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west virginia department of environmental protection

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

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

Tuesday, October 15, 2024  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ARSENAL RESOURCES LLC  
6031 WALLACE RD EXT., SUITE 101

WEXFORD, PA 15090

Re: Permit Modification Approval for LAURA GOFF DAVIS 201  
47-033-06023-00-00

**Lateral Extension**

ARSENAL RESOURCES 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: LAURA GOFF DAVIS 201  
Farm Name: LAURA GOFF DAVIS  
U.S. WELL NUMBER: 47-033-06023-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 10/15/2024

Promoting a healthy environment.

10/18/2024

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

1) Well Operator: Arsenal Resources      494519412      Harrison      Clark      Clarksburg  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: 201      Well Pad Name: Laura Goff Davis

3) Farm Name/Surface Owner: Laura Goff Davis      Public Road Access: Armory Road

4) Elevation, current ground: 1014.05 ft      Elevation, proposed post-construction: 1007.35 ft

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

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

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6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale, Top - 7002 ft, Base - 7089 ft, Anticipated Thickness - 87ft, Associated Pressure - 0.5 psi/ft

8) Proposed Total Vertical Depth: 7075 ft

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 27,341 ft

11) Proposed Horizontal Leg Length: 19,673 ft

12) Approximate Fresh Water Strata Depths: 40', 121', 580'

13) Method to Determine Fresh Water Depths: Offset wells reporting water (033-01107, 033-04468, 033-00452)

14) Approximate Saltwater Depths: 1320'

15) Approximate Coal Seam Depths: WVGES - No Coal Mapped : 300ft Estimated

16) Approximate Depth to Possible Void (coal mine, karst, other): None Known

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine?      Yes \_\_\_\_\_      No \_\_\_\_\_      None Known \_\_\_\_\_

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

*CK# 202661  
# 5150<sup>00</sup>  
Refund 150<sup>00</sup>  
CK# 202787  
# 2506<sup>00</sup>  
Exp Mod*

WW-6B  
(04/15)

4703306023  
 API NO. 47-033-088  
 OPERATOR WELL NO. 201  
 Well Pad Name: Laura Goff Davis

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	24	New	H-40	102.7	120	120 ✓	CTS
Fresh Water	13.375	New	J-55	54.5	650	650 ✓	CTS
Coal							
Intermediate	9.625	New	J-55	40	2600	2600	CTS ✓
Production	5.5	New	P-110	20	27,341	27,320 ✓	TOC @ 2450
Tubing							
Liners							

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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	24	36			0	Class A/L, 3% CaCl <sub>2</sub>	1.2
Fresh Water	1.375	17.5	0.38	2,730	900	Class A/L, 3% CaCl <sub>2</sub>	1.2
Coal							
Intermediate	9.625	12.25	0.395	3,950	1500	Class A/L, 3% CaCl <sub>2</sub>	1.29
Production	5.5	8.5-8.75	0.361	15,920 ✓	11,500	Class A/L, Poz	1.29/1.34
Tubing					5,000		
Liners					N/A		

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

*Kenny Willatt 9/30/24*

10/18/2024

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

The well will be started with a conductor rig drilling a 36" hole to Conductor programmed depth then running 24" casing and circulate cement back to surface. The conductor rig will move out and the drilling rig will move in and rig up. The drilling rig will then spud a 17 1/2" hole and drill to fresh water casing (Surface) to the programmed depth, Run 13- 3/8" casing and cement to surface. The rig will continue drilling a 12- 1/4" intermediate hole to the programmed depth, run 9- 5/8" casing and cement to surface. The rig will then continue to drill an 8- 3/4" hole to a designed KOP. We will then start drilling the curve and lateral section to the programmed total measured depth, run 5 1/2" casing and cement according to the program.

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

The well will be completed using a plug and perforation method and stimulated with a slickwater and sand slurry. The anticipated maximum rate will be 90 bpm and the maximum pressure will be 11,500 psi.

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21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.13

22) Area to be disturbed for well pad only, less access road (acres): 6.54

23) Describe centralizer placement for each casing string:

24"- No centralizers 13 3/8" – one bow spring centralizer on every other joint 9 5/8" – one bow spring centralizer every third joint from TD to surface 5 1/2" – one semi rigid centralizer on every joint from TD of casing to end of curve. Then every other joint to KOP. Every third joint from KOP to 1,700'; there will be no centralizers from 1,700' to surface.

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

24" will be circulated to surface. The 13 3/8" casing will be cemented to surface with Class A/L cement and no greater than 3% CaCl (calcium chloride). The 9 5/8" casing will be cemented to surface with Class A/L cement, & no greater than 3% calcium chloride. The 5 1/2" production string will be cemented back to 1,350' (+/- 150' above the casing shoe for the 9 5/8") with Class A/L Poz cement retarded (to extend pumpability) cellophane flaked for fluid loss, Bentonite gel as an extender (increased pumpability and fluid loss), a defoaming agent to decrease cement foaming during mixing to insure the cement is of proper weight to placement and possibly gypsum gas blocking additive to aid in blocking/gas migration (in combination with other additive mentioned here, helps cement achieve a "right angle" set) during the plastic phase of the cement set-up.

25) Proposed borehole conditioning procedures:

Top holes will be drilled with fresh water KOP. At KOP, the wellbore will be loaded with synthetic oil based mud, barite-weighted mud system with such properties as to build a filter-cake on the face of the bore-hole. This will provide lubricity as well as stabilizing the well bore. We will begin rotating the drill string and mud will be circulated upon reaching TD until no further cuttings are observed coming across the shaker screens. Once clean mud is circulated back to surface, we will pull three stands of drill pipe, load the hole, pull three strands and load the hole. The weight indicator on the rig will be monitored for any occurrences of drag and if any are noticed, we will re-run the previous stand of pipe pulled across and circulate 2x bottoms up while watching shakers for signs of cuttings. Once at the base curve, the string will be continuously rotated while pumping 2x bottoms up. We will pull three stands and fill the hole until we reach the vertical section of the well.

\*Note: Attach additional sheets as needed.

Kenny Willott 9/6/24

4703306023



Arsenal Resources  
LGD 201  
Casing Design

Other Names:	LGD 201
Surface Location:	LAT 39.263552N x Long -80.365497 W
Bottom Hole Location:	LAT 39.263552N x Long -80.365497 W
Directional Plan Vs.	SDI #1
Total Depth (MD)	7,075

Harrison	
WV	
AFE #:	000000 API #: 0
RKB:	26
Ground Level:	1,007

Logs	Significant Formations (TVD)	Depth (ft) MD	Depth (ft) TVD	Hole Size	Casing and Cement	Mud	Directional & Surveys Drlg /Csg Point
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None	Section 1						
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Drive Pipe							
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None	Section 2	120	120	24" 94# H-40 BTC	Vertical		
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17 1/2" (PDC)	Floc Water						
Cement		Class A, 3% CaCl2					
Density/Yield/Volume (sx)	15.6	1.2	703				
TOC	Surface						

Possible CBL after cement job		650	650	13 3/8" 54.5# J-55 LTC	Vertical		
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--	--	--	--	--	--	--	--

None	Section 3			12 1/4" (PDC)	Floc Water		
------	-----------	--	--	---------------	------------	--	--

Cement (Lead/Tail)		Class A, 3% CaCl2		Class A, 3% CaCl2			
Density/Yield/Volume (sx)	15.6	1.19	712				
TOC	Surface						

		2,600	2,600	9 5/8" 40# J-55 LTC	Vertical		
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--	--	--	--	--	--	--	--

Wireline: None							
Mudloggers: KOP - TD							
KOP @ 7667	Section 4						

Mud Data	From	To	
Floc Water	120	2600	
Floc Water	2600	7667	
11.5- 12.0 ppg SOBM	7667	27320	

Formation	Depth (Tss)	Top (TVD)	Base (TVD)
Bakerstown Coal	0	0	0
Brush Creek Coal	0	0	0
Upper Freeport Coal	0	0	0
Lower Freeport Coal	0	0	0
Upper Kittanning Coal	0	0	0
Middle Kittanning Coal	0	0	0
Lower Kittanning Coal	0	0	0
Big Lime	0	0	0
Balltown Sandstone	0	0	0
Bradford Sandstone	0	0	0
Benson Sandstone	0	0	0
1st Elk Siltstone	0	0	0
Burkett Shale	0	0	0
Tully Limestone	0	0	0
Mahantango Shale	0	0	0
Marcellus Shale	0	0	0
Purcell Limestone	0	0	0
Lower Marcellus Shale	0	0	0
TARGET	0	0	0
Onondaga Limestone	0	0	0

Bit Data	From	To	
17-1/2" & 12 1/4" PDC	120	2,600	
8- 3/4" (PDC)	2,600	7667	
8- 1/2" (PDC)	7667	27320	

Directional Data	
KOP	7667
Curve	9"/100 ft
	Angle 89.5
	Azi 160
EOB	MD 7075
	TVD 7075

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Cement		Production	
Lead	13.8	Lead: 50-50 Poz/A	TBD
Tail	15	Tail: Class A	TBD
TOC	2450		

MD	27341
TVD	7075
Azimuth	160

5 1/2" 20# P-110HP Weld Tube GBCC
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Revision 1

Note: Not drawn to scale

Cement Outside Casing  
Seal Assembly in Annulus

Date Last Revised: 9-Sep-24  
Ross Schweitzer

10/18/2024



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## Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near Arsenal Resources hydraulic fracturing in Harrison County, WV prior to hydraulic fracturing at the Laura Goff Davis Pad, well #201.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,700' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Benson formations (approximately 4,800' TVD).

The plan is being implemented as an additional safety measure to be utilized in conjunction with best management practices and emergency action plans for this site. These additional measures include pre-notification of conventional well operators of the timing and location of the hydraulic fracturing, establishment of measures conventional well operators should implement, and assurance that the Division of Oil and Gas is notified of the timeline, as well as any issues that may arise during fracturing.

### 1. Communications with Conventional Operators.

Arsenal Resources, using available data (WV Geological Survey, WVDEP Website, and IHS data service), has identified all known conventional wells and well operators within 500 feet of this pad and the lateral sections. A map showing these wells along with a list of the wells and operators is included in Attachment A.

Upon approval of this plan, Arsenal Resources will notify these operators, via letter, of the hydraulic fracturing schedule for these wells. A copy of this letter is included in Attachment B.

The letter provides recommendations to these conventional operators to 1) increase their monitoring of their wells during that time period, 2) ensure that their well head equipment is sound, and 3) provide immediate notification to Arsenal Resources and the OOG in the event of any changes in their well conditions.

Specifically, the letter recommends that conventional well operators conduct the following activities during and after fracturing operations:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and ARSENAL RESOURCES if any changes in water, gas production, pressure or other anomalies are identified.

Area of Review Report - Laura Goff Davis Pad, 201 Lateral, Harrison County, WV

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
Nathan Goff 24	033-01107	Diversified Production LLC	Existing	39.263188	-80.364485	4400	5th Sand, Balltown, Benson	NA
Petitto 2	033-04520	Antero Resources Corp.	Existing	39.255792	-80.36243	4411	Bayard, Bradford, Riley, Benson	NA
Petitto 1	033-04399	Antero Resources Corp.	Existing	39.24951	-80.356832	4889	Gordon Stray, Gordon, 5th, Balltown, Benson	NA
J Wager 7322	033-01457	Diversified Production LLC	Existing	39.246897	-80.359606	2448	5th Sand	NA
Wagner 2	033-04565	Antero Resources Corp.	Existing	39.243565	-80.355711	3400	Thirty-foot, 4th, Bayard, Balltown	NA

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 SEP 26 2024  
 The Department of  
 Environmental Protection



Diversified Energy Company

101 MCQUISTON DRIVE  
Jackson Center, Pa 16133

RE: Laura Goff Davis Pad

Dear Sir/Madam,

Arsenal Resources has developed a Marcellus pad, the Laura Goff Davis, well #201, located in Harrison County, WV. As an owner or operator of conventional natural gas wells in this area, we are requesting your assistance in this matter.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,100' TVD) and existing conventional natural gas wells included in the attached well list for which you are believed to be the operator.

Arsenal Resources anticipates conducting hydraulic fracturing at the Laura Goff Davis Pad, well #201, during the 4th Quarter of 2024. We have identified conventional natural gas wells operated by your company within 500' (lateral distance) of our newly planned wells. Plats for each well on this pad are attached.

We recommend that conventional well operators conduct the following activities before, during and after fracturing operations:

1. Inspect surface equipment, prior to fracturing, to establish integrity and establish well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas, or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and Arsenal Resources if any changes in water, gas production, pressure or other anomalies are identified.

Please feel free to contact me at 724-940-1100 with any questions or comments. You may also contact the WV Office of Oil and Gas at 304-926-0499.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Boyer', is written over a horizontal line.

Dave Boyer  
Director of Geology & Development Planning

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Office of Oil and Gas

SEP 26 2024

WV Department of  
Environmental Protection



**LGD WELL PAD  
WELL NO. 201  
ARSENAL RESOURCES**

T.H. LATITUDE 39°17'30"  
B.H. LATITUDE 39°15'00"

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	325.83'	78.49'	78.30'	S 13°13' W
C2	179.62'	45.02'	44.90'	S 01°01' E
C3	800.60'	184.52'	184.12'	S 14°48' E
C4	3196.64'	475.26'	474.83'	S 25°39' E
C5	2189.22'	332.53'	332.21'	S 34°12' E
C6	919.50'	100.03'	99.98'	S 41°39' E
C7	2951.29'	299.94'	299.81'	S 47°41' E
C8	5517.85'	399.94'	399.85'	S 48°31' E
C9	1840.78'	299.89'	299.56'	S 39°12' E
C10	1636.87'	399.98'	398.98'	S 26°57' E
C11	1901.43'	239.64'	239.48'	S 22°39' E
C12	331505.67'	799.84'	799.84'	S 28°46' E
C13	1916.71'	499.90'	498.49'	S 18°07' E
C14	36612.86'	899.88'	899.85'	S 11°40' E
C15	2192.52'	401.29'	400.73'	S 14°57' E

T.H. LONGITUDE 80°20'00"  
B.H. LONGITUDE 80°20'00"

10,241' T.H.

14,942' B.H.

**LEGEND**

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- 500' OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL 00-00
- SURFACE OWNER (SEE TABLE) A
- LEASE # (SEE WW-6A1) A

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17)

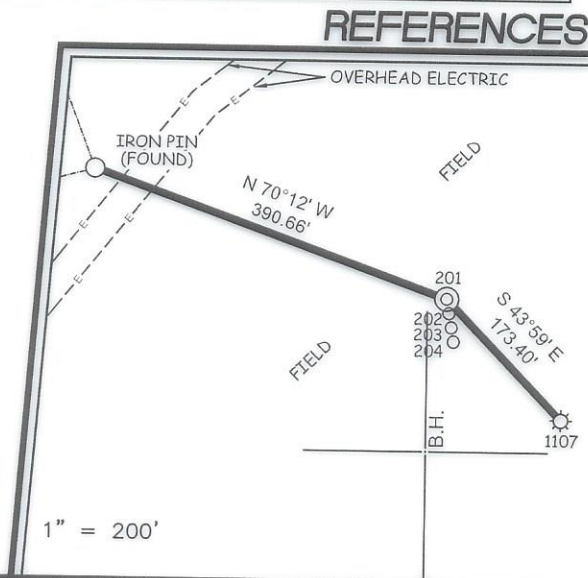
NAD'83 S.P.C.(FT) N. 279,286.90 E. 1,723,448.56  
 NAD'83 GEO. LAT-(N) 39.263552 LONG-(W) 80.365497  
 NAD'83 UTM (M) N. 4,346,215.68 E. 554,738.58

**LANDING POINT**

NAD'83 S.P.C.(FT) N. 277,592.7 E. 1,723,558.5  
 NAD'83 GEO. LAT-(N) 39.258903 LONG-(W) 80.365051  
 NAD'83 UTM (M) N. 4,345,700.1 E. 554,780.7

**BOTTOM HOLE**

NAD'83 S.P.C.(FT) N. 259,342.0 E. 1,730,513.5  
 NAD'83 GEO. LAT-(N) 39.208978 LONG-(W) 80.339887  
 NAD'83 UTM (M) N. 4,340,175.1 E. 556,992.1



**NOTES ON SURVEY**

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE ARE 1"=2000'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
 slsw.com

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 THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. Gregory A. Smith  
 677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 DATE SEPTEMBER 11, 20 24  
 REVISED \_\_\_\_\_, 20 \_\_\_\_\_  
 OPERATORS WELL NO. 201  
 API WELL NO. 47 - 033 - 06023  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 9423P201R3.dwg  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY: DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

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

LOCATION: GROUND = 1,014.05' ELEVATION PROPOSED = 1,007.35' WATERSHED WEST FORK RIVER  
 DISTRICT CLARK COUNTY HARRISON QUADRANGLE CLARKSBURG

SURFACE OWNER LAURA GOFF DAVIS ACREAGE 161.22±  
 ROYALTY OWNER LAURA GOFF DAVIS, ET AL ACREAGE 400±

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS ESTIMATED DEPTH TMD 27,340.57' / TVD 7,075'

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT ERIC MORRIS  
 ADDRESS 6031 WALLACE RD. EXT. SUITE 300 WEXFORD, PA 15090 ADDRESS 633 WEST MAIN STREET BRIDGEPORT, WV 26330

COUNTY NAME PERMIT

10/18/2024

T.H. LATITUDE 39°17'30"  
B.H. LATITUDE 39°15'00"

**LGD WELL PAD  
WELL NO. 201  
ARSENAL RESOURCES**

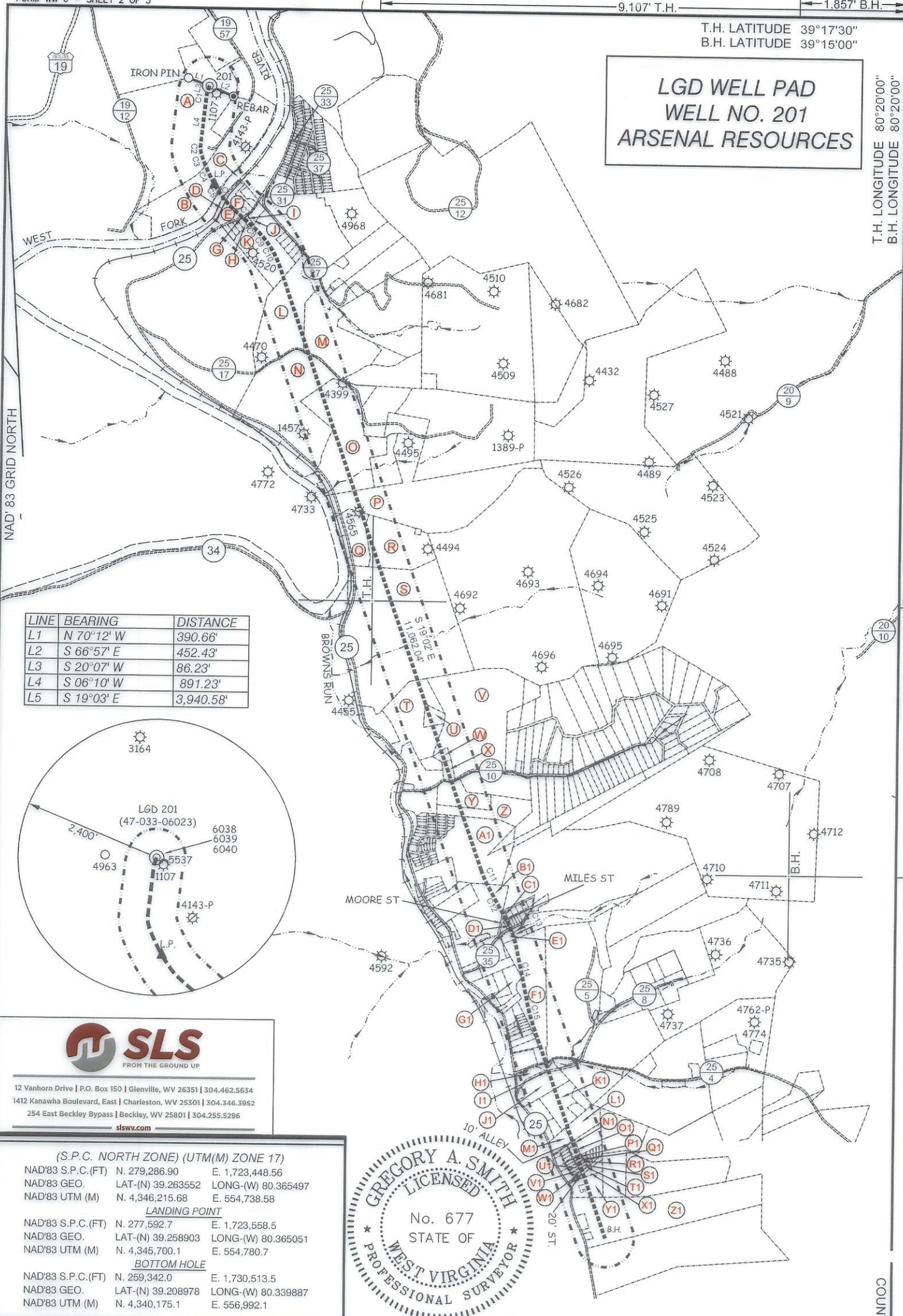
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B.H. LONGITUDE 80°20'00"

10,241' T.H.

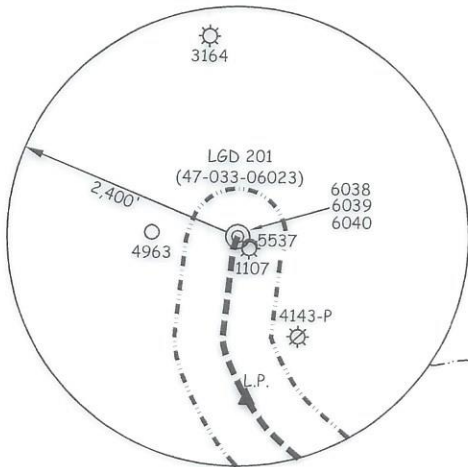
14,942' B.H.

COUNTY NAME

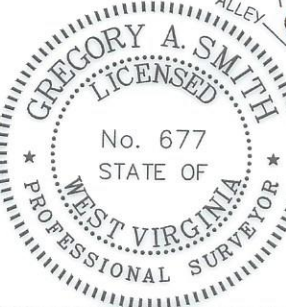
PERMIT



LINE	BEARING	DISTANCE
L1	N 70°12' W	390.66'
L2	S 66°57' E	452.43'
L3	S 20°07' W	86.23'
L4	S 06°10' W	891.23'
L5	S 19°03' E	3,940.58'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
 slswv.com



(S.P.C. NORTH ZONE) (UTM(M) ZONE 17)

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LANDING POINT

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BOTTOM HOLE

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NAD'83 GEO.	LAT-(N) 39.208978	LONG-(W) 80.339887
NAD'83 UTM (M)	N. 4,340,175.1	E. 556,992.1

SCALE 1" = 2000' FILE NO. 9423P201R3.dwg

DATE SEPTEMBER 11, 20 24

REVISED \_\_\_\_\_, 20 \_\_\_\_\_

OPERATORS WELL NO. 201

API WELL NO. **47-033-06023**

STATE COUNTY PERMIT

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

10/18/2024

P.S. *Gregory A. Smith*

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

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT ERIC MORRIS

ADDRESS 6031 WALLACE RD. EXT. SUITE 101 ADDRESS 633 WEST MAIN STREET

WEXFORD, PA 15090 BRIDGEPORT, WV 26330

LGD WELL PAD  
WELL NO. 201  
ARSENAL RESOURCES



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

TAG	PARCEL	SURFACE OWNER	ACREAGE
A	1-326-37	LAURA GOFF DAVIS	161.22
ROAD	N/A	COUNTY ROUTE 19/57-ARMORY ROAD	N/A
B	1-326-38.1	WEW REAL ESTATE HOLDING LLC	37.65
C	N/A	WEST FORK RIVER	N/A
D	1-326-102	W.V. STATE RAIL AUTHORITY	108.47
E	1-326-78	MICHAEL F & CECELIA DAUGHERTY	2.43
F	1-326-55	WILLIAM H & CHRISTY S SMITH	3.12
G	N/A	STATE OF W.V. (WESTON-FAIRMONT TURNPIKE)	N/A
H	1-326-78.11	MICKEY G PETITTO	0.38
I	1-326-78.2	ROBERT R WAGNER II	0.458
J	1-326-56	ROBERT R WAGNER II	1.22
K	1-326-78.1	HILARION V CANN ET AL	16.71
L	1-326-80	ROGER L & SANDRA CHILDERS	28.36
M	1-346-36	LESTER G ANDERSON JR	25.4
ROAD	N/A	COUNTY ROUTE 25/17- RED DOG ROAD	N/A
N	1-346-35	HILARION V CANN ET AL	40.942
O	1-346-63	HILARION V CANN ET AL	35.11
P	1-347-29	KURT SKASIK	60.8
Q	1-346-85	MARK A SKASIK	14.17
R	1-347-30	KURT SKASIK	16.76
S	12-347-31	W VA DNR	91.747
T	12-347-41	ROBERT CLUTTER	19.66
U	12-347-41.2	SHARON LOUISE CAIN (LE)	2.35
V	12-347-41.6	TOMMY FORNASH	47.71
W	12-347-65.4	TOMMY D & FORNASH ET AL	4.57
X	12-347-41.7	CRYSTAL CROPP	1.52
ROAD	N/A	COUNTY ROUTE 25/10-MT CLARE & NORWOOD RD.	N/A
Y	12-367-4	CLIFTON RAWLINGS	9
Z	12-367-6	HOWARD LEE SPARKS JR	9
A1	12-367-33	GDS WV HOLDINGS LLC	22.92
B1	12-367-34.1	LISA FLOWERS ET AL	18.04
ROAD	N/A	MOORE ST OF A.A. KNIGHT LOTS	N/A
C1	12-2008-11	LISA FLOWERS & GARY STUTLER	LOT 10
ROAD	N/A	MILES ST OF A.A. KNIGHT LOTS	N/A
D1	12-2008-19	DEBRA ANN MCCUTCHEON	LOT 3
ROAD	N/A	CO. RT. 25/35-KNIGHT ST OF A.A. KNIGHT LOTS	N/A
E1	12-2008-30	DEBRA ANN MCCUTCHEON	1.82
F1	12-367-40	BRIAN D & MELISSA D GALLOWAY	22.28
G1	12-367-84	ROBERT H CORK	4.95
ROAD	N/A	COUNTY ROUTE 25/4-CHUBB RUN RD.	N/A
H1	12-367-53	JOSHUA I DEAN	3
I1	12-2010-61	PATRICK CUNNINGHAM DBA	0.7
J1	12-367-69	GEORGE STEPHEN ROGERS	4.12
K1	12-367-69.1	GEORGE STEPHEN ROGERS	6.98
L1	12-387-4.1	MICHAEL GLENN HARDMAN	4.62
M1	12-387-4	TIMMY LEE SEARCEY	2.26
ROAD	N/A	10' ALLEY HOLDEN ADDITION OF MT CLARE	N/A
N1	12-2012-16	GUY & VERNIE RUSSELL ESTATE	LOT 9
O1	12-2012-13	JO ANN HILEMAN	LOTS 10-12
ROAD	N/A	HARP ROAD 927	N/A
P1	12-2012-35	AMANDA RAE SNIDER	LOT 23
Q1	12-2012-34	NAJ LLC	LOT 24
R1	12-2012-33	EARL PATRICK FRAZIER JR	LOT 25
S1	12-2012-32	EARL PATRICK FRAZIER JR	LOT 26
T1	12-2012-31	EARL PATRICK FRAZIER JR	LOT 27
U1	12-2012-29	EARL PATRICK FRAZIER JR	LOT 19
V1	12-2012-30	EARL PATRICK FRAZIER JR	LOT 18
ROAD	N/A	20' ALLEY HOLDEN ADD. OF MT CLARE(CHERRY HILL ROAD)	N/A
W1	12-2012-20	KRISTINA MARIE CHRISTIAN	0.26
X1	12-387-6	ALTA MARIE SKIDMORE ET AL	1.26
Y1	12-387-7	CHARLES S MILLER	4.84
Z1	12-387-22	RONALD H ROGERS	49.74

FILE NO. 9423P201R3.dwg

DATE SEPTEMBER 11, 20 24

REVISED \_\_\_\_\_, 20 \_\_\_\_\_

OPERATORS WELL NO. 201

API WELL NO. 47 — 051 — 06023  
STATE COUNTY PERMIT



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



10/18/2024

P.S. 677 *Gregory A. Smith*

WELL OPERATOR ARSENAL RESOURCES  
ADDRESS 6031 WALLACE RD. EXT. SUITE 101  
WEXFORD, PA 15090

DESIGNATED AGENT ERIC MORRIS  
ADDRESS 633 WEST MAIN STREET  
BRIDGEPORT, WV 26330

COUNTY NAME

PERMIT

WW-6A1  
(5/13)

Operator's Well No. Laura Goff Davis #201

**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
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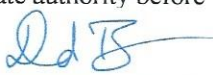
See attached

**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:   
 By: Dave Boyer  
 Its: Director of Geology & Development Planning

**Attachment to WW-6A1, Goff A 201 Unit**

<b>Letter Designation/Number Designation on Plat</b>	<b>Grantor, Lessor, Assignor, etc.</b>	<b>Grantee, Lessee, Assignee, etc.</b>	<b>Royalty</b>	<b>Book/Page</b>	<b>Acreage</b>
A, B (00003556)	Diana Goff Cather and H Dotson Cather, her husband, and Laura Goff Davis	Petroleum Development Corporation	12.5%+	1007/714	1622.0
	Petroleum Development Corporation	PDC Mountaineer LLC		1440/364	
	PDC Mountaineer LLC	River Ridge Energy LLC		59/1263	
C (00009207)	WV DIVISION OF NATURAL RESOURCES	Mar Key LLC	12.5%+	<b>see attached copy of the lease</b>	8.93
D, F, G (00009043)	WILLIAM H SMITH AND CHRISTY S SMITH	Mar Key LLC	12.5%+	1758/31	3.122
E (00009049)	MICHAEL F & CECELIA J DAUGHERTY	Mar Key LLC	12.5%+	1761/322	
H, K (LS00001055)	L GENE PETITTO & MICKEY G PETITTO HIS WIFE	EDWARD MULLOOLY	12.5%+	1365/711	19.000
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1366/25	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/ 756	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO Resources (WV), Inc., ET AL	EXCO Resources (WV), LLC, ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		<b>1782/1046</b>	
I, J (00009185)	ROBERT SCOTT WAGNER	Mar Key LLC	12.5%+	<b>1781/549</b>	60.200
L (LS00001070)	ROGER L CHILDERS AND SANDRA CHILDERS HIS WIFE	EDWARD MULLOOLY	12.5%+	1359/354	28.000

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	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/ 756	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO Resources (WV), Inc., ET AL	EXCO Resources (WV), LLC, ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
M (LS00001066)	LESTER G ANDERSON AND NANCY ANN ANDERSON HIS WIFE	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	12.5%+	1335/565	28
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/567	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	

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	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
N (00009200)	HILARION V & ELIZABETH JOY CANN	MAR KEY LLC	12.5%+	<b>1780/448</b>	40.942
O (LS00001078)	L GENE PETITTO & MICKEY G PETITTO HIS WIFE	EDWARD MULLOOLY	12.5%+	1343/57	40.000
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1345/1119	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (00009031)	Mark D. Glover	MAR KEY LLC	12.5%+	1756/1262	78.08
P (00009032)	Kevin Byrd	MAR KEY LLC	12.5%+	1756/1264	78.08
P (00009034)	Shara Sue Schell	MAR KEY LLC	12.5%+	1756/1260	78.08
P (00009039)	Kimberly Ice	MAR KEY LLC	12.5%+	1757/636	78.08

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P (00009058)	Ruth Starcher	MAR KEY LLC	12.5%+	1760/479	78.08
P (LS00001098)	Helen June Davis and John E. Davis, husband and wife	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1339/427	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098A)	Augustine Laura Starcher	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/240	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	



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	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098B)	Ellis G. Knight and Carole J. Knight, his wife	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/ 228	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	

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	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098C)	Arlie Jo Alexander and Ronald Alexander, her husband	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/ 230	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098D)	Louella Wiseman and Ronald Wiseman, her husband	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/ 232	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	

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	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098E)	Richard O. Wagner and Patricia Lee Wagner, his wife	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/ 236	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	

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	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098F)	Patricia W. Kilduff and Patrick J. Kilduff, her husband	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/246	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098G)	Angeline F. Wagner, widow	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/238	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	

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	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098H)	Robert Wagner, II, and Diana F. Wagner, his wife	Edward Mullooly	12.5%+	1359/357	60
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098I)	Larry J. Phillips and Joyce A. Phillips, his wife	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/242	60

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	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098J)	Sheri Rosko and Patrick Rosko, her husband	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/244	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	

**Attachment to WW-6A1, Goff A 201 Unit**

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	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098K)	John E. Wagner, IV, and Lois A. Wagner	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/220	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098L)	David Wagner and Patricia Wagner	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/224	60

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	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098M)	Dorothy J. Wagner, widow	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/226	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	



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	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098N)	Rebecca J. Arbogast and Delbert B. Arbogast, her husband	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/222	60
	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
P (LS00001098o)	Rebecca Del Frate, widow	Jackson L. Smith Enterprises, Inc., d/b/a West Virginia Energies	12.5%+	1340/234	60

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	Jackson L. Smith Enterprises, Incorporated d/b/a West Virginia Energies	Edward Mullooly		1341/574	
	Edward Mullooly	Mountain V Oil & Gas, Inc.		1359/582	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1394/756	
	Mountain V Oil & Gas, Inc., and M.S.G.O., LLC	North Coast Energy, Eastern, Inc.		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO Production Company (WV), LLC, ET AL	Antero Resources Appalachian Corporation		1503/565	
	Antero Resources	Mar Key LLC/River Ridge/Arsenal Resources		1782/1046	
Q, R (00007771)	EDWARD MULLOOLY ET AL	Mountain V Oil & Gas, Inc.	12.5%+	1359/580	31.155
	MOUNTAIN V OIL & GAS INC & MSGO LLC	NORTH COAST ENERGY EASTERN INC		1394/756	
	MOUNTAIN V OIL & GAS INC & MSGO LLC	NORTH COAST ENERGY EASTERN INC		1405/1169	
	North Coast Energy, Eastern, Inc	EXCO-North Coast Energy Eastern, Inc.		59/806	
	EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), LLC		1448/721	
	EXCO WV AND EXCO PA	EXCO RESOURCES (WV), LLC ET AL		1448/721	
	EXCO PRODUCTION COMPANY (WV) LLC	ANTERO RESOURCES APPALACHIAN CORP		1503/565	

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	ANTERO RESOURCES CORP	RIVER RIDGE ENERGY LLC		1586/1196	
S, J1, K1 (00009080)	STACEY M DAVIS	Mar Key LLC	12.5%+	1765/724	98.2
S (00008637)	XTO ENERGY INC	Mar Key LLC	12.5%+	1629/729	94.5
T thru X (00009026)	JACK RIST JR	Mar Key LLC	12.5%+	1756/235	56.31
T thru X (00009033)	JILL RIST JUSTICE	Mar Key LLC	12.5%+	1756/237	56.31
T thru X (00009035)	JANICE RIST LOVE	Mar Key LLC	12.5%+	1756/1258	56.31
T thru X (00009052)	JOE A RIST	Mar Key LLC	12.5%+	1761/328	56.31
T, V, W, X (00009057)	JULIE RIST	Mar Key LLC	12.5%+	1760/477	56.31
T, V, W, X (00009128)	CHARLES L WARNER JR	Mar Key LLC	12.5%+	1775/390	56.31
T, V, W, X (00009129)	LONNA SUE COPP	Mar Key LLC	12.5%+	1775/392	47.47
T, V, W, X (00009048)	TONY BENNETT	Mar Key LLC	12.5%+	1761/318	47.47
T, V, W, X (00009050)	RICK BENNETT	Mar Key LLC	12.5%+	1761/324	47.47
T, V, W, X (00009051)	DOLORIS ANN WEBBER	Mar Key LLC	12.5%+	1761/326	47.47
T, V, W, X (00009061)	DAVID P PIKE	Mar Key LLC	12.5%+	1760/485	47.47
T, V, W, X (00009073)	THOMAS W PIKE	Mar Key LLC	12.5%+	1761/841	47.47
T, V, W, X (00009111)	AMBER RENEE LANG	Mar Key LLC	12.5%+	1770/497	47.47

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T, V, W, X (00009201)	SALEM UNIVERSITY LLC	Mar Key LLC	12.5%+	<b>1782/17</b>	47.47
Y (00009019)	SHARON SHEARER	Mar Key LLC	12.5%+	1753/702	42.64
T, U, V (00009091)	WILLIAM ISRAEL	Mar Key LLC	12.5%+	1767/493	68.45
T, U, V (00009137)	LAURENCE F CONLEY JR	Mar Key LLC	12.5%+	1775/1274	68.45
T, U, V (00009138)	LAURA PAIGE MOSES	Mar Key LLC	12.5%+	1775/1276	68.45
Y, Z (00009014)	DELORES LOYD	Mar Key LLC	12.5%+	1753/209	33.8
Y, Z (00009079)	HERBERT PAUL BARTLETT	Mar Key LLC	12.5%+	1765/726	33.8
Y, Z (00009094)	DIANNA L GILLIGAN	Mar Key LLC	12.5%+	1765/726	33.8
Y, Z (00009142)	DIANE E SWINK	Mar Key LLC	12.5%+	1769/654	33.8
Y, Z (00009161)	JENNIE MARIE CHRISTOPHER	Mar Key LLC	12.5%+	1779/731	33.8
Y, Z (00009180)	DONALD R REYNOLDS	Mar Key LLC	12.5%+	1780/833	33.8
A1 (00009130)	GDS WV HOLDINGS LLC	Mar Key LLC	12.5%+	1775/394	23.5
B1 (00009025)	LEONARD ROMANO JR	Mar Key LLC	12.5%+	1753/704	21
C1 (00009028)	LISA FLOWERS & GARY STUTLER	Mar Key LLC	12.5%+	1756/239	1.71
D1 (00009063)	WILLIAM MARVIN RINEHART	Mar Key LLC	12.5%+	1760/487	0.75
E1 (00009012)	DEBRA MCCUTCHEON	Mar Key LLC	12.5%+	1753/211	12.5019

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F1 (00009023)	BRIAN D GALLOWAY	Mar Key LLC	12.5%+	1753/961	22.28
F1 (00009024)	MELISSA D GALLOWAY	Mar Key LLC	12.5%+	1753/959	22.28
G1 H1, I1 (00009059)	ROBERT H CORK JR & DONNA J CORK	Mar Key LLC	12.5%+	1760/481	79.133
K1 (00009076)	SHARON ARLINE ROGERS	Mar Key LLC	12.5%+	1762/832	2.219
L1, M1 (00008463)	SHARON ARLINE ROGERS	Mar Key LLC	12.5%+	1622/1269	13.6
K1, L1, M1 (00009096)	JANICE CAWTHON	Mar Key LLC	12.5%+	1768/58	14.3
K1, L1, M1, A2 (00009115)	CHARLES S MILLER	Mar Key LLC	12.5%+	1771/1299	19.14
J1, L1, M1 (00008462)	GEORGE STEPHEN ROGERS	Mar Key LLC	12.5%+	1622/1267	13.6
K1 (00009127)	AMY JO GRIFFITH	Mar Key LLC	12.5%+	1774/696	0.7
N1, O1, P1, Q1, R1, S1, T1, U1, V1, W1, X1, Y1, Z1 (00009113)	CERTAIN "TETRICK" REVOCABLE TRUST AGREEMENT DATED AUGUST 23, 1985 AS AMENDED	Mar Key LLC	12.5%+	1772/886	38.64
N1 (00009126)	TIMMY LEE SEARCEY	Mar Key LLC	12.5%+	1774/694	2.26
Q1 (00009140)	JO ANN HILEMAN	Mar Key LLC	12.5%+	1775/1282	0.6

## **Agreement to Drill, Complete and Operate Oil & Gas Wells**

This Agreement to Drill, Complete and Operate Oil & Gas Wells (this "Agreement"), by and among Arsenal Resources LLC, a West Virginia limited liability company ("Arsenal"), River Ridge Energy, LLC, a Delaware limited liability company ("River Ridge"), and River Ridge Energy, Holdings, LLC, a Delaware limited liability company ("River Ridge Holdings"), is effective as of March 1, 2017. (the "Effective Date") and sets forth the terms pursuant to which Arsenal will drill, complete and operate the Wells (as defined below) on behalf of River Ridge and River Ridge Holdings. Arsenal, River Ridge, and River Ridge Holdings are each a "Party" and are collectively the "Parties". In consideration of the foregoing and the respective agreements hereinafter set forth and the mutual benefits to be derived therefrom, the Parties, intending to be legally bound, hereby agree as follows:

1. **Term:** This Agreement is effective from the Effective Date until terminated by Arsenal on the one hand or River Ridge and River Ridge Holdings on the other hand with 30 days' written notice to the other Party or Parties, as applicable (the "Term").
2. **Authorization to Operate:** River Ridge and River Holdings authorize Arsenal to undertake and perform, on River Ridge and River Ridge Holdings behalf, all operations, including without limitation permit applications, well pad preparation, drilling and completing wells, and marketing gas, oil and other hydrocarbons therefrom with respect to all oil and gas wells to be drilled on oil and gas leasehold acreage held by River Ridge or River Ridge Holdings. River Ridge, River Ridge Holdings and Arsenal are affiliates with a common parent. Arsenal was formed to operate oil and gas leasehold acreage held by River Ridge, River Ridge Holdings and certain other affiliates. Arsenal agrees that it shall, in a good and workmanlike manner and in accordance with industry standards as they prevail in the area, drill, complete and operate oil and gas wells on leasehold acreage owned by River Ridge or River Ridge Holdings from time to time as directed by River Ridge or River Ridge Holdings (collectively, the "Wells").
3. **No Third Party Beneficiary:** This Agreement is for the benefit of the Parties and is not for the benefit of any third party.
4. **Counterparts:** This Agreement may be simultaneously executed in several counterparts and via facsimile or similar electronic transmittal, each of which shall be deemed to be an original and taken together shall constitute one and the same instrument.

[Signature Page Follows]

IN WITNESS WHEREOF, Arsenal, River Ridge, and River Ridge Holdings have caused their duly authorized representatives to execute this Agreement as of the Effective Date.

**ARSENAL RESOURCES LLC**

By: Joel E. Symonds  
Name: Joel E. Symonds  
Title: Vice President - Land

**RIVER RIDGE ENERGY, LLC**

By: Joel E. Symonds  
Name: Joel E. Symonds  
Title: Vice President - Land

**RIVER RIDGE HOLDINGS, LLC**

By: Joel E. Symonds  
Name: Joel E. Symonds  
Title: Vice President - Land

Tract Area/Acreage: 8.93 acres (0.54 miles) West Fork River  
Well Name: LAURA GOFF DAVIS  
District/County: Clark-Outside District, Harrison County  
Lease Number: OG-24-I/17- 17441

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**THE STATE OF WEST VIRGINIA OIL AND GAS LEASE**  
**NO SURFACE USE**  
**(4 YEAR PAID UP LEASE)**

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This OIL AND GAS LEASE dated the 4 day of OCTOBER, 2024, by and between the **STATE OF WEST VIRGINIA, DEPARTMENT OF COMMERCE, DIVISION OF NATURAL RESOURCES**, 324 Fourth Avenue, South Charleston, West Virginia, 25303, **Lessor**, and **MAR KEY LLC**, a West Virginia Limited Liability Company, 6031 Wallace Road Ext., Suite 101, Wexford, Pennsylvania 15090, **Lessee**.

UNDER AND PURSUANT TO THE PROVISIONS OF THE CONSTITUTION AND LAWS OF THE STATE OF WEST VIRGINIA RELATING TO LEASING PUBLIC LANDS BELONGING TO THE STATE OF WEST VIRGINIA, **WITNESSETH:**

1. **Effective Date.** This Oil and Gas Lease Agreement shall not take force and effect, and no rights or interest created hereunder shall be vested in the Lessee, until:

(a) The Lessee has submitted to the Lessor the bonus payment set forth in paragraph 2 hereof;

(b) The Lessee has posted with the Lessor the surety bond required by paragraph 21 hereof, which bond is acceptable to Lessor;

(c) The Lessee has delivered to the Lessor the insurance policies, declaration pages and certificates required by paragraph 22 hereof, which are acceptable to Lessor; and

(d) The Office of the Attorney General of West Virginia has approved this Oil and Gas Lease Agreement as to form and has provided the Lessor with the required documentation of such approval.

Following the satisfaction of the requirements of subparagraphs (a) through (d) of this paragraph, this Oil and Gas Lease Agreement shall take force and effect on the date it is approved as to form by the Office of the Attorney General of West Virginia, which date shall be the "Effective Date".



2. **Grant of Lease.** That for and in consideration of **TWENTY-SIX THOUSAND SEVEN HUNDRED NINETY (\$26,790.00) DOLLARS** [being the bonus of Three Thousand (\$3,000.00) Dollars per acre (8.93 acres)] paid by Lessee to Lessor, the receipt of which is hereby acknowledged, the royalties to be paid, and the covenants, obligations, stipulations and conditions to be observed and performed as herein set forth, Lessor does hereby demise, lease and let unto Lessee the following described water segment for the sole purpose and with the exclusive right of exploring, drilling, completing, operating for, and producing oil, gas and other liquid or gaseous hydrocarbons, including, but not limited to, any and all natural gas liquids such as butane, ethane, isobutane, natural gasolines, pentanes, propane, and similar liquids or byproducts produced in association with the oil and/or gas (the “Granted Minerals”) in or underlying the following “Leased Premises” situate on West Fork River in Clark-Outside District, Harrison County, West Virginia, and being more particularly described as follows:

The granted minerals in or underlying that portion of West Fork River from the ordinary low water mark on each side of the said River, commencing at Latitude 39°15'29.9", Longitude 80°21'53.9" on the west side of the said River and Latitude 39°15'28.9", Longitude 80°21'52.9" on the east side of the said River, and ending at Latitude 39°15'53.5", Longitude 80°21'43.6" on the west side of the said River and Latitude 39°15'54.0", Longitude 80°21'42.3" on the east side of the said River, containing **8.93 acres**, more or less, as more fully shown on the Map attached hereto.

3. **Term.**

(a) This Lease shall remain in force for a term of **Four (4) years** from the date hereof (“Primary Term”), and as long thereafter as the Granted Minerals are produced from the Leased Premises or on acreage pooled therewith, or drilling operations are continued as hereinafter provided.

(b) If, at the expiration of the Primary Term of this Lease, the Granted Minerals are not being produced on the Leased Premises or on acreage pooled therewith, but Lessee is then engaged in drilling or re-working operations thereon, then this Lease shall continue in force for so long as operations are being continuously prosecuted on the Leased Premises or on acreage pooled therewith (“Operations”). Operations shall be considered to be continuously prosecuted if not more than One Hundred Twenty (120) consecutive days shall elapse between the completion or abandonment of one well and the beginning of operations for the drilling of a subsequent well.

(c) If, after discovery of Granted Minerals on the Leased Premises or on acreage pooled therewith, the production thereof should cease for any reason after the Primary Term, this Lease shall not terminate if Lessee commences additional drilling or re-working operations within One Hundred Twenty (120) days from the date of cessation of production or from the date of completion of a dry hole.

(d) If Granted Minerals shall be discovered and produced as a result of such operations set out above on or after the expiration of the Primary Term of this Lease, then this Lease shall continue in force and effect for so long as the Granted Minerals are produced from the Leased Premises or on acreage pooled therewith.

#### 4. **Pugh Clause-Horizontal and Vertical.**

(a) As to the acreage of the Leased Premises which is not in production in paying quantities and is not included within a properly constituted and publicly recorded production unit at the expiration of the Primary Term, as extended hereunder, this Lease shall automatically terminate, and be of no further force or effect.

(b) Further, and to the extent Lessee has established production in paying quantities beyond the expiration of the Primary Term on the Leased Premises or lands pooled or unitized therewith, the Lease shall terminate, on a production unit-by-production unit basis, as to all depths, formations, horizons and zones lying at least One Hundred (100') feet below the deepest producing formation or horizon on the Leased Premises or any lands pooled therewith, as determined by reference to the deepest producing formation or horizon in each respective production unit.

(c) Thereafter, this Lease shall continue in full force and effect for all depths, formations, horizons and zones lying above the depth of One Hundred (100') feet below the deepest producing formation or horizon of a particular production unit as to all the acreage located within that particular production unit.

#### 5. **Royalties.**

(a) Lessee shall pay and deliver or cause to be delivered to the Lessor, or its successors, nominees, agents, or assigns, at no cost to Lessor, a royalty equal to **Twenty Percent (20%) or One-Fifth of Eight Eighths (1/5th of 8/8ths)** of the Gross Proceeds realized by Lessee, or any Affiliate of Lessee, from the sale of the Granted Minerals, produced and sold from the Leased Premises.

(b) Lessee shall pay Lessor all royalties that become due under this Lease within One Hundred Twenty (120) days after the first day of the month following the month during which a well commences production into a pipeline for sale of such production. Thereafter, all royalties shall be paid to Lessor on a monthly basis, or other basis if so agreed to by Lessor and Lessee.

(c) If the royalty payments are not paid within the time prescribed in this Lease, then Lessor shall provide Lessee written notice of nonpayment of royalty. If Lessee fails to pay Lessor the royalty due and owing to Lessor within Thirty (30) days from Lessee's receipt of such notice, then this Lease shall automatically terminate. Inaccurate royalty payments shall not be governed by the provisions of this paragraph, but shall be resolved in good faith between Lessor and Lessee in a timely manner.

(d) Neither Lessee, nor any Affiliate of Lessee, may reduce Lessor's royalty for any post-production expense, including, but not limited to, pipelines, surface facilities, telemetry, gathering, dehydration, transportation, fractionation, compression, manufacturing, processing, treating, or marketing of the Granted Minerals, or any severance or other taxes of any nature paid on the production thereof. Royalties under this Lease shall be based on the total proceeds of sale of the Granted Minerals, exclusive of any and all production and/or post-production costs.

#### **6. Shut-In Royalty.**

(a) If a well has been completed that is capable of production in paying quantities and has been temporarily shut-in for lack of a market, then Lessee shall pay Lessor annually, on or before Ninety (90) days of such shut-in event, the sum of One Hundred (\$100.00) Dollars per acre for the first year, and Two Hundred Fifty (\$250.00) Dollars per acre for the year thereafter on the ensuing anniversary.

(b) In no event may Lessee maintain this Lease by payment of shut-in royalties beyond a continuous two-year period. This Lease shall automatically terminate on the first day following the second anniversary date of the initial shut-in royalty payment.

(c) Additionally, in no event may Lessee maintain this Lease by payment of shut-in royalties beyond a cumulative three-year period during which all production of the Granted Minerals was shut-in. This Lease shall automatically terminate on the first day following the date that all production of the Granted Minerals has been shut-in for a cumulative period of Three (3) years.

**7. Method of Payment.** All rents, royalties, bonuses, or other payments accruing and/or owing from Lessee to Lessor under this Lease shall be made or tendered by company check payable to Lessor and delivered by mail in accordance with this Lease.

#### **8. Unitization.**

(a) Lessee may pool, consolidate, or unitize portions of the Leased Premises, as to hydrocarbon bearing geologic formations, to constitute a unit for the purpose of exploring for and producing the Granted Minerals.

(b) The unit:

(1) Shall be comprised of lands contiguous to the Leased Premises and/or lands in the immediate vicinity of the Leased Premises; and

(2) May exceed Six Hundred Forty (640) acres if the larger area shall provide for the greater development of the Granted Minerals: Provided, That the unit shall not exceed One Thousand Two Hundred and Eighty (1,280) acres.

(c) Upon the drilling and completion of a well within a production unit containing at least a portion of the Leased Premises, Lessee shall file a declaration of pooling and unitization within a reasonable time in the records of the Office of the Clerk of the County Commission of the county in which the production unit and the Granted Minerals are situated.

## 9. Limitations on the Grant of Lease.

(a) **Surface Activities Prohibited.** This Lease does not include, and specifically prohibits and excludes, the right to enter upon the surface of the lands set out herein, if any, to conduct exploration for drilling, and production and marketing activities of any kind associated with the Granted Minerals, and any other activities by Lessee, its representatives, employees, contractors, agents, and affiliates, including, but not limited to, the construction of pits, impoundments, and/or pipelines or gathering lines on the Leased Premises. All development and production activities and facilities shall be constructed on adjoining and/or other lands, and not on the Leased Premises or islands within the Ohio River and other state waterways, except to the extent that horizontal well laterals are located underneath the bed, banks and shores of the same. Such development and production activities and facilities shall be above and outside the high-water mark of the Ohio River and other state waterways.

(b) **Reserved Rights of Lessor.** Lessor hereby reserves all rights not granted in this Lease, and specifically excepts all minerals, other than the Granted Minerals, including, but not limited to, geothermal energy, salt, brine, coal and coalbed methane.

(c) **Navigational Servitude.** Lessee shall not perform any work, construction, production or other related activities on the bed, banks or shores of the Ohio River and/or any other waterway of the state below the high-water mark thereof. Lessee shall not in any way hinder or impair the navigational servitude of the United States of America or the public rights of navigation or floatage on the Ohio River and/or any other navigable or floatable waterway of the state.

(d) **No Storage.** Lessee may not use the Leased Premises, or any part thereof, for storage purposes.

## 10. Notice of Intent to Drill and Complete.

(a) Lessee shall give Lessor prior written notice of Lessee's intention to drill at least Fourteen (14) calendar days prior to the spudding of a well associated with producing the Granted Minerals.

(b) Upon written request, Lessee shall give Lessor a copy of Lessee's completion report of such well or wells within Thirty (30) days of completion: Provided, That Lessor may make a written request for such completion reports at any time after such Thirty (30) days.

## 11. Diligence, Duty to Drill Offset Wells.

(a) Lessee shall conduct its drilling operations hereunder utilizing best industry practices in existence at the time of such drilling, and shall otherwise conduct its operations in a good and workmanlike manner as a reasonably prudent operator would under the same or similar circumstances until all drilling and producing operations are completed, or until such time as the final well is plugged and abandoned.

(b) Additionally, if Granted Minerals are discovered in, on or underlying the Leased Premises, Lessee shall further develop and produce the Leased Premises as a reasonable and prudent operator would and exercise all due diligence in drilling additional well(s) as may be necessary to fully develop the Leased Premises. Lessee shall protect the Granted Minerals in and under the Leased Premises from drainage by wells on adjoining or nearby tracts or leases, including those held by Lessee or any Affiliate of Lessee.

(c) Neither the rents, royalties, nor any other consideration set forth under this Lease shall relieve Lessee of its obligation to reasonably develop and produce the Leased Premises and to reasonably protect the Granted Minerals in and under the Leased Premises from drainage or other damage.

#### **12. Limitations on Drilling.**

(a) Lessor and Lessee agree that the limitation on well pad construction and/or location is intended to reduce any long-term, substantial interference with the public's use of the Leased Premises as it exists on the date of the Lease.

(b) Non-Water Leased Premises. Lessee shall not construct any well pad within Five Hundred Fifty (550') feet of any outside boundary of the tracts comprising the Leased Premises herein, if applicable, measured linearly from any point along said tract boundary to the midpoint of the secondary containment berm of a particular well pad.

#### **13. Water Use.**

(a) Unless Lessee obtains appropriate permits, Lessee shall not use the surface waters or the groundwaters located within the Leased Premises and shall not diminish or impair the riparian rights, consumptive or non-consumptive water rights or groundwater of the State of West Virginia within or adjoining the Leased Premises, or any private riparian landowner adjoining the Leased Premises within said State.

(b) Notwithstanding any other provision set forth in this Lease Agreement, this Lease Agreement does not prohibit Lessee, its representatives, employees, contractors, agents and affiliates from constructing and operating an intake to withdraw water pursuant to authorization from a riparian landowner and in compliance with any applicable regulatory requirements.

#### **14. Waste Prohibited.**

(a) Lessee shall not commit, or cause to be committed, waste, damage, or pollution to the Granted Minerals in or underlying the Leased Premises.

(b) Non-water Leased Premises. Lessee shall take all reasonable steps to prevent its Operations from causing or contributing to soil erosion, or to the injury of terraces, grades, embankments, other soil or structures on the Leased Premises.

(c) Water and Non-Water Leased Premises. Lessee shall not pollute the surface or subterranean waters of the Leased Premises, or any reservoirs, springs, streams, irrigation ditches, stock ponds or other wells on the Leased Premises. Lessee shall not decrease the fertility of the soil, damage any crops, grasses, timber or pastures on the Leased Premises, and shall not harm or injure any animals, fish or livestock on or in the Leased Premises. Lessee shall not damage any buildings, roads, structures or other improvements on the Leased Premises.

#### **15. Damage.**

(a) Lessee shall preserve the Leased Premises, and upon the termination of this Lease, promptly surrender and return the Leased Premises to the Lessor in the same condition, or substantially similar condition, as the Leased Premises were in prior to Lessee taking possession of the Leased Premises.

(b) If Lessor determines, in its reasonable discretion after conducting a proper investigation, that the drilling activities of Lessee related to the production of the Granted Minerals from the Leased Premises herein have created a long-term, substantial interference with the public's use of the Leased Premises herein, then Lessor shall have the right to seek from Lessee additional measures or controls to mitigate such long-term, substantial impairment caused by Lessee's drilling activities.

(c) Lessee shall compensate Lessor, its successors or assigns, for any damages caused by Lessee.

#### **16. Suspension of Lease.**

(a) If Lessee is prevented from complying with its obligations under this Lease, express or implied, except payment of money, due to scarcity of or inability to obtain or use equipment or material or by operations of Force Majeure, or any federal or state law, or any order, rule or regulation, then, while so prevented, Lessee's obligation to comply with this Lease shall be temporarily suspended, and Lessee shall not be liable in damages.

(b) This Lease shall be extended only so long as Lessee is prevented by any such cause from conducting operations on or in the Leased Premises: Provided, That in no event shall Lessee's performance be suspended as a result of Force Majeure, federal or state law, or any rule or regulation for a period in excess of two (2) consecutive years.

#### **17. Default.**

(a) Any of the following shall be deemed a default of this Lease:

(1) Failure of Lessee to timely make royalty payments or any other required payments to Lessor under this Lease.

(2) If a creditor of Lessee, its agents and/or assigns, takes action to execute, garnish or attach Lessee's assets that include the Leased Premises: Provided, that this provision does not impair Lessee's ability to mortgage its interests in the Granted Minerals or the Leased Premises.

(3) Failure of the Lessee to obtain any requisite “prior written consent” as set forth in this Lease.

(4) Failure of Lessee to maintain insurance and be bonded as set forth in this Lease.

(5) Shut-in of a well exceeding the time period set forth in this Lease.

(b) If Lessor considers that Lessee has failed to comply with its obligations under this Lease, whether expressed or implied, Lessor shall notify Lessee in writing stating the reasons Lessee has breached this Lease. Lessee shall have Thirty (30) days, after receipt of the notice, to cure the assertions by Lessor. If it is not practical to cure within the Thirty (30) days, then Lessee shall have Thirty (30) more days to commence curing, and shall diligently and continuously pursue to complete such cure.

(c) If Lessee fails or refuses to cure the assertions by Lessor, or fails to respond in a meaningful fashion to Lessor’s notice within the timeframes set forth herein, or within a longer period of time if Lessee is in good faith continuously effectuating a cure, then this Lease shall automatically cease and terminate.

(d) Upon such termination, Lessee shall:

(1) Immediately and unconditionally surrender possession of the Leased Premises, or that portion of the Leased Premises included in the notice; and

(2) Plug and abandon any producing or non-producing well(s).

(e) Upon Lessee’s failure to remedy any alleged breach of this Lease within the applicable cure period, Lessor shall be entitled to recover from Lessee any and all royalties, charges or claims of every kind and nature due, owing and/or arising out of this Lease, and to take immediate possession of the Leased Premises. If Lessor institutes proceedings to clear title or take possession of the Leased Premises, then Lessor shall be entitled to recover from Lessee its reasonable attorney fees, investigation costs, expert fees and any other reasonable costs or expenses related to such proceedings.

#### **18. Information, Metering, Lessor’s Rights to Audit.**

(a) Upon request, Lessee shall furnish to Lessor copies of:

(1) Title opinions covering the Granted Minerals in or underlying the Leased Premises herein;

(2) Filings made by Lessee with the Department of Environmental Protection (DEP) related to the Leased Premises: Provided, That the DEP filings may be provided to Lessor electronically; and

(3) Division Orders or amounts of gross production.

(b) Lessee shall meter gas deriving from the Leased Premises at the wellhead in accordance with West Virginia law.

(c) Lessor shall, on an annual basis, upon reasonable prior written notice to Lessee, have the right to audit the books, accounts, contracts, records and data of Lessee pertaining to the development and sale of the Granted Minerals.

**19. Annual Report, Quarterly Royalty Statement.**

(a) Lessee shall give Lessor an annual report on production volumes and sales prices.

(b) Lessee shall give Lessor a quarterly report, either on the check stub of a royalty payment or on an attachment to or enclosure with a royalty payment, that includes:

(1) The lease, property or well names, and the well identification numbers on which royalties are being paid;

(2) The month and year during which the sales occurred for which payment is being made;

(3) The total production from the well or wells expressed as the number of barrels of oil or the total amount of gas in million cubic feet (MCF) and the volume of any other Granted Minerals, condensate, or other constituents therein which were sold;

(4) The price per barrel of oil and per MCF of gas sold; and

(5) The name, address, and telephone number of a contact person where the Lessor may obtain information about royalty payments made by the Lessee hereunder.

**20. Record Management.** Lessee shall keep an accurate record of all drilling operations that include the Leased Premises, including, but not limited to the following:

(a) A log of each well drilled that included the Leased Premises, as duly sworn to by the contractor or driller;

(b) Original gas sales contracts and any amendments thereto;

(c) Gas balancing agreements and schedules; and

(d) Information concerning litigation, settlement agreements or other agreements relating to sales and pricing of the Granted Minerals.

**21. Bonding.** Within Thirty (30) days of the execution of this Lease, Lessee shall post a surety bond in favor of Lessor in the amount of Two Thousand Dollars (\$2,000.00) per acre: Provided, That the surety bond shall not exceed Two Hundred Thousand Dollars (\$200,000.00). The surety bond shall secure the payment of all sums due and performance of all obligations arising under this Lease.

**22. Insurance.**

(a) A company licensed by the West Virginia Insurance Commission to do business in the state of West Virginia shall underwrite all policies required by this Lease.

(b) The policies, declaration pages and certificates of insurance shall be delivered to Lessor within Thirty (30) days of the execution of this Lease, and upon each renewal of said insurance policies.



(c) Lessee and/or any person or entity acting on Lessee's behalf under this Lease, shall maintain at all times during which this Lease remains in force and effect, workers compensation and employer's liability insurance, commercial general liability and umbrella liability insurance, business, auto and umbrella liability insurance, and environmental liability insurance in the amount of at least Two Million Five Hundred Thousand Dollars (\$2,500,000.00), combined single limit. The insurance policies, except workers compensation and employer's liability insurance, shall name Lessor as an additional insured with regard to the Leased Premises, and shall reflect that the insurer has waived any right of subrogation against Lessor.

**23. Assignment and/or Transfer.** Lessee may assign or otherwise transfer this Lease and the interests hereunder. Within Thirty (30) days of an assignment or transfer, Lessee shall give Lessor written notice of the assignment and/or transfer of its interest in the Lease, including the name and contact information of the assignee or transferee, and written documentation of the assignment or transfer.

**24. Surrender of Lease.**

(a) If Lessee is not in default of any obligation due under this Lease, then Lessee may surrender the Leased Premises or any part thereof upon payment of all liabilities then accrued and due. Lessee must provide Lessor written notice Thirty (30) days prior to the effective date of the surrender.

(b) Lessee shall deliver to Lessor a recorded release of the surrendered area describing all depths, formations and horizons in and under the Leased Premises so released.

(c) Lessee may not release any portion of the Leased Premises that is included in a pool or unit on which operations are being conducted.

**25. Well Plugging.** Before abandoning a well associated with this Lease, Lessee shall securely plug and abandon such well in accordance with the rules and regulations of the West Virginia Department of Environmental Protection, and the laws of the State of West Virginia and any other governmental agency having jurisdiction.

**26. No Warranty of Title.**

(a) Lessor represents and warrants to Lessee that the West Virginia Division of Natural Resources is the proper agency or instrumentality of the State of West Virginia to enter into this Lease for the purpose of leasing the Granted Minerals and the Leased Premises to Lessee on the terms set forth herein, and that the Director of the West Virginia Division of Natural Resources is vested with the full legal authority and is duly authorized to execute this Lease on behalf of the Lessor and the State of West Virginia.

(b) Lessor makes no representation of title or ownership, either expressed or implied, and further makes no warranty as to the actual or potential presence of Granted Minerals. Lessee represents it has performed all necessary due diligence regarding the title or ownership of the Granted Minerals and agrees to be bound by the quantum of acreage set out herein.

(c) Lessee shall notify Lessor of any adverse claim to the Leased Premises affecting title to all or a portion of the rights to develop the Granted Minerals, and Lessor may, with the approval of the Attorney General, enter into an escrow arrangement for the future rents and royalties accruing to such disputed portion of the Leased Premises under terms and conditions that the Attorney General feels proper to safeguard the rights and interest of the State of West Virginia.

(d) If an adverse claimant files suit against the State of West Virginia or against Lessee claiming title to all or a portion of the Granted Minerals, or if Lessee, after receiving notice of an adverse claim, institutes litigation in a court of competent jurisdiction to adjudicate the validity of the claim, the rents and royalties accruing to the litigated portion shall be placed in an escrow account until such time as the ownership of the disputed interest is determined by a court of competent jurisdiction.

(e) If a court of competent jurisdiction determines that Lessor does not have title to all or part of the Granted Minerals in the Leased Premises, the rents, royalties and bonus thereafter accruing from any part as to which this Lease covers less than the full interest in such Granted Minerals, shall thereafter be paid only in the proportion which the interest therein, if any, covered by this Lease bears to the whole and undivided fee simple estate therein. Any sums of money paid pursuant to this Lease are not reimbursable to Lessee.

## **27. Indemnity.**

(a) Unless caused by the negligence of Lessor, or any agent, servant, or employee of Lessor, Lessee shall defend, indemnify, protect and hold harmless Lessor and Lessor's heirs, successors, representatives, agents and/or assigns from and against any and all claims, demands, causes of action, liability, loss, damage or expense of any and every kind and nature, including without limitation costs, expenses, and attorneys' fees, for injury and death, or damage to persons or property, environmental damage to the surface, waterways, or subsurface estates of any person, firm, corporation or other entity arising out of, incidental to, or resulting from:

(1) The operations or activities of Lessee or Lessee's servants, agents, employees, guests, licensees, invitees or independent contractors on or in the Leased Premises;

(2) The exercise of any right granted under this Lease; and/or

(3) Any obligations imposed under this Lease.

(b) Any successor in interest of any rights of Lessee in this Lease shall likewise be obligated to defend and indemnify Lessor and Lessor's heirs, successors, representatives, agents and assigns in the same manner as the original Lessee.

**28. Subsurface Easement.** Lessor grants unto Lessee, and its successors and assigns, a subsurface easement to drill, complete, equip, produce and operate one or more wellbores through the subsurface of the Leased Premises, including without limitation, the right to repair, maintain, re-drill, deepen, plug back, recomplete, rework, recondition, clean out, sidetrack, remove, plug and abandon and inject gas or other substances into such wellbore(s), and to conduct other operations as may be prudent or necessary on or with respect thereto, including any operations to establish, re-establish, or increase the deliverability of hydrocarbon production therefrom.

**29. Governing Law and Compliance.**

(a) This Lease shall be governed by the laws of the State of West Virginia and any dispute arising out of this Lease shall be resolved in a West Virginia court of law having jurisdiction thereof.

(b) This Lease shall be subject to the Constitution and laws of the State of West Virginia, and the rules and regulations of the West Virginia Division of Natural Resources and the West Virginia Department of Environmental Protection now or hereafter in force, all of which are made a part and condition of this Lease: Provided, that no law, rule or regulation enacted, passed or made after the execution of this Lease that affects the lease term, the royalty rate or payment, or the assignment of Lease, shall operate to alter the terms and conditions of this Lease.

(c) Lessee agrees to comply in all respects with the laws, rules and regulations of the State of West Virginia and the United States of America.

**30. Definitions.**

(a) "Affiliate of Lessee" means any person, corporation, firm, or other entity in which Lessee, or any parent company, subsidiary or affiliate of Lessee, owns an interest of Five Percent (5%) or more, whether by stock ownership or otherwise, over which Lessee, or any parent company or affiliate of Lessee, exercises any degree of control, directly or indirectly, by ownership, interlocking directorate, or in any other manner, and any corporation, firm or other entity which owns any interest in Lessee, whether by stock ownership or otherwise, or which exercises any degree of control directly or indirectly, over Lessee, by stock ownership, interlocking directorate, or any other manner.

(b) "Force Majeure" means the acts of god such as flood, fire, adverse weather conditions, war, sabotage, rebellion, insurrection, riot, strike or labor disputes, pandemic disease and related circumstances, or other cause(s) not within Lessee's control. Force majeure does not mean and shall specifically exclude scarcity, cost, or inability to obtain or use equipment, contracts, personnel, water, or other material(s), unless caused by the conditions described in this paragraph.

(c) "Gross Proceeds" means the total monies and other consideration accruing to Lessee for the disposition of the Granted Minerals and/or any other marketable by-products, including condensate, produced from the Leased Premises. Gross Proceeds shall be calculated based on the total gross volume of Granted Minerals produced and sold, exclusive of production and post-production costs and severance taxes or other taxes of any nature.

31. **Notices and Payments.** All notices and payments which are permitted or required under this Lease shall be in writing and shall be deemed valid and received if delivered personally, by mail, by registered or certified mail, return receipt requested, or by special carrier with signature required, to the Lessor and/or Lessee at the following addresses, unless otherwise agreed by the parties in writing:

(a) **To Lessor:**

West Virginia Division of Natural Resources  
Office of Land and Streams  
324 Fourth Avenue, Room 200  
South Charleston, West Virginia 25303

(b) **To Lessee:**

Mar Key LLC  
6031 Wallace Road Ext., Suite 101  
Wexford, Pennsylvania 15090

32. **Ratification.** No instrument executed by Lessor shall be effective to constitute a ratification, renewal, extension or amendment of this Lease unless such instrument is clearly titled to indicate its purpose and intent.

33. **Successors in Interest.** The Terms, conditions, covenants, obligations, considerations, or requirements of this Lease shall extend to and be binding upon the parties hereto, their heirs, successors, executors, administrators, and assigns, all of whom shall be jointly and severally liable.

34. **Severability.** Should any one or more of the provisions in this Lease become or be determined to be void or invalid, in whole or in part, the remainder of this Lease shall remain in full force and effect.

**WITNESS** the following signatures and seals:

STATE OF WEST VIRGINIA  
DEPARTMENT OF COMMERCE  
DIVISION OF NATURAL RESOURCES

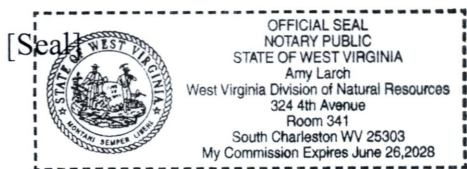
BY:   
Director

STATE OF WEST VIRGINIA  
COUNTY OF KANAWHA, To-wit:

I, Amy Larch, a Notary Public in and for said County and State, do hereby certify that **Brett W. McMillion, Director**, who signed the writing hereto annexed, for the **STATE OF WEST VIRGINIA, DEPARTMENT OF COMMERCE, DIVISION OF NATURAL RESOURCES**, has this day acknowledged the same before me in my said county to be the act and deed of said Division.

Given under my hand this 4 day of October, 2024.

My commission expires June 26, 2028.



  
Notary Public

Approved as to form prior to acknowledgement thereof

this 1st day of Oct, 2024

Patrick Moerisey, Attorney General

By:   
Senior Deputy Attorney General

MAR KEY LLC

BY: Jon Sheldon

Its: SVP and COO

COMMONWEALTH OF Pennsylvania  
COUNTY OF Allegheny, To-Wit:

I, Annmarie O'Connor, a Notary Public in and for said County and State, do hereby certify that Jon Sheldon, its SVP and COO, who signed the writing hereto annexed, for **MAR KEY LLC**, has this day acknowledged the same before me in my said county to be the act and deed of said Company.

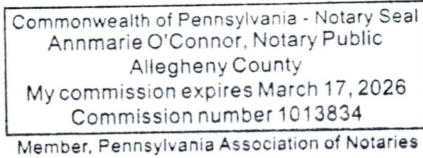
Given under my hand this 16<sup>th</sup> day of September, 2024.

My commission expires 3/17/2026.

[Seal]

Annmarie O'Connor

Notary Public



Prepared by: Office of Land & Streams  
Division of Natural Resources  
324 Fourth Avenue, Room 200  
South Charleston, WV 25303



People Powered. Asset Strong.

September 24, 2024

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
ATTN: Taylor Brewer  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

**RE: Laura Goff Davis 201, API# 47-033-06023 – Expedited Modification due to well extension**

Dear Mr. Brewer,

Enclosed please find the permit modification for the Laura Goff Davis 201, (API# 47-033-06023). I have included a USB flash drive containing the E&S Plan, Site Safety Plan, and the MSDS.

The wellhead location remains the same as the current permit. The well is being extended in lateral length. This well was originally permitted to 7,075 feet. The modification request is to increase the total measured depth to 27,341 feet. Additional leases under the additional section are shown on the revised WW-6A1.

Should you have any questions or need any additional information, please feel free to contact me by phone or email.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Boyer'.

Dave Boyer  
Director of Geology & Development Planning  
(c) 724-759-0088  
(e) dboyer@arsenalresources.com

RECEIVED  
Office of Oil and Gas

SEP 26 2024

WV Department of  
Environmental Protection

6031 Wallace Road Ext, Suite 101  
Wexford, PA 15090  
P: 724-940-1100  
F: 800-428-0981  
www.arsenalresources.com

10/18/2024