



west virginia department of environmental protection

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

Jim Justice , Governor  
Austin Caperton , Cabinet Secretary  
www.dep.wv.gov

Tuesday, May 02, 2017  
WELL WORK PERMIT  
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC (A)  
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit approval for EDWARD DREMAK OHI 5H  
47-069-00219-00-00

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: EDWARD DREMAK OHI 5H  
Farm Name: DREMAK, EDWARD & JOANNE  
U.S. WELL NUMBER: 47-069-00219-00-00  
Horizontal 6A / New Drill  
Date Issued: 5/2/2017

Promoting a healthy environment.

05/05/2017

**PERMIT CONDITIONS** 4700900219

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

---

**CONDITIONS**

---

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

# PERMIT CONDITIONS 00902290

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).

January 18, 2017

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

**RE:** Proposed New Well: Edward Dremak OHI 5H

Dear Ms. Adkins

Enclosed please find the Well Work Permit Application for the above captioned well. This well is situated on the Dremak's property, in Richland District, Ohio County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1614

Thank you.

Sincerely,



Dee Southall  
Regulatory Supervisor  
Southwestern Energy Production Company, LLC  
PO Box 1300  
Jane Lew, WV 26378

RECEIVED  
Office of Oil and Gas

JAN 19 2017

WV Department of  
Environmental Protection

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

- 1) Well Operator: SWN Production Co., LLC

<u>494512924</u>	<u>069-Ohio</u>	<u>4-Richland</u>	<u>641-Tiltonsville</u>
------------------	-----------------	-------------------	-------------------------

  
Operator ID County District Quadrangle
- 2) Operator's Well Number: Edward Dremak OHI 5H Well Pad Name: Edward Dremak OHI Pad
- 3) Farm Name/Surface Owner: Edward Dremak & Joanne Dremak Public Road Access: Waddells Run Road
- 4) Elevation, current ground: 1087' Elevation, proposed post-construction: 1080'
- 5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_  
(b) If Gas Shallow  Deep \_\_\_\_\_  
Horizontal
- 6) Existing Pad: Yes or No No *E-210 1-5-17*
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Target Formation- Marcellus, Target Top TVD-5777', Target Base TVD- 5810', Anticipated Thickness- 33', Associated Pressure- 3483.6
- 8) Proposed Total Vertical Depth: 5806'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 15051' *bw*
- 11) Proposed Horizontal Leg Length: ~~15,051'~~ 8828'
- 12) Approximate Fresh Water Strata Depths: 464'
- 13) Method to Determine Fresh Water Depths: Offset Wells
- 14) Approximate Saltwater Depths: 1075'
- 15) Approximate Coal Seam Depths: 832'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of.
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes \_\_\_\_\_ No
- (a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	H-40	48#	915'	915'	sx/CTS
Coal	9 5/8"	New	J-55	36#	1747'	1747'	sx/CTS
Intermediate	7"	New	HCP-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	15,051'	15,051'	lead 861 sx Tail 2097 sx inside interm
Tubing	2 3/8"	New	HCP-110	4.7#	Approx. 5806'	Approx. 5806'	
Liners							

*E. B. 1.5.17*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	3250	Class A	1.20/50% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/50% Excess
Tubing	2 3/8"	4.778"	0.190	Approx 8193'	Approx 8193'		
Liners							

PACKERS

Kind:	10K Arrowset AS-1X			
Sizes:	5 1/2"			
Depths Set:				

RECEIVED  
Office of Oil and Gas

JAN 19 2017

WV Department of Environmental Protection  
Page 2 of 3  
05/05/2017

WW-6B  
(10/14)

API NO. 47-069 -  
OPERATOR WELL NO. Edward Dremak OHI 5H  
Well Pad Name: Edward Dremak OHI Pad

4706900219

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

Drill and stimulate any potential zones between and including the Benson to Marcellus. \*\*If we should encounter a void place basket above and below void area- balance cement to bottom of void and grout from basket to surface. Run casing not less than 20' below void nor more than 50' below void. (\*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts.)

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

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production unites, vertical separation units, water and oil storage tanks. Max press and anticipated max rate- 9000 lbs @ 80 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 23.7

22) Area to be disturbed for well pad only, less access road (acres): 8.0

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.

RECEIVED  
Office of Oil and Gas

JAN 19 2017

\*Note: Attach additional sheets as needed.

WV Department of  
Environmental Protection  
05/05/2017

Schlumberger Cement Additives

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

4706900299

RECEIVED  
Office of Oil and Gas

JAN 19 2017

WV Department of  
Environmental Protection 01/05/2017



December 28, 2016

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

**RE:** Proposed New Well Edward Dremak OHI 5H


Dear Ms. Adkins

SWN has reviewed the area of the above mentioned well and discovered no shallow wells within 500' of the lateral. This well is situated on the Dremak's property, in Richland District, Ohio County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1614

Thank you.

Sincerely,



Dee Southall  
Regulatory Supervisor  
Southwestern Energy Production Company, LLC  
PO Box 1300  
Jane Lew, WV 26378

4706900219

RECEIVED  
Office of Oil and Gas  
JAN 19 2017

WV Department of  
Environmental Protection  
The Right People doing the Right Things.  
Using Investing to Grow the State.  
Protecting the Future. Creating Value.™

**Southwestern Energy Company**

**Proposed Drilling Program**

Well: EDWARD DREMAK OHI 5 Re-entry Rig: TBD  
 Field: PANHANDLE FIELD Prospect: PANHANDLE  
 County: OHIO State: WV  
 SHL: 40.1589 Latitude -80.6516 Longitude  
 BHL: 40.1842 Latitude -80.6581 Longitude  
 KB Elev: 1,121 ft MSL KB: 26 ft AGL GL Elev: 1,087 ft MSL



*E. J. Hall*  
*1.5.17*

TOC Lead at 1,747' MD  
 TOC Tail at 5,600' MD

**Tubular Detail**

	Size (in)	Weight	Grade	From	To
Conductor	20	94.0 #		0'	100'
Surface	13.375	48.0 #	H-40	0'	915'
Intermediate	9.625	36.0 #	J-55	0'	1,747'
Production	5.5	20.0 #	HCP-110	0'	15,051'

**Cement Detail**

	Sacks	Class	Density
Conductor	151	A	19.3
Surface	822	A	15.6
Intermediate	622	A	15.6
Production Lead	861	A	15.6
Production Tail	2097	A	15.6

KOP at 5,312' MD

Freshwater Depth - 472' TVD  
 Coal Depth - 840' TVD  
 Top of Saltwater 1,083' TVD  
 TVD - 5,806'  
 TMD - 15,051'

47069002

RECEIVED  
 Office of Oil and Gas

JAN 13 2017

WV Department of  
 Environmental Protection

EOB at 5,806' TVD

TD at 15,051' MD

5,806' Target Center

Onondaga 5820' TVD

6,220' to 15,051'  
 12.0 - 12.5 ppg

0' to 915'  
 Air / Mist  
 915' to 1,747'  
 Air / Mist  
 1,747' to 5,312'  
 Air / Mist

Air  
 TD at 5,312'

5,312' to 6,220'  
 11.5 - 12.0 ppg

December 28, 2016

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

4706900219

**RE:** Proposed New Well Edward Dremak OHI 5H

Dear Ms. Adkins

SWN has reviewed the area of the above mentioned well and discovered no shallow wells within 500' of the lateral. This well is situated on the Dremak's property, in Richland District, Ohio County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1614

Thank you.

Sincerely,

Dee Southall  
Regulatory Supervisor  
Southwestern Energy Production Company, LLC  
PO Box 1300  
Jane Lew, WV 26378

RECEIVED  
Office of Oil and Gas  
JAN 19 2017  
WV Department of  
Environmental Protection

05/05/2017



## WVD Seeding Specification

*R<sup>+</sup> V<sup>+</sup>*  
A

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

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

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%
<p style="color: yellow;">Apply @ 100lbs per acre April 16th- Oct. 14th</p> <p style="color: yellow;">Apply @ 200lbs per acre Oct. 15th- April 15th</p>	
Organic Fertilizer @ 200lbs per Acre	Pelletized Lime @ 2 Tons per Acre

WETLANDS (delineated as jurisdictional wetlands)	
Seed Mixture: Wetland Mix	SWN Supplied
VA Wild Ryegrass	20%
Annual Ryegrass	20%
Fowl Bluegrass	20%
Cosmos 'Sensation'	10%
Redtop	5%
Golden Tickseed	5%
Maryland Senna	5%
Showy Tickseed	5%
Fox Sedge	2.5%
Soft Rush	2.5%
Woolgrass	2.5%
Swamp Verbena	2.5%
<p style="color: yellow;">Apply @ 25lbs per acre April 16th- Oct. 14th</p> <p style="color: yellow;">Apply @ 50lbs per acre Oct. 15th- April 15th</p> <p style="text-align: center; font-weight: bold;">NO FERTILIZER OR LIME INSIDE WETLAND LIMITS</p>	

4706900215

WW-9  
(4/16)

API Number 47 - 69 - \_\_\_\_\_  
Operator's Well No. Edward Dremak OHI 5H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Company, LLC OP Code 494512924

Watershed (HUC 10) Upper Ohio Wheeling Quadrangle Tiltonsville

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: closed loop system in place at this time- cuttings will be taken to a permitted landfill

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- Reuse (at API Number \_\_\_\_\_ at next anticipated well, API # will be included with the WR-34/DDMR &/or permit addendum \_\_\_\_\_ )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain flow back fluids will be put in steel tanks and reused or taken to a permitted disposal facility)

Will closed loop system be used? If so, describe: yes

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

-If oil based, what type? Synthetic, petroleum, etc. synthetic oil base

Additives to be used in drilling medium? see attached sheets

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? meadow SWF-1032, SS grading SWF-4902, Northwestern SWF-1025, Short Creek 1034/WV0109517/CID28726, Carbon Limestone 28726-CID28726

Arden Landfill 10072, American U2-12954, Country wide 38390/CID38390, Pine Grove 13688

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 [Signature]

Company Official (Typed Name) Dee Southall

Company Official Title Regulatory Supervisor

Subscribed and sworn before me this 4<sup>th</sup> day of January, 2017

Brittany R Woody  
My commission expires 11/27/2017



**SWN Production Company, LLC**

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

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

Fertilizer type 10-20-20 \_\_\_\_\_

Fertilizer amount 600 \_\_\_\_\_ lbs/acre

Mulch Hay/Straw 2.5 \_\_\_\_\_ Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type \_\_\_\_\_ lbs/acre

Seed Type \_\_\_\_\_ lbs/acre

**\*\*See Attachment**

**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] 1.5.17

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

4706900279

Title: oil and gas inspector

Date: 1.5.17

Field Reviewed? (  ) Yes (  ) No

RECEIVED  
Office of Oil and Gas

JAN 18 2017  
WV Department of  
Environmental Protection

# MARCELLUS 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: Edward Dremak OHI 5H**  
**Tiltonsville QUAD**  
**Richland DISTRICT**  
**Ohio COUNTY, WEST VIRGINIA**

Submitted by:

Dee Southall

Date: 12/28/2016

Title: Regulatory Supervisor

SWN Production Co., LLC

Approved by:

Title: Oil & Gas Inspector

Date: 1-5-17

Approved by:

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

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

SWN PRODUCTION COMPANY, LLC

4706900219

05/05/2017

SHL Latitude: 40°10'00" 7,404'

BHL Latitude: 40°12'30" 9,232'

# RETTEW

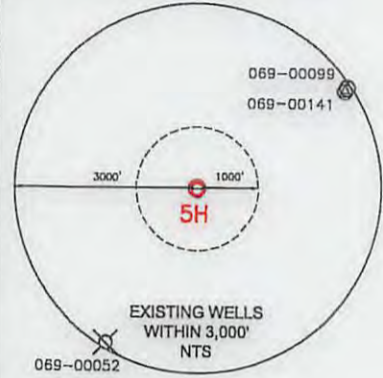
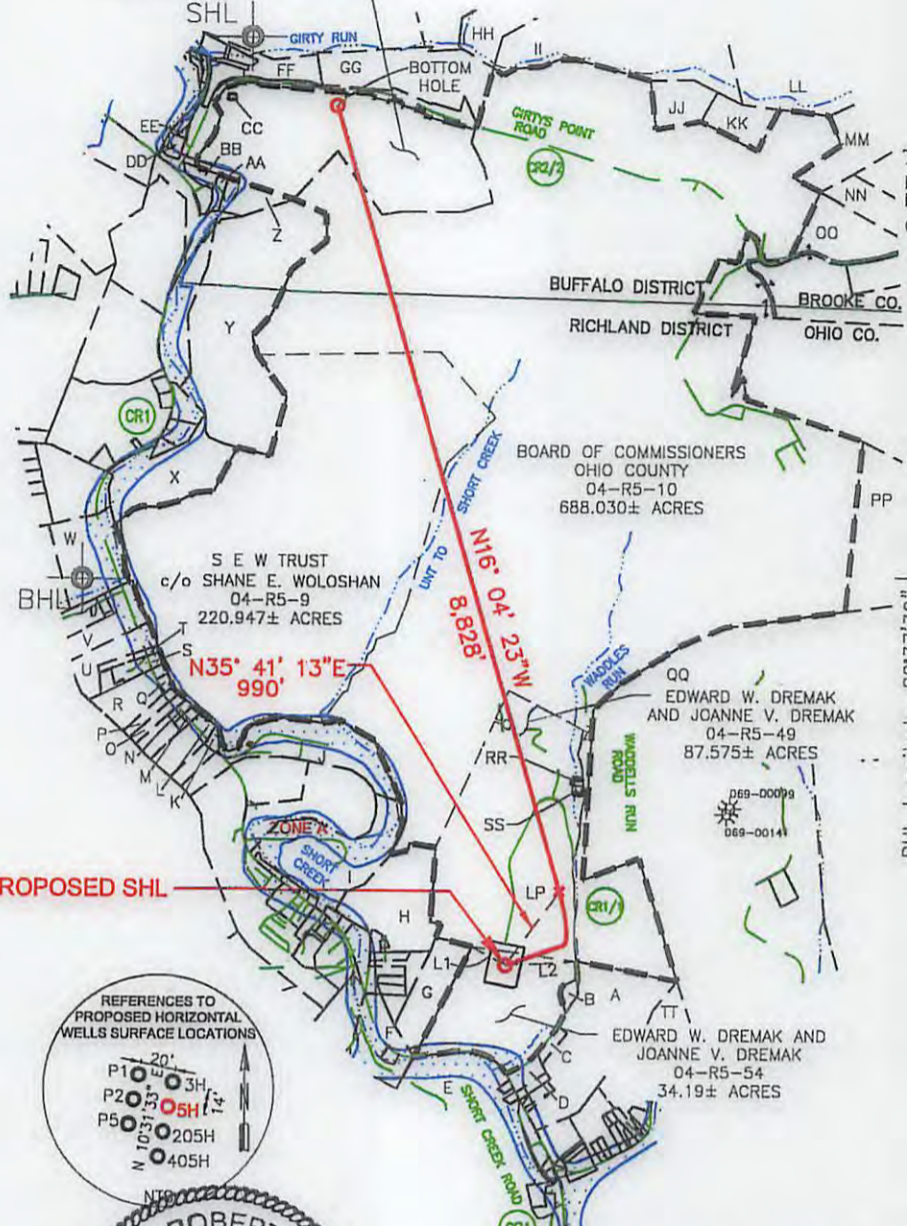
RETTEW Associates, Inc.  
27 Travata Street, Suite 101  
Bridgeport, WV 26330  
Phone (800) 738-8395  
Email: rettew@rettew.com  
Website: www.rettew.com

<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,445,432.605 EASTING: 529,678.823
<b>LANDING POINT LOCATION (LPL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,445,677.795 EASTING: 529,854.925
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,448,263.327 EASTING: 529,109.965

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

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 81°06'12" W	415.26'	SHL TO LANDMARK	
L2	N 86°47'32" E	773.23'	SHL TO LANDMARK	

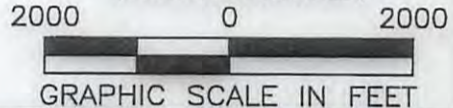
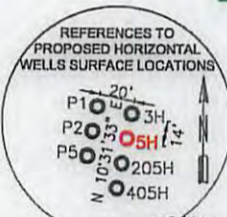
HENRY W. ZEIDLER, JUDITH K. ZEIDLER  
& MARGARET ZEIDLER BURGGRAF  
03-B46-15  
66.01± ACRES



### NOTES ON SURVEY

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

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



P.S. 2241



(+) 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)

COMPANY: **SWN** Production Company, LLC

EDWARD DREMAK OHI  
OPERATOR'S WELL #: 5H  
API WELL #: 47 STATE 69 COUNTY 00219 PERMIT

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

WATERSHED: UPPER OHIO WHEELING ELEVATION: 1,087± PROPOSED

DISTRICT: RICHLAND COUNTY: OHIO QUADRANGLE: TILTONVILLE, OH-WV

SURFACE OWNER: DREMAK, EDWARD W. & JOANNE V. ACREAGE: 34.19±

OIL & GAS ROYALTY OWNER: DREMAK, EDWARD W. & JOANNE V. ACREAGE: 34.19±

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: MARCELLUS ESTIMATED DEPTH: 5,806' TVD 15,051' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL  
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300  
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

<b>LEGEND:</b>	<b>REVISIONS:</b>	<b>DATE:</b> 01-12-2017
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	○ EXISTING SPRING	
⊙ EXISTING / PRODUCING WELLHEAD	⊙ EXISTING WATER WELL	
⊗ ABANDONED WELL	--- TIE LINE	
⊕ PLUGGED & ABANDONED WELL	--- LEASE BOUNDARY	
⊖ PERMITTED BUT NOT DRILLED	--- MARCELLUS DHP	
	--- ABANDONED PATH	
		<b>DRAWN BY:</b> W. MCCLEAF
		<b>SCALE:</b> 1" = 2000'
		<b>DRAWING NO:</b> 087569045
		<b>WELL LOCATION PLAT</b>





RETTEW Associates, Inc.  
27 Travato Street, Suite 101  
Bridgeport, WV 26330  
Phone (800) 738-8395  
Email: rettetw@rettetw.com  
Website: www.rettetw.com

## ADJOINING OWNERS

TRACT	SURFACE OWNERS	TAX PARCEL	ACRES
A	WINDSOR POWER COAL COMPANY	04-R8-8-1	59.13±
B	EDWARD W. & JOANN V. DREMAK	04-R5-54-1	0.69±
C	CHRISTOPHER A. WADDELL	04-R8-8-18	0.93±
D	EDWARD N. & SUSAN L. CAIN	04-R8-8-3	1.95±
E	ALLIANCE RESOURCE GP LLC	04-R8-6	169.98±
F	ALLIANCE RESOURCE GP LLC	04-R5-52	6.32±
G	ALLIANCE RESOURCE GP LLC	04-R5-53	14.25±
H	WINDSOR COAL COMPANY	04-R5-50	19.447±
I	JOHN W. METZ	04-R5-46	22.63±
J	BURNT MILLS ACRES LLC	04-R5-13	20.332±
K	JULIE A. KOEHLER	04-R5-45-4	2.838±
L	JULIE A. KOEHLER	04-R5-45-13	3.662±
M	HELEN TAYLOR	04-R5-12	0.68±
N	HELEN TAYLOR	04-R5-14	0.56±
O	HUMPHREY D. JR. & T. M. FLICK	04-R5-15	1.64±
P	DALE A. VILLIANI AND JENNIFER A. VILLIANI	04-R5-16	1.63±
Q	DALE A. VILLIANI AND JENNIFER A. VILLIANI	04-R5-17-1	0.438±
R	ROBERT N. & C. L. CONNER	04-R5-17	7.16±
S	PATRICIA ROUSH	04-R5-18	1.8707±
T	ERVAN D. TRUBIANO AND NANCY G. TRUBIANA	04-R5-19	1.01±
U	BRIAN W. SOWIZRAL AND MELINDA K. SOWIZRAL	04-R5-20-1	5.683±
V	DENNIS J. HOSKINS AND SHEINA L. HOSKINS	04-R5-20-4	4.84±
W	HAROLD COAST AND LINDA COAST	04-R5-2-9	10.94±
X	ROBERT KUBOVICZ	04-R5-8	13.91±
Y	RODNEY K. MCCONNELL AND NEDRA C. MCCONNELL	04-R2-20	58.02±
Z	RODNEY K. MCCONNELL AND NEDRA C. MCCONNELL	03-B46-14	2.75±
AA	RODNEY K. MCCONNELL AND NEDRA C. MCCONNELL	04-R2-18-2	0.946±
BB	SYLVIA A. HAWRANICK	04-R2-18-1	2.04±
CC	HAMMOND PUBLIC SERVICE DISTRICT	03-B46-16	0.12±
DD	HENRY W. ZEIDLER AND JUDITH K. ZEIDLER	03-B46-13	0.859±
EE	KENNETH D. COVER AND BARBARA J. COVER	03-B46-12	0.69±
FF	JOAN GARRETT	03-B46-17	5.04±
GG	BARRY L. GREATHOUSE AND PATRICIA A. GREATHOUSE	03-B46-18	20.52±
HH	BARRY L. GREATHOUSE AND PATRICIA A. GREATHOUSE	03-B41-32	57.28±
II	BARRY L. GREATHOUSE AND PATRICIA A. GREATHOUSE	03-B41-83	83.41±
JJ	BARRY L. GREATHOUSE AND PATRICIA A. GREATHOUSE	03-B46-19	7.14±
KK	STACY ANN GREATHOUSE AND PATRICIA ANN GREATHOUSE	03-B46-41	5.00±
LL	BARRY L. GREATHOUSE AND PATRICIA A. GREATHOUSE	03-B41-82	229.00±
MM	DANNY GENE BRITT AND VIRGINIA BRITT	03-B46-27	106.53±
NN	TRACY GILBERT	03-B46-22	10.00±
OO	BRUCE D. BONAR (3/4) WILLIAM BONAR (1/4)	03-B46-20	113.00±
PP	MARC SEAMON	04-R6-2	93.627±
QQ	BOARD OF COMMISSIONERS OF OHIO COUNTY	04-R5-55	239.50±
RR	RICHARD L. BLACK AND DEBORAH K. BLACK	04-R5-58-1	0.175±
SS	RAY W. ARCHER	04-R5-0058-0000-0000	0.19±
TT	ALLIED WASTE INC.	04-R5-0056-0000-0000	7.22±

REVISIONS:

COMPANY:

**SWN**  
Production Company, LLC

**SWN**  
Production Company™

**05/05/2017**

OPERATOR'S EDWARD DREMAK OHI

DATE: 01-12-2017

WELL #: 5H

DRAWN BY: W. MCCLEAF

LOCATION: RICHLAND/BUFFALO DISTRICTS,  
OHIO/BROOKE COUNTIES, WEST VIRGINIA

SCALE: N/A

DRAWING NO: 087569045

ADJOINING OWNERS








Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

### Legend

-  Edward Dremak\_Pad
-  Dremak\_Pad\_1\_Mile\_Buffer
-  Cemeteries
-  Churches
-  Schools

RECEIVED  
 Office of Oil and Gas  
 JAN 19 2017  
 WV Department of Environment and Natural Resources  
 Edward Dremak - 1 Mile Protection  
 Ohio County, West Virginia  
 05/05/2017

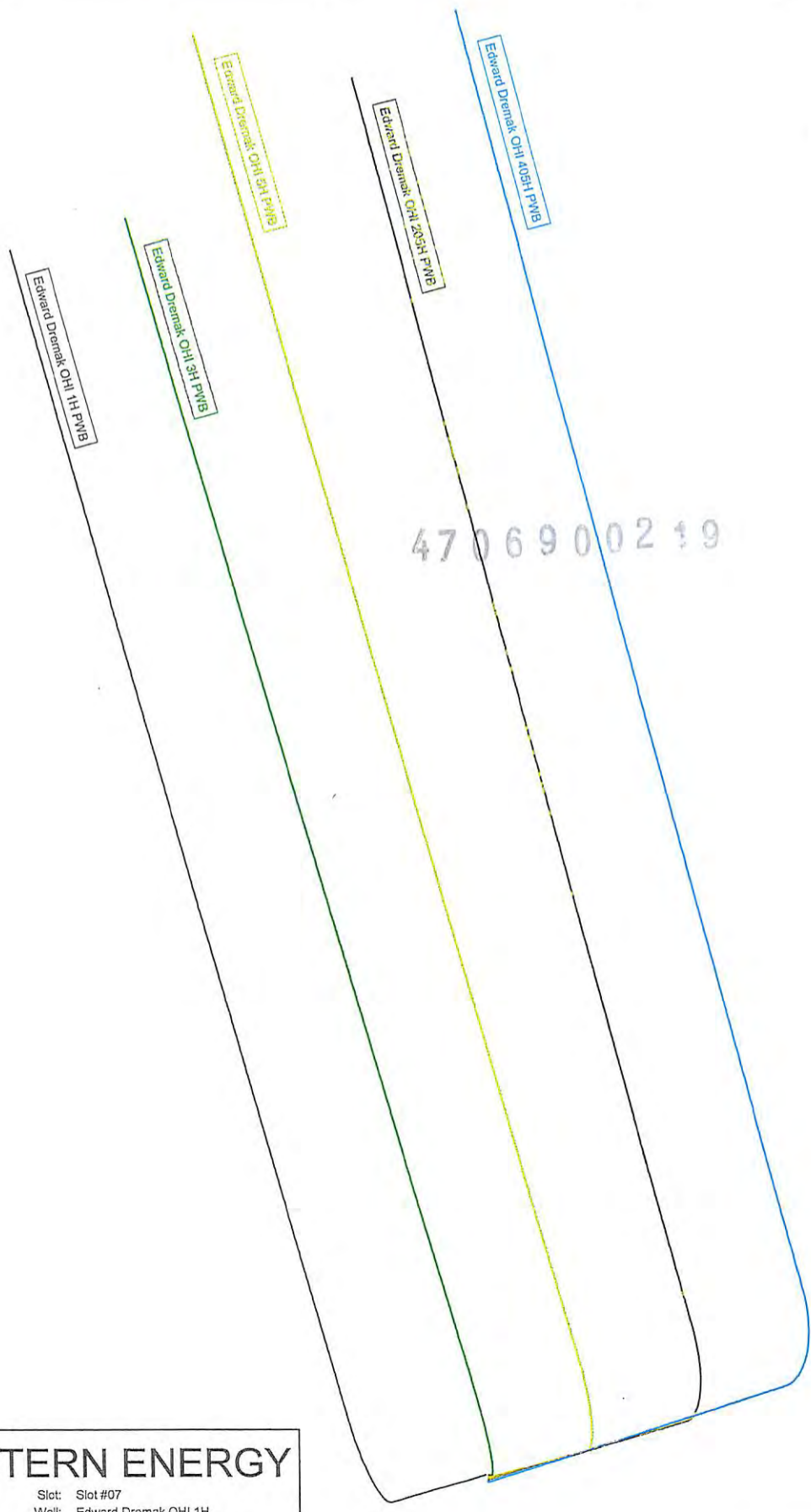


Coordinate System: NAD 1983 StatePlane West Virginia North (1157) Feet

Scale 1 inch = 1000

Easting (ft) -3000 -2000 -1000 0 1000 2000

Northing (ft) 8000 7000 6000 5000 4000 3000 2000 1000 0



05/05/2017



# SOUTHWESTERN ENERGY

Location: Ohio County, WV Slot: Slot #07  
Field: Ohio Well: Edward Dremak OHI 1H  
Facility: Edward Dremak OHI Pad Wellbore: Edward Dremak OHI 1H PWB

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
----------------------	-----------------------	-----------------------	---------	-----------

SEE EXHIBIT "A"

**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

By: John D. Startz

Its: John D. Startz, Senior Staff Landman

**RECEIVED**  
Office of Oil and Gas  
JAN 19 2017  
WV Department of Environmental Protection

4706900299

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by Chesapeake Appalachia, L.L.C., Operator  
Edward Dremak OHJ 5H  
Ohio County, West Virginia

RECEIVED  
Office of Oil and Gas

JAN 19 2017

WV Department of  
Environmental Protection

#	TMP	LEASE #	LESSOR	LESSEE	ROYALTY	BK/PG
1)	4-R5-54	729403-000	Edward W Dremak and Joanne V Dremak	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	16.75%	810/722 884/121
2)	4-R5-49	729328-000	Edward W Dremak and Joanne V Dremak	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	16.75%	810/673 884/109
3)	4-R5-10	16-01048	Ronald J Grant and Christine Grant	SWN Production Company, LLC	14%	911/617
		16-01053	Rose Mary Hermann Watson and Donald C Watson	SWN Production Company, LLC	14%	911/660
		16-01062	Nancy Hart	SWN Production Company, LLC	14%	911/647
		16-01217	Thomas Craig Herrmann	SWN Production Company, LLC	14%	911/665
		16-01088	Mary Catherine Grimes and John Grimes, Jr	SWN Production Company, LLC	14%	911/592
		16-01207	Carole L Freeland; Shari Lynn Freeland; Teresa Renee Freeland Kuhens	SWN Production Company, LLC	16%	911/552
		16-01091	Michel Joseph Walton	SWN Production Company, LLC	14%	911/597
		16-01071	Grace Jean Griffin King	SWN Production Company, LLC	16%	911/464
		16-01093	Dorothy Humphrey	SWN Production Company, LLC	14%	911/670
		16-01095	Robert T Davidson	SWN Production Company, LLC	14%	911/540
		16-01094	Beth L Christopher and Jefferey Christopher	SWN Production Company, LLC	14%	911/612
		16-01087	Thomas R Sharp and Sue Ellen Sharp	SWN Production Company, LLC	16%	911/602
		16-01047	Lindsey Ryan Frohnapfel	SWN Production Company, LLC	14%	911/675
		16-01278	Sandra F Rodolf, Trustee of the Patricia M Frohnapfel Revocable Living Trust dtd 01/14/2015	SWN Production Company, LLC	14%	911/655
		16-01916	Sandra F Rodolf, Trustee of the Patricia M Frohnapfel Revocable Living Trust dated 01/14/2015, as the sole beneficiary of the S L Frohnapfel Testamentary Living Trust	SWN Production Company, LLC	14%	911/637

4706900210

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by Chesapeake Appalachia, L.L.C., Operator  
Edward Dremak OHI 5H  
Ohio County, West Virginia

RECEIVED  
Office of Oil and Gas  
JAN 19 2017  
WV Department of  
Environmental Protection

16-01056	Makinly Baird	SWN Production Company, LLC	14%	911/642
16-01069	Michael Sean Frohnapfel and Jennifer Susan Legg Frohnapfel	SWN Production Company, LLC	14%	911/575
16-01049	William P Brogan	SWN Production Company, LLC	16%	911/534
16-01165	Audrey Mae Predmore	SWN Production Company, LLC	14%	911/564
16-01050	Jayne E Brogan and Joseph P Davis	SWN Production Company, LLC	16%	911/528
16-01928	Anna Mae Moore and Gerald Thomas Moore	SWN Production Company, LLC	14%	911/632
16-01927	Arlene F Barrett and Joseph Charles Barrett	SWN Production Company, LLC	14%	911/459
16-01926	John Arley Freeland	SWN Production Company, LLC	14%	911/476
16-01587	Betty Jane Claypoole, by Anna Moore, her attorney in Fact	SWN Production Company, LLC	14%	911/607
16-01103	Dale E Wisard and Janet Wisard	SWN Production Company, LLC	16%	911/481
16-01101	Harold E Wisard and Eldine Wisard	SWN Production Company, LLC	16%	911/470
16-01092	Wilda P Freeland, by Anna Moore her Attorney in Fact	SWN Production Company, LLC	14%	911/492
16-01100	Eleanor Freeland Tesarek and Thomas Tesarek	SWN Production Company, LLC	18%	911/516
16-01102	Robert E Peters, Sr	SWN Production Company, LLC	16%	911/558
16-02051	Robert Wisard	SWN Production Company, LLC	14%	911/487
16-01448	Julia A Freeland Price	SWN Production Company, LLC	18%	911/546
16-01449	Linda Freeland Wheeler and James Wheeler Jr	SWN Production Company, LLC	18%	911/504
16-01450	William Charles Freeland and Laura Anne Freeland; Jessica Erin Freeland	SWN Production Company, LLC	18%	911/569
16-01948	Tracy Casey and Drew Casey	SWN Production Company, LLC	14%	911/622
16-01513	Janice L Steinbrenner	SWN Production Company, LLC	18%	911/580
16-01890	Thomas A Weldon	SWN Production Company, LLC	18%	911/586
16-01889	James Miller	SWN Production Company, LLC	18%	911/510
16-01097	John Paul Freeland	SWN Production Company, LLC	18%	911/498

**EXHIBIT "A"**

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by Chesapeake Appalachia, L.L.C., Operator  
Edward Dremak OHI 5H  
Ohio County, West Virginia

**RECEIVED**  
**Office of Oil and Gas**

**JAN 19 2017**

**WV Department of  
Environmental Protection**

	16-01098	Joseph Robert Freeland and Patricia Freeland	SWN Production Company, LLC	18%	911/522	
	16-01182	Heather Ann Knight	SWN Production Company, LLC	14%	911/627	
	16-01061	Ollie E Herrmann	SWN Production Company, LLC	14%	912/1	
	16-01180	Mark Anthony Herrmann & Olga Lidia Herrmann	SWN Production Company, LLC	14%	911/792	
	16-02053	Steven S Wisard and Julie Wisard	SWN Production Company, LLC	14%	911/787	
	16-01096	Elizabeth Ellen Fluharty, by Douglas Fluharty, her Attorney In Fact	SWN Production Company, LLC	16%	912/18	
	16-01925	Cheryl L Hunter	SWN Production Company, LLC	18%	912/13	
	16-01044	Betty E Herrmann	SWN Production Company, LLC		912/6	
	16-01588	Elizabeth Ann Beck and Charles Allen Beck	SWN Production Company, LLC	14%	911/782	
	1-301763-001	The Board of Ohio County Commissioners	Chesapeake Appalachia, L.L.C.	18%	802/742	
	738070-000	Benjamin C Barlow	SWN Production Company, LLC		893/13	
	738070-000	Benjamin C Barlow	Chesapeake Appalachia, L.L.C.	14%	844/456	
	738070-003	Marie B Ridgeway Lorentz, by her Attorney in Fact Nancy Marie Keely (deceased)	SWN Production Company, LLC		885/53	
	738070-003	Marie B Ridgeway Lorentz, by her Attorney in Fact Nancy Marie Keely (deceased)	Chesapeake Appalachia, L.L.C.	18%	844/452	
	738070-002	Martha Lorentz aka Marcie Lorentz/Family Tree Corporation	SWN Production Company, LLC		885/53	
	738070-002	Martha Lorentz aka Marcie Lorentz/Family Tree Corporation	Chesapeake Appalachia, L.L.C.	14%	844/460	
	738295-002	Jack L Herrmann and Nancy V Herrmann	SWN Production Company, LLC		885/53	
	738295-002	Jack L Herrmann and Nancy V Herrmann	Chesapeake Appalachia, L.L.C.	18%	845/427	
	738295-001	Jo Ann F Wade	SWN Production Company, LLC		885/65	
	738295-001	Jo Ann F Wade	Chesapeake Appalachia, L.L.C.	18%	845/431	
	738295-001	Jo Ann F Wade	SWN Production Company, LLC		885/65	
4)	4-R5-9	1-325515-000	S E W Trust, Shane E Woloshan, Trustee	Chesapeake Appalachia, L.L.C.	18%	812/384
				SWN Production Company, LLC		898/212
5)	3-B46-15	729490-003	Henry W Zeidler	Chesapeake Appalachia, L.L.C.	18%	13/339

**EXHIBIT "A"**

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by Chesapeake Appalachia, L.L.C., Operator  
Edward Dremak OH15H  
Ohio County, West Virginia

**RECEIVED**  
**Office of Oil and Gas**

**JAN 10 2017**

**WV Department of  
Environmental Protection**

729490-002	Judith K Zeidler	SWN Production Company, LLC		30/480
		Chesapeake Appalachia, L.L.C.	18%	14/72
		SWN Production Company, LLC		30/480
729490-001	Margaret Zeidler Burggraf	Chesapeake Appalachia, L.L.C.	18%	14/510
		SWN Production Company, LLC		30/480

4706900219



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

Date of Notice Certification: 11/18/17

API No. 47- 069 -  
Operator's Well No. Edward Dremak OHI 5H  
Well Pad Name: Edward Dremak OHI 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>529678.823</u>
County:	<u>069-Ohio</u>		Northing:	<u>4445432.605</u>
District:	<u>Richland</u>	Public Road Access:	<u>Waddells Run Road</u>	
Quadrangle:	<u>Tiltonsville</u>	Generally used farm name:	<u>Edward Dremak</u>	
Watershed:	<u>Upper Ohio Wheeling</u>			

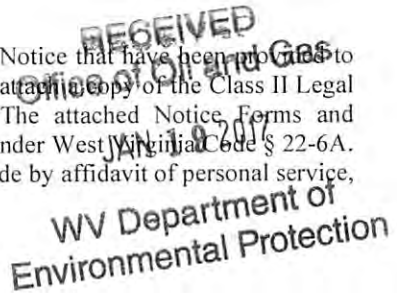
Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input 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><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4706900219

**Required Attachments:**

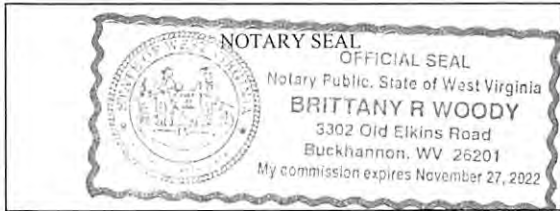
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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



**Certification of Notice is hereby given:**

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

Well Operator:	<u>SWN Production Co., LLC</u>	Address:	<u>P.O. Box 12359</u>
By:	<u>Dee Southall</u>		<u>Spring, TX 77391-4954</u>
Its:	<u>Regulatory Supervisor</u>	Facsimile:	<u>92816182780@fax.com</u>
Telephone:	<u>304-884-1614</u>	Email:	<u>Dee_Southall@swn.com</u>



Subscribed and sworn before me this 4th day of January 2017  
Brittany R Woody Notary Public  
 My Commission Expires 11/27/22

**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).

4706900219

RECEIVED  
 Office of Oil and Gas  
 JAN 10 2017  
 WV Department of  
 Environmental Protection

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

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

**Date of Notice:** \_\_\_\_\_ **Date Permit Application Filed:** \_\_\_\_\_

**Notice of:**

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

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

4706900219

- 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: Edward Dremak & Joanne Dremak  
 Address: 503 Waddells Run Road  
 Wheeling, WV 26003  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: Consolidation Coal Company %Leatherwood  
 Address: 1000 Consol Energy Drive  
 Canonsburg, PA 15317

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

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

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

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

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

\*Please attach additional forms if necessary JAN 10 2017

RECEIVED  
Office of Oil and Gas

WV Department of Environmental Protection

05/05/2017

**Edward Dremak Water Purveyors - 1500 ft**

**LANDOWNER**

David & Patricia Wolen  
David & Patricia Wolen  
Christopher Waddell  
Edward Dremak

<b>SOURCE</b>	<b>WELL DEPTH</b>	<b>Address</b>
Well	112 ft	1826 Short Creek Rd., Wheeling WV 26003 ✓
Well	78 ft	1826 Short Creek Rd., Wheeling WV 26003 ✓
Spring		116 Wadeells Run Rd., Wheeling WV 26003 ✓
Spring		503 Waddells Run Rd., Wheeling WV 26003 ✓

4706900219

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, on or before June 30, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section. 4706906219

**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

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.**

RECEIVED  
Office of Oil and Gas

JAN 10 2017

WV Department of  
Environmental Protection

05/05/2017

### **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.

RECEIVED  
Office of Oil and Gas  
JAN 19 2017  
WV Department of  
Environmental Protection

05/05/2017

WW-6A  
(8-13)

API NO. 47-069 -  
OPERATOR WELL NO. Edward Dremak OHI 5H  
Well Pad Name: Edward Dremak OHI Pad

**Notice is hereby given by:**

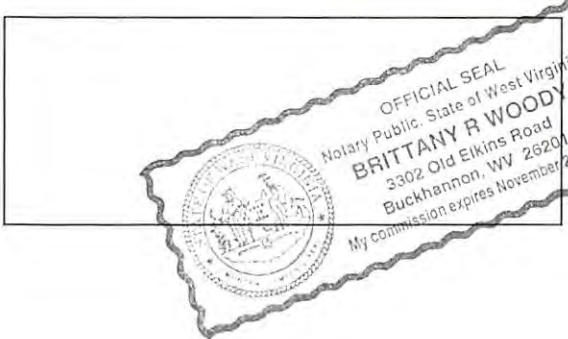
Well Operator: SWN Production Co., LLC  
Telephone: 832-796-1000  
Email: Dee\_Southall@swn.com



Address: P.O. Box 12359  
Spring, TX 77391-4954  
Facsimile: 92816182780@fax.com

**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 4th day of January 2017

Brittany R Woody Notary Public

My Commission Expires 11/27/17

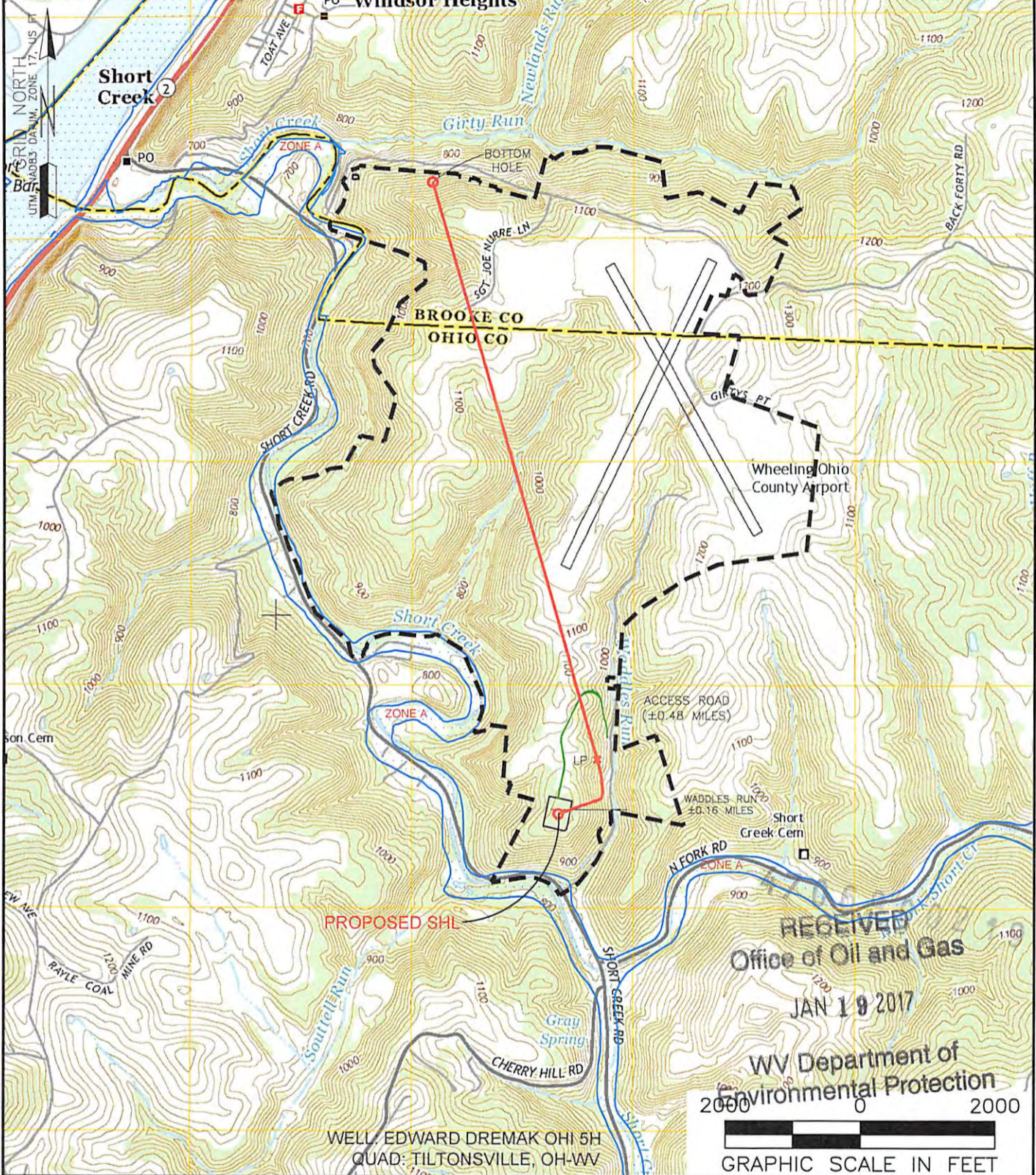
RECEIVED  
Office of Oil and Gas  
JAN 19 2017  
WV Department of  
Environmental Protection

05/05/2017



# RETTEW

RETTEW Associates, Inc.  
 27 Travato Street, Suite 101  
 Bridgeport, WV 26330  
 Phone (800) 738-8395  
 Email: rettew@rettew.com  
 Website: www.rettew.com



RECEIVED  
 Office of Oil and Gas  
 JAN 19 2017  
 WV Department of  
 Environmental Protection  
 GRAPHIC SCALE IN FEET

NAME AND DISTANCE TO THE NEAREST STREAM: WADDLES RUN IS LOCATED ±0.16 MILES EAST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO STREAM CROSSINGS		COMPANY: <b>SWN</b> Production Company, LLC		<b>SWN</b> <sup>R<sup>+</sup></sup> / <sub>A</sub> → V <sup>+</sup> 0 Production Company™	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET				OPERATOR'S EDWARD DREMAK OHI		WELL #: 5H	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF OHIO/BROOKE COUNTY, WEST VIRGINIA; MAP NUMBER 54069C0016D/54069C0020D; EFFECTIVE DATE: JULY 17, 2006				LOCATION: RICHLAND/BUFFALO DISTRICTS, OHIO/BROOKE COUNTIES, WEST VIRGINIA		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.158725° LONGITUDE: -80.651501°	
LEGEND: <ul style="list-style-type: none"> <li>○ PROPOSED SURFACE HOLE / BOTTOM HOLE</li> <li>⊗ EXISTING / PRODUCING WELLHEAD</li> <li>⊗ ABANDONED WELL</li> <li>⊗ PLUGGED &amp; ABANDONED WELL</li> <li>⊗ PERMITTED BUT NOT DRILLED</li> <li>— ACCESS ROAD</li> <li>— ACCESS ROAD TO PREV. SITE</li> <li>— HIGHWAY/INTERSTATE</li> <li>— COUNTY ROAD</li> </ul>				BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.184248° LONGITUDE: -80.658052°		DATE: 01-12-2017	
REVISIONS:				DRAWN BY: W. MCCLEAF		SCALE: 1" = 2000'	
				DRAWING NO: 087569045		TOPOGRAPHIC MAP	

05/05/2017

**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:** 01/03/2017      **Date Permit Application Filed:** 1/18/17

**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: Edward & Joanne Dremak  
Address: 503 Waddells Run Road  
Wheeling, WV 26003

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

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>529,678.823</u>
County:	<u>Ohio</u>		Northing:	<u>4,445,432.605</u>
District:	<u>Richland</u>	Public Road Access:	<u>Waddells Run</u>	
Quadrangle:	<u>Tiltsville, OH-WV</u>	Generally used farm name:	<u>Edward Dremak</u>	
Watershed:	<u>Upper Ohio Wheeling</u>			

**This Notice Shall Include:**

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

**Notice is hereby given by:**

Well Operator: SWN Production Company, LLC  
Address: PO Box 1300, 179 Innovation Drive  
Jane Lew, WV 26378  
Telephone: 304-517-6603  
Email: Michael\_Yates@swn.com  
Facsimile: 304-471-2497

Authorized Representative: Mike Yates  
Address: PO Box 1300, 179 Innovation Drive  
Jane Lew, WV 26378  
Telephone: 304-517-6603  
Email: Michael\_Yates@swn.com  
Facsimile: 304-471-2497

**RECEIVED**  
**Office of Oil and Gas**  
**JAN 10 2017**  
**WV Department of Environmental Protection**

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](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:** 01/03/2017      **Date Permit Application Filed:** 1/18/17

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

- CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

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

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

Name: <u>Edward &amp; Joanne Dremak</u>	Name: _____
Address: <u>503 Waddells Run Road</u>	Address: _____
<u>Wheeling, WV 26003</u>	

**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>529,678.823</u>
County: <u>Ohio</u>		Northing: <u>4,445,432.605</u>
District: <u>Richland</u>	Public Road Access: <u>Waddells Run</u>	
Quadrangle: <u>Tiltonsville, OH-WV</u>	Generally used farm name: <u>Edward Dremak</u>	
Watershed: <u>Upper Ohio Wheeling</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: <u>SWN Production Company, LLC</u>	Address: <u>PO Box 1300, 179 Innovation Drive</u>
Telephone: <u>304-517-6603</u>	<u>Jane Lew, WV 26378</u>
Email: <u>Michael_Yates@swn.com</u>	Facsimile: <u>304-471-2497</u>

**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).



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

Jim Justice  
Governor

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

February 15, 2017

4700900290

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 Edward Dremak Pad OHI 5H Well Site, Ohio County

Dear Mr. Martin,

The West Virginia Division of Highways has issued permit 06-2017-0100 to Southwestern Energy for access to the State Road for the well site located off of Ohio County Route 1/1 SLS.

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

Very Truly Yours,

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

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

Product Name	Product Use	Chemical Name	CAS Number
EC6734A (Champion Technologies)	Biocide	Hydrogen Peroxide	7722-84-1
		Acetic Acid	64-19-7
		Peroxyacetic Acid	79-21-0
GYPTRON T-390 (Champion Technologies)	Scale Inhibitor	Methanol	67-56-1
		Nonylphenol Ethoxylate	Proprietary
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
A264 (Schlumberger)	Corrosion Inhibitor	Methanol	67-56-1
		Aliphatic Acids	Proprietary
		Prop-2-yn-1-ol	107-19-7
		Aliphatic Alcohols, Ethoxylated #1	Proprietary
Myacide GA 25 (Schlumberger)	Biocide	Water	7732-18-5
		Glutaral	111-30-8
Scale Inhibitor B317 (Schlumberger)	Scale Inhibitor	Trisodium Ortho Phosphate	7601-54-9
		Ethane-1,2-diol	107-21-1
H215 (Schlumberger)	Hydrochloric Acid	Hydrochloric Acid	7647-01-0
J218 (Schlumberger)	Breaker	Diammonium Peroxidisulphate	7727-54-0
EB-Clean* J475 (Schlumberger)	Breaker	Diammonium Peroxidisulphate	7727-54-0
Water Gelling Agent J580 (Schlumberger)	Gel	Carbohydrate Polymer	Proprietary
Friction Reducer J609W (Schlumberger)	Friction Reducer	Ammonium Sulfate	7783-20-2
		Urea	57-13-6
Crosslinker J610 (Schlumberger)	Crosslinker	Potassium Hydroxide	1310-58-3
		Aliphatic Polyol	Proprietary
Iron Stabilizer L58 (Schlumberger)	Iron Stabilizer	Sodium Erythorbate	6381-77-7
40/70-Mesh Sand S012 (Schlumberger)	Sand	Crystalline Silica	14808-60-7
Sand S100 (Schlumberger)	Sand	Crystalline Silica	14808-60-7
EC6486A (Nalco Champion)	Scale Inhibitor	Amine Triphosphate	Proprietary
		Ethylene Glycol	Proprietary
SSA-2 (Halliburton)	Sand	Crystalline Silica	14808-60-7
FR-76 (Halliburton)	Friction Reducer	Inorganic salt	6414-19-8
		Hydrotreated light petroleum distillate	Proprietary
LCA-1 (Halliburton)		Hydrotreated light petroleum distillate	Proprietary
SP BREAKER (Halliburton)	Breaker	Sodium Persulfate	7775-27-1

RECEIVED  
Office of Oil and Gas  
10/18/2017

WV Department of Environmental Protection

05/05/2017

Product Name	Product Use	Chemical Name	CAS Number
HAI-150E (Halliburton)	Corrosion Inhibitor	Methanol	NA
		Aliphatic Acids	
		Prop-2-yn-1-ol	
		Aliphatic Alcohols, Ethoxylated #1	
Diesel Fuel (Halliburton)		Diesel Fuel	68476-34-6
Hydrochloric Acid 10-30% (Halliburton)		Hydrochloric Acid	7647-01-0
WG-36 Gelling Agent (Halliburton)	Gel	Polysaccharide	9000-30-0
BC-140C (Halliburton)	Crosslinker		NA

4706900219  
4706900219

RECEIVED  
Office of Oil and Gas

JAN 19 2017

WV Department of  
Environmental Protection

05/05/2017

**APPROVED**  
**WVDEP OOG**  
Modification  
3/17/2017

## EROSION & SEDIMENT CONTROL PLAN FOR

# EDWARD DREMAK WELL PAD RICHLAND TAX DISTRICT, OHIO COUNTY, WEST VIRGINIA

### GENERAL NOTES

1. THE OPERATOR SHALL BE RESPONSIBLE FOR THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
3. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
4. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
5. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
6. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
7. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
8. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
9. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
10. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
11. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
12. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
13. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
14. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
15. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
16. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
17. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
18. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
19. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
20. THE OPERATOR SHALL MAINTAIN THE PROTECT AREA WITH A MINIMUM OF 10 FEET FROM THE EXCAVATION TO THE PROPERTY LINE. THE PROTECT AREA SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.



30' BUFFER ZONE FROM PROPOSED WELL PAD  
LOCATION MAP

### STAKING FLAG LEGEND

- TOP OF CUT
- EDGE AT TOP OF CUT
- EDGE AT BOTTOM OF CUT
- TOP OF FILL
- EDGE AT TOP OF FILL
- EDGE AT BOTTOM OF FILL
- TOP OF EXCAVATION
- EDGE AT TOP OF EXCAVATION
- EDGE AT BOTTOM OF EXCAVATION
- TOP OF ROAD
- EDGE AT TOP OF ROAD
- EDGE AT BOTTOM OF ROAD
- TOP OF DRAINAGE
- EDGE AT TOP OF DRAINAGE
- EDGE AT BOTTOM OF DRAINAGE
- TOP OF CURB
- EDGE AT TOP OF CURB
- EDGE AT BOTTOM OF CURB
- TOP OF SIDEWALK
- EDGE AT TOP OF SIDEWALK
- EDGE AT BOTTOM OF SIDEWALK
- TOP OF UTILITY
- EDGE AT TOP OF UTILITY
- EDGE AT BOTTOM OF UTILITY

**SWW**  
Sedimentation & Water Treatment

**OPERATOR**  
Sedimentation & Water Treatment

**LIMITS OF DISTURBANCE**  
TOP: 215 ACRES  
TOTAL: 215 ACRES  
EDWARD DREMAK  
215

880 3.14.17

### SOILS CLASSIFICATION

SOIL	AREA (SQ FT)	PERCENT (%)	TYPE
U2	1,200,000	100	U2
U3	1,200,000	100	U3
U4	1,200,000	100	U4
U5	1,200,000	100	U5
U6	1,200,000	100	U6
U7	1,200,000	100	U7
U8	1,200,000	100	U8
U9	1,200,000	100	U9
U10	1,200,000	100	U10
U11	1,200,000	100	U11
U12	1,200,000	100	U12
U13	1,200,000	100	U13
U14	1,200,000	100	U14
U15	1,200,000	100	U15
U16	1,200,000	100	U16
U17	1,200,000	100	U17
U18	1,200,000	100	U18
U19	1,200,000	100	U19
U20	1,200,000	100	U20
U21	1,200,000	100	U21
U22	1,200,000	100	U22
U23	1,200,000	100	U23
U24	1,200,000	100	U24
U25	1,200,000	100	U25
U26	1,200,000	100	U26
U27	1,200,000	100	U27
U28	1,200,000	100	U28
U29	1,200,000	100	U29
U30	1,200,000	100	U30

**CUT & FILL**  
CUT: 1,200,000 SQ FT  
FILL: 1,200,000 SQ FT  
TOTAL: 2,400,000 SQ FT

### LIST OF DRAWINGS

NO.	DESCRIPTION	DATE
1	PROPOSED WELL PAD	3/14/17
2	PROPOSED WELL PAD	3/14/17
3	PROPOSED WELL PAD	3/14/17
4	PROPOSED WELL PAD	3/14/17
5	PROPOSED WELL PAD	3/14/17
6	PROPOSED WELL PAD	3/14/17
7	PROPOSED WELL PAD	3/14/17
8	PROPOSED WELL PAD	3/14/17
9	PROPOSED WELL PAD	3/14/17
10	PROPOSED WELL PAD	3/14/17
11	PROPOSED WELL PAD	3/14/17
12	PROPOSED WELL PAD	3/14/17
13	PROPOSED WELL PAD	3/14/17
14	PROPOSED WELL PAD	3/14/17
15	PROPOSED WELL PAD	3/14/17
16	PROPOSED WELL PAD	3/14/17
17	PROPOSED WELL PAD	3/14/17
18	PROPOSED WELL PAD	3/14/17
19	PROPOSED WELL PAD	3/14/17
20	PROPOSED WELL PAD	3/14/17
21	PROPOSED WELL PAD	3/14/17
22	PROPOSED WELL PAD	3/14/17
23	PROPOSED WELL PAD	3/14/17
24	PROPOSED WELL PAD	3/14/17
25	PROPOSED WELL PAD	3/14/17
26	PROPOSED WELL PAD	3/14/17
27	PROPOSED WELL PAD	3/14/17
28	PROPOSED WELL PAD	3/14/17
29	PROPOSED WELL PAD	3/14/17
30	PROPOSED WELL PAD	3/14/17

**WEST VIRGINIA 811**  
YOU DIG! Call 811 or 1-800-4-A-DIG

AT LEAST 48 HOURS BEFORE ANY WORK BEGINS IN ANY EXCAVATION, THE OPERATOR SHALL CALL 811 TO REPORT THE LOCATION OF ALL UTILITIES TO BE EXCAVATED. CALL 811 AT 1-800-4-A-DIG.

811 SERVICE IS PROVIDED BY WEST VIRGINIA 811.

### ENGINEER'S ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1	EXCAVATION	1,200,000	CU YD	1.50	1,800,000
2	FILL	1,200,000	CU YD	1.50	1,800,000
3	CONCRETE	1,200,000	CU YD	1.50	1,800,000
4	STEEL	1,200,000	CU YD	1.50	1,800,000
5	ROCK	1,200,000	CU YD	1.50	1,800,000
6	GRAVEL	1,200,000	CU YD	1.50	1,800,000
7	SAND	1,200,000	CU YD	1.50	1,800,000
8	CLAY	1,200,000	CU YD	1.50	1,800,000
9	SILT	1,200,000	CU YD	1.50	1,800,000
10	PEAT	1,200,000	CU YD	1.50	1,800,000
11	ORGANIC	1,200,000	CU YD	1.50	1,800,000
12	ICE	1,200,000	CU YD	1.50	1,800,000
13	SNOW	1,200,000	CU YD	1.50	1,800,000
14	WATER	1,200,000	CU YD	1.50	1,800,000
15	AIR	1,200,000	CU YD	1.50	1,800,000
16	SOIL	1,200,000	CU YD	1.50	1,800,000
17	ROCK	1,200,000	CU YD	1.50	1,800,000
18	GRAVEL	1,200,000	CU YD	1.50	1,800,000
19	SAND	1,200,000	CU YD	1.50	1,800,000
20	CLAY	1,200,000	CU YD	1.50	1,800,000
21	SILT	1,200,000	CU YD	1.50	1,800,000
22	PEAT	1,200,000	CU YD	1.50	1,800,000
23	ORGANIC	1,200,000	CU YD	1.50	1,800,000
24	ICE	1,200,000	CU YD	1.50	1,800,000
25	SNOW	1,200,000	CU YD	1.50	1,800,000
26	WATER	1,200,000	CU YD	1.50	1,800,000
27	AIR	1,200,000	CU YD	1.50	1,800,000
28	SOIL	1,200,000	CU YD	1.50	1,800,000
29	ROCK	1,200,000	CU YD	1.50	1,800,000
30	GRAVEL	1,200,000	CU YD	1.50	1,800,000
31	SAND	1,200,000	CU YD	1.50	1,800,000
32	CLAY	1,200,000	CU YD	1.50	1,800,000
33	SILT	1,200,000	CU YD	1.50	1,800,000
34	PEAT	1,200,000	CU YD	1.50	1,800,000
35	ORGANIC	1,200,000	CU YD	1.50	1,800,000
36	ICE	1,200,000	CU YD	1.50	1,800,000
37	SNOW	1,200,000	CU YD	1.50	1,800,000
38	WATER	1,200,000	CU YD	1.50	1,800,000
39	AIR	1,200,000	CU YD	1.50	1,800,000
40	SOIL	1,200,000	CU YD	1.50	1,800,000
41	ROCK	1,200,000	CU YD	1.50	1,800,000
42	GRAVEL	1,200,000	CU YD	1.50	1,800,000
43	SAND	1,200,000	CU YD	1.50	1,800,000
44	CLAY	1,200,000	CU YD	1.50	1,800,000
45	SILT	1,200,000	CU YD	1.50	1,800,000
46	PEAT	1,200,000	CU YD	1.50	1,800,000
47	ORGANIC	1,200,000	CU YD	1.50	1,800,000
48	ICE	1,200,000	CU YD	1.50	1,800,000
49	SNOW	1,200,000	CU YD	1.50	1,800,000
50	WATER	1,200,000	CU YD	1.50	1,800,000
51	AIR	1,200,000	CU YD	1.50	1,800,000
52	SOIL	1,200,000	CU YD	1.50	1,800,000
53	ROCK	1,200,000	CU YD	1.50	1,800,000
54	GRAVEL	1,200,000	CU YD	1.50	1,800,000
55	SAND	1,200,000	CU YD	1.50	1,800,000
56	CLAY	1,200,000	CU YD	1.50	1,800,000
57	SILT	1,200,000	CU YD	1.50	1,800,000
58	PEAT	1,200,000	CU YD	1.50	1,800,000
59	ORGANIC	1,200,000	CU YD	1.50	1,800,000
60	ICE	1,200,000	CU YD	1.50	1,800,000
61	SNOW	1,200,000	CU YD	1.50	1,800,000
62	WATER	1,200,000	CU YD	1.50	1,800,000
63	AIR	1,200,000	CU YD	1.50	1,800,000
64	SOIL	1,200,000	CU YD	1.50	1,800,000
65	ROCK	1,200,000	CU YD	1.50	1,800,000
66	GRAVEL	1,200,000	CU YD	1.50	1,800,000
67	SAND	1,200,000	CU YD	1.50	1,800,000
68	CLAY	1,200,000	CU YD	1.50	1,800,000
69	SILT	1,200,000	CU YD	1.50	1,800,000
70	PEAT	1,200,000	CU YD	1.50	1,800,000
71	ORGANIC	1,200,000	CU YD	1.50	1,800,000
72	ICE	1,200,000	CU YD	1.50	1,800,000
73	SNOW	1,200,000	CU YD	1.50	1,800,000
74	WATER	1,200,000	CU YD	1.50	1,800,000
75	AIR	1,200,000	CU YD	1.50	1,800,000
76	SOIL	1,200,000	CU YD	1.50	1,800,000
77	ROCK	1,200,000	CU YD	1.50	1,800,000
78	GRAVEL	1,200,000	CU YD	1.50	1,800,000
79	SAND	1,200,000	CU YD	1.50	1,800,000
80	CLAY	1,200,000	CU YD	1.50	1,800,000
81	SILT	1,200,000	CU YD	1.50	1,800,000
82	PEAT	1,200,000	CU YD	1.50	1,800,000
83	ORGANIC	1,200,000	CU YD	1.50	1,800,000
84	ICE	1,200,000	CU YD	1.50	1,800,000
85	SNOW	1,200,000	CU YD	1.50	1,800,000
86	WATER	1,200,000	CU YD	1.50	1,800,000
87	AIR	1,200,000	CU YD	1.50	1,800,000
88	SOIL	1,200,000	CU YD	1.50	1,800,000
89	ROCK	1,200,000	CU YD	1.50	1,800,000
90	GRAVEL	1,200,000	CU YD	1.50	1,800,000
91	SAND	1,200,000	CU YD	1.50	1,800,000
92	CLAY	1,200,000	CU YD	1.50	1,800,000
93	SILT	1,200,000	CU YD	1.50	1,800,000
94	PEAT	1,200,000	CU YD	1.50	1,800,000
95	ORGANIC	1,200,000	CU YD	1.50	1,800,000
96	ICE	1,200,000	CU YD	1.50	1,800,000
97	SNOW	1,200,000	CU YD	1.50	

# EROSION & SEDIMENT CONTROL PLAN

## FOR

# EDWARD DREMAK WELL PAD

## RICHLAND TAX DISTRICT, OHIO COUNTY, WEST VIRGINIA

RECEIVED  
Office of Oil and Gas

JAN 19 2017

WV Department of  
Environmental Protection

### GENERAL NOTES

- THE BOUNDARY AND TOPOGRAPHIC SURVEY FOR THE PROJECT AREA WERE PERFORMED BY RETIWEV ASSOCIATES IN JANUARY 2016 AND SEPTEMBER 2016.
- PROPERTY BOUNDARIES, LANDOWNER INFORMATION AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GIS DATA.
- EXISTING STRUCTURES, TREE LINES AND ROADWAYS HAVE BEEN LOCATED PER AVAILABLE ONLINE AERIAL PHOTOGRAPHY.
- THE HORIZONTAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
- THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) WHICH ORIGINATES FROM FIELD RUN TOPOGRAPHIC SURVEY.
- A WETLANDS SURVEY WAS PERFORMED BY RETIWEV ASSOCIATES IN DECEMBER 2015 AND SEPTEMBER 2016.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PRIOR TO CONSTRUCTION ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS INCLUDING ALL SAFETY REQUIREMENTS.
- SWN PRODUCTION CO., LLC RESERVES THE RIGHT TO ACCEPT OR REJECT ANY AND ALL BIDS AT ITS DISCRETION. ALL WORK WILL BE PERFORMED UPON AND SUBJECT TO THE TERMS AND CONDITIONS OF SWN PRODUCTION CO., LLC'S MASTER SERVICE AGREEMENT LOCATED BETWEEN THE COMPANIES. THIS IS A LUMP SUM BID. SHOULD CONTRACTOR UNDERSTIMATE, CONTRACTOR SHALL PROVIDE ADDITIONAL LABOR AND MATERIAL TO COMPLETE THE WORK AT NO COST TO SWN PRODUCTION CO., LLC. ALL MEASUREMENTS ARE ESTIMATES GIVEN FOR PLANNING PURPOSES. CONTRACTOR IS RESPONSIBLE TO BID ON THE BASIS OF THE SITE PLAN DRAWINGS PROVIDED.
- CONSTRUCTION START DEADLINE IS BEING PROVIDED AS THE DATE SWN PRODUCTION CO., LLC MAY LOSE ITS RIGHTS TO COMMENCE WORK UNDER THIS BID AND DRILL THE PROPOSED WELL IF THE WORK IS NOT PROVIDED FOR UNDER THIS BID IS NOT TIMELY COMMENCED. BY SUBMITTING THIS BID, CONTRACTOR IS AGREEING TO COMMENCE THE WORK PRIOR TO THE DEADLINE PROVIDED HEREIN. FAILURE TO COMMENCE THE WORK DETAILED IN THIS PACKAGE IN A TIMELY MANNER MAY CAUSE DAMAGES TO SWN PRODUCTION CO., LLC FOR WHICH CONTRACTOR SHALL BE HELD RESPONSIBLE.
- THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL PROJECT BONDING REQUIREMENTS WHEN CONSTRUCTING PUBLIC INFRASTRUCTURE. ALL PRIVATE CONSTRUCTION FOR SWN PRODUCTION CO., LLC SHALL INCLUDE A MINIMUM 1-YEAR WARRANTY OF PERFORMANCE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PREVENT ANY DAMAGE TO PRIVATE PROPERTY PROVIDED ACCESS TO ALL DRIVES DURING CONSTRUCTION. NOTIFY UTILITY COMPANIES AND VERIFY LOCATION OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION, AND PROTECT ALL UTILITIES TO REMAIN IN SERVICE.
- BARRICADE AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC SAFETY MEASURES FOR WORK ON THE PROJECT.
- THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS GOVERNING EXCAVATION. THE CONTRACTOR SHALL PROVIDE DETAILED PLANS AND SPECIFICATIONS FOR TRENCH SAFETY SYSTEMS THAT COMPLY WITH APPLICABLE LAWS GOVERNING EXCAVATION WHEN APPLICABLE TO THE PROJECT. THESE PLANS SHALL BE SEALED BY AN ENGINEER EXPERIENCED IN THE DESIGN OF TRENCH SAFETY SYSTEMS AND LOGICED BY THE STATE IN WHICH THE WORK IS OCCURRING. CONTRACTOR SHALL SUBMIT THE PLAN TO SWN PRODUCTION CO., LLC PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS FOR WORK RELATED TO EXCAVATION.
- ANY DAMAGES THAT MAY OCCUR TO PROPERTY OR EXISTING IMPROVEMENTS SHALL BE RESTORED BY THE CONTRACTOR TO AT LEAST THE SAME CONDITION THAT THE PROPERTY OR IMPROVEMENTS WERE IN PRIOR TO THE DAMAGES. IN THE EVENT OF SUCH DAMAGE, CONTRACTOR SHALL NOTIFY SWN PRODUCTION CO., LLC IMMEDIATELY PRIOR TO THE RESTORATION. THIS RESTORATION SHALL BE SUBJECT TO THE OWNER'S APPROVAL. HOWEVER, THE RESTORATION SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION TO THE CONTRACTOR.
- THE MAXIMUM ALLOWABLE SLOPE FOR EARTHEN AREAS IS 3-TO-1 HORIZONTAL-TO-VERTICAL, UNLESS SPECIFIED OTHERWISE IN A SITE-SPECIFIC GEOTECHNICAL REPORT.
- PRIOR TO FILL PLACEMENT, EXISTING SUBGRADE SHALL BE SCARPED TO A MINIMUM DEPTH OF 18" MOISTURE ADJUSTED TO RETAIN, AND RE-COMPACTED TO THE SAME DENSITY AND MOISTURE CONTENT AS THE PROPOSED FILL.
- IMPORTED SELECT FILL IS DEFINED AS UNDOUBTBLY BLENDED SANDY CLAY TO CLAYED SAND WITH A LIQUID LIMIT (LL) OF LESS THAN 35 PERCENT AND A PLASTICITY INDEX (PI) OF BETWEEN 6 AND 15. FILL MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES IN THICKNESS.
- FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698). IN CONJUNCTION WITH THE COMPACTING OPERATION, FILL MATERIAL SHALL BE BROUGHT TO OPTIMUM MOISTURE CONTENT.
- STORM DRAINAGE PIPING SHALL BE CONSTRUCTED OF A MINIMUM OF CLASS II REINFORCED CONCRETE PIPE (RCP), CORRUGATED METAL PIPE (CMP) OR HIGH-DENSITY POLYETHYLENE (HDPE) PIPE. A MINIMUM OF 1/2" OF COVER SHALL BE MAINTAINED WHEN USING CMP OR HDPE PIPE. MINIMUM CMP WALL THICKNESS SHALL BE 0.064" OR 16 GAUGE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE CLEAR OF ALL TRASH AND DEBRIS.
- PRIOR TO ANY EARTHWORK EXCAVATION OR TOPSOIL REMOVAL, ALL EROSION CONTROL MEASURES DETAILED ON THESE DRAWINGS SHALL BE PROPERLY INSTALLED. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY SWN PRODUCTION COMPANY, LLC AT ANY TIME.
- THE CONTRACTOR SHALL INSTALL STABILIZATION AND EROSION CONTROL MEASURES AT A MINIMUM OF ONCE EVERY 7 DAYS OR WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES DURING CONSTRUCTION.
- CUT FENCE AND SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETELY ESTABLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS UNTIL PROJECT COMPLETION.
- DISTURBED AREAS THAT ARE SEEDED OR SOODED SHALL BE CHECKED PERIODICALLY TO SEE THAT GRASS COVERAGE IS PROPERLY MAINTAINED UNTIL THE CONTRACTOR IS RELEASED FROM THE JOB SITE. DISTURBED AREAS SHALL BE WATERED, FERTILIZED, AND RESEDED OR RE-SOODED, IF NECESSARY.
- FOR DESIGN PURPOSES, THE PAD CROSS SECTION AND ROAD SECTION WAS ASSUMED TO BE 14". THIS IS DUE TO SETTLEMENT OF THE CRUSHER RUN INTO THE R-3 ROCK.



LOCATION MAP  
SCALE = 1"=2000'

### OPERATOR

SWN PRODUCTION CO., LLC  
PO BOX 1300  
JANE LEW, WV 26378  
(832) 798-1610



### LIMITS OF DISTURBANCE

PAD	6.0 ACRES	ACRES
ROAD	15.7 ACRES	
TOTAL	21.7 ACRES	
PER LAND OWNER		ACRES
DREMAK, EDWARD W. & JOANNE V.		23.7

*E. Bell*

11.17.16

### SOILS CLASSIFICATION

- So1: CLAYEY SILT LOAM, 3 TO 6% SLOPES
- So2: CLAYEY SILT LOAM, 8 TO 15% SLOPES
- So3: CLAYEY SILT LOAM, 15 TO 20% SLOPES
- So4: WESTMORELAND SILT LOAM, 3 TO 6% SLOPES
- So5: WESTMORELAND SILT LOAM, 15 TO 25% SLOPES
- So6: WESTMORELAND SILT LOAM, 25 TO 35% SLOPES
- So7: WESTMORELAND SILT LOAM, 35 TO 50% SLOPES

### CUT & FILL

	WELL PAD	ACCESS DRIVE	SITE
CUT (SOIL)	+ 21,590 CY	+ 50,904 CY	+ 72,494 CY
10% COMP. (SOIL)	- 2,159 CY	- 5,090 CY	- 7,249 CY
CUT (ROCK)	+ 36 CY	+ 43,600 CY	+ 42,636 CY
10% ROCK SWELL	N/A	+ 875 CY	+ 875 CY
30% ROCK SWELL	N/A	+ 8,848 CY	+ 8,850 CY
30% ROCK SWELL	N/A	+ 1,361 CY	+ 1,301 CY
FILL	- 31,923 CY	- 79,792 CY	- 110,745 CY
NET	- 12,479 CY	+ 117,726 CY	+ 5,247 CY
STONE	+ 10,078 CY	+ 2,063 CY	- 12,141 CY
TOPSOIL	+ 4,710 CY	+ 5,560 CY	- 10,270 CY

- NOTES:
- THE TOPSOIL DEPTH FOR THE ACCESS DRIVE IS 5.3". THE TOPSOIL DEPTH FOR THE PAD IS 2.6".
  - THE CUT & FILL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING GRADES AND VERIFY EARTHWORK VOLUMES, METHODS AND PROCEDURES. ANY ISSUES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.

### LIST OF DRAWINGS

- 1 OF 31 ..... COVER SHEET & GENERAL NOTES
- 2 OF 31 ..... OVERALL SITE PLAN
- 3 OF 31 ..... ENLARGED LAYOUT PLAN
- 4 OF 31 ..... ENLARGED LAYOUT PLAN
- 5 OF 31 ..... ENLARGED LAYOUT PLAN
- 6 OF 31 ..... EROSION & SEDIMENT CONTROL PLAN
- 7 OF 31 ..... EROSION & SEDIMENT CONTROL PLAN
- 8 OF 31 ..... EROSION & SEDIMENT CONTROL PLAN
- 9 OF 31 ..... WY DEP EAS PLAN
- 10 OF 31 ..... WY DEP EAS PLAN
- 11 OF 31 ..... WY DEP EAS PLAN
- 12 OF 31 ..... ACCESS DRIVE PROFILE
- 13 OF 31 ..... ACCESS DRIVE PROFILE
- 14 OF 31 ..... WELL PAD CROSS SECTIONS
- 15 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE
- 16 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE
- 17 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE
- 18 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE
- 19 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE
- 20 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE
- 21 OF 31 ..... CROSS SECTIONS - ACCESS DRIVE & PAD
- 22 OF 31 ..... RECLAMATION PLAN
- 23 OF 31 ..... RECLAMATION PLAN
- 24 OF 31 ..... RECLAMATION PLAN
- 25 OF 31 ..... RECLAMATION PLAN
- 26 OF 31 ..... EVACUATION ROUTE PLAN
- 27 OF 31 ..... EVACUATION ROUTE PLAN - USGS
- 28 OF 31 ..... NOTES & DETAILS
- 29 OF 31 ..... DETAILS
- 30 OF 31 ..... DETAILS
- 31 OF 31 ..... GEOTECHNICAL NOTES & DETAILS



CALL BEFORE YOU DIG!  
Dial 811 or 800.245.4848  
Miss Utility of West Virginia

AT LEAST 48 HOURS, BUT NOT MORE THAN 10 WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS), PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES. ALL CONTRACTORS INVOLVED IN THESE ACTIVITIES SHALL CONTACT MISS UTILITY OF WEST VIRGINIA AT 811 OR 1-800-245-4848.

DATE: 10/26/2016 TICKET #: 1830029503

### ENGINEER'S ESTIMATE OF QUANTITIES

WELL SITE PAD DATA		
DESCRIPTION	ESTIMATED QUANTITY	UNITS
WELL PAD CUT (EXCLUDES TOPSOIL)	21,590	CY
10% KEY EXCAVATION	8,225	CY
10% KEY - SUITABLE FILL	8,225	CY
WELL PAD FILL (EXCLUDES TOPSOIL)	31,653	CY
WELL PAD TOPSOIL STRIPPING	4,710	CY
WELL PAD FINISH GRADING	22,734	SY
PLACEMENT TOPSOIL	4,710	SY
FINISH GRADE CRUSHER RUN 4" (ROCK PROVIDED BY QUARRY)	6,987	TON
PLACEMENT COST	3,862	TON
FINISH GRADE CRUSHER RUN 4" (ROCK PROVIDED BY QUARRY)	2,009	TON
PLACEMENT COST	2,009	TON
ACCESS ROAD DATA		
DESCRIPTION	ESTIMATED QUANTITY	UNITS
ACCESS ROAD CUT (EXCLUDES TOPSOIL)	83,504	CY
ACCESS ROAD FILL (EXCLUDES TOPSOIL)	78,792	CY
10% KEY EXCAVATION	8,000	CY
10% KEY - SUITABLE FILL	8,000	CY
ACCESS ROAD TOPSOIL STRIPPING	5,560	CY
ACCESS ROAD FINISH GRADING	2,736	CY
PLACEMENT TOPSOIL	6,147	SY
GEOTEXTILE	2,439	TON
BASE ROCK: R35 1" (ROCK PROVIDED BY QUARRY)	1,368	TON
FINISH GRADE CRUSHER RUN 4" (ROCK PROVIDED BY QUARRY)	2,149	TON
PLACEMENT COST	2,149	TON
BASE ROCK ASHTO #67 4" (ROCK PROVIDED BY QUARRY)	1,968	TON
PLACEMENT COST - ALTERNATE	1,968	TON
FINISH GRADE CRUSHER RUN 1.5" (ROCK PROVIDED BY QUARRY)	2,450	TON
PLACEMENT COST - ALTERNATE	2,450	TON
SUPERPAVE 1.5" WEARING COURSE - PAVED AREA ONLY	355	TON
SUPERPAVE 4.5" BASE COURSE - PAVED AREA ONLY	341	TON
4" THICK AGGREGATE - PAVED AREA ONLY	120	LF
12" DIAMETER CROSS PIPE	70	LF
18" DIAMETER CROSS PIPE	35	LF
24" DIAMETER CROSS PIPE	0	LF
ROADSIDE UNDERDRAIN	0	EA
CULVERT OUTLET/ROCK APRON SUMP	61	TON
CULVERT OUTLET/ROCK APRON SUMP ROCK: R-35	78	SY
CULVERT OUTLET/ROCK APRON SUMP ROCK: GEOTEXTILE	1,691	LF
ROADSIDE CHANNEL	0	TON
ROADSIDE CHANNEL ROCK: R-35	0	TON
EROSION & SEDIMENT CONTROL ITEMS		
36" SUPER SILT FENCE	1274	LF
FILTER SOCK (12")	1322	LF
FILTER SOCK (18")	817	LF
FILTER SOCK (24")	595	LF
CHANNEL MATTING (RAG 575)	1,188	SY
CHANNEL MATTING (RAG SC190)	357	SY
CHANNEL MATTING (RAG C125)	867	SY
CHANNEL MATTING (RAG SC225)	6	EA
ROCK FILTER DAM	2	EA
LEVEL SPREADER	1	EA
ADDITIONAL ITEMS		
TRAFFIC CONTROL	1	LS
CONSTRUCTION ENTRANCE	1	LS
CONSTRUCTION FENCE	0	LF
MOBILIZATION	1	LS
TRENCH SAFETY PLAN & PROTECTION	1	LS
SEEDING/MULCHING ITEMS		
SEEDING, LIMB, & FERTILIZER	76,993	SY
PETLETERA (ONLY 2:1 SLOPE, NO MATTING)	37,037	SY
UNDERDRAIN ITEMS		
PERFORATED PLASTIC PIPE	1,430	LF
STANDARD CATCH BASIN	2	EA
ASHTO#3 STONE (ALTERNATE USE ASHTO#31 STONE)	180	TONS
P CATCH BASIN RISER	2	EA
SOLID SCHEDULE 40 PLASTIC PIPE	130	LF
STEEL GATE	2	EA
4" STEEL GATE VALVE	4	EA
1/2" RUBBER ANTI-SLEEP COLLAR	23.7	AC
CLEARING AND GRUBBING ITEMS		
CLEARING AND GRUBBING	11.8	AC
TIMBER REMOVAL		



MANAGER: PATRICK C. EDWARDS, P.E.  
DESIGN BY: CHAO BY: FGD  
DRAWN BY: CHAO BY: FGD  
CHECKED: TADAMON W. DIA COLLECTOR

CLIENT: SWN PRODUCTION CO., LLC  
PO BOX 1300  
JANE LEW, WV 26378  
Phone: (832) 798-1610

RETIWEV ASSOCIATES, INC.  
One Johnson Ferry, 8002 Steamboat Pk., Suite 200  
Fayetteville, WV 25837  
Phone: (412) 442-1728 • Fax: (412) 442-1733  
Email: retivev@retivev.com  
Website: www.retivev.com

COVER SHEET & GENERAL NOTES FOR  
**EDWARD DREMAK WELL PAD**

DATE: 11/16/2016  
SHEET NO. 1 OF 31

DR7569045