



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

Friday, March 02, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

ARSENAL RESOURCES LLC
6031 WALLACE ROAD EXTENSION SUITE 603

WEXFORD, PA 15090

Re: Permit approval for ROCKY JENNINGS 202
47-077-00633-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief 

Operator's Well Number: ROCKY JENNINGS 202
Farm Name: FRANKLIN M. & PEGGY A. JENNINGS
U.S. WELL NUMBER: 47-077-00633-00-00
Horizontal 6A / New Drill
Date Issued: 3/2/2018

Promoting a healthy environment.

03/02/2018

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

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

1) Well Operator: Arsenal Resources 494519412 Preston Reno Fellowsville 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Rocky Jennings 202 Well Pad Name: Rocky Jennings

3) Farm Name/Surface Owner: Franklin M. & Peggy A. Jennings Public Road Access: Rt. 92

4) Elevation, current ground: 1654' Elevation, proposed post-construction: 1651.5'

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

(b) If Gas Shallow Deep _____
Horizontal _____

6) Existing Pad: Yes or No No *MDK 2/6/2018*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale, Target Top Depth: 7866.5', Target Bottom Depth: 7950.5', 84', 0.5 psi/ft.

8) Proposed Total Vertical Depth: 7,940'

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 16,978'

11) Proposed Horizontal Leg Length: 8,751.53'

12) Approximate Fresh Water Strata Depths: 750'

13) Method to Determine Fresh Water Depths: Offsetting wells reported water depths (077-00469; 077-00483; 077-00438; 077-00526; 077-00564)

14) Approximate Saltwater Depths: No Saltwater Present in the Area

15) Approximate Coal Seam Depths: Marion Coal - 267.5; Behanben - 946.0; Brush Creek - 446.0; Upper Freeport - 613.0; Lower Freeport - 657.5; Upper Kilmoryn - 608.0; Middle Kilmoryn - 660.0; Lower Kilmoryn - 718.0

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

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

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	24"	New	H-40	94#	80'	80'	CTS
Fresh Water	13.375"	New	J-55	54.5#	800'	800'	CTS
Coal							
Intermediate	9.625"	New	J-55	40#	1900'	1900'	CTS
Production	5.5"	New	P-110	20#	16,978'	16,978'	TOC@1,750'MD
Tubing							
Liners							

MJR 2/6/2018

<u>TYPE</u>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	24"	36"			0	Class A, 3% CaO2	1.20
Fresh Water	13.375"	17.5"	0.38"	2730 psi	900	Class A, 3% CaO2	1.20
Coal					0		
Intermediate	9.625"	12.25"	0.395"	3,950 psi	1500	Class A, 3% CaO2	1.29
Production	5.5"	8.5-8.75	0.361"	12,640 psi	9,500	Class A50:50 Poz	1.29/1.34
Tubing					5,000		
Liners					N/A		

PACKERS

Kind:				
Sizes:				
Depths Set:				

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 then 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 a 8 3/4" hole to a designed Pilot Hole Depth, log the well, and then set a cement kick-off plug from Pilot Hole TD to designed kick-off point. Once the plug has cured, the plan is to 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 90bpm and the maximum pressure will be 9,500 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 14.11

22) Area to be disturbed for well pad only, less access road (acres): 6.77

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 2,050'; there will be no centralizers from 2050' 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 cement and no greater than 3% CaCl (calcium chloride). The 9 5/8" casing will be cemented to surface with Class A cement, & no greater than 3% calcium chloride. The 5 1/2" production string will be cemented back to 1,750' (+/- 150' above the casing shoe for the 9 5/8") with Class A and 50/50 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 to 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 stands 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.



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 Preston County, WV prior to hydraulic fracturing at the Rocky Jennings 202 Pad.

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 8,000' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Elk Sand formations (approximately 5,700' 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.



2. Reporting

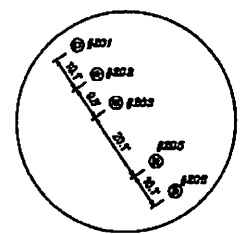
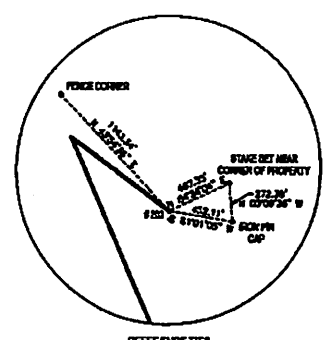
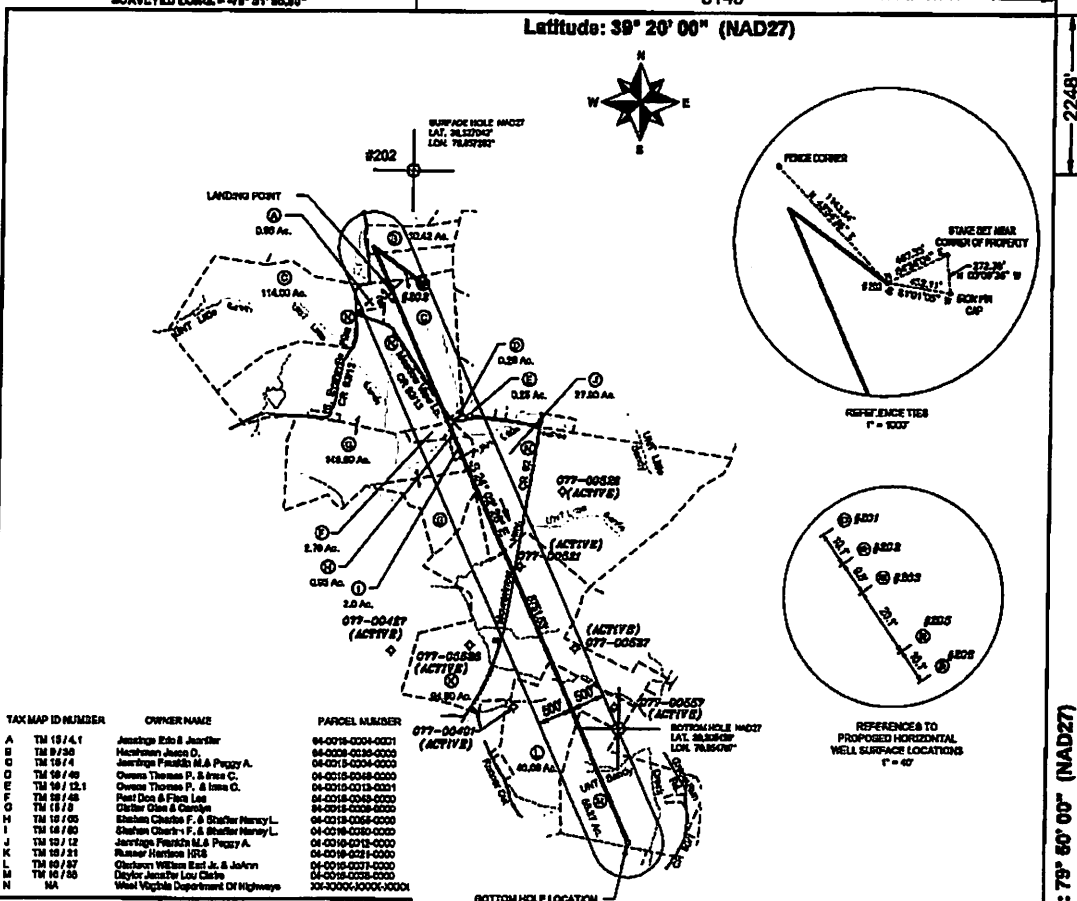
Arsenal Resources will provide information relating to the hydraulic fracturing schedule, communication with conventional operators, and ongoing monitoring of the work upon request of OOG or immediately after any event of any noted abnormalities.

SURFACE HOLE DEC. LONG. = 79.86641888
 SURVEYED LONG. = 79° 51' 55.88"

9149'

Latitude: 39° 20' 00" (NAD27)

2248'



TAX MAP ID NUMBER	OWNER NAME	PARCEL NUMBER
A	TM 19 / A 1	Jeanette Edo B. Javitz
B	TM 9 / 90	MacPherson Jason D.
C	TM 19 / 4	Jeanette Franklin M.A. Pizay A.
D	TM 19 / 40	Owens Thomas P. & Irene C.
E	TM 19 / 12.1	Owens Thomas P. & Irene C.
F	TM 19 / 58	West One & Five LLC
G	TM 11 / 8	Clatter Glen & Company
H	TM 19 / 00	Shahan Charles F. & Shaffer Nancy L.
I	TM 19 / 60	Shahan Charles F. & Shaffer Nancy L.
J	TM 12 / 12	Jeanette Franklin M.A. Pizay A.
K	TM 19 / 21	Russner Harrison IRS
L	TM 09 / 87	Charles William East Jr. & JoAnn
M	TM 19 / 50	Daylor Joseph Lee Civil
N	NA	West Virginia Department of Highways

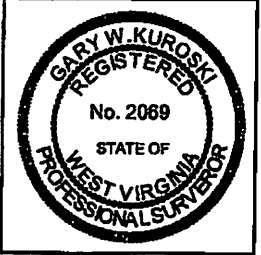
REFERENCE NOTES
 1. Property lines as shown taken from deeds, tax maps, and field locations. A full boundary survey is not required or implied. All bearings are based on GCM North. Ownership taken from public records Pleasonton County, WV - West Virginia Decs 2017
 2. State Plane Coordinates - NAD83 datum by 6th order datum reprojecting grade GNS.
 3. There are no structures, dwellings, or agricultural buildings within 625 feet of center of well.
 4. No water wells found within 200' of the center of well pad.

LEGEND

(SHADED) W/VS SURVEY	(SHADED) LAY/LOWS	(SHADED) L/VS
TOP HOLE	TOP HOLE	TOP HOLE
LANDING POINT	LANDING POINT	LANDING POINT
BOTTOM HOLE	BOTTOM HOLE	BOTTOM HOLE
LAND TIE HOOK		

FILE#: 17078-003
 SHEET#: 1 of 1
 SCALE: 1" = 2000'
 TICK SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: WV-RTN CORS STATION

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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 Signed: Gary W. Kuroski 08/23/17
 P.S. #2089 Gary W. Kuroski, P.S.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: AUGUST 23, 2017
 OPERATOR'S WELL #: #202
 API WELL #: 47 77 TBD
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow
 WATERSHED: TYGART VALLEY - SANDY CREEK
 COUNTY / DISTRICT: PRESTON / RENO
 SURFACE OWNER: FRANKLIN M. and PEGGY A. JENNINGS
 OIL & GAS ROYALTY OWNER: FRANKLIN M. AND PEGGY A. JENNINGS
 ELEVATION: 1651.5' - DESIGN
 QUADRANGLE: FELLOWSVILLE, WV
 ACREAGE: 114
 ACREAGE: 504 ±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE SPECIFY: _____
 TARGET FORMATION: MARCELLUS
 WELL OPERATOR: ARSENAL RESOURCES
 ADDRESS: 6031 WALLACE ROAD EXTENSION # 300
 CITY: WEXFORD STATE: PA ZIP: 15090
 ESTIMATED DEPTH: TVD: 7940' TMD: 16978'
 DESIGNATED AGENT: WILLIAM VEIGEL
 ADDRESS: 65 PROFESSIONAL PLACE SUITE 200
 CITY: BRIDGEPORT STATE: WV ZIP: 26330

Longitude: 79° 50' 00" (NAD27)
 SURFACE HOLE DEC. LAT. = 39.33333333
 SURVEYED LAT. = 39° 19' 37.88"

ADR ATTACHMENT "A"

03/02/2018

Area of Review Report - Rocky Jennings Pad, 202 Lateral, Preston County, WV

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
E Runner 15	077-00537	Diversified Resources	Vertical/Existing	39.312856	-79.857203	5654	Alexander, Elk	NA
E Runner 5	077-00521	Diversified Resources	Vertical/Existing	39.315996	-79.860043	5619	Benson, Alexander, Elk	NA

AOR - ATTACHMENT "A"



ARSENAL R E S O U R C E S

Click or tap to enter a date.

Diversified Resources
Address
State

RE: Click or tap here to enter text.

Dear Sir/Madam,

Arsenal Resources has developed a Marcellus pad, the Rocky Jennings Pad, lateral #202 located in Preston 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 7,950' 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 [Click or tap here to enter text.](#) Pad during the Quarter of 2018. 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 724-940-1202 with any questions or comments. You may also contact the WV Office of Oil and Gas at 304-926-0499.

Sincerely,

Carolinda Flanagan
Permitting Specialist

AOR - ATTACHMENT "B"
SAMPLE LETTER

WW-9
(4/16)

API Number 47 - 077 - 00633
Operator's Well No. Rocky Jennings 202

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Arsenal Resources OP Code 494519412

Watershed (HUC 10) Tygart Valley-Sandy Creek Quadrangle Fellowsville, WV 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: _____

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number various)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: Yes, the closed loop system will contain all of the drilling medium and drill cuttings on location to then be taken to landfill

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Vertical freshwater, Horizontal synthetic oil-based mud

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

Additives to be used in drilling medium? Bentonite, Soap & Polymer sticks, Soda Ash, Sodium Bicarbonate, Defoamer, Base Oil, Emulsifiers, Lime, Barite

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Meadowfill Landfill/Waste Management, Westmoreland Sanitary Landfill, and Apex Landfill

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

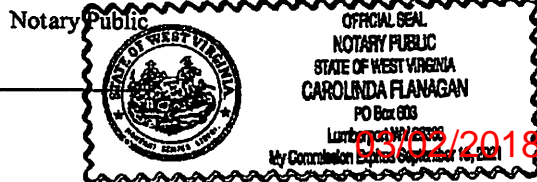
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *William Veigel*
Company Official (Typed Name) William Veigel
Company Official Title Designated Agent

Subscribed and sworn before me this 6TH day of FEB., 2018

Carolinda
My commission expires 9/15/2021



Arsenal Resources

Proposed Revegetation Treatment: Acres Disturbed 14.11 Prevegetation pH 6.8

Lime 2 Tons/acre or to correct to pH 7.0

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 3 (hay/straw) Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	39	Birdsfoot Trefoil	10
		Redtop	5
		Orchard Grass	20

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Haynes J. Kuntz*

Comments: Pre-seed/mulch all disturbed areas as soon as reasonably possible per regulation.

Upgrade E&S where needed per WV DEP E&S manual, if necessary.

Title: Inspection

Date: 2/6/2018

Field Reviewed? Yes No

4707700633



SITE SAFETY PLAN

Rocky Jennings #202 Well PAD

911 Address:

2323 South Mountaineer Highway
Thornton, WV 26440

Harper J. Latta
8/14/2017

RECEIVED
Office of Oil and Gas

AUG 22 2017

WV Department of
Environmental Protection

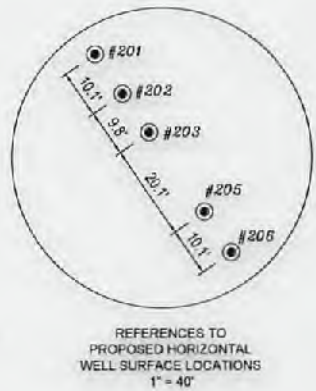
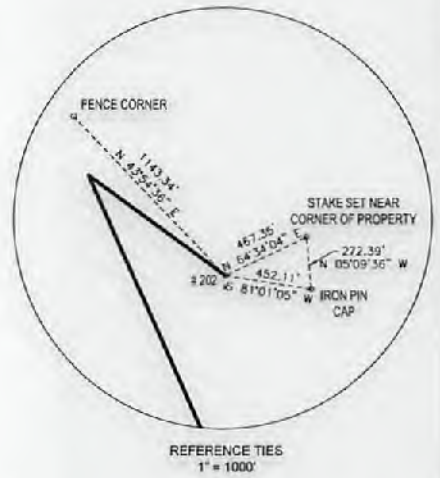
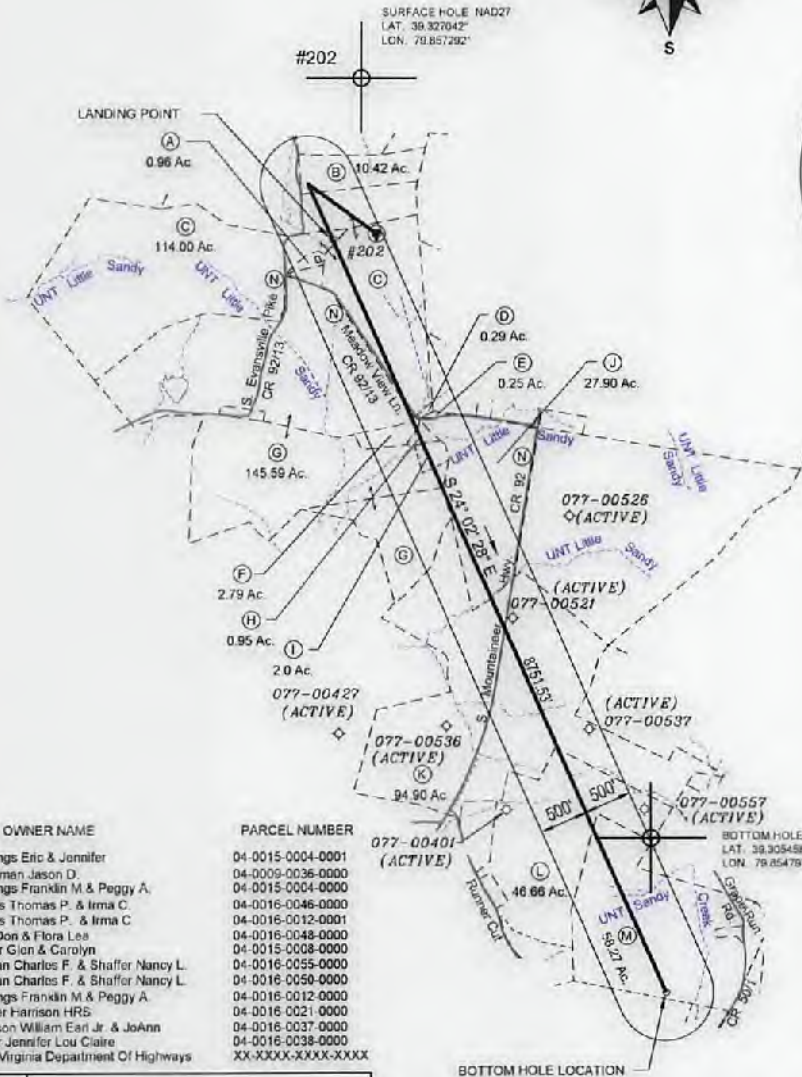
03/02/2018

SURFACE HOLE DEC. LONG. = -79.8541680
 SURVEYED LONG. = -79° 51' 55.50"

9149'

Latitude: 39° 20' 00" (NAD27)

2248'



TAX MAP ID NUMBER	OWNER NAME	PARCEL NUMBER
A	Jennings Eric & Jennifer	04-0015-0004-0001
B	Hershman Jason D.	04-0009-0036-0000
C	Jennings Franklin M & Peggy A.	04-0015-0004-0000
D	Owens Thomas P. & Irma C.	04-0016-0046-0000
E	Owens Thomas P. & Irma C.	04-0016-0012-0001
F	Post Don & Flora Lea	04-0016-0048-0000
G	Clutter Glen & Carolyn	04-0015-0008-0000
H	Shahan Charles F. & Shaffer Nancy L.	04-0016-0055-0000
I	Shahan Charles F. & Shaffer Nancy L.	04-0016-0050-0000
J	Jennings Franklin M & Peggy A.	04-0016-0012-0000
K	Runner Harrison HRS	04-0016-0021-0000
L	Clarkson William Earl Jr & JoAnn	04-0016-0037-0000
M	Baylor Jennifer Lou Claire	04-0016-0038-0000
N	West Virginia Department Of Highways	XX-XXXX-XXXX-XXXX

- REFERENCE NOTES
- Property lines as shown taken from deeds, tax maps, and field locations. A full boundary survey is not expressed or implied. All bearings are based on grid North. Ownership taken from public records Preston County, West Virginia Date 2017
 - State Plane Coordinates & NAD83 Lat/Long by differential submeter mapping grade GPS.
 - There are no railroads, dwellings, or agricultural buildings within 625 feet of center of pad.
 - No water wells found within 250' of the center of well pad.

LEGEND

- PROPOSED WELL LATERAL
- PROPOSED WELL TIE LINE
- STREAM
- EXISTING ROAD
- BUFFER
- PROPERTY LINE
- PROPOSE WELL HEAD
- EXISTING WELL HEAD
- LANDING POINT/BOTTOM HOLE
- SURFACE OWNER
- LAND TIE HOOK

(NAD83-WV) US SURVEY FT.	(NAD83 LAT/LONG) Decimal	(NAD83 UTM) Meters
TOP HOLE	TOP HOLE	TOP HOLE
N) 301476.30	N) 39.32713736	N) 4353694.064
E) 1865131.00	E) 79.86541680	E) 597792.812
LANDING POINT	LANDING POINT	LANDING POINT
N) 301414.60	N) 39.32656288	N) 4353672.965
E) 1864676.70	E) 79.86702187	E) 597654.706
BOTTOM HOLE	BOTTOM HOLE	BOTTOM HOLE
N) 293603.60	N) 39.30555606	N) 4351310.706
E) 1868162.40	E) 79.85459085	E) 598756.297

FILE#: 17078-003
 SHEET#: 1 of 1
 SCALE: 1" = 2000'
 TICK SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: WV-RTN CORS STATION

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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: Gary W. Kuroski 08/23/17
 P.S. #2069: Gary W. Kuroski, P.S.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: AUGUST 23, 2017
 ROCKY JENNINGS
 OPERATOR'S WELL #: #202
 API WELL #: 47 77 00633 HGA
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow
 WATERSHED: TYGART VALLEY - SANDY CREEK
 COUNTY / DISTRICT: PRESTON / RENO
 SURFACE OWNER: FRANKLIN M. and PEGGY A. JENNINGS
 OIL & GAS ROYALTY OWNER: FRANKLIN M. AND PEGGY A. JENNINGS

ELEVATION: 1651.5' - DESIGN
 QUADRANGLE: FELLOWSVILLE WV
 ACREAGE: 114
 ACREAGE: 504 ±

- DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
- PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
- CLEAN OUT & REPLUG OTHER CHANGE SPECIFY: _____

TARGET FORMATION: MARCELLUS
 WELL OPERATOR: ARSENAL RESOURCES
 ADDRESS: 6031 WALLACE ROAD EXTENSION # 300
 CITY: WEXFORD STATE: PA ZIP: 15090

ESTIMATED DEPTH: TVD: 7940' TMD: 16978'
 DESIGNATED AGENT: WILLIAM VEIGEL
 ADDRESS: 65 PROFESSIONAL PLACE SUITE 200
 CITY: BRIDGEPORT STATE: WV ZIP: 26330

Longitude: 79° 50' 00" (NAD27)
 SURFACE HOLE DEC. LAT. = 39.32713737
 SURVEYED LAT. = 39° 18' 37.68"

**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

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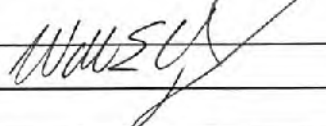
WV Department of
Environmental Protection

**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: Arsenal Resources
 By: William Veigel 
 Its: Designated Agent

Attachment to WW-6A1, Rocky Jennings #202

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
B	Jason D. Hershman and Rebecca N. Hershman, husband and wife	Mar Key, LLC	0.17	801/915	41.67
C	Franklin M. Jennings and Peggy A. Jennings	R.P. Land Company, LLC	0.18	763/162	703.101
	R.P. Land Company, LLC	Mar Key, LLC		740/1	
D/E	Thomas P. Owens and Irma C. Owens, husband and wife	Mar Key, LLC	0.15	763/172	0.54
F/G/H/I	Glenn W. Clutter and Carolyn S. Clutter, husband and wife	R.P. Land Company, LLC	0.18	763/996	153.333
	R.P. Land Company, LLC	Mar Key, LLC		740/1	
J	Franklin M. Jennings and Peggy A. Jennings	R.P. Land Company, LLC	0.18	763/162	703.101
	R.P. Land Company, LLC	Mar Key, LLC		740/1	
K	Edwin C. Runner, married man acting in his own right	Falcon Partners	0.125	688/183	300.23
	Falcon Partners	Mar Key, LLC		739/973	
L	William E. Clarkson, Jr. and Joane Clarkson	Falcon Partners	0.125	680/977	46.66
	Falcon Partners	Mar Key, LLC		739/973	
M	Edmund R. Baylor, a widower	Magnum Land Services, LLC	0.125	685/205; 748/511	58.272
	Magnum Land Services, LLC	Belmont Resources, LLC		690/741	
	Belmont Resources, LLC	Sinclair Oil & Gas Company		692/583	
	Belmont Resources, LLC and Sinclair Oil & Gas Company	Enerplus Resources (USA) Corporation		725/326	
	Enerplus Resources (USA) Corporation	Mar Key, LLC		782/50	
N	West Virginia Department of Transportation, Division of Highways	Mar Key, LLC	0.2	790/666	77.12

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17-00633

Agreement to Drill, Complete and Operate Oil & Gas Wells

This Agreement to Drill, Complete and Operate Oil & Gas Wells (this "Agreement"), by and among Mountaineer Keystone LLC, a West Virginia limited liability company ("Mountaineer Keystone"), PDC Mountaineer, LLC, a Delaware limited liability company ("PDC"), and PDC Mountaineer Holdings, LLC, a Delaware limited liability company ("PDC Holdings"), is effective as of October 15, 2014. (the "Effective Date") and sets forth the terms pursuant to which Mountaineer Keystone will drill, complete and operate the Wells (as defined below) on behalf of PDC and PDC Holdings. Mountaineer Keystone, PDC, and PDC 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 Mountaineer Keystone on the one hand or PDC and PDC Holdings on the other hand with 30 days' written notice to the other Party or Parties, as applicable (the "Term").
2. **Authorization to Operate:** PDC and PDC Holdings authorize Mountaineer Keystone to undertake and perform, on PDC and PDC 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 PDC or PDC Holdings. PDC, PDC Holdings and Mountaineer Keystone are affiliates with a common parent. Mountaineer Keystone was formed to operate oil and gas leasehold acreage held by PDC, PDC Holdings and certain other affiliates. Mountaineer Keystone 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 PDC or PDC Holdings from time to time as directed by PDC or PDC 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]

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Environmental Protection

IN WITNESS WHEREOF, Mountaineer Keystone, PDC, and PDC Holdings have caused their duly authorized representatives to execute this Agreement as of the Effective Date.

MOUNTAINEER KEYSTONE LLC

By: [Signature]
Name: Robert Keel
Title: CEO

PDC MOUNTAINEER, LLC

By: [Signature]
Name: Robert Keel
Title: CEO

PDC MOUNTAINEER HOLDINGS, LLC

By: [Signature]
Name: Robert Keel
Title: CEO

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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]

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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

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Environmental Protection

West Virginia Secretary of State — Online Data Services

Business and Licensing

Online Data Services Help

Business Organization Detail

NOTICE: The West Virginia Secretary of State's Office makes every reasonable effort to ensure the accuracy of information. However, we make no representation or warranty as to the correctness or completeness of the information. If information is missing from this page, it is not in the The West Virginia Secretary of State's database.

MAR KEY LLC

Organization Information								
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason
LLC Limited Liability Company	7/11/2011		7/11/2011	Domestic	Profit			

Organization Information			
Business Purpose	2111 - Mining, Quarrying, Oil & Gas Extraction - Oil and Gas Extraction - Crude Oil and Natural Gas Extraction		Capital Stock
Charter County		Control Number	99Q1F
Charter State	WV	Excess Acres	
At Will Term	A	Member Managed	MBR
At Will Term Years		Par Value	

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03/02/2018

Authorized Shares

Addresses	
Type	Address
Designated Office Address	65 PROFESSIONAL PLACE SUITE 200 BRIDGEPORT, WV, 26330
Mailing Address	6031 WALLACE ROAD EXTENSION SUITE 300 WEXFORD, PA, 15090 USA
Notice of Process Address	CORPORATION SERVICE COMPANY 209 WEST WASHINGTON STREET CHARLESTON, WV, 25302
Principal Office Address	6031 WALLACE ROAD EXTENSION SUITE 300 WEXFORD, PA, 15090 USA
Type	Address

Officers	
Type	Name/Address
Member	MOUNTAINEER KEYSTONE ENERGY LLC 6031 WALLACE ROAD EXTENSION SUITE 300 WEXFORD, PA, 15090
Organizer	PAUL M HERZING 560 EPSILON DR. PITTSBURGH, PA, 15238 USA
Type	Name/Address

Annual Reports
Date filed

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West Virginia Department of
Environmental Protection

03/02/2018

6/20/2016
6/30/2015
4/28/2014
6/28/2013
5/8/2012
Date filed

For more information, please contact the Secretary of State's Office at 304-558-8000.

Thursday, February 23, 2017 — 9:08 AM

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03/02/2018

77-00633



People Powered. Asset Strong.

July 27, 2017

Mr. James Martin, Chief of Oil and Gas
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

RE: Ownership of Roadways; Rocky Jennings Pad

Dear Mr. Martin:

In preparation of filing a permit application for the above referenced well, the Title Department of Arsenal Resources has conducted a thorough title examination in order to determine the ownership of the oil and gas underlying all roadways crossed by the proposed wells. The findings of the title examination show that some of the roadways crossed by the proposed wells are owned in fee by the West Virginia Department of Transportation, Division of Highways and that some are only right of ways. If owned in fee by the West Virginia Department of Transportation, Division of Highways, a lease covering its interest in the roadway or roadways has been properly obtained and provided in the application materials. If a right of way only, the oil and gas underlying such roadway or roadways is owned by the adjoining landowners and is also covered by the leaseholds provided in the application materials.

If you have any questions, concerns or need further information, please do not hesitate to contact me at the address listed below.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ryan Brode'.

Ryan Brode
Title Attorney

6031 Wallace Road Ext, Suite 300
Wexford, PA 15090
P: 724-940-1100
F: 800-428-0981
www.arsenalresources.com

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STATE DEPARTMENT OF
ENVIRONMENTAL AND NATURAL RESOURCES

03/02/2018

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

Date of Notice Certification: 8/21/17

API No. 47- 077 - 00633
Operator's Well No. Rocky Jennings 202
Well Pad Name: Rocky Jennings

Notice has been given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>597,792.812</u>
County:	<u>Preston</u>		Northing:	<u>4,353,694.064</u>
District:	<u>Reno</u>	Public Road Access:		<u>Rt. 92</u>
Quadrangle:	<u>Fellowsville, WV 7.5'</u>	Generally used farm name:		<u>Franklin M. and Peggy A. Jennings</u>
Watershed:	<u>Tygart Valley-Sandy Creek</u>			

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

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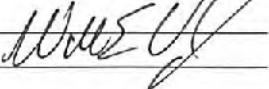
Required Attachments:

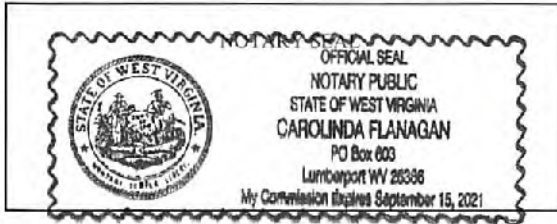
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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Certification of Notice is hereby given:

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

Well Operator:	<u>Arsenal Resources</u>	Address:	<u>65 Professional Place</u>
By:	<u>William Veigel</u> 		<u>Bridgeport, WV 26330</u>
Its:	<u>Designated Agent</u>	Facsimile:	<u>304-848-9134</u>
Telephone:	<u>724-940-1224</u>	Email:	<u>cflanagan@arsenalresources.com</u>



Subscribed and sworn before me this 17TH day of AUG. 2017.
Carolinda Flanagan Notary Public
 My Commission Expires 9/15/2021

Oil and Gas Privacy Notice:

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

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

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

Date of Notice: 8/21/17 **Date Permit Application Filed:** 8/21/17

Notice of:

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

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

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: Franklin M. and Peggy A. Jennings
 Address: 463 Evansville Pike
Thomton, WV 26440
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: Franklin M. and Peggy A. Jennings
 Address: 463 Evansville Pike
Thomton, WV 26440
 Name: _____
 Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: Kenneth R. Shahan
 Address: 1576 George Washington Highway
Thomton, WV 26440

COAL OWNER OR LESSEE

Name: ACIN, LLC
 Address: 5260 Irwin Road
Huntington, WV 25705

COAL OPERATOR

Name: _____
 Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: See Attached
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
 Address: _____

*Please attach additional forms if necessary

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03/02/2018

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items,

03/02/2018
Department of Environmental Protection

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

Water Well Testing:

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

Water Testing Laboratories:

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

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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

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Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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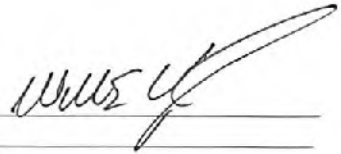
03/02/2018

WW-6A
(8-13)

API NO. 47- 077 - 00633
OPERATOR WELL NO. Rocky Jennings 202
Well Pad Name: Rocky Jennings

Notice is hereby given by:

Well Operator: Arsenal Resources
Telephone: 724-940-1224
Email: cflanagan@arsenalresources.com



Address: 6031 Wallace Road Extension, Suite 300
Wexford, PA 15090
Facsimile: 304-848-9134

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 17TH day of AUG, 2017.

Carolinda Flanagan Notary Public

My Commission Expires 9/15/2021

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03/02/2018

**Rocky Jennings Pad
Water Purveyors**

Franklin M. & Peggy A. Jennings
463 Evansville Pike
Thornton, WV 26440

Glenn & Carolyn Clutter
1065 S. Evansville Pike
Thornton, WV 26440

Stanley Jennings
1922 S. Evansville Pike
Thornton, WV 26440

Robert & Jo Claire Richards
1690 S. Evansville Pike
Thornton, WV 26440

Matthew & Misty A. Brady
2431 S. Mountaineer Hwy.
Thornton, WV 26440

Bernard W. & Kimberly A. Keene
521 Meadow View Lane
Thornton, WV 26440

Kenneth Ray Shahan
1576 George Washington Hwy.
Thornton, WV 26440

Thomas P. & Irma C. Owens
431 Meadow View Lane
Thornton, WV 26440

Delmar R., Carol A., and Jason D. Hershman
1977 S. Evansville Pike
Thornton, WV 26440

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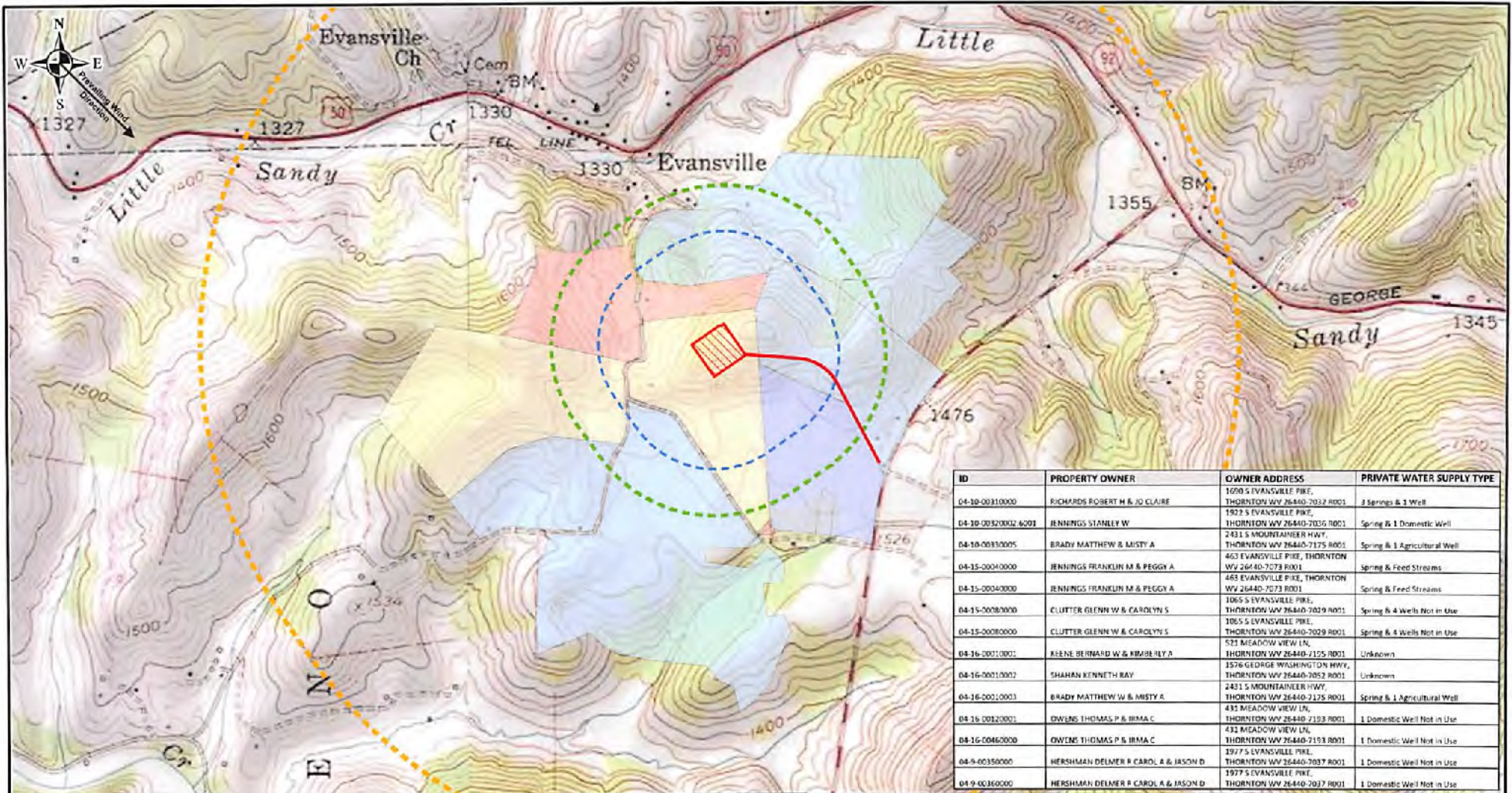
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Thornton, WV 26440

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ID	PROPERTY OWNER	OWNER ADDRESS	PRIVATE WATER SUPPLY TYPE
04-10-00310000	RICHARDS ROBERT H & JO CLAIRE	1070 S EVANSVILLE PIKE, THORNTON WV 26440-2032 R001	3 Springs & 1 Well
04-10-00320002 6201	JENNINGS STANLEY W	1927 S EVANSVILLE PIKE, THORNTON WV 26440-2036 R001	Spring & 1 Domestic Well
04-10-00330005	BRADY MATTHEW & MISTY A	2431 S MOUNTAINEER HWY, THORNTON WV 26440-2175 R001	Spring & 1 Agricultural Well
04-15-00040000	JENNINGS FRANKLIN M & PEGGY A	463 EVANSVILLE PIKE, THORNTON WV 26440-2073 R001	Spring & Feed Streams
04-15-00040000	JENNINGS FRANKLIN M & PEGGY A	463 EVANSVILLE PIKE, THORNTON WV 26440-2073 R001	Spring & Feed Streams
04-15-00080000	CLIFFER GLENN W & CAROLYN S	1065 S EVANSVILLE PIKE, THORNTON WV 26440-2029 R001	Spring & 4 Wells Not in Use
04-15-00080000	CLIFFER GLENN W & CAROLYN S	1065 S EVANSVILLE PIKE, THORNTON WV 26440-2029 R001	Spring & 4 Wells Not in Use
04-16-00010001	REENE BERNARD W & KIMBERLY A	523 MEADOW VIEW LN, THORNTON WV 26440-2125 R001	Unknown
04-16-00010002	SHAHAN KENNETH RAY	3576 GEORGE WASHINGTON HWY, THORNTON WV 26440-2052 R001	Unknown
04-16-00010003	BRADY MATTHEW W & MISTY A	2431 S MOUNTAINEER HWY, THORNTON WV 26440-2175 R001	Spring & 1 Agricultural Well
04-16-00020001	OWENS THOMAS P & IRMA C	432 MEADOW VIEW LN, THORNTON WV 26440-2193 R001	1 Domestic Well Not in Use
04-16-00060000	OWENS THOMAS P & IRMA C	432 MEADOW VIEW LN, THORNTON WV 26440-2193 R001	1 Domestic Well Not in Use
04-9-00350000	HERSHMAN DELMER R CAROL A & JASON D	1977 S EVANSVILLE PIKE, THORNTON WV 26440-2037 R001	1 Domestic Well Not in Use
04-9-00360000	HERSHMAN DELMER R CAROL A & JASON D	1977 S EVANSVILLE PIKE, THORNTON WV 26440-2037 R001	1 Domestic Well Not in Use

Legend

- Proposed Access Road
- Proposed Well Pad Location
- 1000ft. Radius from Well Pad
- 1500ft. Radius from Well Pad
- One-Mile Radius from Well Pad

Private Water Supply Type

- Well
- Spring
- Spring & Well
- Unknown

SCALE IN FEET

Notes:
 1. Prevailing wind direction is Southeast
 2. Topographic base map is provided through Langan's Esri ArcGIS software licensing and ArcGIS online.
 Copyright: © 2011 National Geographic Society, Incubed.
 3. Water supply areas obtained from WV DEP.

LANGAN
 100 Platinum Drive, Suite E
 Bridgeport, WV 26330
 T: 724.514.5100 F: 724.514.5101 www.langan.com

Langan Engineering & Environmental Services, Inc.
 Langan Engineering, Environmental, Surveying and
 Landscape Architecture, D.P.C.
 Langan International LLC

Collectively known as Langan

Project
**ARSENAL RESOURCES
 JENNINGS WELL PAD SITE**

THORNTON

PRESTON COUNTY WEST VIRGINIA

Drawing Title
**PRIVATE WELL
 LOCATION MAP**

Project No. 250023101
 Date 4/11/2017
 Scale 1"=1000'
 Drawn By BJS
 Submission Date n/a

Figure 1

Sheet 1 of 1

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77-00633

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least SEVEN (7) days but no more than FORTY-FIVE (45) days prior to entry

Date of Notice: 10/24/2013 **Date of Planned Entry:** 10/31/2013

Delivery method pursuant to West Virginia Code § 22-6A-10a

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

SURFACE OWNER(s)

Name: Franklin M. and Peggy A. Jennings ✓
 Address: 463 Evansville Pike
 Thornton, WV 26440

Name: _____
 Address: _____

Name: _____
 Address: _____

COAL OWNER OR LESSEE

Name: ACIN LLC
 Address: 5260 Irwin Road ✓
 Huntington, WV 25705

MINERAL OWNER(s)

Name: Franklin M. and Peggy A. Jennings ✓
 Address: 463 Evansville Pike
 Thornton, WV 26440

*please attach additional forms if necessary

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia	Approx. Latitude & Longitude: 39.32651, -79.86546'
County: Preston	Public Road Access: Rt. 92
District: Reno	Watershed: Tygart Valley-Sandy Creek
Quadrangle: Fellowsville, WV 7.5'	Generally used farm name: Franklin M. and Peggy A. Jennings

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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Notice is hereby given by:

Well Operator: Arsenal Resources
 Telephone: 724-940-1224
 Email: cflanagan@arsenalresources.com

Address: 65 Professional Place
 Bridgeport, WV 26330
 Facsimile: 304-848-9134

WV Department of
Environmental Protection

Oil and Gas Privacy Notice:

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

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

Date of Notice: 8/21/17 **Date Permit Application Filed:** 8/21/17

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

- HAND DELIVERY
- CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Franklin M. & Peggy A. Jennings
Address: 463 Evansville Pike
Thomton, WV 26440

Name: Kenneth Shahan
Address: 1576 George Washington Highway
Thomton, WV 26440

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83 Easting:	<u>597,792.812</u>
County:	<u>Preston</u>	Northing:	<u>4,353,694.064</u>
District:	<u>Reno</u>	Public Road Access:	<u>Rt. 92</u>
Quadrangle:	<u>Fellowsville, WV 7.5'</u>	Generally used farm name:	<u>Franklin M. and Peggy A. Jennings</u>
Watershed:	<u>Tygart Valley-Sandy Creek</u>		

This Notice Shall Include:

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

Notice is hereby given by:

Well Operator: Arsenal Resources
Address: 65 Professional Place
Bridgeport, WV 26330
Telephone: 724-940-1224
Email: cflanagan@arsenalresources.com
Facsimile: 304-848-9134

Authorized Representative: Arsenal Resources
Address: 65 Professional Place, Suite 200
Bridgeport, WV 26330
Telephone: 724-940-1224
Email: cflanagan@arsenalresources.com
Facsimile: 304-848-9134

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Oil and Gas Privacy Notice:

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

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

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

Date of Notice: 8-21-17 **Date Permit Application Filed:** 8-21-17

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

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

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

Name: <u>Franklin M and Peggy A Jennings</u> Address: <u>463 Evansville Pike</u> Thornton, WV 26440	Name: <u>Kenneth Shahan</u> Address: <u>1576 George Washington Highway</u> Thornton, WV 26440
---	---

Notice is hereby given:

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

State: <u>West Virginia</u> County: <u>Preston</u> District: <u>Reno</u> Quadrangle: <u>Fellowsville, WV 7.5</u> Watershed: <u>Tygart Valley-Sandy Creek</u>	UTM NAD 83 Easting: <u>597,792.812</u> Northing: <u>4,353,694.064</u> Public Road Access: <u>Rt. 92</u> Generally used farm name: <u>Franklin M. and Peggy A. Jennings</u>
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This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: <u>Arsenal Resources</u> Telephone: <u>724-940-1224</u> Email: <u>cflanagan@arsenalresources.com</u>	Address: <u>65 Professional Place</u> <u>Bridgeport, WV 26330</u> Facsimile: <u>304-848-9134</u>
---	--

Oil and Gas Privacy Notice:

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

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Office of Oil and Gas
AUG 22 2017
WV Department of
Environmental Protection
03/02/2018



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

Jim Justice
 Governor

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

July 24, 2017

James A. Martin, Chief
 Office of Oil and Gas
 Department of Environmental Protection
 601 57th Street, SE
 Charleston, WV 25304

Subject: DOH Permit for the Jennings Pad, Preston County

Rocky Jennings 202 Well Site

47-077-00633

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit #04-2014-0270 for the subject site to Arsenal Resources for access to the State Road for the well site located off of West Virginia Route 92 F.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT for DOH District 4 and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

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

Cc: Kelly Eddy
 Arsenal Resources
 CH, OM, D-4
 File

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 Office of Oil and Gas
 AUG 22 2017
 WV Department of
 Environmental Protection

77-00633

Rocky Jennings 202			
FRACTURING ADDITIVES			
	PURPOSE	TRADE NAME	CAS #
Additive #1:	Friction Reducer	WFRA-405	Proprietary
Additive #2:	Scale Inhibitor	SI-1000	7440-21-3
Additive #3:	Biocide	BIOCLEAR 2000	25314-61-8
Additive #4:	Gelling Agent	LGC-15	9000-30-0
Additive #5:	Corrosion Inhibitor	AI-300	111-76-2
Additive #6:	Gel Breaker	AP-One	7727-54-0
Additive #7:	Acid	HCl - 7.5%	7647-01-0

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Environmental Protection

03/02/2018

MOUNTAINEER KEYSTONE - ROCKY JENNINGS WELL SITE

THORNTON PRESTON COUNTY, WEST VIRGINIA

DISTURBANCE IMPACT TABLE		
FEATURE	AREA (ACRES)	
WELL PAD	0.77	
ACCESS ROAD	1.97	
EMBANKMENT	2.93	
TOPSOIL STOCKPILE (IMPOUNDMENT)	0.89	
TOPSOIL STOCKPILE (IMPOUNDMENT)	0.41	
SPOOLS STOCKPILE (IMPOUNDMENT)	1.42	
TOTAL IMPACT	14.31	

DISTURBANCE SUMMARY TABLE - JENNINGS WELL SITE		
PROPERTY OWNER	PARCEL NUMBER (A.C.)	ACRES
HANWELM & PUGH CO., JENNINGS	08-15-8	11.3
HASTWEN & SEELY A. BRADY	04-10-3000	2.7
KENNETH RAY SHAWAN	04-04-00000	1.9

Earthwork Quantities (CY) Jennings Well Site	
Total fill stockpile = 14,900	
Cut	
Well Pad	75,100
Access Road	500
Impoundment	33,800
Subtotal	111,400
Subtotal	86,400
Total	24,000

JENNINGS CONSTRUCTION QUANTITIES	
4" #1 STONE (FACE) (Tons)	6,400
4" #1 STONE (PAD) (Tons)	1,600
8" #1 STONE (ACCESS ROAD) (Tons)	1,600
4" #1 STONE (ACCESS ROAD) (Tons)	1,300
IMPONION BLANKETING (CY)	26,400
12" SILT SOCK (LF)	1,150
18" SILT SOCK (LF)	110
24" SILT SOCK (LF)	50
36" SILT SOCK (LF)	1,250
24" PERMANENT SILL PAD (LF)	1,250
TEMPORARY SILL PAD (LF)	77
PERMANENT SILL PAD (LF)	30.7

SHEET NO.	DESCRIPTION
00.01	COVER SHEET
22.00	MASTER SITE PLAN CONSTRUCTION DRAWING
22.01	SITE PLAN CONSTRUCTION DRAWING
22.02	SITE PLAN CONSTRUCTION DRAWING
22.03	SITE PLAN CONSTRUCTION DRAWING
22.04	WELL PAD SECTIONS
22.04A	IMPOUNDMENT AND STOCKPILE CROSS SECTIONS
22.05	ACCESS ROAD PROFILE
22.06	ACCESS ROAD PROFILE
22.10	EROSION AND SEDIMENT CONTROL DETAILS
22.11	EROSION AND SEDIMENT CONTROL NOTES & DETAILS
22.12	SITE PLAN CONSTRUCTION NOTES & DETAILS
22.13	SITE PLAN CONSTRUCTION NOTES & DETAILS
SRP-1	SITE RESTORATION PLAN
SRP-2	SITE RESTORATION PLAN
SRP-3	SITE RESTORATION PLAN
SRP-4	SITE RESTORATION PLAN NOTES AND DETAILS

APPROVED
WVDEP OOG

300 10 / 25 / 2016



PLAN PREPARER
LANGAN ENGINEERING
& ENVIRONMENTAL SERVICES
ATTN: SCOTT ROWLAND, P.E.
109 PLATINUM DRIVE, SUITE E
BRIDGEPORT, WV 26330
(304) 933-3445

GAS WELL OPERATOR
MOUNTAINEER KEYSTONE, LLC
ATTN: AMY MILLER
65 PROFESSIONAL PLACE, SUITE 200
BRIDGEPORT, WV 26330
(304) 376-0111

TOTAL LIMIT OF DISTURBANCE = 21.4 ACRES

GENERAL NOTES

- THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE SEARCH. THEREFORE THE PROPERTY MAY BE SUBJECT TO ADDITIONAL EASEMENTS, INTERESTS, OR BOUNDARIES. THIS PLAN MAY BE DISCLOSED IN A CURRENT COMMITMENT TO THE STATE OF WEST VIRGINIA. THE LOCATIONS SHOWN ON THIS PLAN ARE BASED ON DATA FILED FROM PRESTON COUNTY.
- TOPOGRAPHIC INFORMATION SHOWN BASED ON A FIELD SURVEY PERFORMED BY LANGAN ENGINEERING & ENVIRONMENTAL SERVICES DURING NOVEMBER & DECEMBER 2013.
- VERTICAL IS REFERENCED TO WEST VIRGINIA STATE PLANT COORDINATE SYSTEM ZONE NORTH, NAD 83.
- VERTICAL DATUM IS BASED ON NAVD 83.
- OFFSETS OF DIMENSIONS ARE FROM SURVEY REFERENCES ONLY AND ARE NOT TO BE USED FOR CONSTRUCTION OF ANY TYPE.
- HAZARDOUS MATERIALS LOCATION, IF ANY, NOT SHOWN UNDER THIS CONTRACT.
- SOIL DATA OBTAINED FROM THE HDS "HDS SOIL SAMPLE" FOR WELLS 10000A.
- THE ABSENCE OF MENTION WITHIN THE LIMIT OF DISTURBANCE FOR MOUNTAINEER KEYSTONE, LLC - JENNINGS WELL PAD WAS FIELD VERIFIED BY LANGAN ENGINEERING ON 14 AND 22 NOVEMBER 2013. AND 13 NOVEMBER 2015.

GENERAL SITE NOTES

- THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND CALL BEFORE YOU DIG. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CALL BEFORE YOU DIG. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CALL BEFORE YOU DIG. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CALL BEFORE YOU DIG.
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NOTE:
CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES AND CALL BEFORE YOU DIG. CONFLICTS PRIOR TO COMMENCING EARTHWORK. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING MOUNTAINEER KEYSTONE REGARDING ANY FIELD CHANGES OR REVISIONS NOT SHOWN IN THE ORIGINAL PERMITTED DRAWINGS.

WEST VIRGINIA 811
CALL BEFORE YOU DIG!
Dial 811 or 800.245.4848
More than 100 years of service

AT LEAST 48 HOURS BEFORE ANY WORK BEGINS TO NOTIFY 811 OF ANY DEVELOPING PROJECTS AND PROJECTS APPROX 10 TO 15 DAYS BEFORE ANY EARTHWORK BEGINS. ALL CONSTRUCTION INVOLVED IN THESE ACTIVITIES SHALL OBTAIN 811 SERVICE FROM THE STATE OF WEST VIRGINIA AT 811 OR 800-245-4848.

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AUG 22 2017
WV Dept of Environmental Protection

DATE	REVISIONS
06/01/16	Revised Per WVDEP Comments 2
06/03/16	Revised Per WVDEP Comments 1

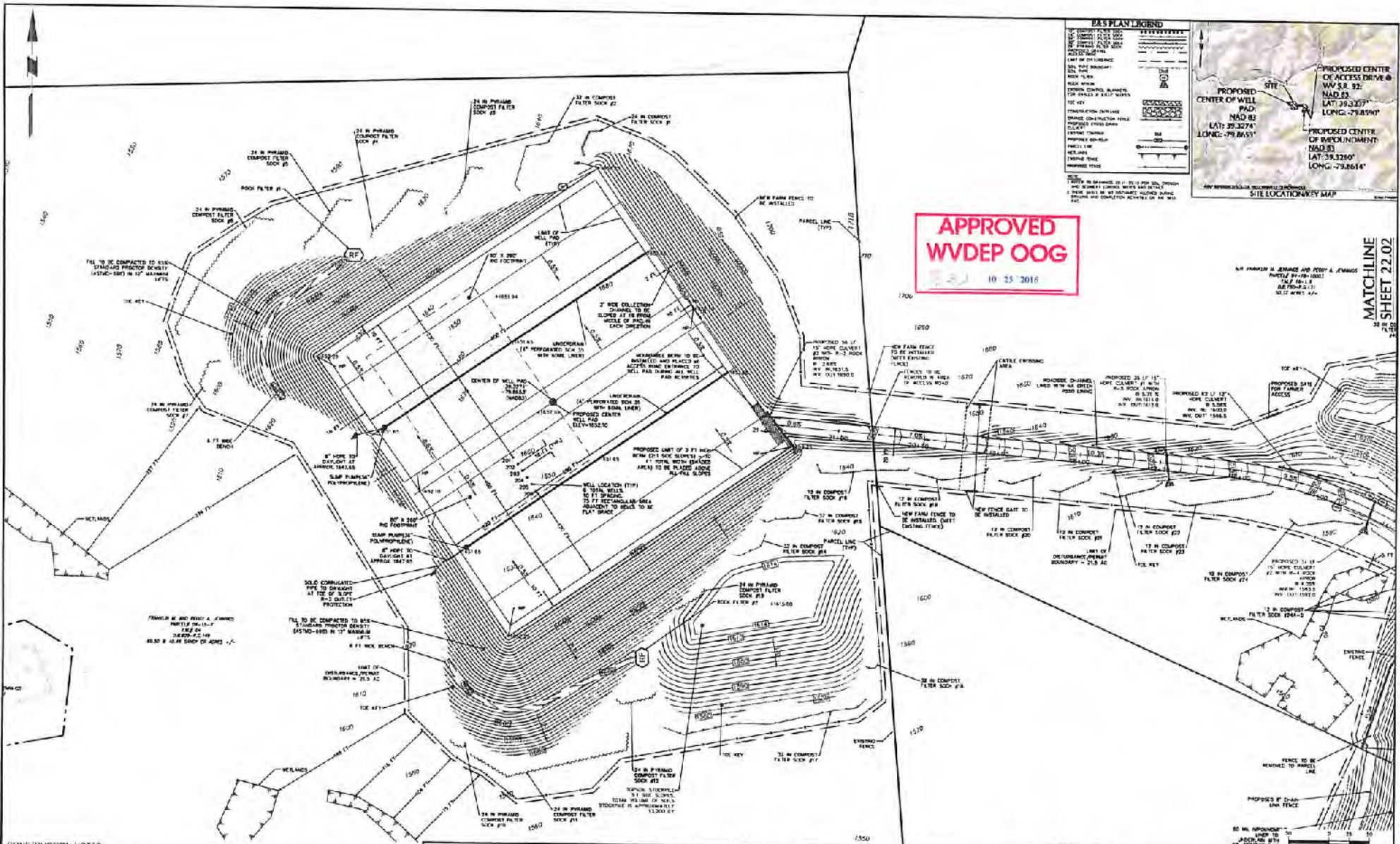
LANGAN
Professional Engineer
Scott Rowland, P.E.
Professional Engineer No. 10408

MOUNTAINEER KEYSTONE ROCKY JENNINGS WELL SITE
THORNTON
PRESTON COUNTY WEST VIRGINIA

COVER SHEET

Project No.	230023101	Drawing No.	00.01
Date	12/01/15	Scale	N/A
Drawn By	MSB	Submitted Date	MAY 2016
Checked By	MSB	Sheet	1 of 17

77-00633



E&S PLAN LEGEND

1/4" COMP. FILTER SOCK #1	1/4" COMP. FILTER SOCK #2
1/4" COMP. FILTER SOCK #3	1/4" COMP. FILTER SOCK #4
1/4" COMP. FILTER SOCK #5	1/4" COMP. FILTER SOCK #6
1/4" COMP. FILTER SOCK #7	1/4" COMP. FILTER SOCK #8
1/4" COMP. FILTER SOCK #9	1/4" COMP. FILTER SOCK #10
1/4" COMP. FILTER SOCK #11	1/4" COMP. FILTER SOCK #12
1/4" COMP. FILTER SOCK #13	1/4" COMP. FILTER SOCK #14
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1/4" COMP. FILTER SOCK #95	1/4" COMP. FILTER SOCK #96
1/4" COMP. FILTER SOCK #97	1/4" COMP. FILTER SOCK #98
1/4" COMP. FILTER SOCK #99	1/4" COMP. FILTER SOCK #100



APPROVED
WVDEP OOG
10 25 2016

CONSTRUCTION NOTES:

1. ALL FILLS TO BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY (ASTM D 698)
2. MAXIMUM OF 12" THICK LIFTS USING MATERIAL THAT IS NOT TO FROZEN OR WET
3. NO MATERIAL LARGER THAN 6" TO BE USED IN FILL MATERIAL AND FREE FROM OBJECTIONABLE MATERIAL
4. ANY ROCK FILLS TO BE NO GREATER THAN 30"
5. SUMPS PER THE PLAN DO NOT DAYLIGHT. SUMP PUMPS ARE TO BE INSTALLED TO MAINTAIN STORMWATER.

CR/01/18	Revised Per WVDEP Comments	2
08/03/14	Revised Per WVDEP Comments	1
REVISIONS		
NAME		DATE
SCOTT HOWLAND		
PROFESSIONAL ENGINEER'S WV LIC. NO. 20408		

LANGAN
100 Patton Drive, Suite 400, Charleston, WV 25301
TEL: 304.263.2200 FAX: 304.263.2201
WWW.LANGAN.COM
LANGAN ENGINEERING, INC. IS AN EQUAL OPPORTUNITY EMPLOYER.
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MOUNTAINEER
KEYSTONE
ROCKY JENNINGS
WELL SITE
THORNTON
MOUNTAINEER COUNTY
WEST VIRGINIA

Project No.	250025108	Drawing Title	SITE PLAN CONSTRUCTION DRAWING
Date	12/01/15	Scale	1"=30'
Sheet	22.03	Submitted Date	MAY 2016
Drawn By	SAHAR	Checked By	SAHAR
Submitted Date	MAY 2016	Sheet 5 of 17	

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Office of Oil and Gas
MAY 22 2017

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