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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Friday, January 3, 2020  
WELL WORK PERMIT  
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC  
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit approval for JAMES SEABRIGHT BRK 3H  
47-009-00294-00-00

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: JAMES SEABRIGHT BRK 3H  
Farm Name: JAMES H. SEABRIGHT  
U.S. WELL NUMBER: 47-009-00294-00-00  
Horizontal 6A New Drill  
Date Issued: 1/3/2020

**PERMIT CONDITIONS****4700900294**

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**

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

API Number: \_\_\_\_\_

## PERMIT CONDITIONS

4700900294

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](mailto: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 3-Buffalo 247-Bethany  
Operator ID County District Quadrangle

2) Operator's Well Number: James Seabright BRK 3H Well Pad Name: James Seabright BRK

3) Farm Name/Surface Owner: James H Seabright Public Road Access: Bealls Ridge Road

4) Elevation, current ground: 1131' Elevation, proposed post-construction: 1131'

5) Well Type (a) Gas  Oil  Underground Storage

Other \_\_\_\_\_

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No Yes

*C. 7800 10-8-19*

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- 6019', Target Base TVD- 6078', Anticipated Thickness- 59', Associated Pressure- 3951

8) Proposed Total Vertical Depth: 6061'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12797'

11) Proposed Horizontal Leg Length: 6468.02'

12) Approximate Fresh Water Strata Depths: 235'

13) Method to Determine Fresh Water Depths: Deepest Nearby Water Well

14) Approximate Saltwater Depths: 829' Salinity Profile Analysis

15) Approximate Coal Seam Depths: 313'

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

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

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

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18)

**CASING AND TUBING PROGRAM**

**4 7 0 0 9 0 0 2 9 4**

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#	100'	100'	CTS
Fresh Water	13 3/8"	New	H-40	48#	355'	355'	354 sx/CTS
Coal	See	surface	Casing				
Intermediate	9 5/8"	New	J-55	36#	1722'	1722'	673 sx/CTS
Production	5 1/2"	New	HCP-110	20#	12,797'	12,797'	lead 807sx/Tail 1655sx/ 100' Inside Integ
Tubing							
Liners							

*CSL 10-8-19*

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

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

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

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production unites, horizontal separation units, water and oil storage tanks. Max press and anticipated max rate- 9000 lbs @ 100 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.7

22) Area to be disturbed for well pad only, less access road (acres): 4.8

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 \*\*\*

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.

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\*Note: Attach additional sheets as needed.

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## Schlumberger Cement Additives

	Product Name	Product Use	Chemical Name	CAS Number
Surface	S001	accelerator	calcium chloride up to 3%	10043-52-4
Intermediate	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	suiphonated 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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**Southwestern Energy Company**

**Proposed Drilling Program**

Well: JAMES SEABRIGHT BRK 3 Re-entry Rig: TBD  
 Field: PANHANDLE FIELD \ Prospect: PANHANDLE  
 County: BROOKE State: WV  
 SHL: 40.2206 Latitude -80.5315 Longitude  
 BHL: 40.2374 Latitude -80.5399 Longitude  
 KB Elev: 1,157 ft MSL KB: 26 ft AGL GL Elev: 1,131 ft MSL



PROD TOC Lead @ 1,742' MD  
 PROD TOC Tail @ 5,351' MD

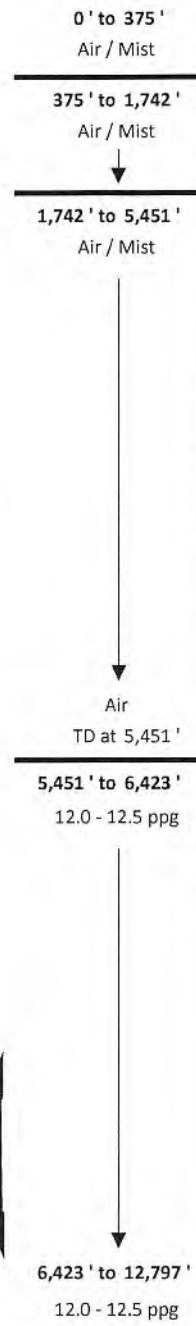
*C. R. Hall*  
*10-8-19*

TUBULAR DETAIL

	Size (in)	Weight	Grade	From	To
Conductor:	20	94.0 #	H-40	0'	100'
Surf/Coal:	13.375	48.0 #	H-40	0'	355'
Intermediate:	9.625	36.0 #	J-55	0'	1,722'
Production:	5.5	20.0 #	HCP-110	0'	12,797'

CEMENT DETAIL

	Sacks	Class	Density
Conductor	151	A	19.3
Surface	354	A	15.6
Intermediate	673	A	15.6
Production Lead	807	A	15.6
Production Tail	1655	A	15.6



KOP at 5,451' MD

Freshwater Depth - 235' TVD  
 Coal Depth - 313' TVD  
 Saltwater Depth - 829' TVD  
 TVD - 6,061'  
 TMD - 12,797'

6,061' Target Center

TD at 12,797' MD  
 6,006' TVD

EOB at 6,061' TVD

Onondaga 6,023' TVD

SHL Onondaga 6,078' TVD



**JAMES SEABRIGHT BRK 3H**  
Area of Review

API	Operator	Status	Latitude	Longitude	Vertical TD	Producing Formation	Producing Zones Not Perforated
4700900175	SWN PRODUCTION COMPANY, LLC	COMPLETED	40.220478	-80.531405	6198	MARCELLUS SHALE	Not Available
4700900176	SWN PRODUCTION COMPANY, LLC	COMPLETED	40.220413	-80.531424	6236	MARCELLUS SHALE	Not Available
4700900177	SWN PRODUCTION COMPANY, LLC	COMPLETED	40.22045	-80.531371	6231	MARCELLUS SHALE	Not Available
4700900220	SWN PRODUCTION COMPANY, LLC	PERMITTED	40.220497	-80.531526	NOT AVAILABLE	MARCELLUS SHALE	Not Available
4700900222	SWN PRODUCTION COMPANY, LLC	PERMITTED	40.220534	-80.531473	NOT AVAILABLE	MARCELLUS SHALE	Not Available
4700900223	SWN PRODUCTION COMPANY, LLC	PERMITTED	40.220469	-80.531492	NOT AVAILABLE	MARCELLUS SHALE	Not Available
4700900246	SWN PRODUCTION COMPANY, LLC	PERMITTED	40.220506	-80.531439	NOT AVAILABLE	MARCELLUS SHALE	Not Available

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Co., LLC OP Code 494512924

Watershed (HUC 10) SugarCamp Run, 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 \_\_\_\_\_ )
- 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 SOB 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 10012, 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 Senior Regulatory Analyst

Subscribed and sworn before me this 5 day of Sept, 20 19

Notary Public Elizabeth Blankenship

My commission expires 6/23/2024



**SWN Production Co., LLC**

Proposed Revegetation Treatment: Acres Disturbed 17.7 Prevegetation pH \_\_\_\_\_

Lime as determined by pH test min.2 Tons/acre or to correct to pH 4.8

Fertilizer type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch Hay/Straw Tons/acre

**Seed Mixtures**

**Temporary**

**Permanent**

Seed Type lbs/acre

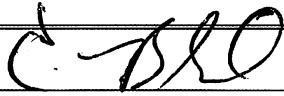
Seed Type lbs/acre

**Attachment 3B**

**Attach:**

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:  10-8-19

Comments: \_\_\_\_\_

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Title: Oil & Gas Inspector

Date: 10-8-19

Field Reviewed?  Yes  No

## Attachment 3A

## CLOSED LOOP SYSTEM

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

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

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

## AIR DRILLING INTERVALS

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

## LIQUIDS DRILLING (FRESHWATER, BRINE, SOBM)

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

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EXAMPLE SCHEMATIC FOR CLOSED LOOP SOLIDS CONTROL SYSTEM

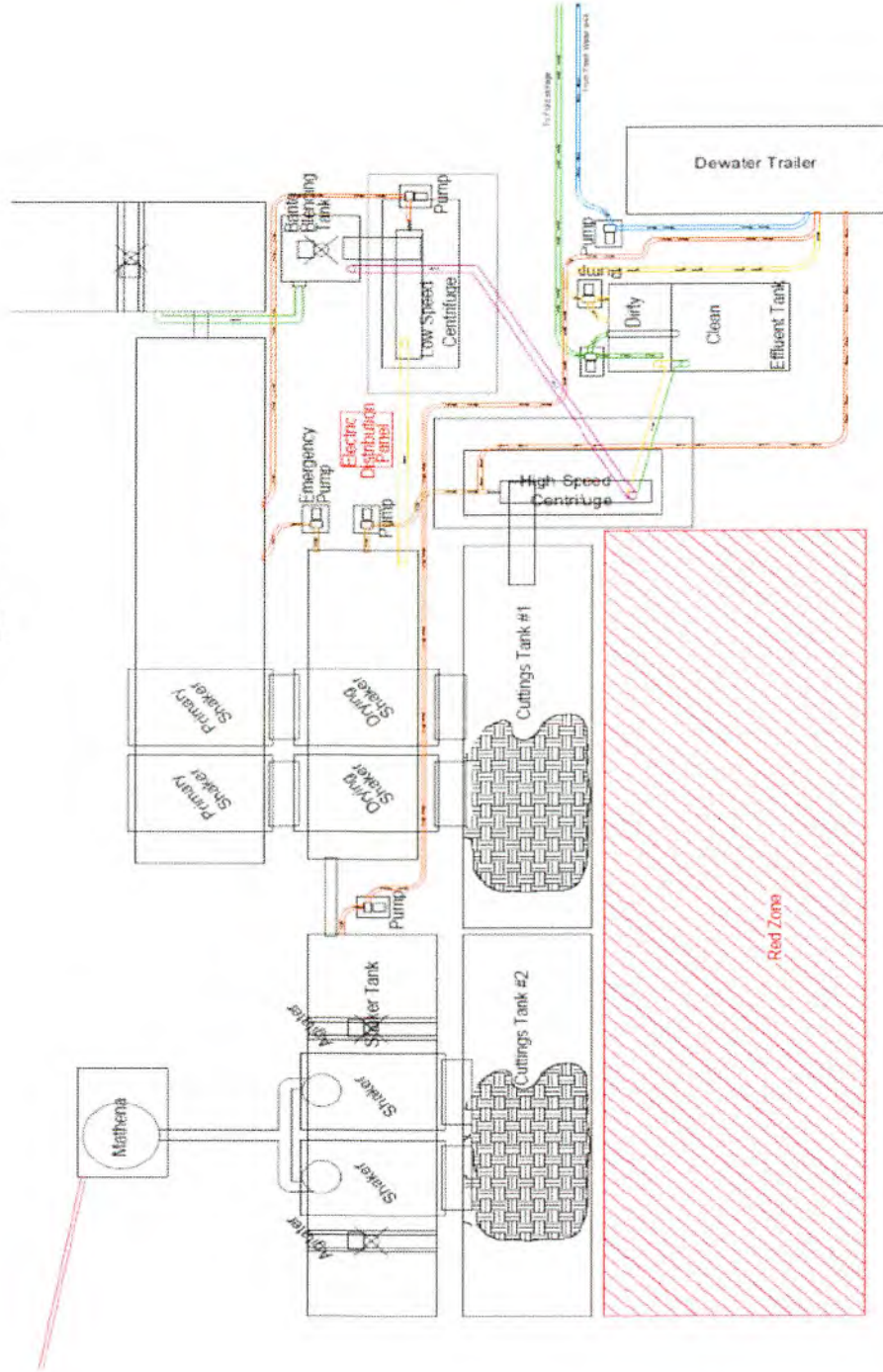


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# Solids Control Layout



**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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Attachment 3C

 <b>WVD Seeding Specification</b> <span style="float: right;"><math>\frac{R^+}{A} \rightarrow V^+</math></span>																																	
<small>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)</small>																																	
<b>NON-ORGANIC PROPERTIES</b>	<b>ORGANIC PROPERTIES</b>																																
<table border="1"> <thead> <tr> <th>Seed Mixture: ROW Mix</th> <th>SWN Supplied</th> </tr> </thead> <tbody> <tr><td>Orchardgrass</td><td>40%</td></tr> <tr><td>Timothy</td><td>15%</td></tr> <tr><td>Annual Ryegrass</td><td>15%</td></tr> <tr><td>Brown Top Millet</td><td>5%</td></tr> <tr><td>Red Top</td><td>5%</td></tr> <tr><td>Medium Red Clover</td><td>5%</td></tr> <tr><td>White Clover</td><td>5%</td></tr> <tr><td>Birdsfoot Trefoil</td><td>5%</td></tr> <tr><td>Rough Bluegrass</td><td>5%</td></tr> </tbody> </table> <p style="text-align: right;">All legumes are inoculated at 5x normal rate</p> <p style="text-align: center;">Apply @ 100lbs per acre April 16th- Oct. 14th</p> <p style="text-align: center;">Apply @ 200lbs per acre Oct. 15th- April 15th PLUS 50lbs per acre of Winter Wheat</p>	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%	<table border="1"> <thead> <tr> <th>Seed Mixture: SWN Production Organic Mix</th> <th>SWN Supplied</th> </tr> </thead> <tbody> <tr><td>Organic Timothy</td><td>50%</td></tr> <tr><td>Organic Red or White Clover</td><td>50%</td></tr> <tr><td colspan="2" style="text-align: center;">OR</td></tr> <tr><td>Organic Perennial Ryegrass</td><td>50%</td></tr> <tr><td>Organic Red or White Clover</td><td>50%</td></tr> </tbody> </table> <p style="text-align: center;">Apply @ 100lbs per acre April 16th- Oct. 14th</p> <p style="text-align: center;">Apply @ 200lbs per acre Oct. 15th- April 15th</p> <p style="text-align: center;">Organic Fertilizer @ 200lbs per Acre</p> <p style="text-align: center;">Pelletized Lime @ 2 Tons per Acre</p>	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%
Seed Mixture: ROW Mix	SWN Supplied																																
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Organic Red or White Clover	50%																																
<b>SOIL AMENDMENTS</b>	<b>WETLANDS (delineated as jurisdictional wetlands)</b>																																
<table border="1"> <tbody> <tr><td>10-20-20 Fertilizer</td><td>*Apply @ 500lbs per Acre</td></tr> <tr><td>Pelletized Lime</td><td>Apply @ 2 Tons per Acre</td></tr> </tbody> </table> <p style="text-align: center;">*unless otherwise dictated by soil test results</p>	10-20-20 Fertilizer	*Apply @ 500lbs per Acre	Pelletized Lime	Apply @ 2 Tons per Acre	<table border="1"> <thead> <tr> <th>Seed Mixture: Wetland Mix</th> <th>SWN Supplied</th> </tr> </thead> <tbody> <tr><td>VA Wild Ryegrass</td><td>20%</td></tr> <tr><td>Annual Ryegrass</td><td>20%</td></tr> <tr><td>Fowl Bluegrass</td><td>20%</td></tr> <tr><td>Cosmos 'Sensation'</td><td>10%</td></tr> <tr><td>Redtop</td><td>5%</td></tr> <tr><td>Golden Tickseed</td><td>5%</td></tr> <tr><td>Maryland Senna</td><td>5%</td></tr> <tr><td>Showy Tickseed</td><td>5%</td></tr> <tr><td>Fox Sedge</td><td>2.5%</td></tr> <tr><td>Soft Rush</td><td>2.5%</td></tr> <tr><td>Woolgrass</td><td>2.5%</td></tr> <tr><td>Swamp Verbena</td><td>2.5%</td></tr> </tbody> </table> <p style="text-align: center;">Apply @ 25lbs per acre April 16th- Oct. 14th</p> <p style="text-align: center;">Apply @ 50lbs per acre Oct. 15th- April 15th</p> <p style="text-align: center;"><b>NO FERTILIZER OR LIME INSIDE WETLAND LIMITS</b></p>	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%		
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Soft Rush	2.5%																																
Woolgrass	2.5%																																
Swamp Verbena	2.5%																																
<b>Seeding Calculation Information:</b>																																	
<p>1452' of 30' ROW/LOD is One Acre 871' of 50' ROW/LOD is One Acre 622' of 70' ROW/LOD is One Acre</p>																																	
<b>Synopsis:</b>																																	
<p>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).</p>																																	
<b>Special Considerations:</b>																																	
<p>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.</p>																																	

Rev. 5/22/2018

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# MARCELLUS WELL DRILLING PROCEDURES AND WELL SITE SAFETY PLAN

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

**API NO. 47-XXX-XXXXX**  
**WELL NAME: James Seabright BRK 3H**  
**Bethany QUAD**  
**Buffalo DISTRICT**  
**Brooke COUNTY, WEST VIRGINIA**

Submitted by:

Name: Brittany Woody

Date: 9/4/2019

*Brittany Woody*

Title: Senior Regulatory Analyst

SWN Production Co., LLC

Approved by:

Name: *[Signature]*

Date: 10-8-19

Title: Oil and Gas Inspector

Approved by:

Name: \_\_\_\_\_

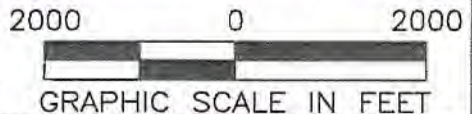
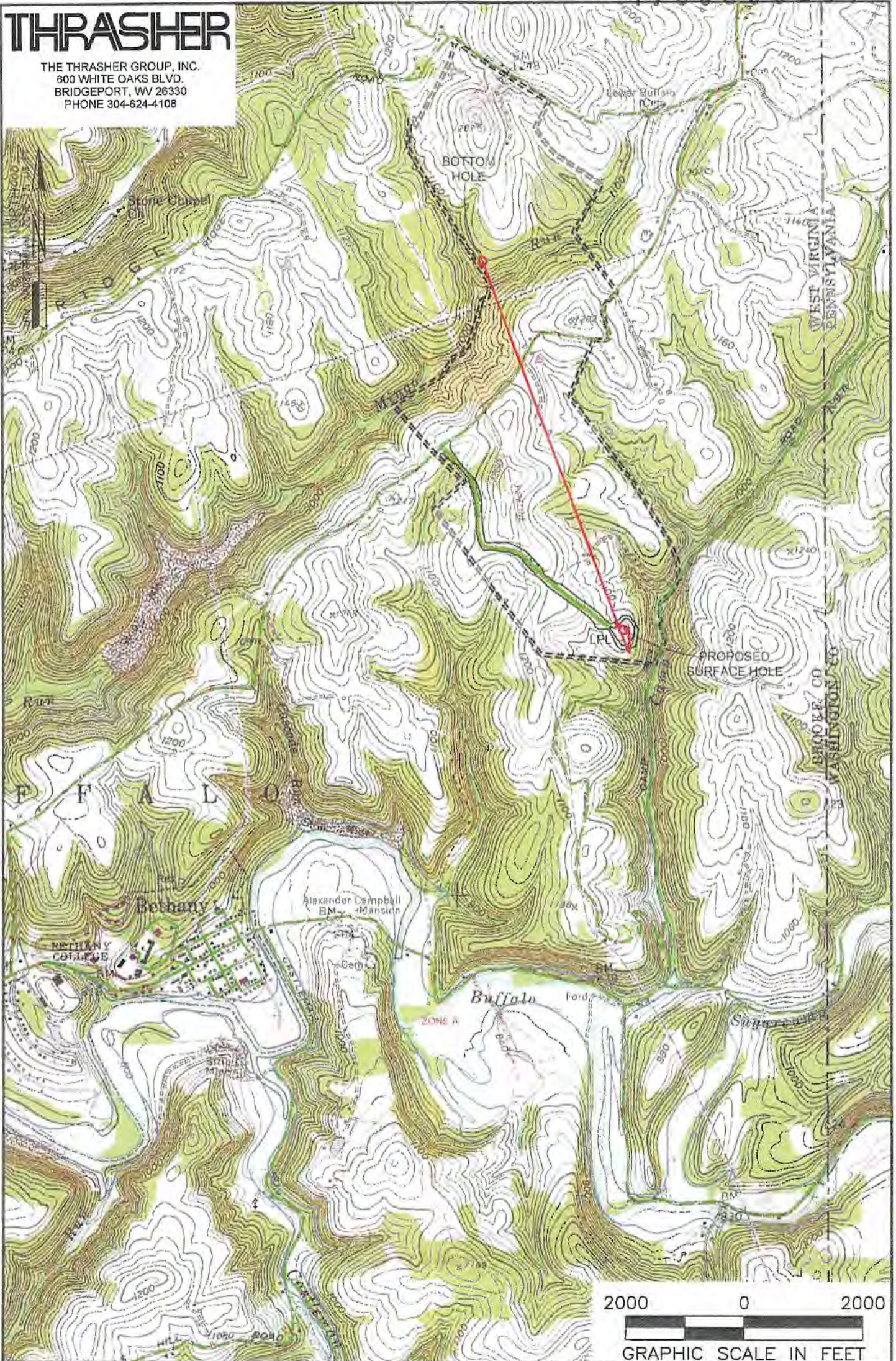
Date: \_\_\_\_\_

Title: \_\_\_\_\_



# THRASHER

THE THRASHER GROUP, INC.  
 600 WHITE OAKS BLVD.  
 BRIDGEPORT, WV 26330  
 PHONE 304-624-4108



**NOTES ON SURVEY**

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- 3.
4. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

**LEGEND:**

- Proposed Surface Hole / Bottom Hole
- Existing / Producing Wellhead
- LPL LANDING POINT LOCATION
- FLOOD PLAN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- LEASE BOUNDARY
- PROPOSED PATH

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WELL (FARM) NAME: JAMES SEABRIGHT BRK	WELL # 3H	SERIAL # XXXX
ADDRESS: P.O. BOX 1300 JANE LEW, WV 26378	COUNTY - CODE BROOKE - 103	DISTRICT; BUFFALO	
SURFACE OWNER: JAMES K. & MARTHA MAY SEABRIGHT; LIFE INTREST & JAMES H. SEABRIGHT	USGS 7 1/2 QUADRANGLE MAP NAME BETHANY, WV		

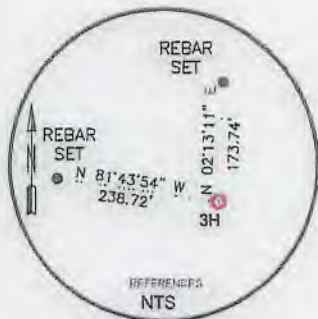
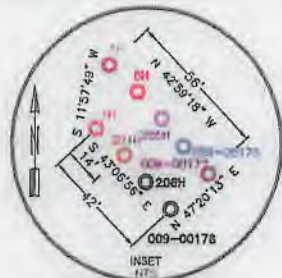
# THRASHER

THE THRASHER GROUP, INC.  
600 WHITE OAKS BLVD.  
BRIDGEPORT, WV 26330  
PHONE 304-624-4108

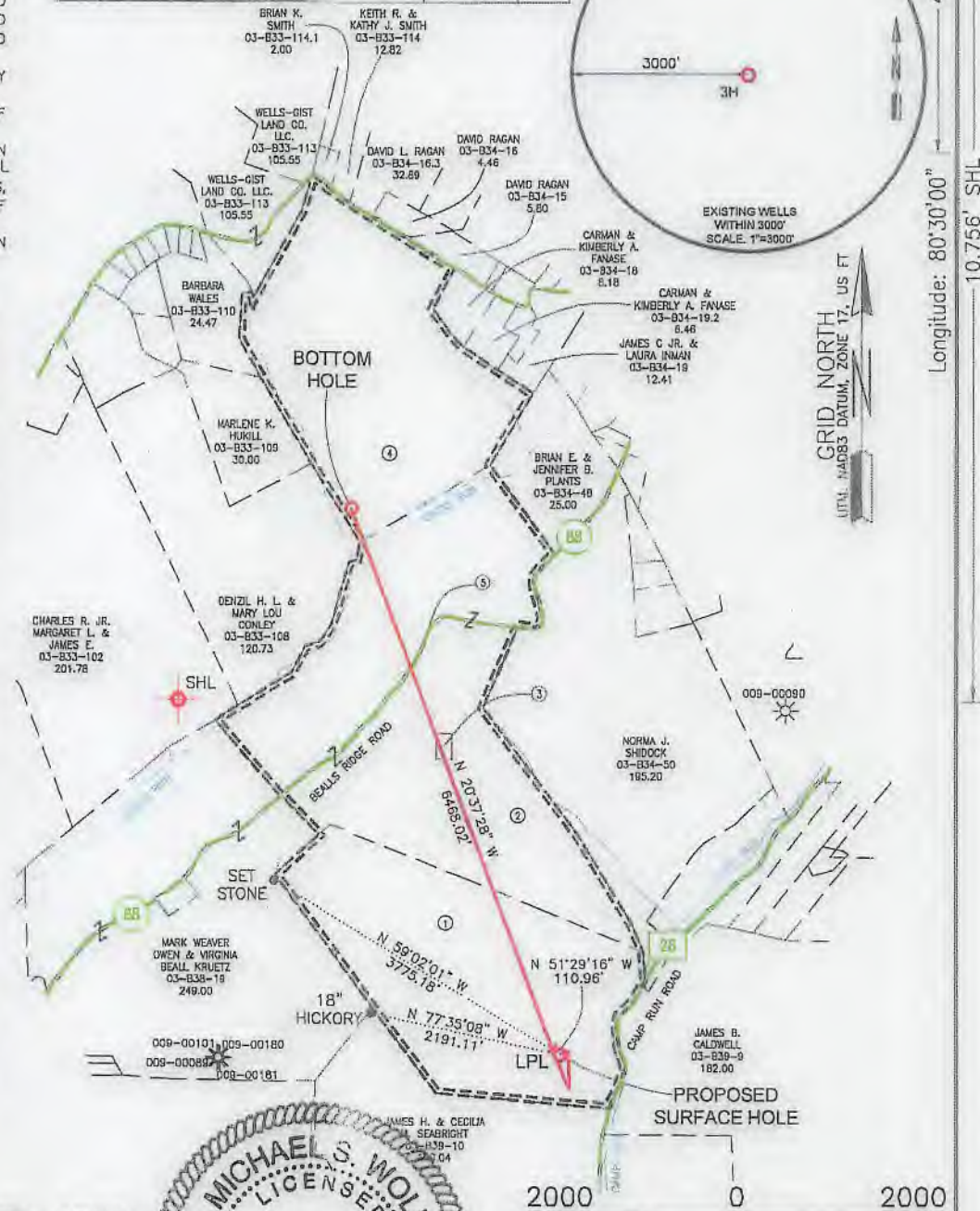
### NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL BHL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,343.220 EASTING: 539,861.512
<b>LANDING POINT (LPL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,391.656 EASTING: 539,824.644
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,454,209.384 EASTING: 539,140.628



TRACT	SURFACE OWNER / ROYALTY OWNER	TAX PARCEL	ACRES
1	(S) JAMES H. SEABRIGHT (R) JAMES K. SEABRIGHT & MARTHA MAY SEABRIGHT, LIFE ESTATE INTEREST, & JAMES H. SEABRIGHT, REMAINDER INTEREST	03-839-B	173.00
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
2	BELVEDERE FARMS LP	03-834-49	243.93
3	MATTHEW & VIRGINIA L. PUSKARICH	03-839-1	1.00
4	BARBARA A. WALES	03-834-17	170.40
5	WEST VIRGINIA DEPT. OF TRANSPORTATION, DIVISION OF HIGHWAYS	BEALLS RIDGE ROAD	3.39



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



P.S. 2270 *M.S.W.* 9/10/19

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL &amp; GAS 601 57TH STREET CHARLESTON, WV 25034</p>	<p>MINIMUM DEGREE OF ACCURACY: 1/200</p> <p>PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)</p>	<p>JAMES SEABRIGHT BRK</p> <p>OPERATOR'S WELL #: 3H</p> <p>API WELL #: 47 09 00294</p> <p>STATE COUNTY PERMIT</p>
	<p>WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/></p> <p>WATERSHED: SUGARCAMP RUN, BUFFALO CREEK</p> <p>DISTRICT: BUFFALO COUNTY: BROOKE</p> <p>SURFACE OWNER: JAMES H. SEABRIGHT</p> <p>OIL &amp; GAS ROYALTY OWNER: JAMES K. SEABRIGHT &amp; MARTHA MAY SEABRIGHT, LIFE INTEREST, &amp; JAMES H. SEABRIGHT, REMAINDER INTEREST</p> <p>DRILL <input checked="" type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION</p> <p>CONVERT <input type="checkbox"/> PLUG &amp; ABANDON <input type="checkbox"/> CLEAN OUT &amp; REPLUG OTHER CHANGE <input type="checkbox"/> (SPECIFY)</p> <p>TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,061' TVD 12,797' TMD</p>	<p>ELEVATION: 1130.6'</p> <p>QUADRANGLE: BETHANY</p> <p>ACREAGE: ± 173.00</p> <p>ACREAGE: ± 173.00</p>
<p>WELL OPERATOR: SWN PRODUCTION COMPANY, LLC</p> <p>ADDRESS: 1300 FORT PIERPONT DRIVE SUITE 201</p> <p>CITY: MORGANTOWN STATE: WV ZIP CODE: 26508</p>	<p>DESIGNATED AGENT: BRITTANY WOODY</p> <p>ADDRESS: 1300 FORT PIERPONT DRIVE SUITE 201</p> <p>CITY: MORGANTOWN STATE: WV ZIP CODE: 26508</p>	<p>DATE: 09-06-2019</p> <p>DRAWN BY: R. DOERR</p> <p>SCALE: 1" = 2000'</p> <p>DRAWING NO: 030-3168</p> <p>WELL LOCATION PLAT</p>

WW-6A1  
(5/13)

Operator's Well No. James Seabright BRK 3H

**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"				

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**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

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  
 James Seabright BRK 3H  
 Brooke County, West Virginia

#	TMP	LESSOR	LESSEE	ROYALTY	BK/PG
1)	03-0B39-0008-0000-0000	James K. Seabright and Martha May Seabright, Life Estate interest, and James H. Seabright, Remainder interest	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	21/30 31/499
2)	03-0B34-0049-0000-0000	Belvedere Farms, LP	SWN Production Company, LLC	18.00%	34/570
3)	03-0B39-0001-0000-0000	Virginia L. Puskarich, widow	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	28/453 30/480
4)	03-0B34-0017-0000-0000	John C. Wales, Sr. and Barbara A. Wales	TriEnergy Holdings, L.L.C. NPAR, LLC Chevron U.S.A. Inc. Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	10/601 16/547 20/448 28/664 30/480
5)	Bealls Ridge Road	West Virginia Department of Transportation, Division of Highways	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	15.00%	18/723 30/480

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 Environmental Protection

4700900294



4700900294

SWN Production Company, LLC  
1300 Fort Pierpont Dr, Ste 201  
Morgantown, WV 26508  
Tel: 304 884 1610  
Fax: 304 471 2497  
www.swn.com

September 6, 2019

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

**RE:** SWN's proposed New Well: James Seabright BRK 1H, James Seabright BRK 3H, James Seabright BRK 5H, and James Seabright BRK 201H in Brooke County, West Virginia, Drilling under Rt. 88.

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill under Rt. 88. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,

Michael H. Wilder  
Staff Landman  
SWN Production Company, LLC

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

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

Date of Notice Certification: 11/4/19

API No. 47- 009 -  
Operator's Well No. James Seabright BRK 3H  
Well Pad Name: James Seabright BRK

**Notice has been given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Eastings:	<u>539,861.512</u>
County:	<u>009- Brooke</u>		Northing:	<u>4,452,343.220</u>
District:	<u>Buffalo</u>	Public Road Access:	<u>Bealls Ridge Road</u>	
Quadrangle:	<u>Bethany</u>	Generally used farm name:	<u>James Seabright</u>	
Watershed:	<u>SugarCamp Run, 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.

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

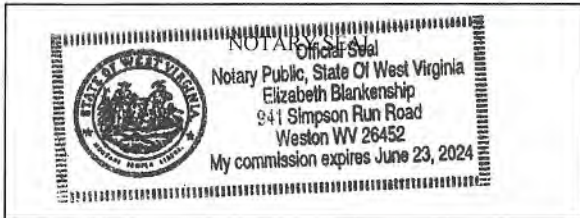
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

**Certification of Notice is hereby given:**

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

*Brittany Woody*



Subscribed and sworn before me this 5 day of Sept 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](mailto:depprivacyofficer@wv.gov).

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

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

**Date of Notice:** 11/4/19 **Date Permit Application Filed:** 11/4/19  
**Notice of:**

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- 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: James H. Seabright  
Address: 1467 Camp Run  
Bethany, WV 26032  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

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

COAL OPERATOR  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

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

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

SURFACE OWNER(s) (Impoundments or Pits)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*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 headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

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

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> 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.**

WV Department of  
Environmental Protection

**Time Limits and Methods for Filing Comments.**

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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WW-6A  
(8-13)

4700900294  
API NO. 47-009 -  
OPERATOR WELL NO. James Seabright BRK 3H  
Well Pad Name: James Seabright BRK

**Notice is hereby given by:**

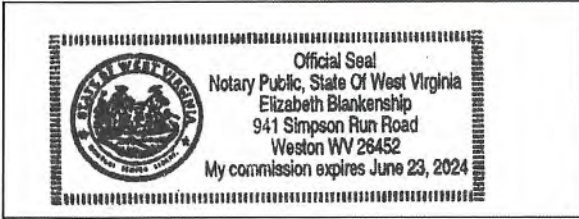
Well Operator: SWN Production Co., LLC  
Telephone: 304-884-1610  
Email: Brittany\_Woody@swn.com

*Brittany Woody*

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

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 5 day of Sept 2019.  
Blankenship Notary Public  
My Commission Expires 6/23/2024

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WV Department of  
Environmental Protection

4700900294

ATTACHMENT 13

PARCEL ID	OWNER	ADDRESS	CITY	STATE	ZIP	WATER SOURCE
03 B3900080000000	SEABRIGHT JAMES H (LE-JAMES K & MARTHA MAY SEABRIGHT	1467 CAMP RUN RD	BETHANY	WV	26032	3
03 B3900090000000	CALDWELL JAMES B	1576 CAMP RUN RD	BETHANY	WV	26032	1

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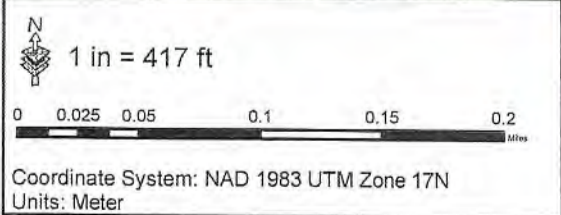
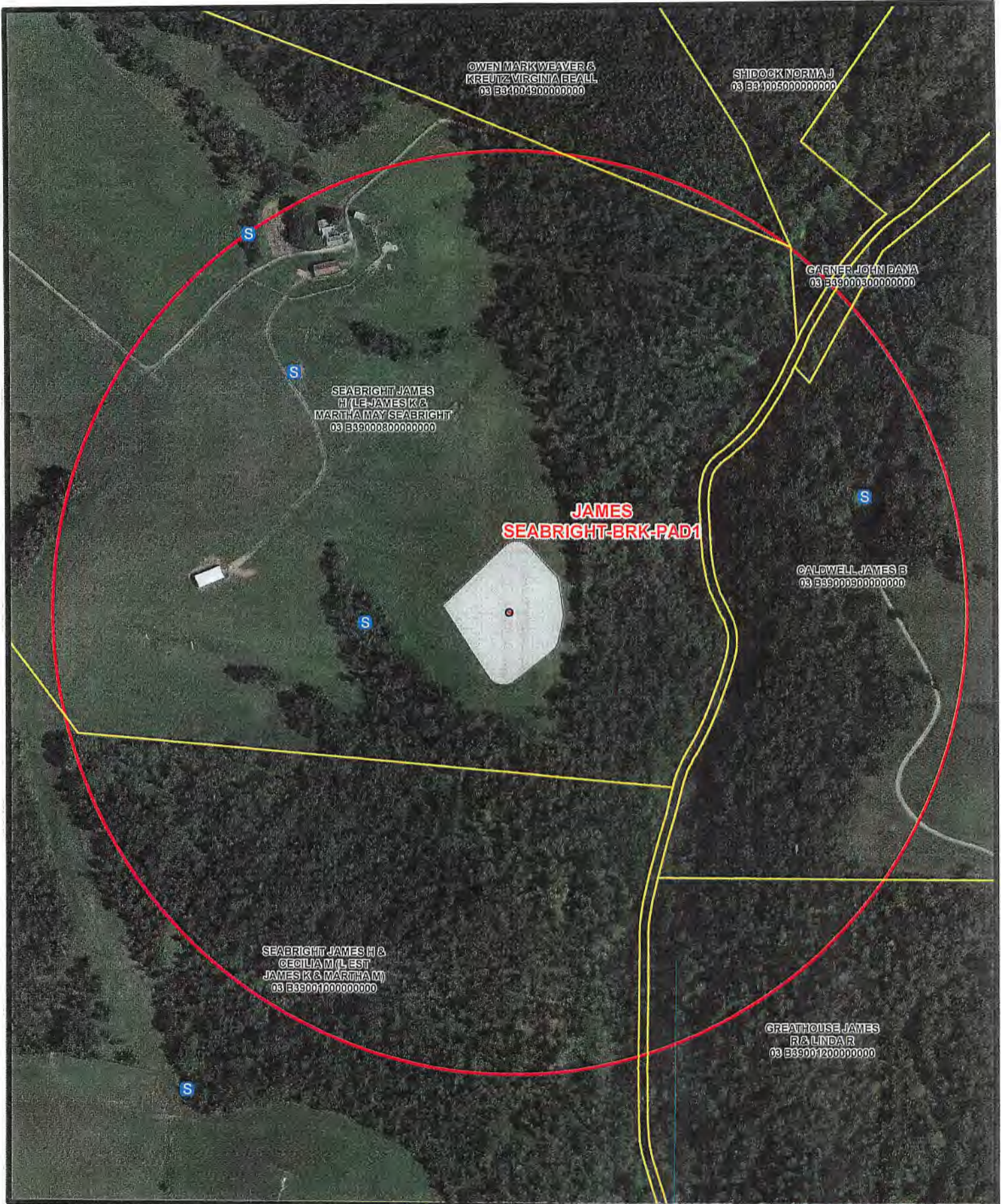
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S Spring     Parcel  
 Water Well     1500' Buffer  
● Pond

Coordinates: 40.220469, -80.531515

Water Purveyor Map  
Well Pad: James Seabright  
County: BRK

**SWN** *R<sup>L</sup> A → V<sup>+</sup>*  
Southwestern Energy®

Date: 9/4/2019    Author: willisb

**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:** 09/09/2019 **Date Permit Application Filed:** 11/08/19

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

HAND DELIVERY  CERTIFIED MAIL RETURN RECEIPT REQUESTED

WV Department of  
Environmental Protection

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: James H. Seabright  
Address: 1467 Camp Run Rd.  
Bethany, WV 26032

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>539,861.512</u>
County:	<u>Brooke</u>		Northing:	<u>4,452,343.220</u>
District:	<u>Buffalo</u>	Public Road Access:	<u>Bealls Ridge Road</u>	
Quadrangle:	<u>Bethany</u>	Generally used farm name:	<u>James Seabright BRK</u>	
Watershed:	<u>Sugarcamp Run, Buffalo Creek</u>			

**This Notice Shall Include:**

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

**Notice is hereby given by:**

Well Operator: SWN Production Company, LLC  
Address: 1300 Fort Pierpont Dr., Suite 201  
Morgantown, WV 26508  
Telephone: 304-517-6603  
Email: Michael\_Yates@swn.com  
Facsimile: 304-884-1691

Authorized Representative: Mike Yates  
Address: 1300 Fort Pierpont Dr., Suite 201  
Morgantown, WV 26508  
Telephone: 304-517-6603  
Email: Michael\_Yates@swn.com  
Facsimile: 304-884-1691

**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](mailto:depprivacyofficer@wv.gov).

WW-6A5  
(1/12)

**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:** 09/09/2019      **Date Permit Application Filed:** 11/11/19

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

CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      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: James H. Seabright  
Address: 1467 Camp Run Rd.  
Bethany, WV 26032

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:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>539,861.512</u>
County:	<u>Brooke</u>		Northing:	<u>4,452,343.220</u>
District:	<u>Buffalo</u>	Public Road Access:	<u>Bealls Ridge Road</u>	
Quadrangle:	<u>Bethany</u>	Generally used farm name:	<u>James Seabright BRK</u>	
Watershed:	<u>Sugarcamp Run, Buffalo Creek</u>			

**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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: SWN Production Company, LLC  
Telephone: 304-517-6603  
Email: Michael\_Yates@swn.com

Address: 1300 Fort Pierpont Dr., Suite 201  
Morgantown, WV 26508  
Facsimile: 304-884-1691

**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](mailto:depprivacyofficer@wv.gov).

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

Byrd E. White, III  
Secretary of Transportation/  
Commissioner of Highways

September 3, 2019

Jimmy Wriston, P. E.  
Deputy Secretary/  
Deputy Commissioner

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

Subject: DOH Permit for the James Seabright Pad, Brooke County  
James Seabright BRK 3H Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2015-0659 which has been issued to Southwestern Energy for access to the State Road for a well site located off WV Route 88 F at MP 5.8 in Brooke County.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a STATEWIDE 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 October 1, 2018.

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Very Truly Yours,

Gary K. Clayton, P.E.  
Regional Maintenance Engineer  
Central Office O&G Coordinator

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

## Attachment VI Frac Additives

4700900294

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-Cl200 (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)	Hydrocholic 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
Plexslick 953	Friction Reducer	Ammonium Chloride	12125-02-9
		Petroleum Distillate	64742-47-8
		Sodium Chloride	7647-14-5
		Ammonium Chloride	12125-02-9
Plexslick 957	Friction Reducer	N,N-bis (2-hydroxyethyl) oleamide	93-83-4
		Petroleum Distillate	64742-47-8
		Ammonium Chloride	12125-02-9
		Oleic Acid Diethanolamide	93-83-4
		Alcohols, C12-16, Exoxylated	68551-12-2
WFRA-2000 (U.S. Well Services)	Anionic Friction Reducer	Water	7732-15-5
		Hydrotreated light distillate (petroleum)	64742-47-8
		Propenoic acid, polymer with propenamide	9003-06 9

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# EROSION & SEDIMENT CONTROL PLAN

FOR

# SEABRIGHT PAD

## BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA

**APPROVED**  
**WVDEP OOG**  
1/20/2016

### GENERAL NOTES

- THE BOUNDARY AND TOPOGRAPHIC SURVEY FOR THE PROJECT AREA WERE PERFORMED BY RETIEN ASSOCIATES IN OCTOBER 2015.
- PROPERTY BOUNDARIES, LANDOWNER INFORMATION AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GIS DATA.
- CURTAIN STRUCTURES, TREE LOCUS AND ROADWAYS HAVE BEEN LOCATED PER AVAILABLE ONLINE AERIAL PHOTOGRAPHY.
- THE HORIZONTAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
- THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN VERTICAL DATUM 1985 (VAD 85) WHICH CORRELATES FROM FIELD SURVEYING.
- A REFERENCE SURVEY WAS PERFORMED BY RETIEN ASSOCIATES IN OCTOBER 2015.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING FROM THE CONTRACTOR ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS, INCLUDING ALL SAFETY REQUIREMENTS.
- SWN PRODUCTION CO. LLC HAS RESERVED THE RIGHT TO ACCEPT OR REJECT ANY AND ALL STES AT ITS DISCRETION. ALL WORK WILL BE PERFORMED UPON AND SUBJECT TO THE TERMS AND CONDITIONS OF SWN PRODUCTION CO. LLC'S MASTER SERVICE AGREEMENT LOCATED BETWEEN THE COMPANIES. THIS IS A LEASE AND NOT A CONTRACT. CONTRACTOR UNDERSTANDS CONTRACTOR SHALL PROVIDE ADDITIONAL LABOR AND MATERIALS TO COMPLETE THE WORK AT SO COST TO SWN PRODUCTION CO. LLC. ALL REQUIREMENTS ARE CONTRACTED COST FOR PLANNING PURPOSES. CONTRACTOR IS RESPONSIBLE TO BID ON THE BASIS OF THE SITE PLAN DEMONSTRATED.
- THE CONSTRUCTION START DATE IS BEING PROVIDED AS THE DATE SWN PRODUCTION CO. LLC MAY LESS BY 7 DAYS TO COMMENCE WORK UNDER THIS BID AND SHALL BE PROVIDED WELL IN ADVANCE OF THE START DATE. SWN PRODUCTION CO. LLC IS NOT TO BE BOUND BY ANY DELAY IN COMMENCEMENT OF WORK PROVIDED THAT SWN PRODUCTION CO. LLC HAS PROVIDED THE NECESSARY INFORMATION TO THE CONTRACTOR IN ADVANCE TO COMMENCE THE WORK PRIOR TO THE START DATE. SWN PRODUCTION CO. LLC IS NOT TO BE BOUND BY ANY DELAY IN COMMENCEMENT OF WORK PROVIDED THAT SWN PRODUCTION CO. LLC HAS PROVIDED THE NECESSARY INFORMATION TO THE CONTRACTOR IN ADVANCE TO COMMENCE THE WORK PRIOR TO THE START DATE. SWN PRODUCTION CO. LLC IS NOT TO BE BOUND BY ANY DELAY IN COMMENCEMENT OF WORK PROVIDED THAT SWN PRODUCTION CO. LLC HAS PROVIDED THE NECESSARY INFORMATION TO THE CONTRACTOR IN ADVANCE TO COMMENCE THE WORK PRIOR TO THE START DATE.
- THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL PROJECT BIDDING REQUIREMENTS WHEN CONDUCTING PUBLIC DEMONSTRATIONS. ALL PRIVATE CONSTRUCTION FOR SWN PRODUCTION CO. LLC SHALL INCLUDE A MINIMUM 1-YEAR WARRANTY OF PERFORMANCE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PREVENT ANY DAMAGE TO PRIVATE PROPERTY, PROVIDE ACCESS TO ALL ADJACENT OWNERS, NOTIFY UTILITY COMPANIES AND NOTIFY LOCALITIES OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION, AND PROTECT ALL UTILITIES TO REMAIN IN SERVICE.
- SAFETY AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE LATEST MANUAL ON CUSTOM TRAFFIC CONTROL DEVICES (MUTCD). TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC SAFETY MEASURES FOR WORK ON THE PROJECT.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS CONCERNING EXCAVATION. THE CONTRACTOR SHALL PROVIDE DETAILED PLANS AND SPECIFICATIONS FOR TRAFFIC SAFETY MEASURES THAT COMPLY WITH APPLICABLE LAWS CONCERNING EXCAVATION WHEN APPLICABLE TO THE PROJECT. THESE PLANS SHALL BE SEALED BY AN ENGINEER EXPERIENCED IN THE DESIGN OF TRAFFIC SAFETY SYSTEMS AND APPROVED BY THE STATE AT WHICH THE WORK IS OCCURRING. CONTRACTOR SHALL SUBMIT THE PLAN TO SWN PRODUCTION CO. LLC PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS FOR WORK RELATED TO EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS FOR WORK RELATED TO EXCAVATION.
- ANY DAMAGES THAT MAY OCCUR TO PROPERTY OR EXISTING IMPROVEMENTS SHALL BE RESTORED BY THE CONTRACTOR TO AT LEAST THE SAME CONDITION THAT THE PROPERTY OR IMPROVEMENTS WERE IN PRIOR TO THE DAMAGES. IN THE EVENT OF SUCH DAMAGE, CONTRACTOR SHALL NOTIFY SWN PRODUCTION CO. LLC IMMEDIATELY PRIOR TO THE RESTORATION. THIS RESTORATION SHALL BE SUBJECT TO THE OWNER'S APPROVAL. HOWEVER, THIS RESTORATION SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION TO THE CONTRACTOR.
- THE MAXIMUM ALLOWABLE SLOPE FOR EXPOSED AREAS IS 3:1 HORIZONTAL TO VERTICAL, UNLESS SPECIFIED OTHERWISE IN A SITE-SPECIFIC GEOTECHNICAL REPORT.
- PROG TO FILL PLACEMENT, EXISTING SUBGRADE SHALL BE SEVERED TO A MINIMUM DEPTH OF 6" AND REINFORCED WITH GEOTEXTILE AND RE-CONSTRUCTED TO THE SAME DENSITY AND MOISTURE CONTENT AS THE PROPOSED FILL.
- APPROVED SELECT FILL TO BE USED AS INTERIORITY FLECKED SANDY CLAY TO CLAYEY SAND WITH A LIQUID LIMIT (LL) OF LESS THAN 35 PERCENT AND A PLASTICITY INDEX (PI) OF BETWEEN 4 AND 15. FILL MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8" (4) HIGHER IN LOOSE THICKNESS.
- FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 1555) IN EXCAVATION WITH THE CONTRACTOR OPERATOR. FILL MATERIAL SHALL BE SUBJECT TO ASTM STANDARD CONTROL.
- STORM DRAINAGE SHALL BE CONSIDERED AS A MINIMUM OF CLASS II REINFORCED CONCRETE PIPE (RCP), CORRUGATED METAL PIPE (CMP), OR HIGH-DENSITY POLYETHYLENE (HDPE) PIPE. A MINIMUM OF 12" OR 1/2" OF COVER SHALL BE MAINTAINED WHEN USING CMP OR HDPE PIPE. STORM DRAINAGE SHALL BE 10% OF THE AREA OF THE DRAINAGE BASIN.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE CLEAR OF ALL TRASH AND DEBRIS.
- PROG TO ANY EXISTING EXCAVATION OR TRENCH, ADEQUATE EROSION CONTROL MEASURES SHALL BE PROMPTLY INSTALLED.
- THE CONTRACTOR SHALL EXPECT STABILIZATION AND EROSION CONTROL MEASURES AT A MINIMUM OF 30 DAYS OR MORE AFTER ANY EXISTING EXCAVATION DEEPER THAN 18 INCHES DURING CONSTRUCTION.
- SILT FENCE AND SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETELY ESTABLISHED IN ADEQUATE WITH APPLICABLE REGULATIONS UNTIL PROJECT COMPLETION.
- RESTORED AREAS THAT ARE SEVERED OR SCOOED SHALL BE DESIGNED PERIODICALLY TO SEE THAT GRADES OVERLIES IS PROMPTLY MAINTAINED UNTIL THE CONTRACTOR IS RELEASED FROM THE JOB SITE. RESTORED AREAS SHALL BE WATERED, FERTILIZED, AND RESEEDED OR RE-SOURED AS NECESSARY.
- FOR DESIGN PURPOSES, THE PAD CROSS SECTION AND ROAD SECTION WAS ASSUMED TO BE 14". THIS IS DUE TO SETTLEMENT OF THE CRACKER ROAD INTO THE B-3 ROCK.
- GEOTECHNICAL TESTING HAS NOT BEEN PERFORMED ON THIS SITE.



3.3 INCH QUADRANGLE MAP, WESTVA SV-PA  
**LOCATION MAP**  
SCALE - 1" = 2000'

### STAKING FLAG LEGEND

- TOP OF CUTS (YELLOW)
- GRADE AT TOP OF CUTS (YELLOW & ORANGE)
- TOP OF FILL (ORANGE)
- TOP HOLE LOCATION (PINK)
- VERTICAL CUT & FILL AT PAD PROPOSED CORNER OR EXISTING CORNER (ORANGE & BLACK STRIPES)
- LINE OF EXCAVATION (BLUE & WHITE STRIPES)
- VERTICAL CUT & FILL AT CORNER OR LINE OF EXCAVATION (ORANGE & BLACK STRIPES)
- EROSION & SEDIMENT CONTROL STRUCTURES (PINK & WHITE STRIPES)
- TOPSOIL TRENCHES (ORANGE & WHITE STRIPES)
- CENTRAL OF STEEL BOTTOM OF SEDIMENT TRAPS (BLUE)

**OPERATOR**  
SWN PRODUCTION CO. LLC  
PO BOX 1300  
JANESVILLE, WV 26159  
(202) 746-1618

### LIMITS OF DISTURBANCE

A. PAD	4.8 ACRES
ROAD	12.9 ACRES
TOTAL	17.7 ACRES
B. OVERLAND WEATHER	1.0 ACRES
WATERWAY, JAMES A.	16.2 ACRES
TOTAL	17.2 ACRES

### SOILS CLASSIFICATION

- S1S: CUMBERLAND Silt Loam, 3 to 8% Slopes
- S1L: CUMBERLAND Silt Loam, 8 to 15% Slopes
- S2S: CUMBERLAND Silt Loam, 15 to 25% Slopes
- S2L: CUMBERLAND Silt Loam, 25 to 35% Slopes
- M1S: WESTMORELAND Silt Loam, 3 to 8% Slopes
- M1L: WESTMORELAND Silt Loam, 8 to 15% Slopes
- M2S: WESTMORELAND Silt Loam, 15 to 25% Slopes
- M2L: WESTMORELAND Silt Loam, 25 to 35% Slopes

### CUT & FILL

ITEM	CUT	FILL	NET
ROAD	+ 3,612 CY	+ 46,336 CY	+ 42,724 CY
STAKE	+ 5,167 CY	+ 6,058 CY	+ 11,225 CY
TOTAL	+ 8,779 CY	+ 52,394 CY	+ 43,615 CY

- THE TOPSOIL DEPTH FOR THE ACCESS DRIVE IS 6". THE TOPSOIL DEPTH FOR THE PAD IS 6".
- THE CUT & FILL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING GRADES AND VERIFY EARTHWORK VOLUMES, METHODS AND PROCEDURES. ANY ISSUES ARE TO BE BROUGHT TO THE PROJECT'S AND DESIGNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.

### LIST OF DRAWINGS

- 1 OF 42 ..... COVER SHEET & GENERAL NOTES
- 2 OF 42 ..... CIVIL SITE PLAN
- 3 OF 42 ..... ENLARGED LAYOUT PLAN
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- 5 OF 42 ..... ENLARGED LAYOUT PLAN
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NO. 1	DATE	REVISION
1	1/20/2016	REVISION



FOR REVIEW ASSIGNED BY:  
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www.retien.com  
Contractor's Representative

COVER SHEET & GENERAL NOTES  
**SEABRIGHT PAD**  
BROOKE COUNTY, WV  
BUFFALO DISTRICT

DATE: 12/11/2015  
SHEET NO. 1 OF 42  
DWG. NO. 087559035

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