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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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, February 2, 2021  
WELL WORK PERMIT  
Horizontal 6A / New Drill

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

Re: Permit approval for DANIEL DURIG UP WTZ 3H  
47-103-03334-00-00

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: DANIEL DURIG UP WTZ 3H  
Farm Name: ARTHUR DURIG, DANIEL D  
U.S. WELL NUMBER: 47-103-03334-00-00  
Horizontal 6A New Drill  
Date Issued: 2/2/2021



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-926-0499 Ext 1274

dep.wv.gov

November 4, 2019

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-103-03334

COMPANY: SWN Production Company, LLC                      Daniel Durig UP WTZ 3H

FARM:            Arthur Durig (Life Estate) Daniel Durig (Remainderman)

COUNTY:    Wetzel            DISTRICT: Center            QUAD: Wileyville

The deep well review of the application for the above company is **Approved to drill to Trenton for Point Pleasant completion.**

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? NA
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: none
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Susan Rose  
Administrator

# PERMIT CONDITIONS

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

## CONDITIONS

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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

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).

WW-6B  
(04/15)

API NO. 47-009 10303334

OPERATOR WELL NO. Daniel Durig UP WTZ 3H

Well Pad Name: Daniel Durig WTZ Pad

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 103-Wetzel 1-Center 681-Wileyville  
Operator ID County District Quadrangle

2) Operator's Well Number: Daniel Durig UP WTZ 3H Well Pad Name: Daniel Durig WTZ Pad

3) Farm Name/Surface Owner: Arthur Durig (Life Estate) Daniel Durig (Remainderman) Public Road Access: Macedonia Ridge Road

4) Elevation, current ground: 1401' Elevation, proposed post-construction: 1401'

5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_

Other \_\_\_\_\_

(b) If Gas Shallow \_\_\_\_\_ Deep

Horizontal

6) Existing Pad: Yes or No Yes

*Dmit*  
*9-11-19*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Target Formation- Point Pleasant, Pilot Hole, Up-Dip well to the North, Target Top TVD- 12,142', Target Base TVD- 12,256', Anticipated Thickness- 114', Associated Pressure- 9753

8) Proposed Total Vertical Depth: 12,409 Pilot Hole/ 12,193 Point Pleasant

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 18,562'

11) Proposed Horizontal Leg Length: 6011.86'

12) Approximate Fresh Water Strata Depths: 427'

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

14) Approximate Saltwater Depths: 1664' Salinity Profile

15) Approximate Coal Seam Depths: 1155'

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

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

WV Department of  
Environmental Protection

471000800

WW-6B  
(10/14)

API NO. 47- 009 - \_\_\_\_\_  
OPERATOR WELL NO. Daniel Durig UP WTZ 3H  
Well Pad Name: Daniel Durig WTZ Pad

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

Drill approximately 100 ft into the Trenton formation and then set cement plug from TD to above planned KOP and then drill horizontally into the Utica. \*\*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. Run casing not less than 20' below void nor more than 50'-75' below void. (\*If freshwater is encountered deeper than anticipated it must be protected, set casing 50'75' below 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, proppant (sand and/or ceramic) 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 within the target formation has been stimulated. All stage plugs are then prepared for production by being drilled out or using large internal bore plugs and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production units, vertical separation units, water and oil storage tanks as needed. The maximum anticipated pressure and rate is 15,000 psi @ 100 barrels per minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 8.1

22) Area to be disturbed for well pad only, less access road (acres): 3.9

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.

\*Note: Attach additional sheets as needed.

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b>Size (in)</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling (ft)</b>	<b>INTERVALS: Left in Well (ft)</b>	<b>CEMENT: Fill-up (Cu. Ft.)/CTS</b>
Conductor	30"	New	H-40		100'	100'	CTS
Fresh Water	20"	New	J-55	94#	530'	530'	1124 sx/CTS
Coal	See	Interm	Casing				
Intermediate	13 3/8"	New	L-80	68#	2715'	2715'	2414 sx/CTS
Intermediate 2	9 5/8"	New	P-110HP	53.5#	11,200'	11,200'	4098 sx/CTS
Production	5 1/2"	New	P-110HP	23#	18,562'	18,562'	lead 621sz/Tail 2343sz/ 100' Inside Integ

*DmH*  
*9-1-13*

<b>TYPE</b>	<b>Size (in)</b>	<b>Wellbore Diameter (in)</b>	<b>Wall Thickness (in)</b>	<b>Burst Pressure (psi)</b>	<b>Anticipated Max. Internal Pressure (psi)</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
Conductor	30"	30"	0.75	2780	81	Class A	1.19/50% Excess
Fresh Water	20"	24"	0.438	2110	633	Class A	1.19/50% Excess
Coal							
Intermediate	13 3/8"	17.5"	0.33	2730	1768	Class A	1.19/50% Excess
Intermediate 2	9 5/8"	12 1/4"	0.395	5750	3898	Class A	1.68/1.25
Production	5 1/2"	8 3/4"	0.415	14520	9918	Class A	1.68/1.25

**PACKERS**

Kind:							
Sizes:							
Depths Set:							

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## 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
			sodium polynaphthalene sulfonate	9008-63-3
	D065	dispersant	sodium sulfate	7757-82-6
			chrystalline silica	14808-60-7
D201	retarder	metal oxide	proprietary	
D153	anti-settling	chrystalline silica	14808-60-7	

Rev. 5/18/2018

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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 Daniel Durig UP WTZ 3H Marshall and Wetzel Counties, West Virginia

6	7-29-9	George N. Yoho, widower (Jack R. Hammers; Paul F. Hammers; Erica M. Mason; Toni Jo Mason Living Trust; Oswald E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Oswald E. Burge Trust Dated June 21, 2010; Oswald E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; Weibanco Trust & Investment Services, Trustee under the Sloy K. Whippley and Twila Q. Whippley Trust Agreement dated August 25, 1999)	Manufacturers Light and Heat Company	32.50%	353/103	25.000	0.00000
		Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation			422/204	
		Columbia Gas Transmission Corporation	Columbia Natural Resources, LLC			642/281	
		Columbia Natural Resources, LLC	Chesapeake Appalachia, L.L.C.			650/63	
		Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC			33A/110	
7	7-29-15	George N. Yoho, widower, Tracy Yoho, widower, T. J. Yoho and Ethel Yoho, his wife, Tracy Yoho, widow, Agatha Barbuto and Joseph Barbuto, her husband, Maxine Horton, as Attorney in Fact for William Horton (Black Gold Group, LTD, Nancy Nonemaker; Tammy Kay Boehm; Lisa Lee Ann Bowers; Oswald E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Oswald E. Burge Trust Dated June 21, 2010; Oswald E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; John Noel Gallagher, a/k/a John Noel Gallagher; Jack R. Hammers; Paul F. Hammers; Janet Hinnerman; Sharon Hinnerman-Hall; Carol Derrow; Dahn D. Horton; Teresa Lynn Lemley; Erica Mason; Kimmela Ann Matthews; Dennis McFadden; Nancy McFadden-Mehring; Susan G. Moore; Virginia Carol Riffe; Deborah Yoho Showalter; Brent Alan Snider; Bryan Snider; Julie Dawn Snider; Scott Eric Snider; Shirley Terek; Toni Jo Mason Living Trust; Beneda Ward; Joseph L. Watkins; Weibanco Trust & Investment Services, Trustee under the Sloy K. Whippley and Twila Q. Whippley Trust Agreement dated August 25, 1999; Charlene Dee Widman; Chalmee C. Yocum; James E. Yocum; Lindsay Noel Yocum; Paul F. Yocum; Quennin A. Yocum, Sr.; Thomas Lerin Yocum; Bradley Scott Yoho; Clayton Garth Yoho; Darren Lee Yoho; Donna Yoho; Jeffrey Jay Yoho; Kevin Mark Yoho)	Manufacturers Light and Heat Company	32.50%	454/125	57.70000	0.000
		Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation			422/204	
		Columbia Gas Transmission Corporation	Columbia Natural Resources, LLC			642/281	
		Columbia Natural Resources, LLC	Chesapeake Appalachia, L.L.C.			650/63	
		Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC			33A/110	
8	7-29-B.2	George N. Yoho, widower (Jack R. Hammers; Paul F. Hammers; Erica M. Mason; Toni Jo Mason Living Trust; Oswald E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Oswald E. Burge Trust Dated June 21, 2010; Oswald E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; Weibanco Trust & Investment Services, Trustee under the Sloy K. Whippley and Twila Q. Whippley Trust Agreement dated August 25, 1999)	Manufacturers Light and Heat Company	12.50%	353/103	52.125000	0.00000
		Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation			422/204	
		Columbia Gas Transmission Corporation	Columbia Natural Resources, LLC			642/281	
		Columbia Natural Resources, LLC	Chesapeake Appalachia, L.L.C.			650/63	
		Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC			33A/110	

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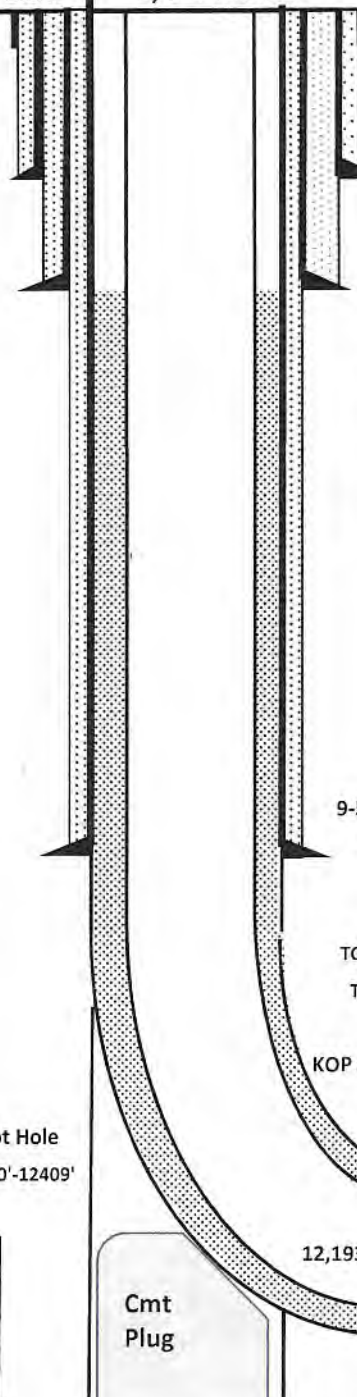
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**Southwestern Energy Company**

**Proposed Drilling Program**

Well: DANIEL DURIG UP WTZ 3 Re-entry Rig: TBD  
 Field: VICTORY FIELD Prospect: VICTORY  
 County: WETZEL State: WV  
 SHL: 39.7169 Latitude -80.6392 Longitude  
 BHL: 39.7290 Latitude -80.6564 Longitude  
 KB Elev: 1,427 ft MSL KB: 26 ft AGL GL Elev: 1,401 ft MSL



30" Conductor @ 100'  
 20" Surface Casing @ 530'  
 Gas Storage Interval @ 2064'-2566'  
 13-3/8" Intermediate Casing @ 2715'

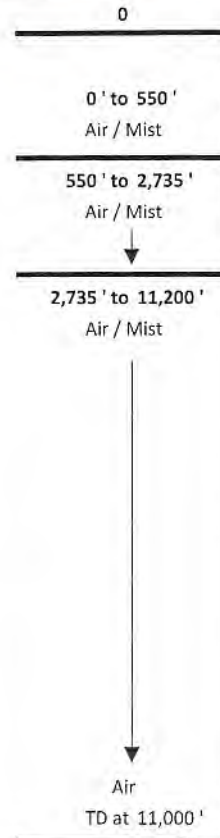
*DWH*  
*9-11-19*

**Tubular Detail**

	Size (in)	Weight	Grade	From	To
Conductor	30		H-40	0'	100'
Surface	20	94.0 #	J-55	0'	530'
Inter1/Coal	13.625	68.0 #	L-80	0'	2,715'
Intermediate 2	9-5/8	53.5 #	P-110HP	0'	11,200'
Production	5.5	23.0 #	P-110HP	0'	18,562'

**Cement Detail**

	Sacks	Class	Density
Conductor	216	A	19.3
Surface	1124	A	15.6
Intermediate 1	2414	A	15.6
Intermediate 2	4098	A	15.6
9-5/8" Intermediate Production Lead	621	H	16.5
Casing @ 11,200' Production Tail	2343	H	16.5



Water Depth - 427' TVD  
 Coal Depth - 1,155' TVD  
 Top of Saltwater - 1,664' TVD  
 Max. TVD Pilot Hole - 12,409'  
 Max. TVD Lateral - 12,193'  
 TMD - 18,562'

TOC Lead at 6000' MD  
 TOC Tail at 8500' MD  
 KOP at 11,653' MD

EOB at 12,193' TVD  
 SHL Trenton 12,139' TVD

Lateral Hole Information  
 5-1/2" Production Casing @ 18562'

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11,653' to 12,547'  
 12.0 - 15.5 ppg

12,547' to 18,562'  
 15.0 - 17.5 ppg

Pilot Hole  
 11,200'-12409'

Cmt Plug

12,193' Target Center

TD at 18,562' MD  
 12,128' TVD

Pilot Hole Information  
 Point Pleasant 12,142' TVD  
 Trenton 12,259' TVD  
 Pilot Hole TD 12,409' TVD

Trenton 12,191' TVD

Plug Back Pilot Hole with Cement  
 Sidetrack off Plug or Whipstock

Created by: C R Hall on 09/03/2019

47 103 03334

WW-9  
(4/16)

API Number 47 - 103 -  
Operator's Well No. Daniel Durig UP WTZ 3H

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) Laurel Run Quadrangle Wileyville

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)

DMH  
9-11-19

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 SOBM 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

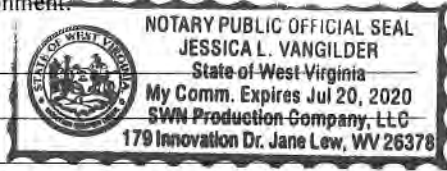
Arden Landfill 10072, Apex Sanitary Landfill 06-08438, Brooke Co SWF-1013, Valley 100280

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 Senior Regulatory Analyst



Subscribed and sworn before me this 3rd day of September, 20 19  
Jessica L. Vangilder Notary Public  
My commission expires 7-20-20

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SWN Production Co., LLC

Proposed Revegetation Treatment: Acres Disturbed 8.1 Prevegetation pH

Lime as determined by pH test min.2 Tons/acre or to correct to pH 3.9

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 3C

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: [Signature]

Comments:

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Title: Oil & Gas Inspector Date: 9-11-19

Field Reviewed? (X) 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)

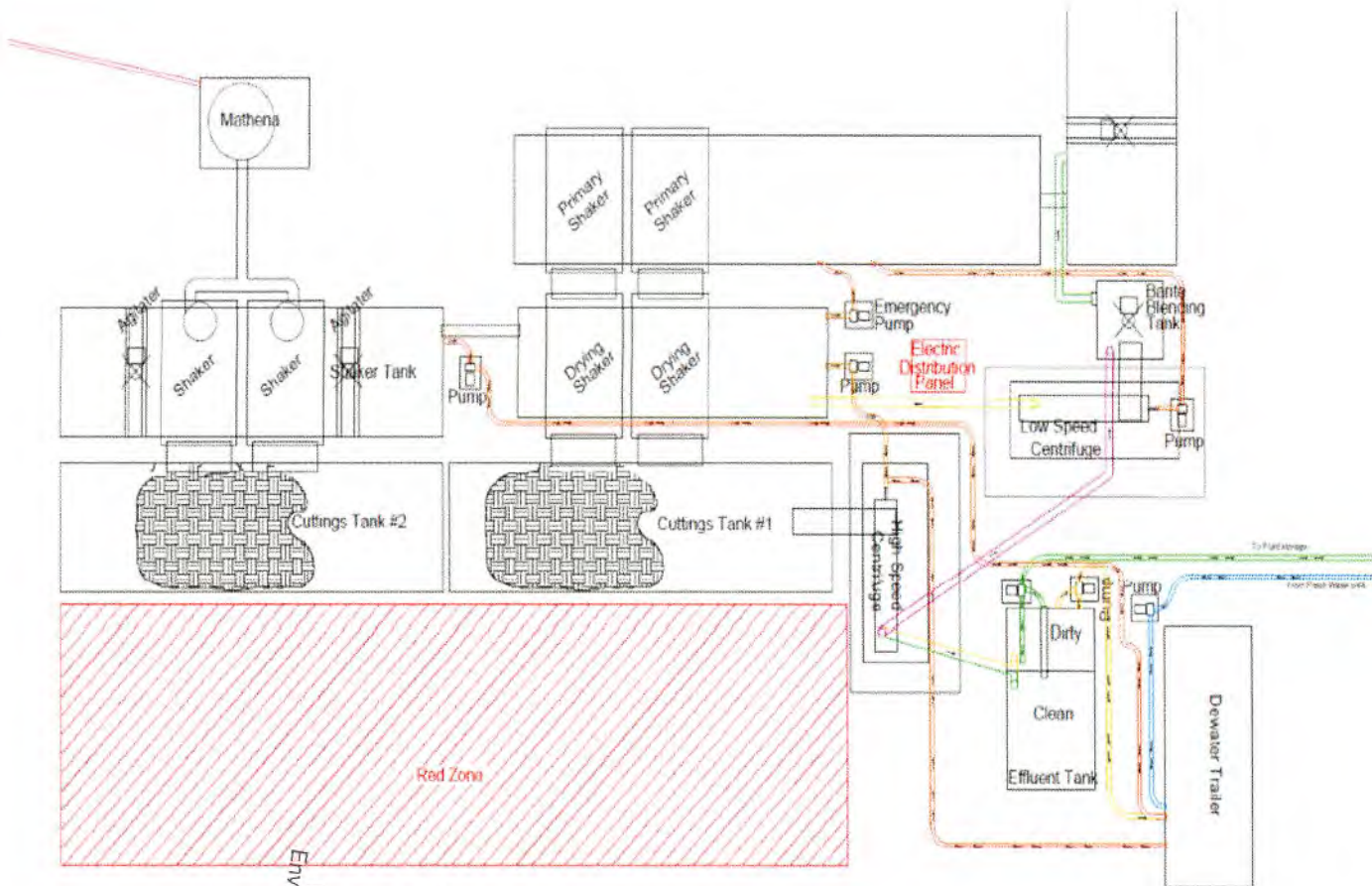
When drilling is converted to liquids drilling, the shale gas separator and associated shaker tank are bypassed, and the liquids system is processed over the primary and drying shaker systems. Cuttings drop into the cuttings tank for additional processing. Any recoverable associated liquids attached 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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# Solids Control Layout



EXAMPLE SCHEMATIC FOR CLOSED LOOP SOLIDS CONTROL SYSTEM



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47 : 0 3 0 3 3 3 4

## 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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WV Department of  
Environmental Protection





# WVD Seeding Specification

$\frac{R^2}{A} \rightarrow V^+$

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%	All legumes are innoculated at 5x normal rate
White Clover	5%	
Birdsfoot Trefoil	5%	
Rough Bluegrass	5%	
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.


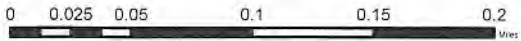

ORGANIC PROPERTIES	
Seed Mixture: SWN Production Organic Mix	SWN Supplied
Organic Timothy	50%
Organic Red or White Clover	50%
OR	
Organic Perennial Ryegrass	50%
Organic Red or White Clover	50%
Apply @ 100lbs per acre April 16th- Oct. 14th	
Organic Fertilizer @ 200lbs per Acre	
Apply @ 200lbs per acre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

4710305334



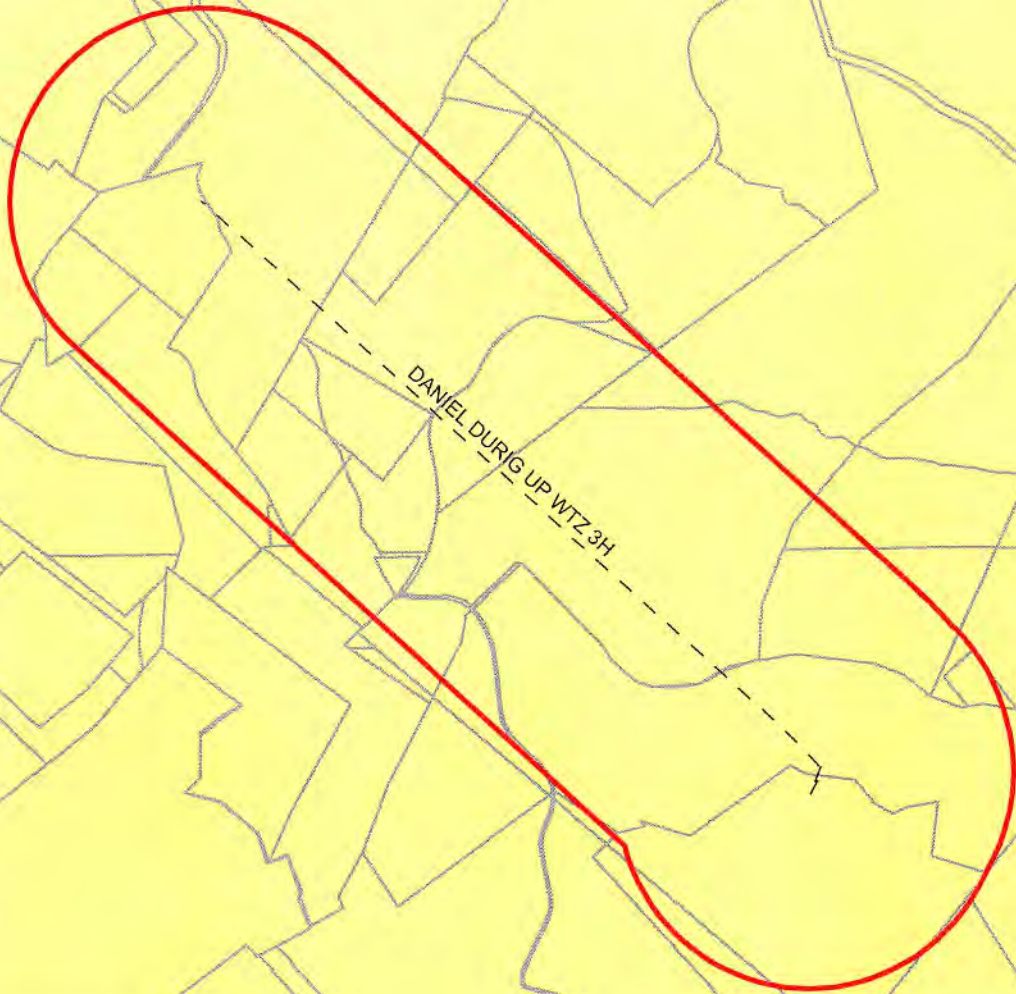
 1 in = 417 ft 	<ul style="list-style-type: none"> <li><span style="color: blue;">S</span> Spring</li> <li><span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span> Parcel</li> <li><span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span> 1500' Buffer</li> <li><span style="color: blue;">●</span> Pond</li> </ul>	Water Purveyor Map Well Pad: Daniel Durig County: WTZ		
				
Coordinate System: NAD 1983 UTM Zone 17N Units: Meter	Coordinates: 39.716878, -80.638957		Date: 9/3/2019	Author: willisb

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Environmental Protection

4710303334



*No offset operators*

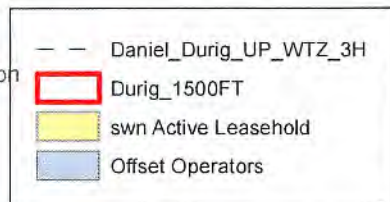
RECEIVED  
Office of Oil and Gas



OCT - 3 2019

Daniel Durig UP WTZ\_3H  
Proctor District  
Wetzel Co., WV

WV Department of  
Environmental Protection



**SWN**  
Southwestern Energy®



1 inch = 1,500 feet

Date Saved: 9/11/2017 11:17:20 AM



Exhibit "A"

DANIEL  
DURIG  
PAD

WETZEL  
COUNTY  
WEST  
VIRGINIA

Legend

DURIG LOD  
PARCEL LINES

Disturbance Summary

Daniel Durig  
(12-5-6/12-5-11) 10.15 Ac.

Total Disturbance  
10.15 Acres

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OCT - 3 2019

Approved By: W/ Department of  
Environmental Protection

Date: 05-09-17

Approved By:

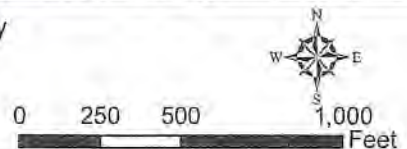
Date: 5-3-17

**SWN**  
Southwestern Energy

West Virginia  
Division

10000 Energy Drive  
Spring, TX 77389  
www.swn.com

Surface Owners understand and agree the location shown may change as actual location may vary due to deviations in terrain encountered during field inspections while work is in progress. Surface Owners further agrees to not unreasonably withhold their signature on a final exhibit.



Carol S Haught  
WETZEL County 11:51:19 AM  
Instrument No 229001  
Date Recorded 06/19/2017  
Document Type R/W  
Pages Recorded 4  
Book-Page 121-004  
Recording Fee \$5.00  
Transfer Tax \$66.00  
Additional \$26.00

4710303384



# UTICA WELL DRILLING PROCEDURES AND WELL SITE SAFETY PLAN



SWN Production Company, LLC  
179 Innovation Drive  
Jane Lew, West Virginia 26378

**API NO. 47-XXX-XXXXX**  
**WELL NAME: Daniel Durig UP WTZ 3H**  
**Wileyville QUAD**  
**Center DISTRICT**  
**Wetzel COUNTY, WEST VIRGINIA**

Submitted by:

Brittany Woody *Brittany Woody* Date: 9/3/2019  
Senior Regulatory  
Title: Analyst SWN Production Co., LLC

Approved by:

*[Signature]* Date: 9-11-19  
Title: Oil & Gas Inspector

Approved by:

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

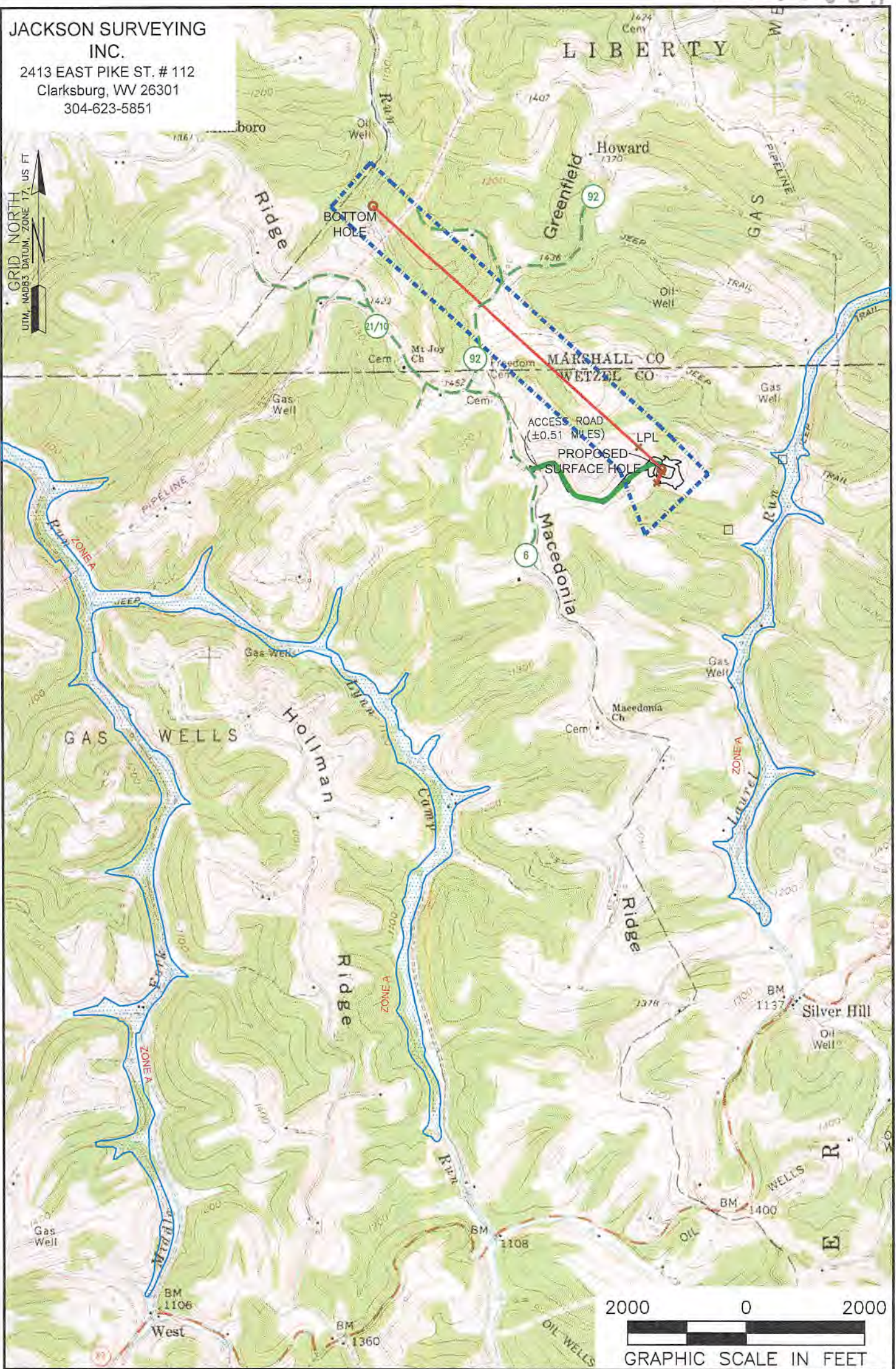
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Office of Oil and Gas  
OCT - 3 2019  
WV Department of  
Environmental Protection

**JACKSON SURVEYING**

**INC.**

2413 EAST PIKE ST. # 112  
 Clarksburg, WV 26301  
 304-623-5851

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



**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.

RECEIVED  
 Office of Oil and Gas  
 OCT - 3 2019

**LEGEND:**

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

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WV Department of Environmental Protection	WELL (FARM) NAME: DANIEL DURIG UP WTZ	WELL # 3H	SERIAL #
ADDRESS: 1300 FORT PIERPONT RD, SUITE 200 MORGANTOWN, WV 26508		COUNTY - CODE WETZEL - 103	DISTRICT: CENTER	
SURFACE OWNER: DANIEL DURIG		USGS 7 1/2 QUADRANGLE MAP NAME WILEYVILLE, WV	API #: 47-103-	



Latitude: 39°45'00" (TH)

SURFACE HOLE 4006'

Latitude: 39°45'00" (BH)

BOTTOM HOLE 8841'

# JACKSON SURVEYING INC.

2413 EAST PIKE ST. # 112  
Clarksburg, WV 26301  
304-623-5851

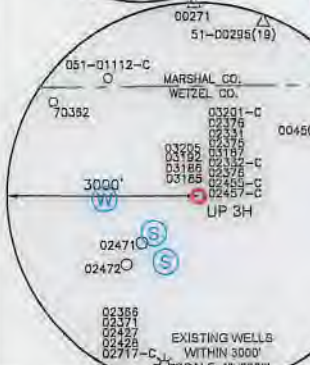
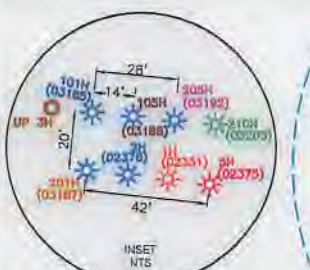
<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,396,396.718
EASTING: 530,920.493
<b>TURNING POINT LOCATION-1 (TPL1):</b>
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,396,383.367
EASTING: 530,895.615
<b>TURNING POINT LOCATION-2 (TPL2):</b>
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,396,383.551
EASTING: 530,924.949
<b>LANDING POINT (LPL):</b>
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,396,512.433
EASTING: 530,803.608
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,397,738.399
EASTING: 529,441.710

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

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS			
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	ARTHUR DURIG (LIFE ESTATE), DANIEL DURIG (REMAINDERMAN) (S/R)	12-05-08	151.58
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
2	ARTHUR DURIG (LIFE ESTATE), DANIEL DURIG (REMAINDERMAN) (S)	12-05-11	85.5
3	MASON DIXON FARMS, LLC (S)	07-29-14	129.4
4	MASON DIXON FARMS, LLC (S)	07-29-8.1	89.875
5	MASON DIXON FARMS, LLC (S)	07-29-07	162.00
6	MASON DIXON FARMS, LLC (S)	07-29-09	25.0
7	MASON DIXON FARMS, LLC (S)	07-29-15	57.70
8	MASON DIXON FARMS, LLC (S)	07-29-8.2	52.125

**WELL:**  
DANIEL DURIG UP MSH 3H  
UNIT BOUNDARY AREA  
181.717 ACRES±

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 85°24'58" E	2054.56'	SHL TO LANDMARK	FENCE CORNER
L2	S 48°11'04" E	1515.55'	SHL TO LANDMARK	FD, MARKED STONE
L3	S 20°00'00" W	238.84'	SHL TO TPL1	TPL1
L4	N 27°59'37" E	205.04'	TPL1 TO TPL2	TPL2
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L5	N 43°16'26" W	580.76'	584.49'	TPL2 TO LPL



- WELL RESTRICTIONS**
- NO OCCUPIED DWELLINGS > 2500 SQ. FT. WITHIN 625 FEET OF CENTER OF PAD.
  - NO AGRICULTURE BUILDINGS > 2500 SQ. FT. WITHIN 625 FEET OF CENTER OF PAD.
  - WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 250 FEET OF PROPOSED WELL.
  - PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
  - NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
  - NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.
- NOTES ON SURVEY**
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
  - THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
  - ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.
  - NO DEEP WELLS WERE FOUND WITHIN 3000' OF THIS LATERAL.
- I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



GRAPHIC SCALE IN FEET

COMPANY: **SWN** Production Company, LLC

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

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

MINIMUM DEGREE OF ACCURACY: 1/200

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

DANIEL DURIG UP WTZ

OPERATOR'S WELL #: 3H

API WELL #: 47 STATE 103 COUNTY PERMIT 03334

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

WATERSHED: LAUREL RUN - (HUC-10 FISH CREEK) ELEVATION: 1400.9'

DISTRICT: CENTER COUNTY: WETZEL QUADRANGLE: WILEYVILLE, WV

SURFACE OWNER: ARTHUR DURIG (LIFE ESTATE), DANIEL DURIG (REMAINDERMAN) ACREAGE: ±151.58

OIL & GAS ROYALTY OWNER: O.C. YOHO AND MARY YOHO, ARTHUR T. DURIG (LIFE ESTATE), DANIEL DURIG (REMAINDERMAN) ACREAGE: ±151.58

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

CONVERT  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY)

TARGET FORMATION: POINT PLEASANT ESTIMATED DEPTH: 12,193 TVD 18,562 TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITANY WOODY

ADDRESS: 1300 FORT PIERPONT RD. SUITE 200 ADDRESS: 1300 FORT PIERPONT RD. SUITE 200

CITY: MORGANTOWN STATE: WV ZIP CODE: 26508 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

<b>LEGEND:</b>		<b>REVISIONS:</b>	<b>DATE:</b> 09-09-2019
	PROPOSED SURFACE HOLE / BOTTOM HOLE		
	EXISTING / PRODUCING WELLHEAD		
	LPL: LANDING POINT LOCATION		
	EXISTING WATER WELL		
	EXISTING SPRING		
	SURVEYED BOUNDARY		
	BOUNDARY UNIT		
	LEASED TRACTS		
	SURFACE TRACTS		
	PROPOSED PATH		
	DHP BUFFER		
	400' 1,500' 3,000'		
		<b>DRAWN BY:</b> N. MANO	
		<b>SCALE:</b> 1" = 2000'	
		<b>DRAWING NO.:</b>	
		<b>WELL LOCATION PLAT</b>	

JACKSON SURVEYING  
INC.

2413 EAST PIKE ST. # 112  
Clarksburg, WV 26301  
304-623-5851

TRACT #	TMP	LESSOR	BK/PG
1	12-5-6	O. C. Yoho and Mary Yoho, his wife	45A/235
		Manufacturers Light and Heat Company	263/164
		Columbia Gas Transmission Corporation	84A/129
		Columbia Natural Resources, LLC	402/446
		Chesapeake Appalachia, L.L.C.	157A/540
2	12-5-11	O. C. Yoho and Mary Yoho, his wife (Arthur and Shirley Durig, life Estate; Daniel Durig, Remainderman)	45A/235
		Manufacturers Light and Heat Company	263/164
		Columbia Gas Transmission Corporation	84A/129
		Columbia Natural Resources, LLC	402/446
		Chesapeake Appalachia, L.L.C.	157A/540
3	7-29-14	T. J. Yoho and Etheel Yoho, his wife, Trecy Yoho, widower, George N. Yoho, widower, Agatha Barbuto and Joseph Barbuto, her husband, Maxine Horton and Maxine Horton as Attorney-in-Fact for William Horton, Sherald Yocum and Eula Yocum, his wife (Black Gold Group, LTD.; Nancy Nonemaker; Tammy Kay Boehm; Lisa Lee Ann Bowen; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Onward E. Burge Trust Dated June 21, 2010; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; Carol Derrow; Jack R. Hammers; Paul F. Hammers; Janet Hinerman; Sharon Hinerman-Hall; Dalvin D. Horton; H3 LLC; Teresa Lynn Lemley; Erica Mason; Kimela Ann Matthews; Dennis McFadden; Nancy McFadden Metheny; Susan D. Moore; Virginia Carol Riffle; Deborah Yoho Showalter; Brent Alan Snider; Bryan Snider; Julie Dawn Snider; Scott Eric Snider; Shirley Terek; Toni Jo Mason Living Trust; Berneda Ward; Joseph L. Watkins; WesBanco Trust & Investment Services, Trustee under the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement; Charlene Dee Wildman; Chalmer C. Yocum; James E. Yocum; Lindsay Noel Yocum; Paul F. Yocum; Quentin A. Yocum, Sr.; Thomas Leon Yocum; Bradley Scott Yoho; Clayton Garth Yoho; Darren Lee Yoho; Donna Yoho; Jeffery Jay Yoho; Kevin Mark Yoho)	353/145
		Manufacturers Light and Heat Company	422/204
		Columbia Gas Transmission Corporation	642/281
		Columbia Natural Resources, LLC	650/63
		Chesapeake Appalachia, L.L.C.	33A/110
4	7-29-8.1	George N. Yoho, widower (Jack R. Hammers; Paul F. Hammers; Erica M. Mason; Toni Jo Mason Living Trust; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Onward E. Burge Trust Dated June 21, 2010; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; WesBanco Trust & Investment Services, Trustee under the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement dated August 25, 1999)	363/383
		Manufacturers Light and Heat Company	422/204
		Columbia Gas Transmission Corporation	642/281
		Columbia Natural Resources, LLC	650/63
		Chesapeake Appalachia, L.L.C.	33A/110
5	7-29-7	George N. Yoho, widower (Jack R. Hammers; Paul F. Hammers; Erica M. Mason; Toni Jo Mason Living Trust; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Onward E. Burge Trust Dated June 21, 2010; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; WesBanco Trust & Investment Services, Trustee under the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement dated August 25, 1999)	363/387
		Manufacturers Light and Heat Company	422/204
		Columbia Gas Transmission Corporation	642/281
		Columbia Natural Resources, LLC	650/63
		Chesapeake Appalachia, L.L.C.	33A/424

TRACT #	TMP	LESSOR	BK/PG
6	7-29-9	George N. Yoho, widower (Jack R. Hammers; Paul F. Hammers; Erica M. Mason; Toni Jo Mason Living Trust; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Onward E. Burge Trust Dated June 21, 2010; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; WesBanco Trust & Investment Services, Trustee under the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement dated August 25, 1999)	353/103
		Manufacturers Light and Heat Company	422/204
		Columbia Gas Transmission Corporation	642/281
		Columbia Natural Resources, LLC	650/63
		Chesapeake Appalachia, L.L.C.	33A/110
7	7-29-15	George N. Yoho, widower, Trecy Yoho, widower, T. J. Yoho and Etheel Yoho, his wife, Tracy Yoho, widow, Agatha Barbuto and Joseph Barbuto, her husband, Maxine Horton, as Attorney in Fact for William Horton (Black Gold Group, LTD.; Nancy Nonemaker; Tammy Kay Boehm; Lisa Lee Ann Bowen; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Onward E. Burge Trust Dated June 21, 2010; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; John Noel Gallagher, a/k/a John Noll Gallagher; Jack R. Hammers; Paul F. Hammers; Janet Hinerman; Sharon Hinerman-Hall; Carol Derrow; Dalvin D. Horton; Teresa Lynn Lemley; Erica Mason; Kimela Ann Matthews; Dennis McFadden; Nancy McFadden Metheny; Susan D. Moore; Virginia Carol Riffle; Deborah Yoho Showalter; Brent Alan Snider; Bryan Snider; Julie Dawn Snider; Scott Eric Snider; Shirley Terek; Toni Jo Mason Living Trust; Berneda Ward; Joseph L. Watkins; WesBanco Trust & Investment Services, Trustee under the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement dated August 25, 1999; Charlene Dee Wildman; Chalmer C. Yocum; James E. Yocum; Lindsay Noel Yocum; Paul F. Yocum; Quentin A. Yocum, Sr.; Thomas Leon Yocum; Bradley Scott Yoho; Clayton Garth Yoho; Darren Lee Yoho; Donna Yoho; Jeffery Jay Yoho; Kevin Mark Yoho)	45A/325
		Manufacturers Light and Heat Company	422/204
		Columbia Gas Transmission Corporation	642/281
		Columbia Natural Resources, LLC	650/63
		Chesapeake Appalachia, L.L.C.	33A/110
8	7-29-8.2	George N. Yoho, widower (Jack R. Hammers; Paul F. Hammers; Erica M. Mason; Toni Jo Mason Living Trust; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Onward E. Burge Trust Dated June 21, 2010; Onward E. Burge, Sarah Burge, and Stephen W. Burge, Trustees of the Sarah L. Burge Trust Dated June 21, 2010; WesBanco Trust & Investment Services, Trustee under the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement dated August 25, 1999)	353/103
		Manufacturers Light and Heat Company	422/204
		Columbia Gas Transmission Corporation	642/281
		Columbia Natural Resources, LLC	650/63
		Chesapeake Appalachia, L.L.C.	33A/110

REVISIONS:

COMPANY:

**SWN**  
Production Company, LLC

**SWN** <sup>R+</sup> <sup>V+</sup> <sup>+</sup>  
Production Company™

OPERATOR'S DANIEL DURIG  
WELL #: 47-103-03334 201H

DATE: 09-09-2019

DISTRICT:  
CENTER

COUNTY:  
WETZEL

STATE:  
WV

DRAWN BY: N. MANO

SCALE: N/A

DRAWING NO:

WELL LOCATION PLAT 2

WW-6AI  
(5/13)

Operator's Well No. \_\_\_\_\_

**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
-------------------------	-----------------------	-----------------------	---------	-----------

**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: Carla M Francis  
 Its: Staff Landman

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4710303334

MEMORANDUM OF SURFACE USE AGREEMENT AND SUBSURFACE EASEMENT

THIS MEMORANDUM OF SURFACE USE AGREEMENT AND SUBSURFACE EASEMENT (the "Memorandum") is made and entered into this 3<sup>rd</sup> day of May, 2017 (the "Effective Date"), by and between Daniel F. Durig and Rhonda K. Durig, husband and wife, with an address of 3116 Macedonia Ridge Road, New Martinsville WV 26155 ("Surface Owner") and SWN Production Company, LLC, a Texas limited liability company, with its principal office located at 10000 Energy Drive, Spring, Texas 77389 ("SWN").

WHEREAS, Surface Owner is the owner of all the interest in and to the surface of the following described lands located in Proctor District, Wetzel County, West Virginia (hereinafter collectively referred to as the "Lands"), further identified as:

**Tract 1:** Tax Parcel Identification Number 12-5-11, being the same lands conveyed to Surface Owner by Arthur T. Durig and Shirley Ann Durig, husband and wife, dated the 16<sup>th</sup> day of November, 2004 of record in the office of the Recorder of Deeds of the County of Wetzel, as more particularly described in Deed Book 396 at Page 461, containing 86 acres, more or less.

**Tract 2:** Tax Parcel Identification Number 12-5-6, being the same lands conveyed to Surface Owner by Arthur T. Durig and Shirley Ann Durig, husband and wife, dated the 16<sup>th</sup> day of November, 2004 of record in the office of the Recorder of Deeds of the County of Wetzel, as more particularly described in Deed Book 396 at Page 461, containing 153 acres, more or less.

WHEREAS, Surface Owner and SWN have entered into a Surface Use Agreement and Subsurface Easement dated the 1<sup>st</sup> of May, 2017 (the "Agreement"), relating to the construction by Chesapeake Appalachia, L.L.C. on the Lands of a Daniel F. Durig and Rhonda K. Durig, husband and wife, for the purpose of drilling, completing, producing, operating and maintaining one or more oil and gas wells, (the "Wells") thereon, in particular the Daniel Durig access road and well pad;

NOW THEREFORE, in consideration of the mutual covenants and agreement contained in the Agreement, Surface Owner and SWN do hereby agree as follows:

1. This Memorandum has been executed and recorded for the purpose of indicating, evidencing, and notifying third parties as to the existence and effect of the Agreement, including the Exhibit "A". Notwithstanding anything to the contrary herein or elsewhere, this Memorandum shall not in any way alter, amend, supplement or otherwise modify the terms of the Agreement.
2. Under the Agreement, Surface Owner(s) settled with, released, remised, and fully and forever discharged SWN, its parent company and affiliates, and its and their agents, employees, officers, directors, designees, contractors, subcontractors, successors and assigns, from any and all claims, demands, losses, damages, whether arising in tort, contract, strict liability, under statute, or of any other character whatsoever, for and on account of damages to the Lands arising from or relating to SWN's use, improvement and occupancy of the Lands, or in consequence of its use of the Facilities for drilling, completion, production, operation and maintenance under the Agreement.
3. Under the Agreement Surface Owner hereby granted unto SWN, and its successors and assigns, an exclusive easement and right-of-way on, over and across the LOD (as such term is defined below) for the purpose of construction, use and maintenance of the Facilities (as defined below) and drilling one or more vertical and/or horizontal Wells whose surface location is on the Lands, and whose subsurface may be, in whole or in part, on the Lands, on lands pooled therewith, or on other lands, in search for oil and gas and their liquid or gaseous constituents, together with the right to conduct operations as may be prudent or necessary, including without limitation, operations to establish, re-establish, or increase the deliverability of hydrocarbon production, and to field process, separate, dehydrate, treat, store, compress, gather, and transport the same and any non-hydrocarbon substances produced in association therewith.
4. **THE FACILITIES.**
  - a. The term "Facilities", as used in the Agreement, means, well pads, access roads, waterlines, production equipment and flowlines, tanks, fences, power lines, pumps, valves, launchers, meters, materials and any other structures, improvements, fixtures or equipment necessary or convenient for the drilling, completion, production, operation and maintenance of any Wells drilled with a surface location on the Lands.
  - b. The area of the Lands to be cleared, altered, used and occupied by SWN pursuant to the Agreement shall be within the approximate limits of disturbance of the Facilities (the "LOD") depicted on Exhibit "A", attached hereto and made a part hereof.

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- c. Under the Agreement, SWN shall have the right, at any time, to maintain, repair, remove, replace, and/or change the size of any Facilities or any portions thereof within the LOD as depicted on Exhibit "A" without obligation to pay Surface Owner or any third party additional damages.
- d. Under the Agreement, SWN, in its sole discretion, may install a security fence around the well pad perimeter and/or Facilities.
- e. Under the Agreement, SWN shall have the right to mow, cut, and remove all saplings, tree limbs, weeds, undergrowth, brush, and/or other obstructions within or encroaching on the LOD which, in the sole discretion of SWN, may injure, endanger, or interfere with the use of the Facilities or the right of SWN's use and enjoyment.
5. **INGRESS AND EGRESS.** Under the Agreement, SWN shall have all the rights and benefits necessary or convenient for the full enjoyment or use of the LOD and SWN's Facilities thereon for their contemplated use, including, but not limited to, the free right of ingress and egress, over, across, and through the Lands to and from the LOD and the Facilities and, as necessary, any and all subsurface usage thereunder.
6. Under the Agreement, Surface Owner further granted unto SWN, the right of subsurface easement to drill, complete, equip, produce and operate one or more wellbores through the subsurface of the Lands, including without limitation, the right to repair, maintain, re-drill, deepen, plug back, recomplete, rework, recondition, clean out, sidetrack, remove, plug and abandon and inject gas or other substances into such wellbore(s), and to conduct other operations as may be prudent or necessary on or with respect thereto, including, without limitation, any and all operations deemed by SWN to be necessary or desirable to establish, re-establish, or increase the deliverability of hydrocarbon production therefrom.
7. Under the Agreement, Surface Owner further granted unto SWN, the right to drill one or more Deep Wells (as that term is defined in Section 22C-9-2 of the West Virginia Code) for the production of oil and/or gas from the Lands. Surface Owner further agreed that the Agreement satisfied all requirements of Operator under 22C, Article 9-7 (b) (4) of the West Virginia Code.
8. The Agreement shall run with the land and shall bind Surface Owner and SWN and their respective successors, personal representatives, heirs and assigns. The easements granted herein are appurtenant to the Wells and the land to which the production of hydrocarbons from such Wells are attributable (the "Appurtenant Lands") and run with the Wells and such lands.
9. The Agreement shall remain in full force and effect during the period commencing on the Effective Date and expiring upon the expiration of all oil and gas leases of SWN covering the Appurtenant Lands; provided that SWN shall have the right at any time to remove its fixtures, equipment and materials, including well casing, from the Lands and to perform any required restoration thereof within a reasonable time after the expiration of such term.
10. This Memorandum may be executed in one or more counterparts, each of which, when executed and delivered, shall be an original, but all of which shall together constitute one and the same instrument. For purposes of the foregoing, facsimile signatures or signatures transmitted by email or .pdf shall have the same force and effect as original signatures.
11. For realty transfer tax purposes, the value of the property rights herein conveyed is Fifteen Thousand and 00/100 Dollars (\$15,000.00).

**SURFACE OWNERS:**

Daniel F. Durig

By: Daniel F. Durig

Rhonda K. Durig

By: Rhonda K. Durig

**SWN:**

Stephen M. Guidry

By: Stephen M. Guidry

Its: Vice President - Land

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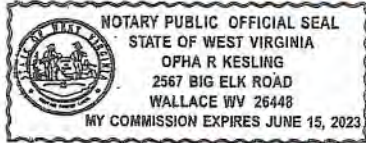
ACKNOWLEDGEMENTS

STATE OF WEST VIRGINIA §  
§ SS:  
COUNTY OF WETZEL §

On this 300 Day of MAY, 2017, before me, the undersigned, a Notary Public in and for said state, personally appeared Daniel F. Durig, who personally known to me (or satisfactorily proven), executed the foregoing Instrument for the purposes therein contained by signing and acknowledged to me that they executed the same as their free and voluntary act and deed, for the uses and purposes therein set forth.

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

My Commission Expires on: JUNE 15, 2023



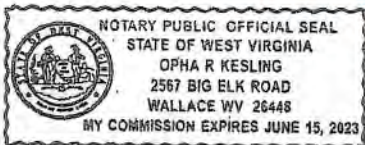
Opha R. Kesling  
Notary Public

STATE OF WEST VIRGINIA §  
§ SS:  
COUNTY OF WETZEL §

On this 300 Day of MAY, 2017, before me, the undersigned, a Notary Public in and for said state, personally appeared Rhonda K. Durig, who personally known to me (or satisfactorily proven), executed the foregoing Instrument for the purposes therein contained by signing and acknowledged to me that they executed the same as their free and voluntary act and deed, for the uses and purposes therein set forth.

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

My Commission Expires on: JUNE 15, 2023



Opha R. Kesling  
Notary Public

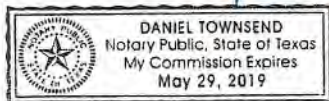
CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS §  
§ SS:  
COUNTY OF HARRIS §

On this 25 Day of May, 2017, before me, the undersigned officer, personally appeared Stephen M. Guidry, who acknowledged himself to be the Vice-President - Land of SWN Production Company, LLC, and that he as such Vice President - Land, being authorized to do so, executed the foregoing Instrument for the purposes therein contained by signing the name of the corporation by himself as Vice President - Land.

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

My Commission Expires on: May 29, 2019



[Signature]  
Notary Public

THIS AGREEMENT PREPARED BY SWN PRODUCTION COMPANY, LLC

Return to:  
SWN Production Company, LLC  
ATTN: Land Department  
179 Innovation Drive  
Jane Lew, WV 26378

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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 3, 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: Daniel Durig UP WTZ 3H in Wetzel County, West Virginia, Drilling under Greenfield Rudge Road.

Dear Ms. Adkins:

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

Thank you.

Sincerely,

A handwritten signature in black ink that reads "Carla M. Francis".

Carla M. Francis  
Staff Landman  
SWN Production Company, LLC

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A red logo consisting of the letters "R" and "A" stacked vertically, with a red arrow pointing from the "R" to the "A", and a red plus sign to the right of the "A".

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

WW-6AC  
(1/12)

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

Date of Notice Certification: 9/26/19

API No. 47- 009 - \_\_\_\_\_  
Operator's Well No. Daniel Durig UP WTZ 3H  
Well Pad Name: Daniel Durig WTZ Pad

**Notice has been given:**

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

State:	<u>West Virginia</u>	UTM NAD 83 Easting:	<u>530,920.493</u>
County:	<u>103-Wetzel</u>	Northing:	<u>4,396,396.718</u>
District:	<u>Center</u>	Public Road Access:	<u>Macedonia Ridge Road</u>
Quadrangle:	<u>Wileyville</u>	Generally used farm name:	<u>Daniel Durig</u>
Watershed:	<u>Laurel Run</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 type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" 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><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p>RECEIVED Office of Oil and Gas OCT - 3 2019</p> <p><input type="checkbox"/> RECEIVED Department of Environmental Protection</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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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.



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 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 3<sup>rd</sup> day of Sept, 2019.  
Jessica L. VanGilder Notary Public  
My Commission Expires 7-20-20

**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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WW-6A  
(9-13)

API NO. 47- 009  
OPERATOR WELL NO. Daniel Durig UP WTZ 3H  
Well Pad Name: Daniel Durig WTZ Pad

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: 9/26/19 Date Permit Application Filed: 9/26/19

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: Daniel Durig & Arthur and Shirley Durig L/E  
 Address: 3116 Macedonia Ridge Road  
New Martinsville, WV 26155  
 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: Consolidation Coal Company  
 Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317  
 COAL OPERATOR  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

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

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

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\*Please attach additional forms if necessary

4 / 10 3 0 3 3 3 4

**Daniel Durig WZ Pad - Water Purveyors w/in 1500'**

**Sources**

**Landowner**

**Address**

Daniel Durig

3116 Macedonia Ridge Road Cameron WV 26033 2 springs

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Environmental Protection

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WW-6A  
(8-13)

API NO. 47- 009 -  
OPERATOR WELL NO. Daniel Durig UP WTZ 3H  
Well Pad Name: Daniel Durig WTZ Pad

**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).

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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

WV Department of  
Environmental Protection

WW-6A  
(8-13)

API NO. 47- 009 -  
OPERATOR WELL NO. Daniel Durig UP Wtz 3H  
Well Pad Name: Daniel Durig Wtz Pad

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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Office of Oil and Gas

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WV Department of  
Environmental Protection

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

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

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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WV Department of  
Environmental Protection

WW-6A  
(8-13)

API NO. 47- 009 -  
OPERATOR WELL NO. Daniel Durig UP Wtz 3H  
Well Pad Name: Daniel Durig Wtz Pad

**Notice is hereby given by:**

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

*Brittany Woody*

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

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 3<sup>rd</sup> day of Sept 2019.  
Jessica L. Vangilder Notary Public  
My Commission Expires 7-20-20

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OCT - 3 2019

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:** 09/03/2019 **Date Permit Application Filed:** 9/10/19

**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: Daniel Durig  
Address: 3116 Macedonia Ridge Rd.  
New Martinsville, WV 26155

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: West Virginia UTM NAD 83 Easting: 530,920.493  
County: Wetzel Northing: 4,396,396.718  
District: Center Public Road Access: Macedonia Ridge Rd.  
Quadrangle: Wileyville, WV Generally used farm name: Daniel Durig UP WTZ  
Watershed: Laurel Run - (HUC-10 Fish 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 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: 832-540-1136  
Email: Steve\_Teel@SWN.com  
Facsimile: 304-884-1691

Authorized Representative: Steve Teel  
Address: 1300 Fort Pierpont Dr., Suite 201  
Morgantown, WV 26508  
Telephone: 832-540-1136  
Email: Steve\_Teel@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).



**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:** 09/03/2019 **Date Permit Application Filed:** 9/3/2019

**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: Daniel Durig  
Address: 3118 Macedonia Ridge Rd.  
New Martinsville, WV 26155

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>530,920.493</u>
County:	<u>Wetzel</u>		Northing:	<u>4,396,396.718</u>
District:	<u>Center</u>	Public Road Access:	<u>Macedonia Ridge Rd.</u>	
Quadrangle:	<u>Wileyville, WV</u>	Generally used farm name:	<u>Daniel Durig UP WTZ</u>	
Watershed:	<u>Laurel Run - (HUC-10 Fish 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: 832-540-1136  
Email: Steve\_Teel@SWN.com

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

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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 Daniel Durig Pad, Wetzel County  
Daniel Durig UP WTZ 3H Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2008-0012 which has been issued to Southwestern Energy for access to the State Road for a well site located off Wetzel County Route 6 SLS.

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.

Very Truly Yours,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

4710303334

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

# SWN PRODUCTION COMPANY, LLC DURIG WELL PAD ENLARGEMENT PROJECT

EROSION AND SEDIMENTATION CONTROL PLANS  
CENTER DISTRICT, WETZEL COUNTY, WEST VIRGINIA

MAY 2017



SITE LOCATION MAP

SCALE: 1"=2000'  
SCALE IN FEET  
0 2000 4000

**WVDEP OOG  
ACCEPTED AS-BUILT**  
*WJL* 6/30/2017

- NOTES:**
- CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY EXPRESS ALL WORK ASSOCIATED WITH THE PROJECT.
  - WV ONECALL WEB TICKET SERIAL NUMBER 16102336392, DATED 11-18-2016.

Engineer's Estimate of Quantities		
Erosion and Sediment Control Items		
Description	Estimated Quantity	Unit
18" Silt Fence	140	LF
30" Silt Fence	110	LF
Super Silt Fence	150	LF
12" Composite Filter Sock	320	LF
18" Composite Filter Sock	360	LF
24" Composite Filter Sock	1,060	LF
30" Composite Filter Sock	180	LF
Composite Filter Sock Sediment Trap	5	EA
Slope Stabilization	7,360	SV
Rock Construction Entrance	1	EA
Riprap Apron	5	EA
Riprap Apron B-3 Aggregate	1.5	TN
Class 4 Geotextile (Apron Underlayment)	32	SV
Additional Items		
Description	Estimated Quantity	Unit
Site Restoration Area	0.41	Acres
Inlet Protection	4	EA
Storm Manholes	2	EA
Concrete Pipe Anchors	5	EA
Type III Endwalls	4	EA
Pad Inlet	4	EA
Geotextile Filter Bag	1	EA
WVDOH Guide Rail	265	LF
Concrete Washout Facility	1	EA
NAG-525M Channel Lining	607	SV
Proposed Subsurface Drain	516	LF
Proposed Subsurface Drain Outlet	55	LF
Well Pad Promoter Berm	2	EA
Well Pad Promoter Berm	687	LF
10-Foot (Min.) Wide Bench	491	LF
5-Foot (Min.) Wide Bench	547	LF
Fill Foundation Key	111	LF
Existing Items to be Removed		
Description	Estimated Quantity	Unit
Existing Impaired Pad/Access Road	450	SV
Existing Drainage Ditch	240	LF
Existing Storm Sewer	110	LF
Existing Riprap	36	SV
Existing Site Fence	325	LF
Existing Gas Utility Items	1	LS



SITE MAP  
SCALE: 1"=500'  
SCALE IN FEET  
0 500 1000

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C000	COVER SHEET
C001	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION PLAN
C002	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION PLAN
C003	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION PLAN
C004	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION PLAN
C005	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION DETAILS
C006	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION DETAILS
C007	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION DETAILS
C008	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION DETAILS
C009	EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION DETAILS

EXISTING WELL: DURIG WTZ 1H 47-103-02331H

LAT: 39.716814  
LON: 80.639108

EXISTING WELL: DURIG WTZ 2H 47-103-02376H

LAT: 39.716818  
LON: 80.639157

EXISTING WELL: DURIG WTZ 5H 47-103-02375H

LAT: 39.716808  
LON: 80.639058

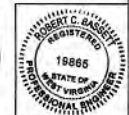
**DEVELOPER /OWNER**

SWN PRODUCTION COMPANY, LLC  
10000 ENERGY DRIVE  
SPRING, TX 77389-4954  
PHONE: 832-796-6372  
CONTACT: CARLA SUSZKOWSKI

**CIVIL ENGINEER**

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
333 BALDWIN ROAD  
PITTSBURGH, PA 15205  
PH: (412) 429-2324  
FX: (412) 429-2114  
CONTACT: ROBERT C. BASSETT, P.E.

- REFERENCE**
- USGS TOPOGRAPHIC MAP / ACCESS MAP SERVICE: [HTTP://TOPO.MAPHOUSE.COM/MAPS/TOPO\\_MAPS](http://topo.maphouse.com/maps/topo_maps), ACCESSED 11/14/2016; WHEELING, WV QUAD AND LETTERING: WY 5046
  - AERIAL IMAGERY FROM Bing (2016 MICROSOFT CORPORATION); ACCESSED NOVEMBER 2016.



REVISION RECORD	DATE	DESCRIPTION

**CEC**  
Civil & Environmental Consultants, Inc.  
333 Baldwin Road, Pittsburgh, PA 15205  
412-429-2324 / 800-366-2324  
www.cecinc.com

COVER SHEET

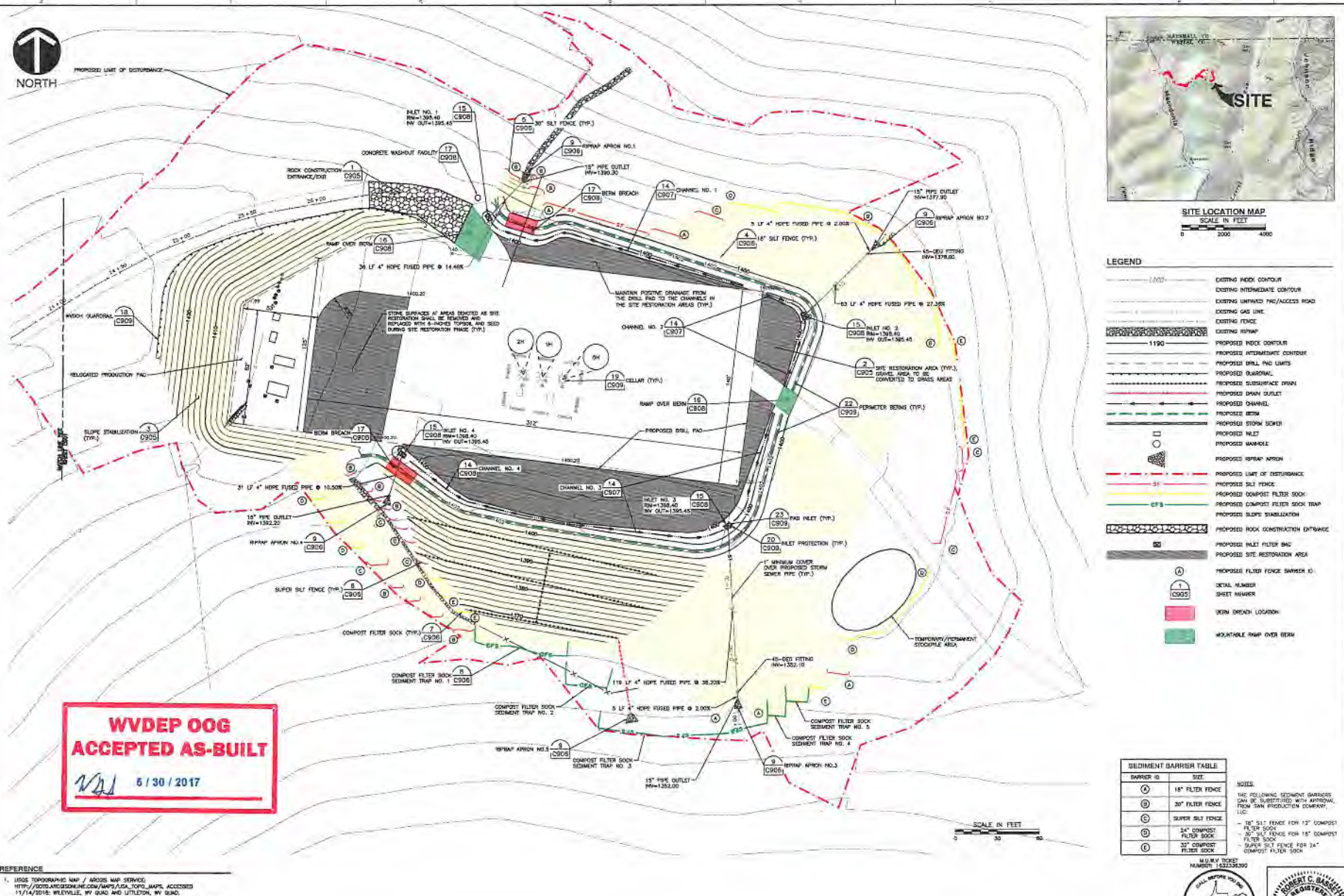
SWN PRODUCTION COMPANY, LLC  
DURIG WELL PAD ENLARGEMENT PROJECT  
CENTER DISTRICT  
WETZEL COUNTY, WEST VIRGINIA

DATE: MAY 2017  
DRAWN BY: CARLA SUSZKOWSKI  
CHECKED BY: ROBERT C. BASSETT  
PROJECT NO: 160-007  
APPRECIATED

DRAWING NO: **C000**



PROPOSED LIMIT OF DISTURBANCE



SITE LOCATION MAP  
SCALE IN FEET  
0 2000 4000

**LEGEND**

- 1190 — EXISTING INDEX CONTOUR
- — — PROPOSED INDEX CONTOUR
- — — PROPOSED SUBSURFACE DRAIN
- — — PROPOSED DRAIN OUTLET
- — — PROPOSED CHANNEL
- — — PROPOSED BERM
- — — PROPOSED STORM SOWER
- — — PROPOSED WASHOUT
- — — PROPOSED APRON APRON
- — — PROPOSED LIMIT OF DISTURBANCE
- — — PROPOSED SILT FENCE
- — — PROPOSED COMPOST FILTER SOCK
- — — PROPOSED COMPOST FILTER SOCK TRAP
- — — PROPOSED SLOPE STABILIZATION
- — — PROPOSED ROCK CONSTRUCTION ENTRANCE
- — — PROPOSED FILTER PAD
- — — PROPOSED SITE RESTORATION AREA
- — — PROPOSED FILTER FENCE BARRIER ID.
- ⊙ DETAIL NUMBER
- ⊙ SHEET NUMBER
- BERM BREACH LOCATION
- MOUNTAIN RAMP OVER BERM

**SEDIMENT BARRIER TABLE**

BARRIER ID	SIZE	NOTES
1	18" FILTER FENCE	THE FOLLOWING SEDIMENT BARRIERS CAN BE SUBSTITUTED WITH APPROVAL FROM SWN PRODUCTION COMPANY, LLC: 18" SILT FENCE FOR 12" COMPOST FILTER SOCK 24" SILT FENCE FOR 18" COMPOST FILTER SOCK 36" SILT FENCE FOR 24" COMPOST FILTER SOCK
2	24" FILTER FENCE	
3	36" FILTER FENCE	
4	SUPER SILT FENCE	
5	24" COMPOST FILTER SOCK	
6	36" COMPOST FILTER SOCK	

SCALE IN FEET  
0 30 60

WVDEP OOG  
ACCEPTED AS-BUILT

*WJL* 5/30/2017

- REFERENCE**
1. USGS TOPOGRAPHIC MAP / AERIAL MAP SERVICE  
[http://data.nrcs.usda.gov/maps/usa\\_topo\\_maps/](http://data.nrcs.usda.gov/maps/usa_topo_maps/), ACCESSED 11/14/2016; WETZELVILLE, WV QUAD AND LITTLETON, WV QUAD.
  2. EXISTING CONDITIONS AND CONTROLS ARE DERIVED FROM A COMBINATION OF AS-BUILT TOPOGRAPHIC FILE "DAMEL DRAIN SITE SOIL LIMITS 08-108" 07-18-2016.DWG" AND PROVIDED BY SWN PRODUCTION COMPANY, LLC AUGUST 24, 2016 AND 3-INCHER DRAIN SOIL DATA DATED 2003.
  3. METADAN AND STREAM DELINEATION PREPARED BY OTHERS.

**REVISION RECORD**

NO.	DATE	DESCRIPTION
1		ISSUED FOR PERMIT PREPARATION

**CEL**  
CEL Environmental Consultants, Inc.  
333 Baldwin Road • Pittsburgh, PA 15205  
412-428-2024 • 800-365-7824  
www.celinc.com

**SWN PRODUCTION COMPANY, LLC  
DURIG WELL PAD ENLARGEMENT PROJECT  
CENTER DISTRICT  
WETZEL COUNTY, WEST VIRGINIA**

**EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION PLAN**

DATE	SCALE	DESIGNED BY	CHECKED BY	DATE
MAY 2017	1" = 20'	DESIGNED BY	CHECKED BY	05-2017

PROJECT NO. 15-0017  
DRAWING NO. C900



# SWN PRODUCTION COMPANY, LLC DURIG WELL PAD ENLARGEMENT PROJECT

EROSION AND SEDIMENTATION CONTROL PLANS  
CENTER DISTRICT, WETZEL COUNTY, WEST VIRGINIA

DECEMBER 2016



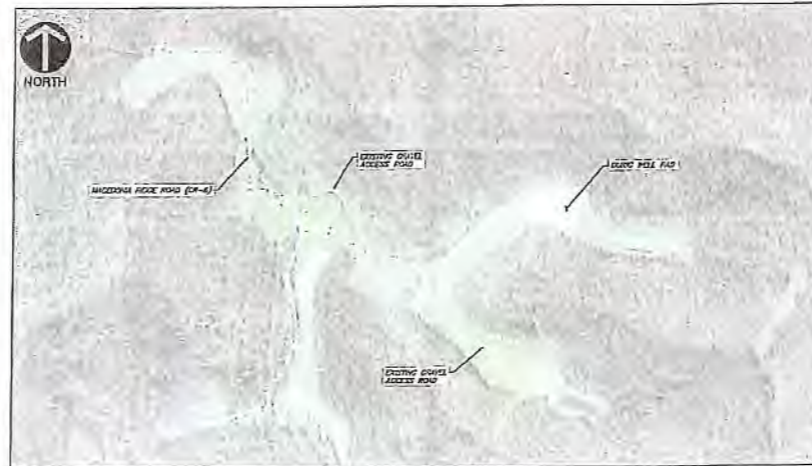
**SITE LOCATION MAP**

SCALE 1"=2000'  
SCALE IN FEET  
0 2000 4000'

**NOTES:**

- CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
- WV ONECALL RED TICKET SERIAL NUMBER 16302235360, DATED 11-18-2016.

Engineer's Estimate of Quantities		
Erosion and Sedimentation Control Items		
Description	Estimated Quantity	Unit
18" x 6" Fence	160	LF
12" x 6" Fence	310	LF
Super 833 Fence	350	LF
12" Coarsest Filter Sock	320	LF
14" Coarsest Filter Sock	350	LF
24" Coarsest Filter Sock	3,000	LF
12" Coarsest Filter Sock	120	LF
Coarsest Filter Sock Sediment Trap	5	EA
Slope Stabilization	7,300	SY
Rock Construction Entrance	1	EA
Driveway Apron	5	EA
Apron Above R-3 Aggregate	1.8	MS
Class 4 Geotextile (Apron Underlayment)	38	SY
Additional Items		
Description	Estimated Quantity	Unit
Site Restoration Area	0.43	Acres
Inlet Protection	4	EA
Storm Manholes	2	EA
Concrete Pipe Anchors	5	EA
Dyea Dye Endwalls	4	EA
Pad Inlets	4	EA
Grassville Filter Bag	1	EA
WOODS/Garde Roll	265	LF
Concrete Washout Facility	1	EA
HAAG-5730/1 Channel Drains	207	SY
Proposed Subsurface Drain	518	LF
Proposed Subsurface Drain Outlet	15	EA
Well Pad Perimeter Berm	2	EA
Well Pad Perimeter Berm	637	LF
10 Foot (10') Wide Bench	435	LF
5-Foot (5') Wide Bench	547	LF
Fill Foundation Key	311	LF
Existing Items to be Removed		
Description	Estimated Quantity	Unit
Existing Unpad and Pad/Access Road	650	SY
Existing Storm Drain	210	LF
Existing Storm Sewer	110	LF
Existing Eriopon	35	SY
Existing 6" x 6" Fence	125	LF
Existing Gas Utility Items	1	LS



**SITE MAP**

SCALE 1"=300'  
SCALE IN FEET  
0 300 1000'

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C000	COVER SHEET
C100	EXISTING CONDITIONS PLAN
C200	GEOTECHNICAL SLOPE REPAIR PLAN
C250	GEOTECHNICAL DETAILS AND CROSS-SECTIONS
C300	EROSION AND SEDIMENTATION CONTROL PLAN
C301	EROSION AND SEDIMENTATION CONTROL DETAILS
C302	EROSION AND SEDIMENTATION CONTROL DETAILS
C303	EROSION AND SEDIMENTATION CONTROL DETAILS
C304	EROSION AND SEDIMENTATION CONTROL DETAILS
C305	EROSION AND SEDIMENTATION CONTROL DETAILS

**DEVELOPER /OWNER**

SWN PRODUCTION COMPANY, LLC  
10000 ENERGY DRIVE  
SPRING, TX 77389-4954  
PHONE: 832-796-6372  
CONTACT: CARLA SUSZKOWSKI

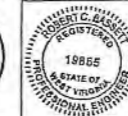
**CIVIL ENGINEER**

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
333 BALDWIN ROAD  
PITTSBURGH, PA 15205  
PH: (412) 429-2324  
FX: (412) 429-2114  
CONTACT: ROBERT C. BASSETT, P.E.

**GEOTECHNICAL ENGINEER**

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
333 BALDWIN ROAD  
PITTSBURGH, PA 15205  
PH: (412) 779-5728  
FX: (412) 429-2114  
CONTACT: MIKE SCHUMAKER, P.E.

*DMH  
8-11-19*



REVISION RECORD	
NO.	DESCRIPTION
1	ISSUED FOR PERMITS
2	ISSUED FOR PERMITS
3	ISSUED FOR PERMITS
4	ISSUED FOR PERMITS

**Civil & Environmental Consultants, Inc.**  
333 Baldwin Road • Pittsburgh, PA 15205  
412-429-2324 • 412-429-2114  
www.cemc.com

SWN PRODUCTION COMPANY, LLC  
DURIG WELL PAD ENLARGEMENT PROJECT  
CENTER DISTRICT  
WETZEL COUNTY, WEST VIRGINIA

COVER SHEET  
DATE: DECEMBER 2016  
DRAWN BY: AS  
CHECKED BY: AS  
PROJECT NO: 1582-027  
REVISED BY: MSH

**C000**

2016/11/16 10:57 AM C:\Users\jrb\Documents\SWN Production Company\Durig Well Pad Enlargement Project\DWG\1582-027-C000.dwg