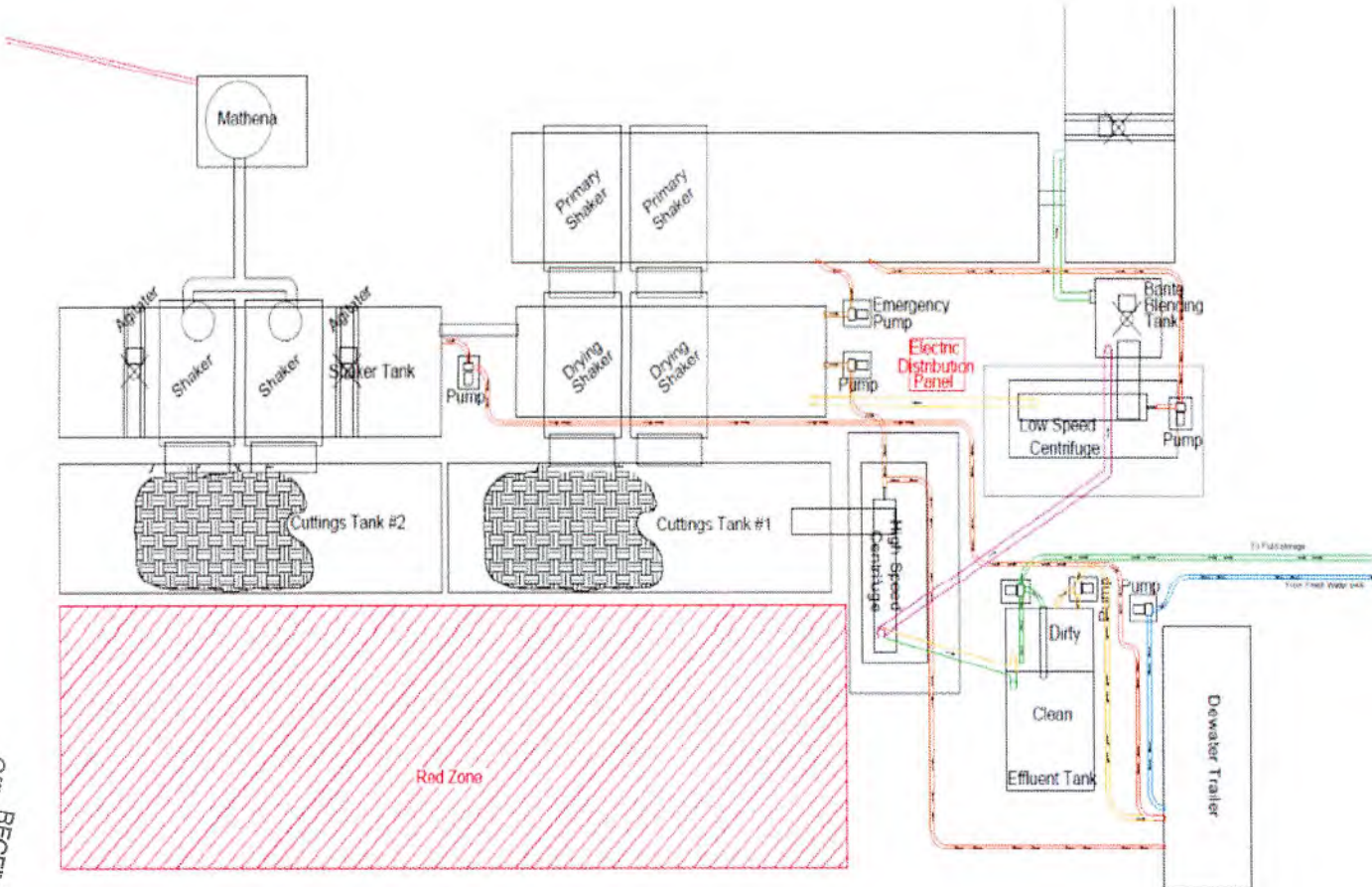
During air drilling operations, flow from the rig will pass down the flowline to the Shale Gas Separator (sometimes called a methane) where gas and liquids/solids are separated. Gas is sent to the flare scrubber tank and is flared at the flare stack. Solids and fluids pass across a shaker system to separate 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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Solids Control Layout



EXAMPLE SCHEMATIC FOR CLOSED LOOP SOLIDS CONTROL SYSTEM

4700900090

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4700900090

Attachment 3B
Drilling Mediums

Surface/Coal(if present)/Freshwater Intervals:

Air

Freshwater (if needed based on conditions)

Intermediate/Coal (if present):

Air

Brine (In Gas Storage areas)

Organophilic Bentonite

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



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 innoculated 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
Morgantown, West Virginia 26508

API NO. 47-XXX-XXXXX
WELL NAME: Margaret Corbin BRK 5H
Bethany QUAD
Buffalo DISTRICT
Brooke COUNTY, WEST VIRGINIA

Submitted by:

Name: Brittany Woody

Date: 3/5/2019

Brittany Woody

Title: Regulatory Analyst

SWN Production Co., LLC

Approved by:

Name: *C. P. H.*

Date: 3-7-19

Title: *Oil & Gas Inspector*

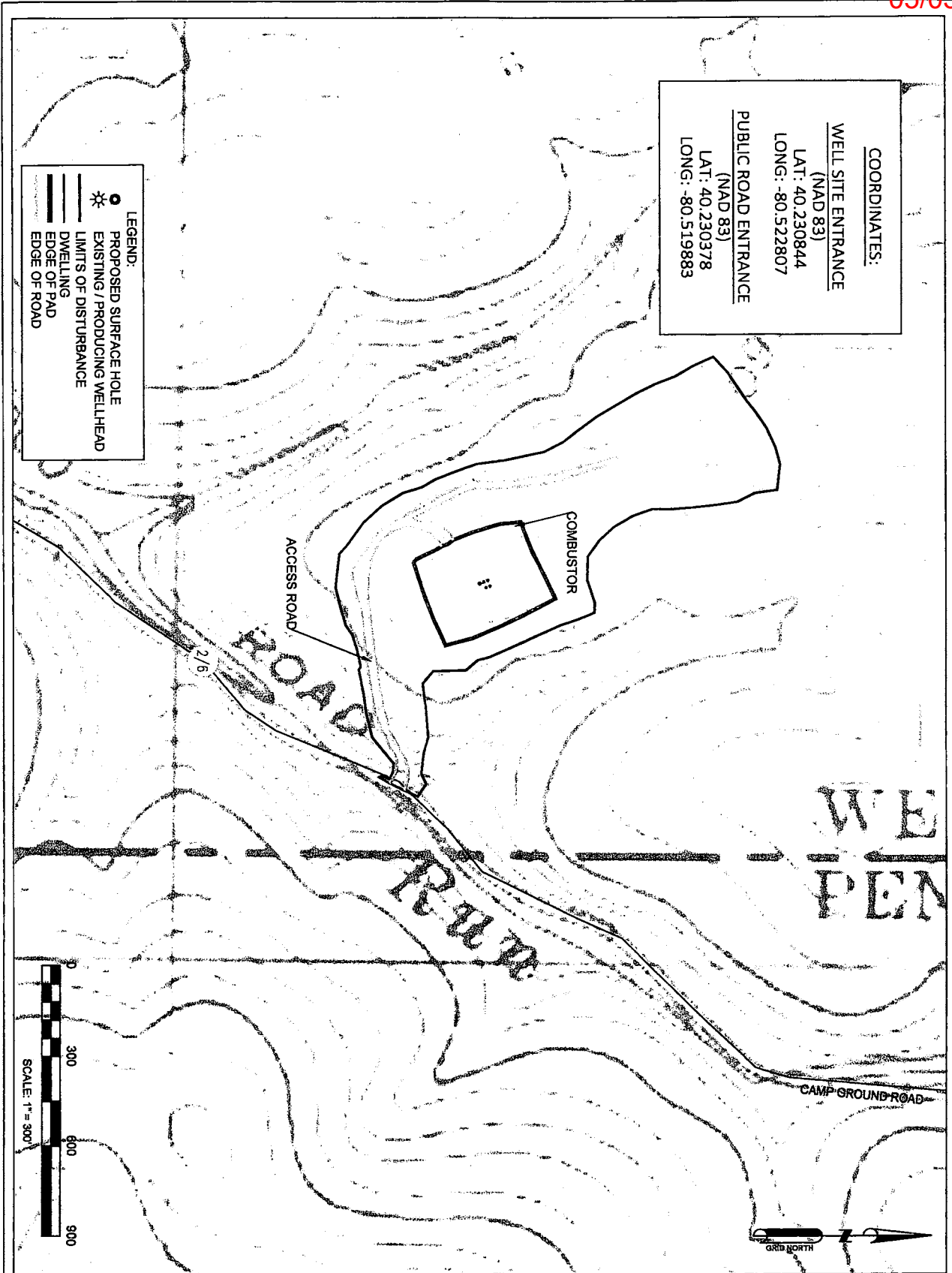
Approved by:

Name: _____

Date: _____

Title: _____

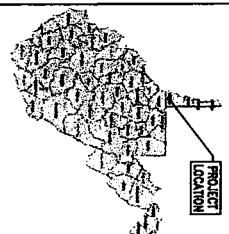
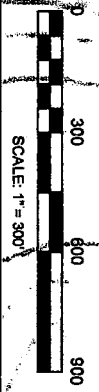
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COORDINATES:
WELL SITE ENTRANCE
 (NAD 83)
 LAT: 40.230844
 LONG: -80.522807

PUBLIC ROAD ENTRANCE
 (NAD 83)
 LAT: 40.230378
 LONG: -80.519883

LEGEND:
 ○ PROPOSED SURFACE HOLE
 * EXISTING / PRODUCING WELLHEAD
 --- LIMITS OF DISTURBANCE
 --- DWELLING
 --- EDGE OF PAD
 --- EDGE OF ROAD



NO.	DATE	DESCRIPTION

PREPARED FOR:
SWN
 Southwestern Energy

PROJECT NO. 2018018
 DATE 2/22/2018
 SCALE AS NOTED
 DRAWN BY CLW
 CHECKED BY CLW

JHA ENGINEERS
 ENVIRONMENTAL
 COMPANIES
 1815 MAPLE
 ST. CLARKEVILLE, OH 43990
 (740) 695-6100
 PA • OH • WV • VA

PROJECT NO.	2018018
DATE	2/22/2018
SCALE	AS NOTED
DRAWN BY	CLW
CHECKED BY	CLW
TITLE	ACCESS ROAD MAP
FOR	MARGARET COBBIN BRK PAD
LOCATED IN THE	RUFALO DISTRICT
	BROOKS COUNTY, WEST VIRGINIA
FIGURE NO.	2
DATE	5/3/2019
SCALE	1" = 300'
DRAWN BY	CLW
CHECKED BY	CLW
TITLE	ACCESS ROAD MAP
FOR	MARGARET COBBIN BRK PAD
LOCATED IN THE	RUFALO DISTRICT
	BROOKS COUNTY, WEST VIRGINIA
FIGURE NO.	2
DATE	5/3/2019
SCALE	1" = 300'
DRAWN BY	CLW
CHECKED BY	CLW
TITLE	ACCESS ROAD MAP
FOR	MARGARET COBBIN BRK PAD
LOCATED IN THE	RUFALO DISTRICT
	BROOKS COUNTY, WEST VIRGINIA
FIGURE NO.	2

JACKSON SURVEYING

INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5851

05/03/2019



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.

LEGEND:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- ☼ EXISTING / PRODUCING WELLHEAD
- LPL ✕ LANDING POINT LOCATION
- ACCESS ROAD
- - - PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- == LEASE BOUNDARY
- ASDRILLED PATH
- FLOOD PLAN

WELL OPERATOR:
SWN PRODUCTION COMPANY, LLC
ADDRESS:
1300 FORT PIERPONT ROAD, SUITE 200, MORGANTOWN, WV 26508
SURFACE OWNER:
LOUIS W. HENSLER, JR. & MARGARET HENSLER

WELL (FARM) NAME: MARGARET CORBIN BRK
WELL # 5H
SERIAL #
COUNTY - CODE BROOKE - 009
DISTRICT: BUFFALO
USGS 7 1/2 QUADRANGLE MAP NAME BETHANY, WV

Latitude: 40°15'00" SURFACE HOLE 6,235'

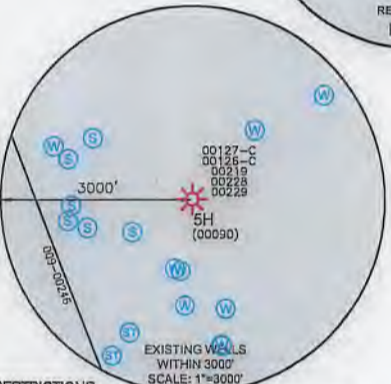
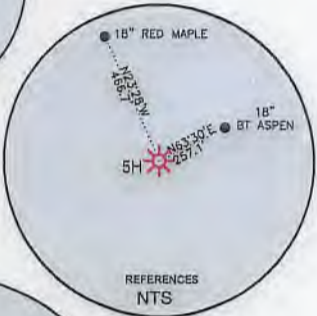
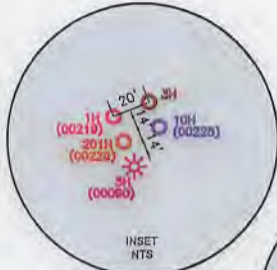
JACKSON SURVEYING INC. Latitude: 40°15'00"

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-6851

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	S 19°48'29" E	2,757.04'	SHL TO LANDMARK	SIGN POST FOUND
L2	S 04°57'28" W	6,118.75'	SHL TO LANDMARK	FENCE POST FOUND
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L3	N 31°26'41" E	1213.34'	1541.68	SHL TO LPL

SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,453,519.472 EASTING: 540,835.518
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,453,834.986 EASTING: 540,828.448
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,454,962.654 EASTING: 540,338.320

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.

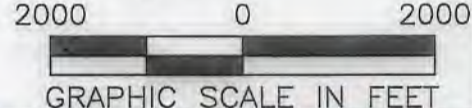
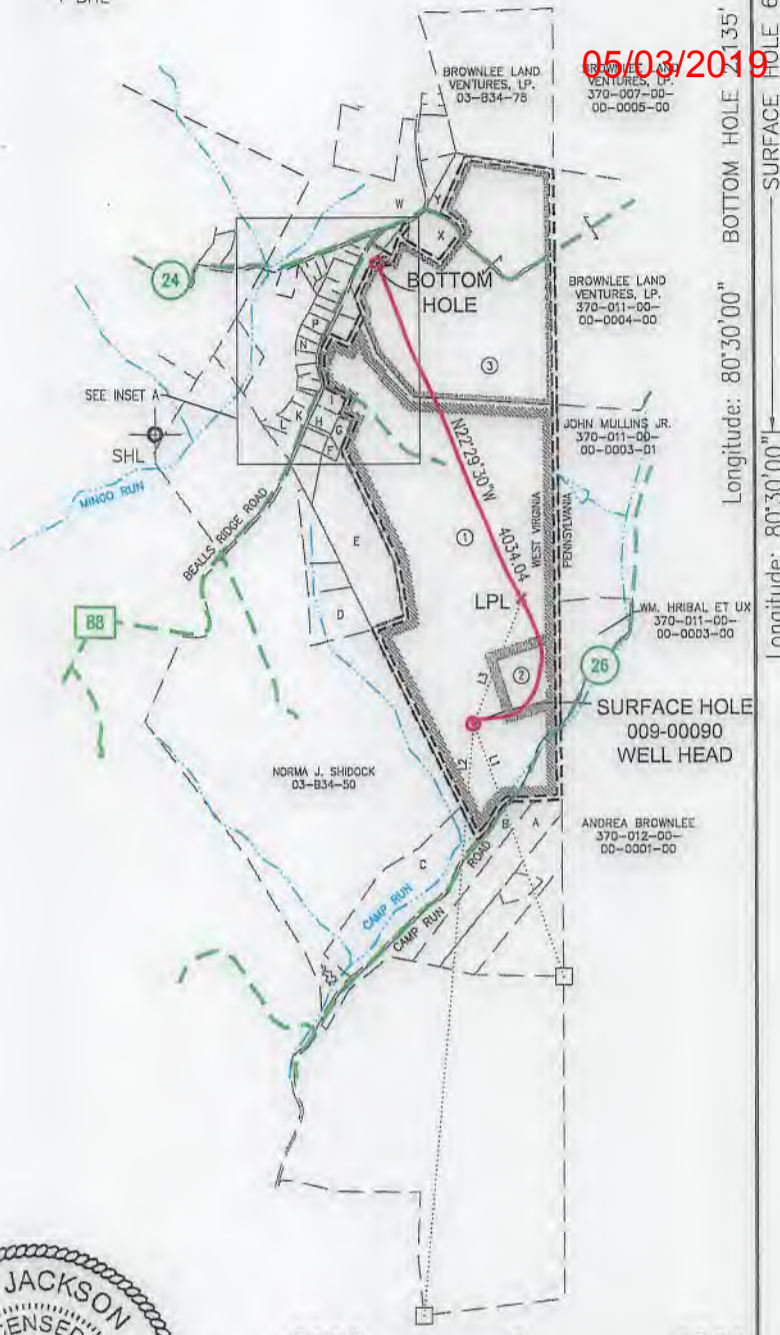
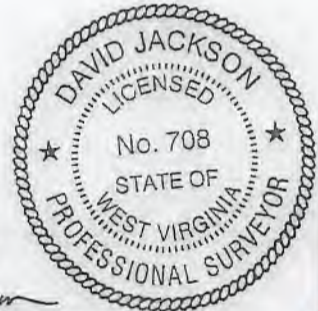
NOTES ON SURVEY

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 PLAN DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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** Production Company, LLC

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SURVEY SOURCE OF ELEVATION: GRADE GPS (NAVD 88, US FT)

MARGARET CORBIN BRK
OPERATOR'S WELL #: 5H
API WELL #: 47 009 00090
STATE COUNTY PERMIT

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

WATERSHED: CAMP RUN OF BUFFALO CREEK (HUC-10) ELEVATION: 1150.1'

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: BETHANY, WV

SURFACE OWNER: LOUIS W. HENSLEY, JR. & MARGARET HENSLEY ACREAGE: ±183.13

OIL & GAS ROYALTY OWNER: MARGARET H. CORBIN, WIDOW ACREAGE: ±183.13

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

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) RE-FRACTURE/STIMULATE

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,078' TVD 11,030' TMD

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

LEGEND:	— SURVEYED BOUNDARY	REVISIONS:	DATE: 03-22-2019
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	— DRILLING UNIT		
⊗ EXISTING / PRODUCING WELLHEAD	== LEASE BOUNDARY		
LPL* LANDING POINT LOCATION	— ASDRILLED PATH		
⊙ EXISTING WATER WELL			
⊙ EXISTING SPRING			
			DRAWN BY: N. MANO
			SCALE: 1" = 2000'
			DRAWING NO:
			WELL LOCATING PLAT

JACKSON SURVEYING



INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5851

05/03/2019

INSET "A"





REVISIONS:	COMPANY:		 
	OPERATOR'S		
	MARGARET CORBIN BRK		DATE: 03-22-2019
	WELL #:	5H	DRAWN BY: N. MANO
	DISTRICT:	COUNTY:	SCALE: N/A
	BUFFALO	BROOKE	DRAWING NO:
		STATE:	WV
			WELL LOCATION PLAT 2

JACKSON SURVEYING
 INC.
 P.O. Box 1460
 677 W. Main St.
 Clarksburg, WV 26302
 304-623-5851

05/03/2019

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	LOUIS W. HENSLER JR. & MARGARET R. HENSLER (S) / MARGARET H. CORBIN, WIDOW (R)	03-B34-57
TRACT	SURFACE OWNER	TAX PARCEL
2	STEPHEN S. GRIZZEL (S)	03-B34-58
3	BROWNLEE LAND VENTURES, LP (S)	03-B34-66

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	TAMMY M. WITHERS	03-B39-04
B	JOHN DANA GARNER	03-B39-03
C	RICKY VON HUDSON	03-B39-02
D	KEVIN L. MINOR & RULETTA R. MINOR	03-B34-50.1
E	MICHEAL M. HENSLER JR. & DEBORAH HENSLER	03-B34-57.4
F	MICHAEL M. HENSLER	03-B34-57.1
G	LOUIS W. HENSLER JR. & MARGARET R. HENSLER	03-B34-57.3
H	LOUIS W. HENSLER JR. & MARGARET R. HENSLER	03-B34-55
I	WILLIAM W. ROADMAN & PAULA L. ROADMAN	03-B34-56
J	MENEELY IRREV TRUST OF 7/22/16, LEE R. MENEELY & CLEA C. MENEELY, TRUSTEES	03-B34-42
K	MENEELY IRREV TRUST OF 7/22/16, LEE R. MENEELY & CLEA C. MENEELY, TRUSTEES	03-B34-41
L	DELORIS A. PLESS & JAMIE RATTIGANMETALLA	03-B34-40
M	WILLIAM MATTHEW GADD & BARBARA ESTELLE GADD	03-B34-39
N	ERIC MAZZELLA	03-B34-38
O	COREY J. SCHIDEK & DARIAN A. SIGET	03-B34-37
P	COREY J. SCHIDEK & DARIAN A. SIGET	03-B34-36
Q	WILLIAM J. WALES & MARSHA E. WALES	03-B34-59
R	WILLIAM J. WALES & MARSHA E. WALES	03-B34-57.2
S	TERRY L. ROWLAND & CATHY ROWLAND	03-B34-60
T	KENNETH W. DIGHT & BRENDA D. DIGHT	03-B34-61
U	KENNETH W. DIGHT & BRENDA D. DIGHT	03-B34-62
V	KENNETH W. DIGHT & BRENDA DIGHT	03-B34-63
W	JUDITH LEE BRINKLEY, SARAH A STENGER, MARK A. BUYAN	03-B34-10
X	HALCIE D. DURBIN & DEBORAH K. DURBIN	03-B34-65
Y	MARY L. SHEERAN, BEVERLY CUCARESE CRAFT & MARLA COOPER	03-B34-67

REVISIONS:	COMPANY:	 	
	OPERATOR'S	MARGARET CORBIN BRK	DATE: 03-22-2019
	WELL #:	5H	DRAWN BY: N. MANO
	DISTRICT:	BUFFALO	SCALE: N/A
	COUNTY:	BROOKE	DRAWING NO:
	STATE:	WV	WELL LOCATION PLAT 3

WW-6A1
(5/13)

Operator's Well No. Margaret Corbin 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 Attached Exhibit "A"				

**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

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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: 
Its: Staff Landman

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
 Margaret Corbin BRK 5H
 Brooke County, West Virginia

#	TMP	LESSOR	LESSEE	ROYALTY	BK/PG
1)	03-0B34-0057-0000-0000	Margaret H. Corbin, widow	Great Lakes Energy Partners, L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	9/499 10/552 30/480
2)	03-0B34-0058-0000-0000	Stephen S. Grizzel and Renee L. Grizzel, husband and wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	14/532 30/480
3)	03-0B34-0066-0000-0000	Bowndree, Inc.	Range Resources - Appalachia, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	17.00%	10/388 10/552 30/480

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 MAR 26 2019
 WV Department of
 Environmental Protection

4700900090

WW-6AC
(1/12)

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

Date of Notice Certification: 3/25/19

API No. 47- 009 -
Operator's Well No. Margaret Corbin BRK 5H
Well Pad Name: Margaret Corbin 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>WV</u>	UTM NAD 83 Easting: <u>540,635.518</u>
County: <u>009-Brooke</u>	Northing: <u>4,453,519.472</u>
District: <u>Buffalo</u>	Public Road Access: <u>Camp Run Road</u>
Quadrangle: <u>Bethany</u>	Generally used farm name: <u>Margaret Corbin</u>
Watershed: <u>Camp Run of Buffalo 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.

<p>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:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><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</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p style="text-align: center;">OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
--	--

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.

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Office of Oil and Gas
MAR 26 2019
WV Department of
Environmental Protection

05/03/2019

WW-6AC
(1/12)

Certification of Notice is hereby given:

THEREFORE, I Brittany Woody, 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 Drive, Suite 201</u>
By:	<u>Brittany Woody</u>		<u>Morgantown, WV 26508</u>
Its:	<u>Regulatory Analyst</u>	Facsimile:	<u>304-884-1690</u>
Telephone:	<u>304-884-1610</u>	Email:	<u>Brittany_Woody@swn.com</u>



Subscribed and sworn before me this 28 day of February 2019
Elizabeth Blankenship Notary Public
 My Commission Expires 6/23/2024

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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Environmental Protection

WW-6A
(9-13)

API NO. 47- 009 - 05/03/2019
OPERATOR WELL NO. Margaret Corbin BRK 5H
Well Pad Name: Margaret Corbin BRK

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: 3/25/19 **Date Permit Application Filed:** 3/25/19

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: Louis W. Hensler, Jr. & Margaret Hensler
Address: 3642 Bealls Ridge Road
Wellsburg, WV 26070

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: Starvaggi Industries, INC.
Address: 401 Pennsylvania Ave
Weirton, WV 26062

COAL OPERATOR
Name: _____
Address: _____

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

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

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*Please attach additional forms if necessary

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 and Gas 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.

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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

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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.**

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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.

WW-6A
(8-13)

4700900090
API NO. 47-009 - 05/03/2019
OPERATOR WELL NO. Margaret Corbin BRK 5H
Well Pad Name: Margaret Corbin BRK

Notice is hereby given by:

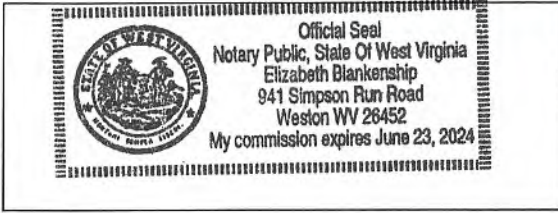
Well Operator: SWN Production Co., LLC
Telephone: 304-884-1610
Email: Brittany_Woody@swn.com

Brittany Woody

Address: 1300 Fort Pierpont Drive, 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 28 day of Feb, 2019.

Elizabeth Blankenship Notary Public

My Commission Expires 6/23/2024

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4700 000090

05/03/2019

ATTACHMENT 13

PARID	OWNER	ADDRESS	CITY	STATE	ZIP	WATERSOURCES
BROOKE CO						
03 B39000200000000	HUDSON RICKY VON	1941 CAMP RUN RD	BETHANY	WV	26032	2
03 B34005000000000	SHIDOCK NORMA J	3122 BEALLS RIDGE RD	WELLSBURG	WV	26070	1
WASHINGTON CO						
370-011-00-00-0003-00	HRIBAL WILLIAM E & KAREN L	21 CAMPGROUND RD	AVELLA	PA	15312	1

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05/03/2019



HENSLER MICHAEL M
JR & DEBORAH (SURV)
03 B34005700040000

MINOR KEVIN L &
RULETTA R (SURV)
03 B34005000010000

HENSLER LOUIS W
JR & MARGARET
03 B34005700000000

GRIZZEL STEPHEN S
03 B34005800000000

HRIBAL WILLIAM
E & KAREN L
370-011-00-00-0003-00

999-999-99-99-9999-99

**MARGARET
CORBIN-BRK-PAD1**

SHIDOCK NORMA J
03 B34005000000000

BROWNLEE ANDREA
GEORGETTI
370-012-00-00-0001-00

HENSLER LOUIS
W JR & MARGARET
03 B34005700000000

WITHERS
TAMMY M
03 B39000400000000

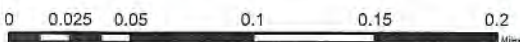
GARNER JOHN DANA
03 B39000300000000

WITHERS TAMMY M
03 B39000600000000

HUDSON RICKY VON
03 B39000200000000



1 in = 417 ft



Coordinate System: NAD 1983 UTM Zone 17N
Units: Meter

- S Spring
- W Water Well
- Pond
- Parcel
- 1500' Buffer
- Pad

Water Purveyor Map
Well Pad: Margaret Corbin
County: BRK



Coordinates: 40.230926, -80.523114

Date: 2/8/2019

Author: willisb

WW-6A3
(1/12)

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: 1/22/2019 **Date of Planned Entry:** 1/28/2019

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: Louis W. & Margaret Hensler
 Address: 3642 Bealls Ridge Road
 Wellsburg, WV 26070
 Name: _____
 Address: _____
 Name: _____
 Address: _____

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

MINERAL OWNER(s)
 Name: Louis W. Hensler, Jr.
 Address: 3642 Bealls Ridge Road
 Wellsburg, WV 26070
 *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: West Virginia	Approx. Latitude & Longitude: 40.230325, -80.520119
County: Brooke	Public Road Access: Camp Run
District: Buffalo	Watershed: Camp Run of Buffalo Creek
Quadrangle: Belhany	Generally used farm name: Margaret Corbin

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	Address: PO BOX 1300
Telephone: 304-884-1610	JANE LEW, WV 26378
Email: brittany_woody@swn.com	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.

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WW-6A3
(1/12)

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: 1/22/2019 **Date of Planned Entry:** 1/29/2019

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: _____
Address: _____

Name: _____
Address: _____

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: _____
Address: _____

MINERAL OWNER(s)

Name: Anna Eileen Wood
Address: 120 Lacy Dr.
Wellsburg, WV 26070

*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:	West Virginia	Approx. Latitude & Longitude:	40.230325, -80.520119
County:	Brooks	Public Road Access:	Camp Run
District:	Buffalo	Watershed:	Camp Run of Buffalo Creek
Quadrangle:	Bethany	Generally used farm name:	Margaret Corbin

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: PO BOX 1300
JANE LEW, WV 26378
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 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: 1/22/2019 **Date of Planned Entry:** 1/29/2019

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: _____
 Address: _____

 Name: _____
 Address: _____

 Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: _____
 Address: _____

MINERAL OWNER(s)
 Name: Michael M. Hensler
 Address: 3600 Bealls Ridge Road
 Wellsburg, WV 26070
 *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: West Virginia	Approx. Latitude & Longitude: 40.230325, -80.520119
County: Brooke	Public Road Access: Camp Run
District: Buffalo	Watershed: Camp Run of Buffalo Creek
Quadrangle: Bethany	Generally used farm name: Margaret Corbin

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: PO BOX 1300
 JANE LEW, WV 26378
 Facsimile: 304-884-1690

RECEIVED
Office of Oil and Gas

MAR 26 2019

WV Department of
Environmental Protection

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.

WW-6A3
(1/12)

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: 1/22/2019 **Date of Planned Entry:** 1/29/2019

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: _____
Address: _____

Name: _____
Address: _____

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: _____
Address: _____

MINERAL OWNER(s)

Name: Mary Virginia Walden
Address: 4167 Castleman Run Road
Bethany, WV 26032

*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: West Virginia
County: Brooke
District: Buffalo
Quadrangle: Bethany

Approx. Latitude & Longitude: 40.230325, -80.520119
Public Road Access: Camp Run
Watershed: Camp Run of Buffalo Creek
Generally used farm name: Margaret Corbin

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: PO BOX 1300
JANE LEW, WV 26378
Facsimile: 304-884-1690

RECEIVED
Office of Oil and Gas

MAR 26 2019

WV Department of
Environmental Protection

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WW-6A3
(1/12)

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
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Notice is hereby provided to:

<input type="checkbox"/> SURFACE OWNER(s) Name: _____ Address: _____ _____ Name: _____ Address: _____ _____ Name: _____ Address: _____ _____	<input type="checkbox"/> COAL OWNER OR LESSEE Name: _____ Address: _____ _____ <input checked="" type="checkbox"/> MINERAL OWNER(s) Name: James O. Hensler Address: 31 Kendal Green Dr Greensville, SC 29607 *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: West Virginia	Approx. Latitude & Longitude: 40.230325, -80.520119
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Notice is hereby given by:

Well Operator: SWN PRODUCTION COMPANY, LLC
Telephone: 304-884-1610
Email: brittany_woody@swn.com

Address: PO BOX 1300
JANE LEW, WV 26378
Facsimile: 304-884-1690

RECEIVED
Office of Oil and Gas
MAR 26 2019

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WV Department of Environmental Protection

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: 02/27/2019 **Date Permit Application Filed:** 3/25/19

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: Louis W. Henster, Jr. & Margaret Henster
Address: 3642 Bealls Ridge Road
Wellsburg, WV 26070

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: WV UTM NAD 83 Easting: 540,635.518
County: 009-Brooke Northing: 4,453,519.472
District: Buffalo Public Road Access: Camp Run Road
Quadrangle: Bethany Generally used farm name: Margaret Corbin
Watershed: Camp Run of Buffalo Creek

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 Co., LLC
Address: 1300 Fort Pierpont Drive, Suite 201
Morgantown, WV 26508
Telephone: 304-517-6603
Email: Michael_Yates@swn.com
Facsimile: 304-884-1690

Authorized Representative: Mike Yates
Address: 1300 Fort Pierpont Drive, Suite 201
Morgantown, WV 26508
Telephone: 304-517-6603
Email: Michael_Yates@swn.com
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.

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

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

Date of Notice: 02/27/2019 **Date Permit Application Filed:** 3/25/19

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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED HAND
DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: Louis W. Hensler, Jr. & Margaret Hensler
Address: 3642 Bealls Ridge Road
Wellsburg, WV 26070

Name: _____
Address: _____

Notice is hereby given:

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

State: WV UTM NAD 83 Easting: 540,635.518
County: 009-Brooke Northing: 4,453,519.472
District: Buffalo Public Road Access: Camp Run Road
Quadrangle: Bethany Generally used farm name: Margaret Corbin
Watershed: Camp Run of Buffalo Creek

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. 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 Operator: SWN Production Co., LLC
Telephone: 304-517-6603
Email: Michael_Yates@swn.com

Address: 1300 Fort Pierpont Drive, Suite 201
Morgantown, WV 26508 RECEIVED
Office of Oil and Gas
Facsimile: 304-884-1690

MAR 26 2019

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.



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
 Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
 Secretary of Transportation/
 Commissioner of Highways

February 27, 2019

Jill M. Newman
 Deputy Commissioner

James A. Martin, Chief
 Office of Oil and Gas
 Department of Environmental Protection
 601 57th Street, SE
 Charleston, WV 25304

Subject: DOH Permit for the Margaret Corbin Pad, Brooke County
 Margaret Corbin 5H

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit # 06-2011-0049 to Southwestern Energy for the existing well pad. Access to the well site is off of Brooke County Route 26 SLS.

The operator has signed an OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton
 Regional Maintenance Engineer
 Central Office Oil & Gas Coordinator

RECEIVED
 Office of Oil and Gas

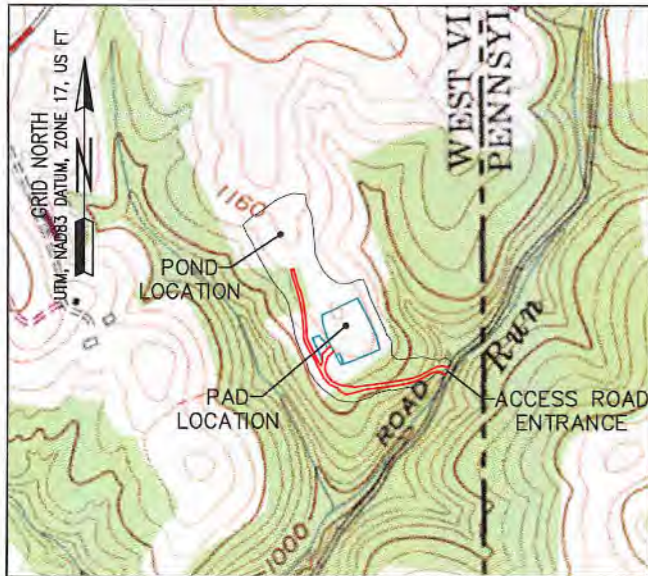
MAR 26 2019

Cc: Brittany Woody
 Southwestern Energy
 CH, OM, D-6
 File

WV Department of
 Environmental Protection

Attachment VI Frac Additives

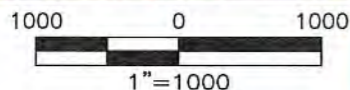
Product Name	Product Use	Chemical Name	CAS Number
AI-303 (U.S. Well Services)	Mixture	Ethylene glycol	107-21-1
		Cinnamaldehyde	104-55-2
		Butyl cellosolve	111-76-2
		Formic acid	64-18-6
		Polyether	Proprietary
		Acetophenone, thiourea, formaldehyde polymer	68527-49-1
AP ONE (U.S. Well Services)	Breaker	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



MARGARET CORBIN BRK PAD CONSTRUCTION AND RECLAMATION PLAN AS-BUILT BUFFALO DISTRICT, BROOKE COUNTY, WV MAY 2017

SHEET INDEX

- TS1. TITLE SHEET
- EP2.1 EVACUATION ROUTE/ PREVAILING WIND
- EP2.2 EVACUATION ROUTE/ PREVAILING WIND
- AS3.1 ASBUILT OVERVIEW
- AS3.2 ASBUILT
- AS3.3 ASBUILT
- AS3.4 ASBUILT
- ASR4.1 CONSTRUCTION AND RECLAMATION ACCESS ROAD PROFILE
- MRD5.1 RECLAMATION PLAN OVERVIEW
- MRD5.2 RECLAMATION PLAN
- MRD5.3 RECLAMATION PLAN
- MRD5.4 RECLAMATION PLAN
- MRD6.3 DETAILS
- MRD6.4 DETAILS



**WVDEP OOG
ACCEPTED AS-BUILT**

WJ 9/26/2017

LOD

TOTAL DISTURBED AREA: 18.1 ACRES
ROAD DISTURBED AREA: 4.8 ACRES
PAD DISTURBED AREA: 13.3 ACRES

EXISTING WELLS:
CORBIN BRK 5H
API:47-009-00090H
(NAD83)
LAT: 40.231122
LONG: 80.522336

COORDINATES:
SITE ENTRANCE
(NAD83)
LAT: 40.230378
LONG: 80.519883

AT CORBIN PAD
(NAD83)
LAT: 40.230844
LONG: 80.522807

CENTER OF PAD
(NAD83)
LAT: 40.231138
LONG: 80.522348

GATHERING AREA
(NAD83)
LAT: 40.229993
LONG: 80.522462

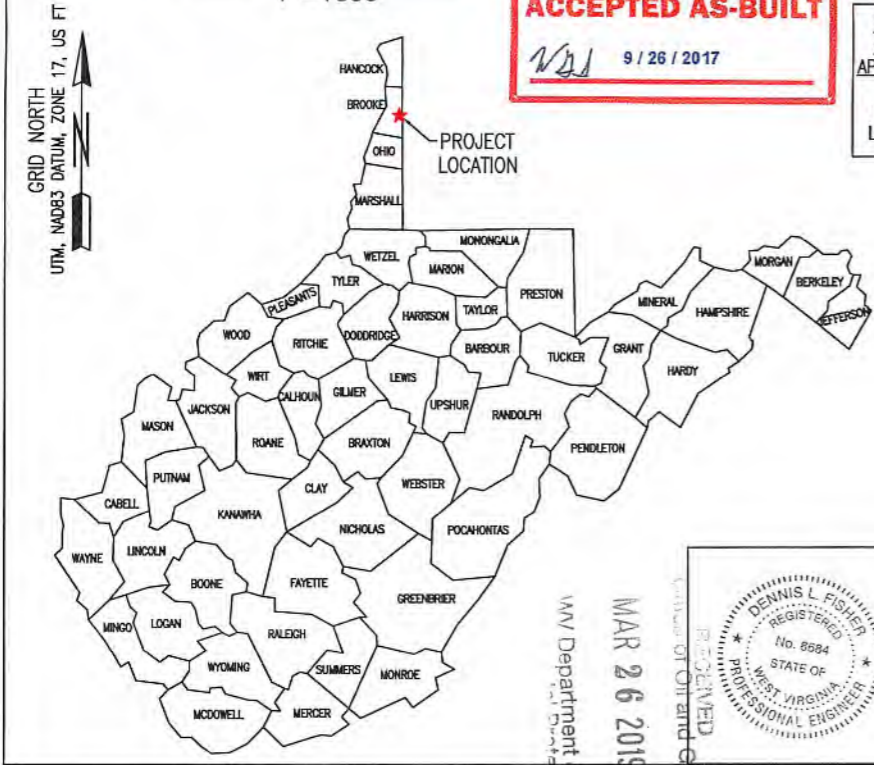
ENGINEERING ESTIMATE OF QUANTITIES		
WELL SITE PAD DATA (DRILLING)		
GRADE PAD	1	EA
ADDITIONAL STONE	180	TON
INSTALL SUMPS	3	EA
ACCESS ROAD DATA (DRILLING)		
RAMP ROAD OVER BERM	40	TON
WELL SITE PAD DATA (RECLAMATION)		
REMOVE SUMP	3	EA
BREACH BERM	3	EA
DISCHARGE CHANNEL(S)		
RIPRAP	135	TON
OR		
EROSION CONTROL FABRIC	180	SY
SPREAD TOPSOIL	1,200	CY
SEED & MULCH	3,600	SY
INSTALL RSF	1,050	FT

REVISION	DATE

WEST VIRGINIA 811

CALL BEFORE YOU DIG! Dial 811 or 800.245.4848
www.WV811.com

SWN *R²→V+*
A Production Company™



MAR 26 2019
WV Department of
Oil and Gas

DENNIS L. FISHER RPE 8584
 Date: 05-16-2017

JACKSON SURVEYING INC.
 677 W. Main St.
 Clarksburg, Wv 26301
 304-623-5851

Jackson Surveying Inc.

TITLE SHEET
TS.1

SOUTHWESTERN PRODUCTION COMPANY LLC.
MARGARET CORBIN BRK PAD
BUFFALO DISTRICT, BROOKE COUNTY, WV
MAY 16, 2017

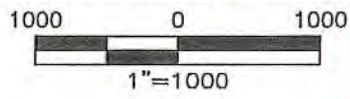
4700900090

MARGARET CORBIN BRK PAD
 CONSTRUCTION AND RECLAMATION PLAN
 AS-BUILT
 BUFFALO DISTRICT, BROOKE COUNTY, WV
 MAY 2017

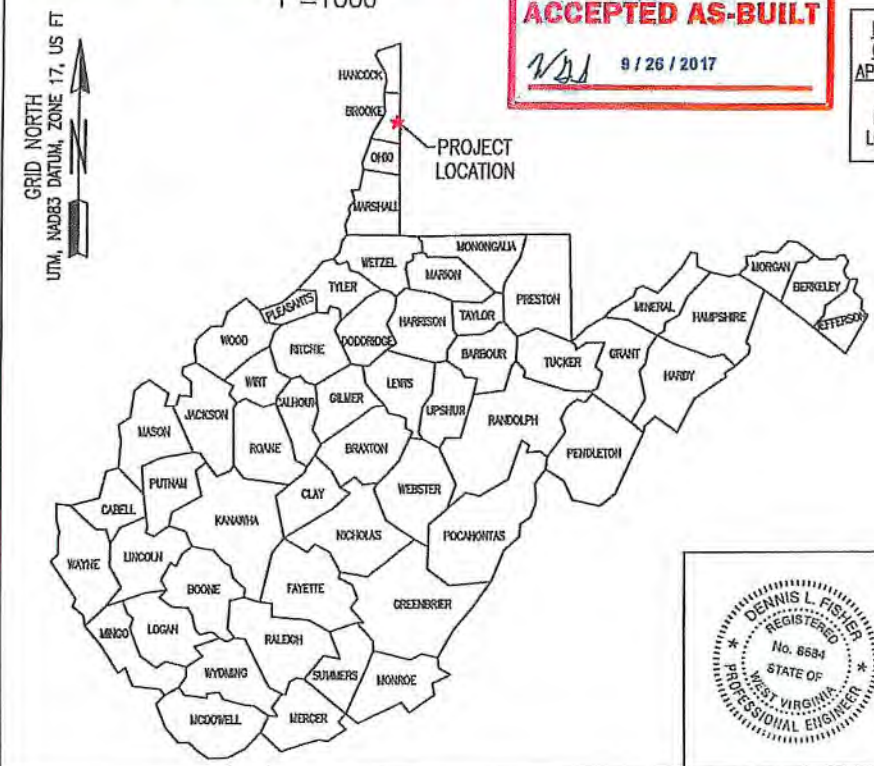
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- MRD5.3 RECLAMATION PLAN
- MRD5.4 RECLAMATION PLAN
- MRD6.3 DETAILS
- MRD6.4 DETAILS

Handwritten: 3-7-18, RLL 2-13-19



**WVDEP OOG
 ACCEPTED AS-BUILT**
WJL 9/26/2017



LOD

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CENTER OF PAD
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 LAT: 40.229993
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ADDITIONAL STONE	180	TON
INSTALL SUMPS	3	EA
ACCESS ROAD DATA (DRILLING)		
RAMP ROAD OVER BERM	40	TON
WELL SITE PAD DATA (RECLAMATION)		
REMOVE SUMP	3	EA
BREACH BERM	3	EA
DISCHARGE CHANNEL(S)		
RIPRAP	135	TON
OR		
EROSION CONTROL FABRIC	180	SY
SPREAD TOPSOIL	1,200	CY
SEED & MULCH	3,600	SY
INSTALL RSF	1,050	FT


REVISION	DATE

WEST VIRGINIA 811
 CALL BEFORE YOU DIG!
 Dial 811 or 800.245.4848
 www.WV811.com

SWN $\frac{R^2}{A} \rightarrow V^+$
 Production Company™


Dennis L. Fisher
 Dennis L. Fisher RPE 8684
 Date: 06-16-2017

Jackson Surveying Inc.
 TITLE SHEET
 TS.1
 SOUTHWESTERN PRODUCTION COMPANY LLC.
 MARGARET CORBIN BRK PAD
 BUFFALO DISTRICT, BROOKE COUNTY, WV
 MAY 16, 2017


 677 W. Main St.
 Clarksburg, Wv 26301
 304-623-5851

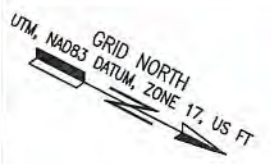
REVISION	DATE

**WVDEP OOG
ACCEPTED AS-BUILT**

VJL 9/26/2017

- LEGEND -**
- EDGE ACCESS ROAD —
 - PUBLIC/Private ROAD —
 - LOD —
 - CHAIN LINK FENCE —
 - WOVEN WIRE FENCE - - -
 - DITCH/DRAIN - - -
 - PROPERTY LINES - - -
 - CL ACCESS ROAD - - -
 - CONTOUR MAJOR ASBUILT —
 - CONTOUR MINOR ASBUILT —

RED TEXT INDICATES ITEMS TO BE CONSTRUCTED PRIOR TO DRILLING ACTIVITY.



Matchline Sheet AS3.3
Matchline Sheet AS3.2

LOUIS W. HENSLEY JR.
& MARGARET HENSLEY
3-B34-57
183.13 Ac.

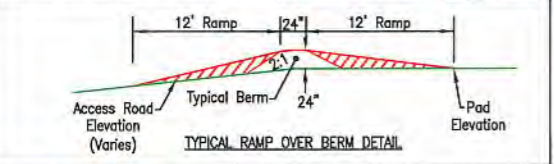
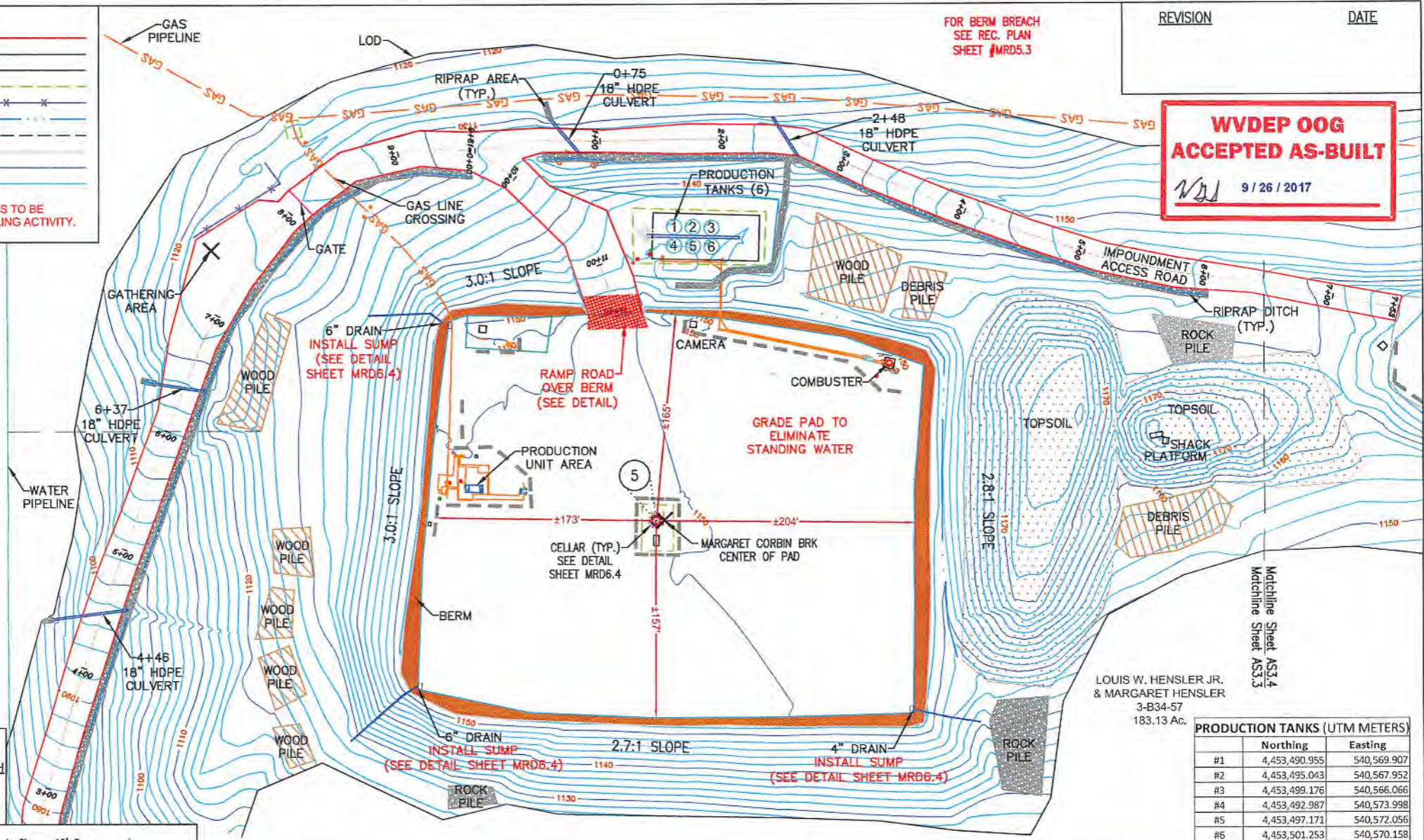
COORDINATES:
SITE ENTRANCE (NAD83)
LAT: 40.230378
LONG: 80.519883

AT CORBIN PAD (NAD83)
LAT: 40.230844
LONG: 80.522807

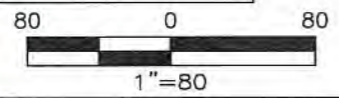
CENTER OF PAD (NAD83)
LAT: 40.231138
LONG: 80.522348

GATHERING AREA (NAD83)
LAT: 40.229993
LONG: 80.522462

EXISTING WELLS:
CORBIN BRK 5H
API: 47-009-00090H
(NAD83)
LAT: 40.231122
LONG: 80.522336



SWN
Production Company™



Dennis L. Fisher RPE 8684
Date: 05-16-2017



Jackson Surveying Inc.
CONSTRUCTION AND RECLAMATION
ASBUILT
AS3.3
SOUTHWESTERN PRODUCTION COMPANY LLC.
MARGARET CORBIN BRK PAD
BUFFALO DISTRICT, BROOKE COUNTY, WV
MAY 16, 2017

677 W. Main St.
Clarksburg, Wv 26301
304-623-5851

Matchline Sheet AS3.4
Matchline Sheet AS3.3

LOUIS W. HENSLEY JR.
& MARGARET HENSLEY
3-B34-57
183.13 Ac.

	Northing	Easting
#1	4,453,490.955	540,569.907
#2	4,453,495.043	540,567.952
#3	4,453,499.176	540,566.066
#4	4,453,492.987	540,573.998
#5	4,453,497.171	540,572.056
#6	4,453,501.253	540,570.158

4700900090