

01/04/2019



west virginia department of environmental protection

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

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

Wednesday, January 2, 2019
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit Modification Approval for BARRY GREATHOUSE A BRK 6H
47-009-00230-00-00

Lateral Extension

SWN PRODUCTION COMPANY, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over the typed name and title.

Operator's Well Number: BARRY GREATHOUSE A BRK 6H
Farm Name: BARRY GREATHOUSE
U.S. WELL NUMBER: 47-009-00230-00-00
Horizontal 6A New Drill
Date Modification Issued: January 2, 2019

Promoting a healthy environment.

01/04/2019

October 10, 2018

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

RE: Modifications: Barry Greathouse A BRK 6H, Barry Greathouse A BRK 8H, & Barry Greathouse A BRK 206H

Dear Ms. Adkins

Enclosed please find the updated 6B, WBD, Mylar, 6A1, & Road letter for the above captioned wells. We are extending the laterals. These wells are situated on the Greathouse's property in Brooke County, West Virginia.

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

Thank you.

Sincerely,

Brittany Woody

Brittany Woody
Regulatory Analyst
Southwestern Energy Production Company, LLC

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WV Department of
Environmental Protection

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

WW-6B
(04/15)

API NO. 47-09

OPERATOR WELL NO. Barry Greathouse A BRK 6H

Well Pad Name: Barry Greathouse A BRK PAD

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

1) Well Operator: SWN Production Co., LLC | 494512924 | 009-Brooke | Buffalo | Bethany
Operator ID County District Quadrangle

2) Operator's Well Number: Barry Greathouse A BRK 6H Well Pad Name: Barry Greathouse A BRK PAD

3) Farm Name/Surface Owner: Barry L. & Patricia A. Greathouse Public Road Access: Gritty Run

4) Elevation, current ground: 1136' Elevation, proposed post-construction: 1136'

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

(b) If Gas Shallow X Deep
Horizontal X

6) Existing Pad: Yes or No Yes

C-PRD 10-3-18

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Down-Dip Well to the South, LP Target Top TVD- 5892, Target Base TVD- 5933', Anticipated Thickness- 41', Associated Pressure- 3856

8) Proposed Total Vertical Depth: 5922'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17572'

11) Proposed Horizontal Leg Length: 11405.85'

12) Approximate Fresh Water Strata Depths: 275'

13) Method to Determine Fresh Water Depths: salinity profile

14) Approximate Saltwater Depths: 384' salinity profile

15) Approximate Coal Seam Depths: 292'

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16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of. OCT 11 2018

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No
WV Department of Environmental Protection

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

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WW-6B
(04/15)

API NO. 47- 09 -
OPERATOR WELL NO. Barry Greathouse A BRK 6H
Well Pad Name: Barry Greathouse A BRK PAD

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#	375'	375'	371 sx/CTS
Coal	See	Surface	Casing				
Intermediate	9 5/8"	New	J-55	36#	1617'	1617'	630 sx/CTS
Production	5 1/2"	New	HCP-110	20#	17572'	17572'	Lead 774oz tall 2798sx/100' inside int
Tubing							
Liners							

[Handwritten signature] 10-3-18

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

PACKERS

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Kind:				OCT 11 2018
Sizes:				WV Department of Environmental Protection
Depths Set:				

WW-6B
(10/14)

API NO. 47- 09 -

OPERATOR WELL NO. Barry Greathouse A BRK 6H

Well Pad Name: Barry Greathouse A BRK PAD

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): 7.8

22) Area to be disturbed for well pad only, less access road (acres): 7.0

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.

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

See Attachment ***

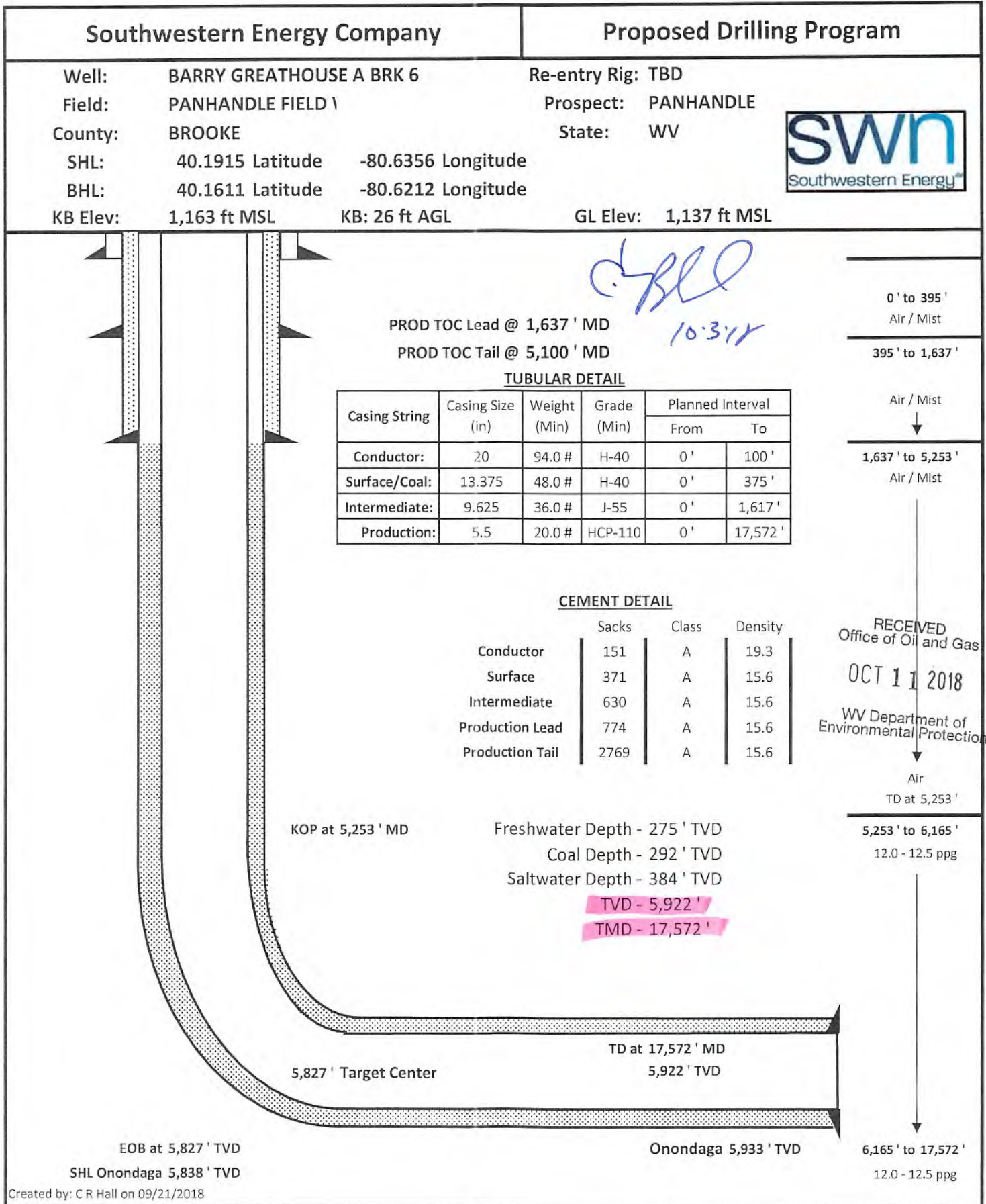
WV Department of
Environmental Protection

25) Proposed borehole conditioning procedures:

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

*Note: Attach additional sheets as needed.

01/04/2019



(2000' SCALE) SURFACE HOLE LATITUDE 40°12'30"

(2000' SCALE) BOTTOM HOLE LATITUDE 40°10'00"



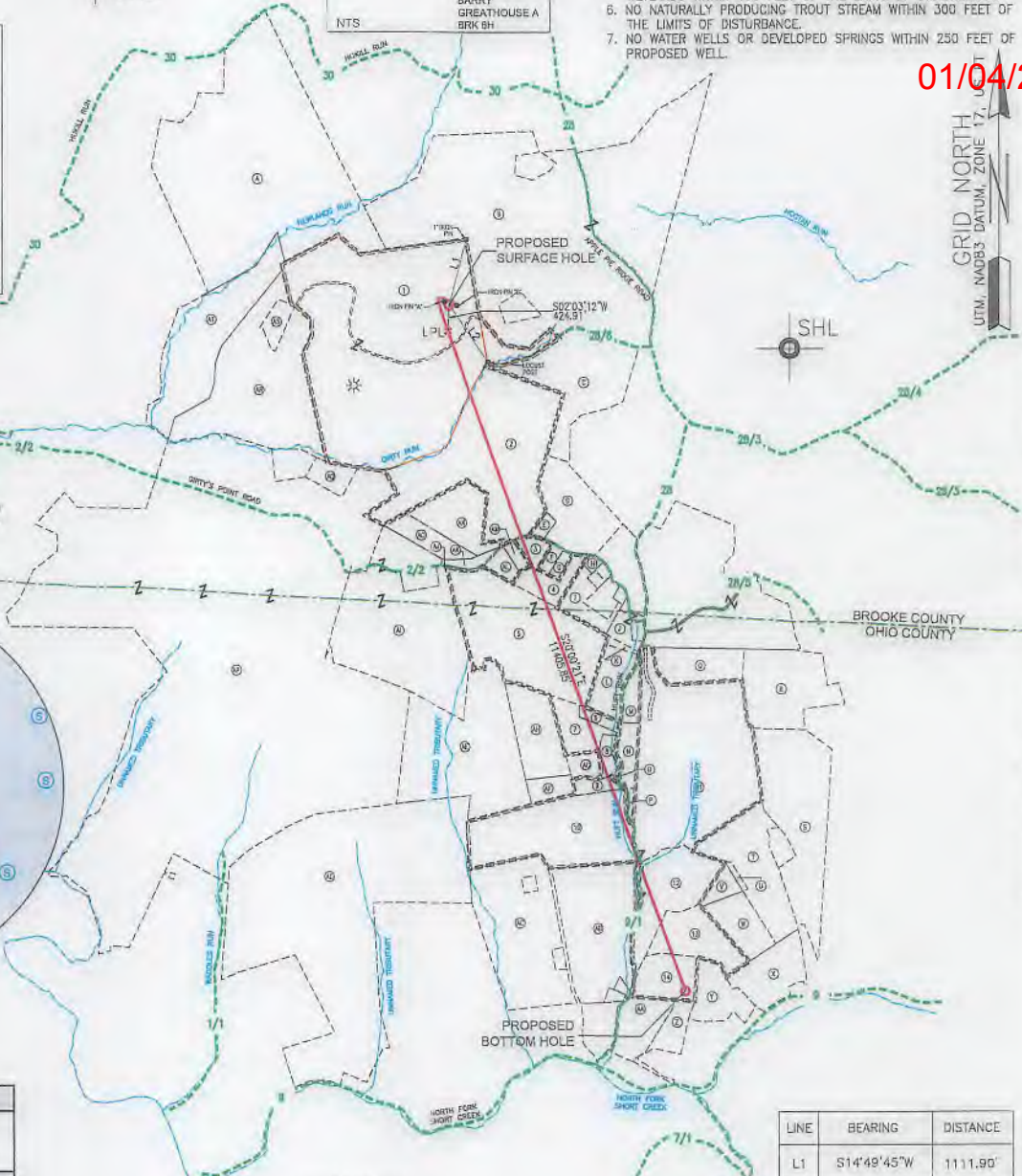
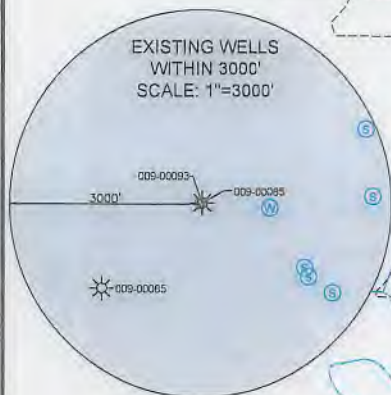
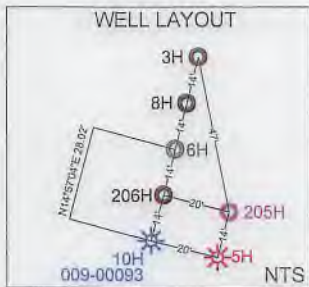
www.jhacompanies.com
68011 Vineyard Road
St. Clairsville, Ohio 43950
740-695-6100



NOTES ON SURVEY

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

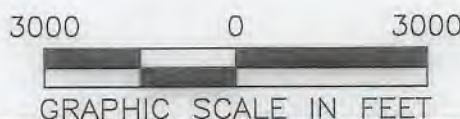
01/04/2019



(2000' SCALE) BOTTOM HOLE LONGITUDE: -80°35'00"
(2000' SCALE) SURFACE HOLE LONGITUDE: -80°37'30"

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4449079.29 EASTING: 531014.73
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4448949.85 EASTING: 531012.26
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4445704.71 EASTING: 532255.70

LINE	BEARING	DISTANCE
L1	S14°49'45"W	1111.90'
L2	N34°42'17"W	1125.65'



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. 2041



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

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SURVEY SOURCE OF ELEVATION: GRADE GPS (NAVD 83, US FT)

BARRY GREATHOUSE A BRK
OPERATOR'S WELL #: 6H
API WELL #: 47 STATE 009 COUNTY 00230 PERMIT

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

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1136.2'

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: TILTONVILLE, OH & BETHANY, WV

SURFACE OWNER: BARRY L. GREATHOUSE & PATRICIA A. GREATHOUSE ACREAGE: ±229.00

OIL & GAS ROYALTY OWNER: RAYLE COAL COMPANY ACREAGE: ±229.00

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: 5,922' TVD 17,571.8' TMD

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

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

LEGEND:	REVISIONS:	DATE: 09-28-2018
○ PROPOSED SURFACE HOLE / BOTTOM HOLE		
⊙ EXISTING / PRODUCING WELLHEAD		
LPL* LANDING POINT LOCATION		
⊕ EXISTING WATER WELL		
⊖ EXISTING SPRING		
— SURVEYED BOUNDARY		
— DRILLING UNIT		
— LEASE BOUNDARY		
— PROPOSED PATH		
		DRAWN BY: D. REED
		SCALE: 1" = 3000'
		DRAWING NO: 2017-422
		WELL LOCATION PLAT

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	BARRY L. GREATHOUSE & PATRICIA A. GREATHOUSE (S) RAYLE COAL COMPANY (R)	03-B41-0082.0000
TRACT	SURFACE OWNER	TAX PARCEL
2	DANNY GENE & VIRGINIA BRITT	03-B46-0027.0000
3	GRACE FRIEND	03-B46-0030.0000
4	TERRY L. CRUPE	03-B46-0033.0000
5	MY THREE SONS HOLDINGS, LP	03-B46-0024.0000
6	ULRICH UTT	04-R6-24.1
7	ULRICH UTT	04-R6-24.2
8	MARTHA HERCULES	04-R6-7
9	GARY & MARTHA HERCULES	04-R6-5
10	SHORT CREEK COAL COMPANY	04-R6-17.3
11	WINDSOR COAL COMPANY	04-R6-12
12	WAYNE E. SHOOK	04-R6-15
13	CHARLES B. DAVIS, III & ELIZABETH MARIE DAVIS	04-R6-14.4
14	WINDELL H. & G. GOFF	04-R6-27.1

01/04/2019

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	ROBERT J. MILLER JR. & LINDA MILLER	03-B41-0047.0000
B	JAY GLEN COLLINS	03-B41-0080.0000
C	DALE T. WOOD & MARY R. WOOD	03-B41-0084.0000
D	JAMES B. GEBHARDT & MELISSA D. GEBHARDT	03-B46-0029.0000
E	RACHEL R. BAXTER	03-B46-0028.0000
F	CRAIG ALLEN PITNER	03-B46-0031.0000
G	CHARLES P. GEBHARDT, FREIDA GEBHARDT & JAMES GEBHARDT	03-B46-0032.0000
H	RICHARD A. HARRIS	03-B46-0034.0000
I	ALFRED & DONNA L. SCHELL	03-B46-0037.0000
J	MELISSA KERNS, CHRISTINA A. KERNS, TIMOTHY E. KERNS & JEANETTE M. KERNS	03-B46-0040.0001
K	TIMOTHY E. KERNS & JEANETTE M. KERNS	04-R6-8.1
L	MELISSA ANN KERNS	04-R6-8
M	FLORENCE E. WHITE & JOHN M. WHITE	04-R6-10
N	MARTHA HERCULES	04-R6-7
O	FLORENCE E. & JOHN M. WHITE	04-R6-6
P	GARY HERCULES	04-R6-16
Q	MARK A. WADE & MARY IVA WADE-SMITH	04-R6-11
R	DALE M. SAMPSON	03-L1-2
S	DALE M. SIMPSON	04-R6-13
T	CHARLES B. DAVIS, JR.	04-R6-14
U	SUZANNE D. & CHAD D. CLUTTER	04-R6-14.6
V	SUZANNE D. & CHAD D. CLUTTER	04-R6-14.5
W	CHARLES B. DAVIS, III & ELIZABETH MARIE DAVIS	04-R6-14.3
X	CHARLES & ELIZABETH M. DAVIS	04-R6-14.2
Y	RANDALL L. CRABTREE & CYNTHIA S. KOVALSKI	04-R6-27.3
Z	JAMES J. & ANNE E. ROCHE	04-R6-28.6
AA	WINDELL & GLADYS GOFF	04-R6-24.3
AB	SHORT CREEK COAL COMPANY	04-R6-17.4
AC	SHORT CREEK COAL COMPANY	04-R6-17
AD	OHIO COUNTY BOARD OF COMMISSIONERS	04-R5-55
AE	MARC SEAMON	04-R6-2
AF	GARY & MARTHA HERCULES	04-R6-4.1
AG	GARY & MARTHA HERCULES	04-R6-6.1
AH	GARY & MARTHA HERCULES	04-R6-4
AI	BRUCE D. BONAR (3/4) & WILLIAM BONAR (1/4)	03-B46-0020.0000
AJ	TRACY GILBERT	03-B46-0023.0001
AK	BUSTER T. & BARBARA A. BLAKE	03-B46-0023.0000
AL	GARY L. & MARGIE WILLIAMS	03-B46-0025.0000
AM	REBECCA FRIEND	03-B46-0026.0000
AN	TRACY GILBERT	03-B46-0022.0000
AO	TRACY GILBERT	03-B46-0022.0001
AP	OHIO COUNTY BOARD OF COMMISSIONERS	03-B46-0025.0000
AQ	STACY ANN GREATHOUSE & PATRICIA ANN GREATHOUSE	03-B46-0041.0000
AR	BARRY L. & PATRICIA A. GREATHOUSE	03-B41-0083.0000
AS	FREDERICK C. HAYMAN, JR. & STACEY A. HAYMAN	03-B41-0083.0001
AT	BARRY L. & PATRICIA A. GREATHOUSE	03-B41-0032.0000

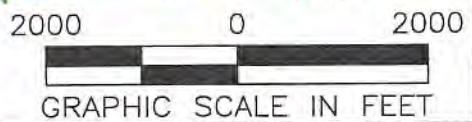
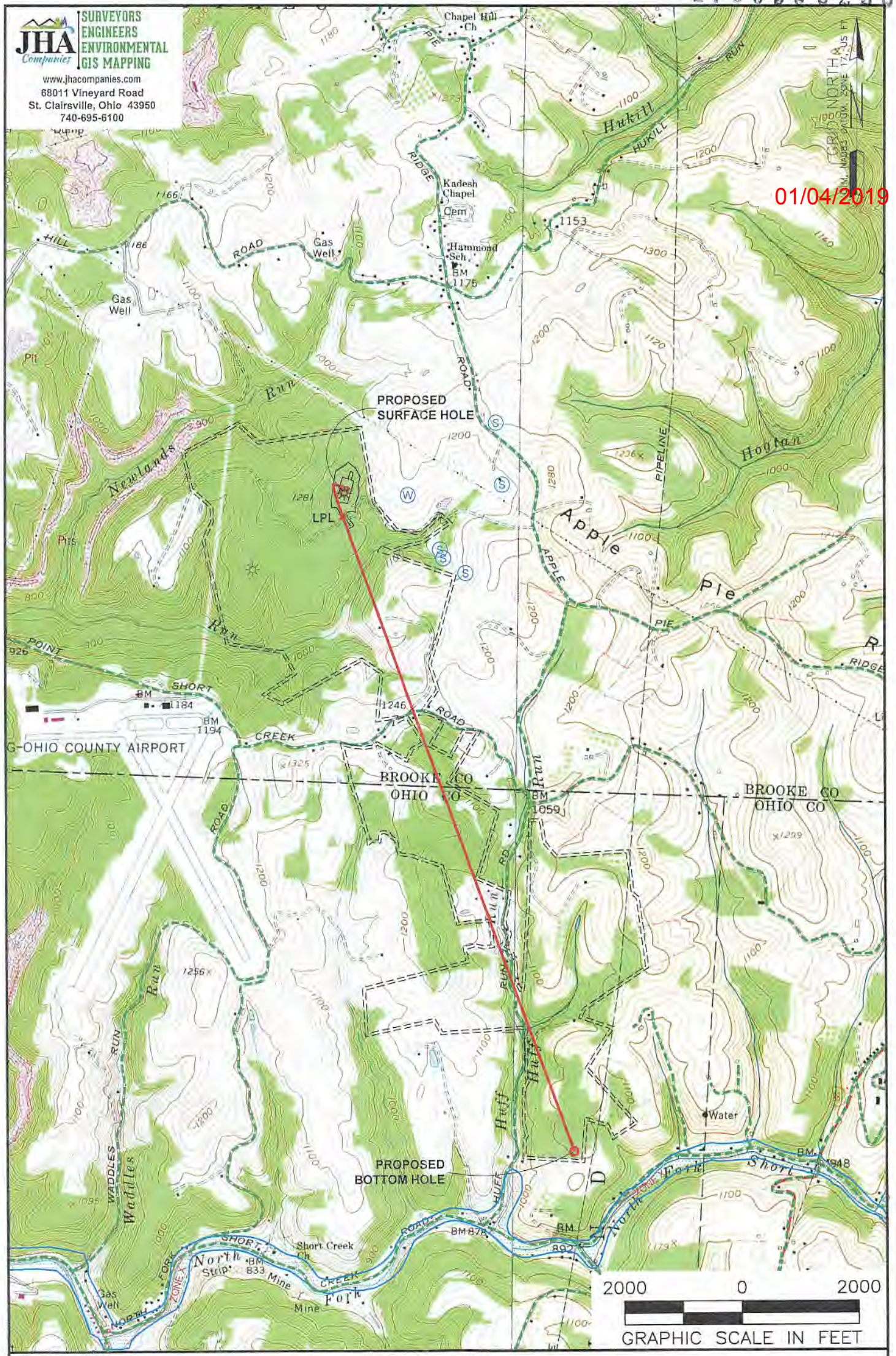
REVISIONS:	COMPANY:	 	
	OPERATOR'S	BARRY GREATHOUSE A BRK	DATE: 09-28-2018
	WELL #:	6H	DRAWN BY: D. REED
	DISTRICT:	BUFFALO	SCALE: N/A
	COUNTY:	BROOKE	DRAWING NO: 2017-422
	STATE:	WV	WELL LOCATION PLAT

PROPERTY NUMBER 2501166093
PAD ID 3001156331

47-009-00230 MID

JHA
 Companies
**SURVEYORS
 ENGINEERS
 ENVIRONMENTAL
 GIS MAPPING**
 www.jhacompanies.com
 68011 Vineyard Road
 St. Clairsville, Ohio 43950
 740-695-6100

01/04/2019



NOTES ON SURVEY

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

LEGEND:

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

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC		WELL (FARM) NAME: BARRY GREATHOUSE A BRK		WELL # 6H	SERIAL # XXXX
ADDRESS: P.O. BOX 1300 JANE LEW, WV 26378		COUNTY: BROOKE	CODE: 009	DISTRICT: BUFFALO	
SURFACE OWNER: BARRY L. GREATHOUSE & PATRICIA A. GREATHOUSE		USGS 7 1/2 QUADRANGLE MAP NAME: TILTONVILLE, OH-WV & BETHANY, WV-PA			

Barry Greathouse A
BRK 6H

Operator's Well No. _____

WW-6A1
(5/13)

**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.

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OCT 11 2018

WV Department of
Environmental Protection


Well Operator: SWN Production Co., LLC
 By:  Gary Nuckolls
 Its: Staff Landman

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by SWN Production Company, LLC., Operator
 Barry Greathouse A BRK 6H
 Brooke County, West Virginia

#	TMP	SURFACE OWNER	LESSOR	LESSEE	ROYALTY	BK/PG
1)	03-0B41-0082-0000-0000	Barry L. Greathouse and Patricia A. Greathouse	Rayle Coal Company	Chesapeake Appalachia, LLC	15.50%	10/751
				SWN Production Company, LLC		32/384
			Barry L. Greathouse and Patricia A. Greathouse	Great Lakes Energy Partners, LLC	15.50%	26/649
				Range Resources-Appalachia, LLC		20/733
				Chesapeake Appalachia, LLC		10/552
2)	03-0B46-0027-0000-0000	Danny Gene Britt and Virginia Margaret Britt	Danny Gene Britt and Virginia Margaret Britt	Great Lakes Energy Partners, LLC	12.50%	10/109
				Range Resources-Appalachia, LLC		20/733
				Chesapeake Appalachia, LLC		10/552
3)	03-0B46-0030-0000-0000	Grace Laverta Friend	Charles Frennd and Grace Friend	Chesapeake Appalachia, LLC	18.00%	20/86
				SWN Production Company, LLC		30/480
4)	03-B46-0033-0000-0000	Terry L. Crupe	Terry Lee Crupe	Chesapeake Appalachia, LLC	18.00%	11/307
				SWN Production Company, LLC		30/480
5)	03-0B46-0024-0000-0000	My Three Sons Holdings, LP	David Brandimarte	Chesapeake Appalachia, LLC	18.00%	23/516
				SWN Production Company, LLC		30/480
			Gregory Brandimarte and Susan Brandimarte	Chesapeake Appalachia, LLC	18.00%	23/511
				SWN Production Company, LLC		30/480
			Josephine Jordan	Chesapeake Appalachia, LLC	18.00%	22/166
				SWN Production Company, LLC		30/480
			Patrick Villinger and Teaina Villinger	Chesapeake Appalachia, LLC	18.00%	23/625
				SWN Production Company, LLC		30/480
			Brandt Price and Linda Price	Chesapeake Appalachia, LLC	18.00%	23/212
				SWN Production Company, LLC		30/480
6)	03-0B46-0024-0000-0000	My Three Sons Holdings, LP	Brian Mokricky and Myra Mockricky	Chesapeake Appalachia, LLC	18.00%	24/684
				SWN Production Company, LLC		30/480
7)	03-0B46-0024-0000-0000	My Three Sons Holdings, LP	Anna Wilson	Chesapeake Appalachia, LLC	18.00%	25/367
				SWN Production Company, LLC		30/480
8)	03-0B46-0024-0000-0000	My Three Sons Holdings, LP	Donna Yost	Chesapeake Appalachia, LLC	18.00%	22/161
				SWN Production Company, LLC		30/480
9)	03-0B46-0024-0000-0000	My Three Sons Holdings, LP	Marie P. Fisher and Lulu Fisher	Great Lake Energy Partners, LLC	15.50%	9/637
				Range Resources-Appalachia, LLC		20/733
				Chesapeake Appalachia, LLC		10/552

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 OCT 11 2018
 WV Department of
 Environmental Protection

4700900230

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by SWN Production Company, LLC., Operator
 Barry Greathouse A BRK 6H
 Brooke County, West Virginia

6)	04-R06-0024-0001-0000	Ulrich Utt	Ulrich Utt	SWN Production Company, LLC	30/480
				Chesapeake Appalachia, LLC	18.00% 818/485
				SWN Production Company, LLC	884/681
7)	04-R06-0024-0002-0000	Ulrich Utt	Ulrich Utt	Chesapeake Appalachia, LLC	18.00% 818/332
				SWN Production Company, LLC	884/681
8)	04-R06-0007-0000-0000	Martha Hercules	Martha Hercules	SWN Production Company, LLC	16.00% 926/87
9)	04-R06-0005-0000-0000	Gary Hercules and Martha Hercules	Gary Hercules and Martha Hercules	SWN Production Company, LLC	16.00% 926/87
10)	04-R06-0017-0003-0000	Rayle Coal Company	Rayle Coal Company	Chesapeake Appalachia, LLC	18.00% 808/334
				SWN Production Company, LLC	883/403
11)	04-R06-0012-0000-0000	Windsor Coal Company	Noble Energy, Inc.	Chesapeake Appalachia, LLC	16.00% 876/156
				SWN Production Company, LLC	916/558
12)	04-R06-0015-0000-0000	Wayne E. Shook	Wayne E. Shook	Chesapeake Appalachia, LLC	18.00% 813/570
				SWN Production Company, LLC	884/421
13)	04-R06-0014-0004-0000	Elizabeth Marie Davis	Charles B. Davis, Jr. and Madona Davis	Chesapeake Appalachia, LLC	18.00% 808/332
				SWN Production Company, LLC	883/391
			Elizabeth Marie Davis	Chesapeake Appalachia, LLC	18.00% 808/332
				SWN Production Company, LLC	883/391
14)	04-R06-0027-0001-0000	Windell H. Goff and Gladys Goff	Windell H. Goff and Gladys Goff	Chesapeake Appalachia, LLC	18.00% 813/688
				SWN Production Company, LLC	884/421

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