

#### 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

Tuesday, May 15, 2018 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC POST OFFICE BOX 12359

SPRING, TX 773914954

Re:

Permit Modification Approval for WORTHLEY BRK 210H

47-009-00227-00-00

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

Operator's Well Number: WORTHLEY BRK 210H

Farm Name: KIMBERLY CARMAN WORTHLEY

U.S. WELL NUMBER: 47-009-00227-00-00

Horizontal 6A New Drill

Date Modification Issued: 5/15/2018

Promoting a healthy environment.

WW-6B (04/15)

API NO. 47-99 OPERATOR WELL NO. Wortnley OHI 210H
Well Pad Name: Wortnley OHI Pad

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

and and the second		2				
1) Well Operator:	SWN Proc	luction Co., LLC		Brooke	Buffalo	Bethany
1200			Operator ID	County	District	Quadrangle
2) Operator's Well	Number: W	orthley OHI 210	H Well Pa	d Name: Wor	thley OHI P	ad
3) Farm Name/Suri	face Owner:	Kimberly Carman V	Vorthley Public Ros	d Access: Be	ealls Ridge I	Road
4) Elevation, currer			levation, proposed			
	Gas X	Oil		erground Stora		
Oth	ier —		Ond	rground Store	ige	
(b)I	If Gas Sha	allow X	Deep			
	Ho	rizontal X			111	2
6) Existing Pad: Ye	s or No Ye	s		(	. 16	2-22-16
7) Proposed Target	Formation(s	), Depth(s), Antic	ipated Thickness a	nd Expected P	Practica (a)	0
Target Formation-Marcel	lus, Down-Dip We	It to the South, Target Top	TVD-6129', Target Base TV	D- 6169", Anticipated	Thickness- 40',	Associated Pressure- 4010
8) Proposed Total V						
9) Formation at Total	al Vertical D	epth: Marcellus				
10) Proposed Total	Measured D	epth: 15011'				
11) Proposed Horizo	ontal Leg Le	ngth: 8395.50'				
12) Approximate Fro	esh Water S	trata Depths:	520' -			
13) Method to Deter	mine Fresh	Water Depths: S	Salinity Profile			
14) Approximate Sa						
15) Approximate Co	al Seam De	oths: 320'				
16) Approximate De	pth to Possi	ble Void (coal mi	ne, karst, other): P	ossible Void	320'	
17) Does Proposed v directly overlying or	vell location adjacent to	contain coal sean an active mine?	**	No		
(a) If Yes, provide	Mine Info:	Name:				
		Depth:				
		Seam:				
		Owner:				

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FEB 26 2018

WV Department of Environmental Protect

4700 900227 API NO. 47-09

OPERATOR WELL NO. Worthley OHI 210H

Well Pad Name: Worthley OHI 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	30"	New	H-40	98.9#	100'	100'	CTS
Fresh Water	20"	New	H-40	94#	380'	380'	412 sx/CTS
Coal	13 3/8"	New	H-40	48#	580'	580'	547sx/CTS
Intermediate	9 5/8"	New	J-55	36#	1730'	1730'	874 sx/CTS
Production	5 1/2"	New	HCP-110	20#	15011'	15011'	Load 850sx Tail 2102sx/100* insde
Tubing							
Liners							

Level (perphone cell)

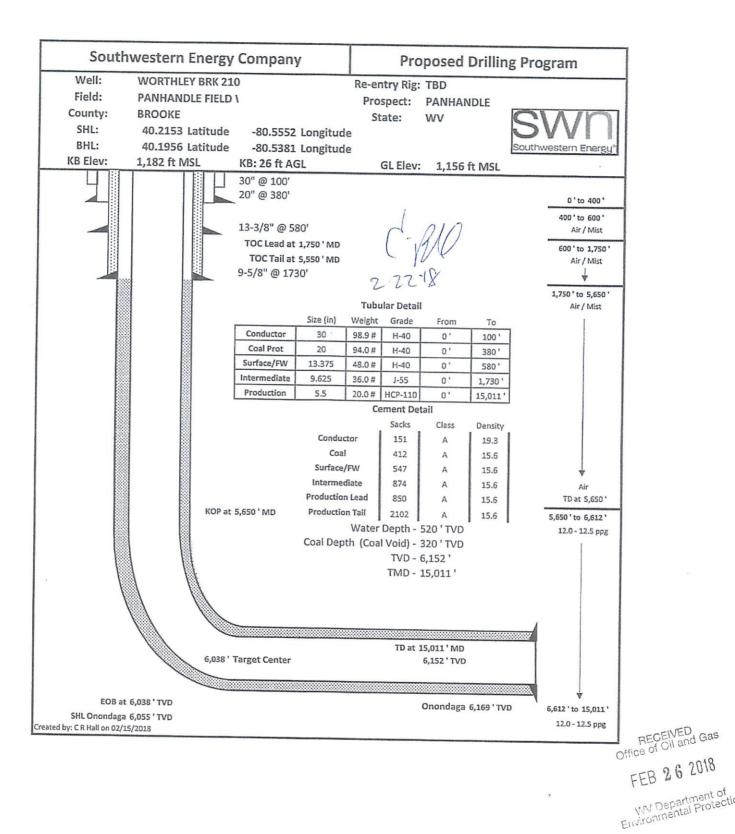
TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness	Burst Pressure (psi)	Anticipated Max. Internal	Cement Type	Cement Yield
Conductor	30"	38"	( <u>in)</u> 0.312	510	Pressure (psi) 510	Class A	(cu. ft./k) 1.19/50% Excess
Fresh Water	20"	30"	0.25	2120	633	Class A	1.19/50% Excess
Coal	13 3/8"	17.5"	0.380	2740	1768	Class A	1.19/50% Excess
Intermediate	9 5/8"	12.25"	0.395	3950	3250	Class A	1.19/50% 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				
Liners							

# **PACKERS**

Kind:	10K Arrowset AS-1X	
Sizes:	5 1/2"	
Depths Set:		Office of Oil and Gas

MAY 1 5 2018

WV Department of **Environmental Protection** 



05/18/2018

WW-6A1 (5/13)

ley BRK 210H

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

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

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

Lease Name	or
Number	

Grantor, Lessor, etc.

Grantee, Lessee, etc.

Royalty

Book/Page

See Attached Exhibit "A"

# Acknowledgement of Possible Permitting/Approval In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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, L.L.C.

By:

Its:

Staff Landman

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Page 1 of 2

05/18/2018

# 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 Brooke County, West Virginia Worthley BRK 210H

#	TMP	LESSOR	LESSEE	ROYALTY	BK/PG
î	03-0838-0027-0000-0000	Colonial Corporation, a Nevada Corporation, and Kimberly J. Carman aka Range Resources - Appalachia, LLC Kimberly J. Worthley, a married woman dealing in her sole and separate Chesapeake Appalachia, LLC	Range Resources - Appalachia, LLC Chesapeake Appalachia, LLC	14.00%	10/250
		property	SWN Production Company, LLC		10/552
7)	2) 03-0838-0025-0000-0000	Colonial Corporation, a Nevada Corporation, and Kimberly J. Carman aka Range Resources - Appalachi Kimberly J. Worthley, a married woman dealing in her sole and separate Chesapeake Appalachia, LLC	rtion, and Kimberly J. Carman aka Range Resources - Appalachia, LLC dealing in her sole and separate Chesapeake Appalachia, LLC	14.00%	10/250
İ		property	SWN Production Company, LLC		10/552
3	03-0838-0031-0000-0000	Bethnay College, a Coporation, $f/k/a$ The Trustees of Bethany College, $f/k/a$ The Trustees of Bethany College, a Corporation	Chesapeake Appalachia, LLC SWN Production Company, LLC	18.00%	26/769 30/480
4	03-0843-0028-0000-0000	Bounty Minerals, LLC	Chesapeake Appalachia. 11 C	18 00%	27/55
		Bounty Minerals, LLC	SWN Production Company, LLC SWN Production Company, LLC	18.00%	30/480 Attached
2)	Bethany Pike	West Virginia Department of Transportation, Division of Highways	Chesapeake Appalachia, LLC	15.00%	18/723
			SWN Production Company, LLC		30/480

Office of Oil and Gas

WV Department of Environmental Protection

05/18/2018

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#### MEMORANDUM OF OIL AND GAS LEASE

This Memorandum of Oil and Gas Lease made this 21<sup>st</sup> day of November 2017, by and between <u>Bounty Minerals LLC</u>, a <u>Texas Limited Liability Company</u>, of 777 Main St., Suite 3400, Fort Worth, TX 76102, hereinafter collectively called "Lessor," and <u>SWN Production Company</u>, L.L.C., a Texas limited liability company, 10000 Energy Drive, Spring, Texas 77389, hereinafter called "Lessee."

#### WITNESSETH

For and in consideration of the sum of Ten Dollars (\$10.00) cash in hand paid, and other good and valuable consideration, Lessor did make and execute in favor of Lessec an Oil and Gas lease dated November 21, 2017, and made effective November 21, 2017 which provides for an Eighteen (18) month primary term and an option to renew for an additional Eighteen (18) month primary term covering Lessor's interest in the following described lands in Buffalo District(s), Brooke County, West Virginia:

# SEE EXHIBIT "A" ATTACHED HERETO AND MADE PART HEREOF FOR LAND IDENTIFICATION

described for the purposes of this agreement as containing a total of 457.766155 Land acres. This lease may be extended beyond the primary term by certain activities including, without limitation, conducting operations, producing oil or gas, or making prescribed payments. This lease also grants to Lessee a Right of First Refusal to match any offer to top lease the leased premises, which right may be exercised by Lessee within fifteen (15) days after receipt of proper notice from Lessor.

This Memorandum of Oil and Gas Lease is being made and filed for the purposes of giving third parties notice of the existence of the Lease described above. The execution, delivery and recordation of this Memorandum of Oil and Gas Lease shall have no effect upon, and is not intended as an amendment of the terms and conditions of the Lease. It is the intent of the Lessor to lease all of Lessor's interest in and to the properties described herein, whether or not the tracts recited herein are properly described, and further it is understood this lease includes all rights owned by the Lessor in the properties described herein.

Bounty Minerals, LLC

A Texas limited liability company

By:

IN WITNESS WHEREOF this memorandum of Oil and Gas Lease is excented as of the date first above written.

WITNESS: LESSO

NESS: SWN Production Company, L.L.C.

Brett Massad
Land Director

Environmental Protection
AND Department of
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# CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS	Ď	
COUNTY OF Tarrant	)	
On this, the 28 day of Novel appeared 1. Jen Francy, who acknow Bounty Minerals, LLC, and that he/sh authorized to do so, executed foregoin the corporation by himself as Bounty	ledged himself/herself to be the the as such	CEU
IN WITNESS WHEREOF, I hereunto	set my hand and official seal.	
My Commiss Signature/No Name/Notary	tary Public: STRACE R.  Public (print): TRACE.	Palmer Palmer
	TRACIE R. PALMER  Notary Public, State of Tex  Comm. Expires 05-23-20: Notary ID 130673412	xas 20

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MR Department of Oil and Gae
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# CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS	)
COUNTY OF HARRIS	)
appeared Brett Massad, wi Production Company L.L.C., Director, being authorized to designing the name of the corporal Liability Company.  IN WITNESS WHEREO	. 2016 before me, the undersigned officer, personally o acknowledged himself/herself to be the Land Director of SWN a Texas Limited Liability Company, and that he/she as such Land so, executed foregoing instrument for the purpose therein contained by fon by himself as SWN Production Company L.L.C. a Texas Limited of F, I hereunto set my hand and official seal.  My Commission Expires:  My Commission Expires:  My Commission Expires:  Name/Notary Public:  Name/Notary Public (print):  Danie ( Townson)

WV Department of Environmental Protection

EEB 3 @ 5018

Office of Oil and Gas BECEIVED

# Exhibit "A"

THIS EXHIBIT "A" is attached to and wholly incorporated into that certain Memorandum of Oil and Gas Lease ("Lease") dated the 21<sup>st</sup> day of, November, 2017, by and between <u>Bounty Minerals LLC</u>, a Texas Limited Liability Company, of 777 Main St., Suite 3400. Fort Worth, TX 76102, as Lessor, and SWN Production Company, LLC, as Lessee, covering 457.766155 acres, more or less, situated in Buffalo District(s), Brooke County, West Virginia:

<u>DESCRIPTION</u>, The Land is located in the District(s) of <u>Buffalo</u> in the County of <u>Brooke</u>, in the State of West Virginia, and described as follows:

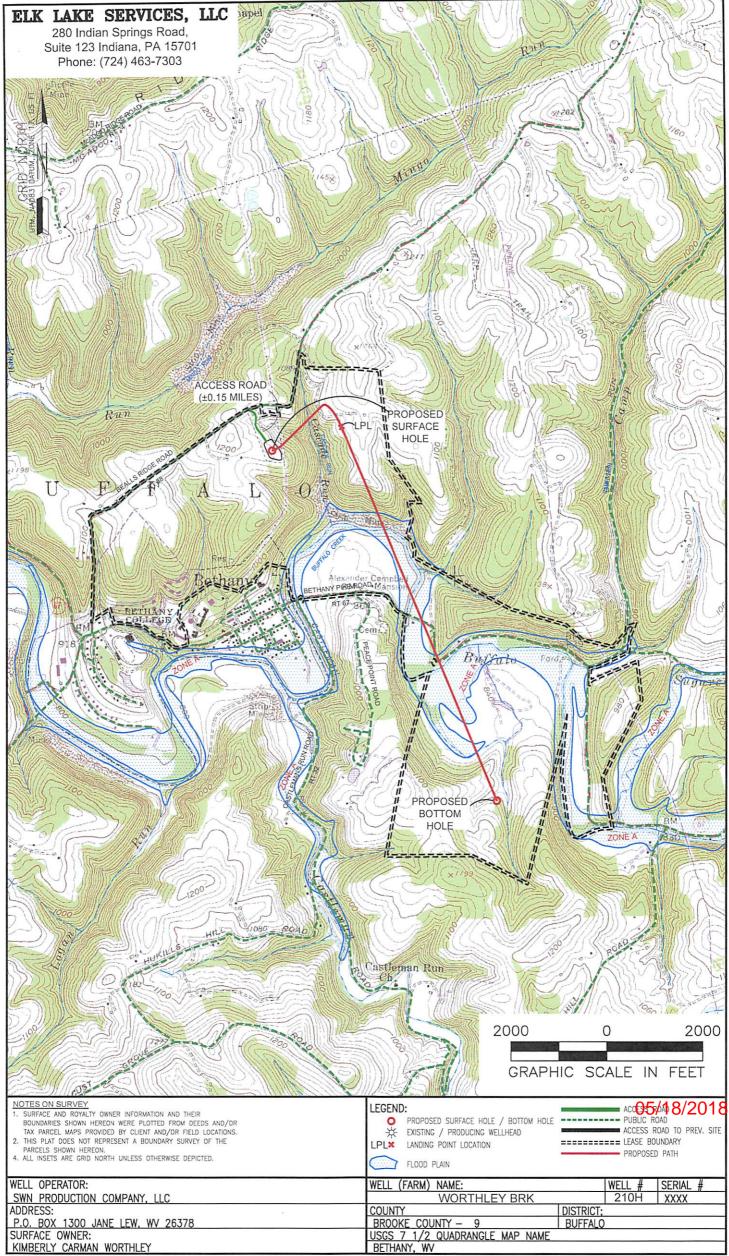
Property Tax Parcel Identification Number: <u>Tax Parcel I.D. 3-B43-28</u> and is bounded formerly or currently as follows:
On the North by lands of: <u>03-B38-24, 3-B39-11;</u>
On the East by lands of <u>03-B44-5,14;</u>
On the South by lands of <u>03-B43-62</u>
On the West by lands of <u>03-B43-49,3, 03-B38-31;</u>

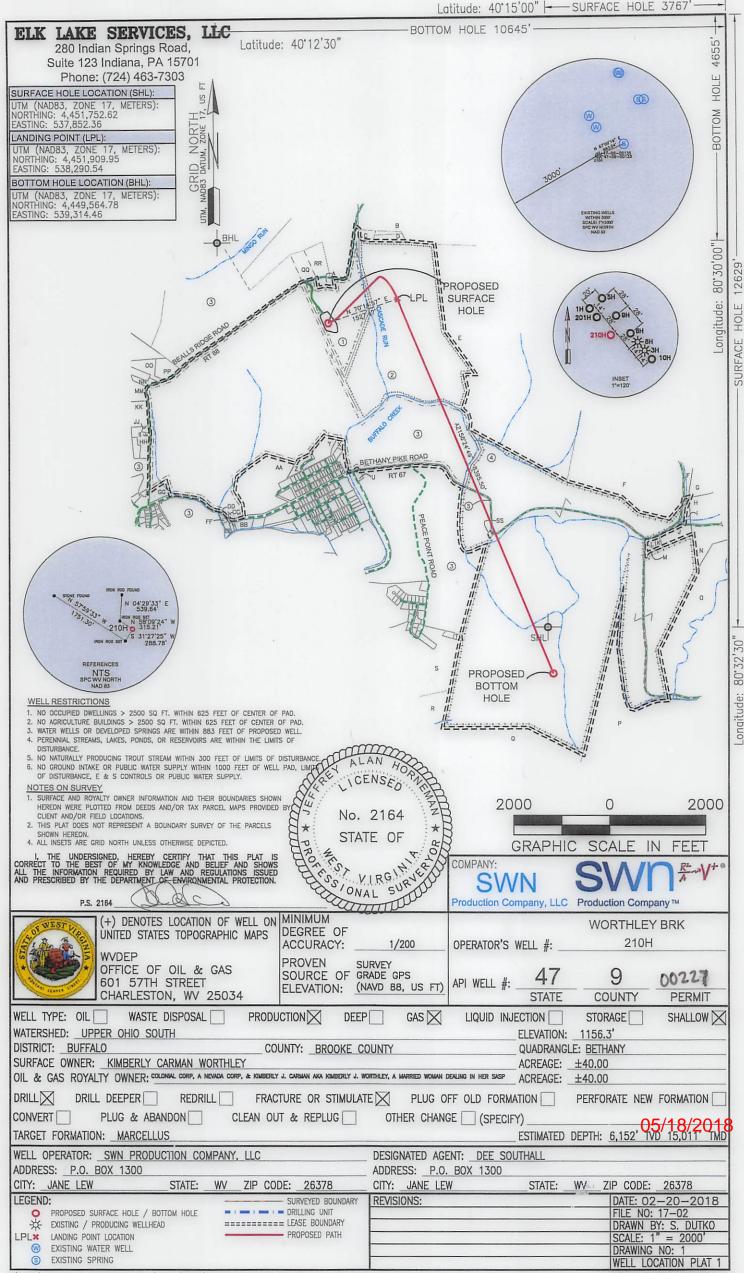
Property Tax Parcel Identification Number: <u>Tax Parcel I.D. 3-B43-35.8</u> and is bounded formerly or currently as follows:
On the North by lands of: <u>03-B38-31</u>;
On the East by lands of <u>03-B38-31</u>;
On the South by lands of <u>03-B43-49.3</u>;
On the West by lands of <u>03-B43-33</u>;

Property Tax Parcel Identification Number: <u>Tax Parcel I.D. 3-B43-49.3</u> and is bounded formerly or currently as follows:
On the North by lands of: 03-B43-35.8;
On the East by lands of: 03-B43-28;
On the South by lands of: 03-B43-57;
On the West by lands of: 03-B43-33;

Property Tax Parcel Identification Number: <u>Tax Parcel I.D. 3-B43-33</u> and is bounded formerly or currently as follows:
On the North by lands of: <u>03-B43-31</u>;
On the East by lands of <u>03-B43-35.8</u>;
On the South by lands of <u>03-B43-58.60</u>;
On the West by lands of <u>03-B38-31</u>;

Including all lands acquired by Lessors in <u>Book 347 at Page 473</u>, the above properties being situated in Buffalo District, Brooke County, WV, and containing a total of <u>696.1673</u> acres, more or less, and including contiguous lands owned by Lessor. INSOFAR AND ONLY INSOFAR as to the lands located outside of the following units: Mark Owen South Unit, as described and depicted on the Declaration of Pooled Unit, recorded at Book 351 and Page 21, Brooke County, West Virginia; Worthley South Unit, as described and depicted on the Declaration of Pooled Unit, recorded at Book 355 and Page 730, Brooke County, West Virginia; and Thomas Parkinson South Unit, as described and depicted on the Declaration of Pooled Unit, recorded at Book 376 and Page 299 containing a total of <u>457.766155</u> acres, more or less, and including contiguous lands owned by Lessor.





# ELK LAKE SERVICES, LLC

280 Indian Springs Road, Suite 123 Indiana, PA 15701 Phone: (724) 463-7303

	WELL BORE TABLE FOR SURFACE / ROY	ALTY OWNERS
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	KIMBERLY CARMAN WORTHLEY (S) COLONIAL CORP, A NEVADA CORP, & KIMBERLY J. CARMAN AKA KIMBERLY J. WORTHLEY, A MARRIED WOMAN DEALING IN HER SASP (R)	3-B38-27
TRACT	SURFACE OWNER	TAX PARCEL
2	KIMBERLY CARMEN WORTHLEY	3-B38-25
3	BETHANY COLLEGE	3-B38-31
4	TRUST OF GENE CHARLES VALENTINE	3-B43-28
5	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	BETHANY

ADJOINING OWNERS TABLE				
TRACT	SURFACE OWNER	TAX PARCEI		
A	CARRINGTON MORTGAGE SERVICES,LLC	3-B38-26		
В	MARK WEAVER OWEN & VIRGINIA BEALL KREUTZ	3-B38-19		
С	LANCE M. ELSON	3-B38-21		
D	NOLTE & GLADYS VANCAMP	3-B38-23		
E	MARK W OWEN & VIRGINIA BEALL KRUETZ	3-B38-24		
F	RAYMOND L & LINDSEY G TREDWAY	3-B39-11		
G	VICKI G & SHAWN P HAMILTON	3-B44-1		
Н	JAMES R & LINDA R GREATHOUSE	3-B39-12		
1	DONNA M WEEKLEY	3-B44-2		
J	CURTIS LEE & LOUANN L NEEL	3-B44-7		
K	JANICE F JACKSON	3-B44-8		
L	JANICE F JACKSON	3-B44-9		
М	JANICE F JACKSON	3-B44-10		
N	MILDRED MAIN	3-B44-06		
0	FORNEY & SONS HOLDING CO LLC	3-B44-05		
P	ST OF WV DEPT OF COMM DIV	3-B44-14		
Q	ST OF WV DEPT OF COMM DIV	3-B44-14		
R	SAMUEL & MELANIE DONINI	3-B43-62		
S		3-B43-57		
T	TRUST OF GENE CHARLES VALENTINE			
U	MARY E COLLINS	3-B43-49 3-B43-27		
V	RICHARD FRANCIS GORBY			
2007	JAMES & KATHLEEN KEEGAN	2-B43C-37		
W	BARBARA L CHAMBERS	2-B43C-36		
X	BETHANY COLLEGE	2-B43C-3		
Y	BETHANY COLLEGE	2-B43C-2		
Z	BETHANY COLLEGE	2-B43C-1		
AA	BETHANY COLLEGE	1-B43B-26		
BB	TRAVIS G & GREGORY B STRAUB	2-B43F-84		
CC	GEORGE JR SONNEWALD	2-B43F-82		
DD	GEORGE JR SONNEWALD	2-B43F-81		
EE	WILLIAM MITCHELL HEIRS	2-B43B-22		
FF	MITCHELL DONALD STEVEN	2-B43F-83		
GG	JOHN HUFF HEIRS	2-B43B-4		
HH	DANNY M & SANDRA L HOLLADAY	3-B43-3		
11	DENNIS & DERRELLE RUSCHELL	3-B43-2		
JJ	DENNIS & DERRELLE RUSCHELL	3-B43-1		
KK	RUTH GERMON & JEFFREY WOY & SUE MOORE & PATRICIA WEST & SARA WOY	3-B38-37		
MM	ALLEN JOHNSON & CHARLES WARREN ETAL	3-B38-36		
NN	DAVID G OWENS & LINDA WALTERS	3-B38-35		
00	DAVID G OWENS & LINDA WALTERS	3-B38-33		
PP	DAVID G OWENS & LINDA WALTERS	3-B38-32		
QQ	CHARLES F & DONNA BROWN	3-B38-30		
RR	JEFFREY WILLIAM HENSLER	3-B38-30		
SS	CLYDE B ROBERTS	3-B43-29		

REVISIONS:

COMPANY:

SVN

Production Company, LLC

OPERATOR'S

WELL #:

210H

DISTRICT:
BUFFALO

DISTRICT:
BUFFALO

DISTRICT:
BROOKE COUNTY

DISTRICT:
BROOKE COUNTY

DISTRICT:
BROOKE COUNTY

WELL LOCATION PLAT 1