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west virginia department of environmental protection

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

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

Tuesday, February 28, 2017  
WELL WORK PERMIT  
Horizontal 6A / New Drill

MOUNTAINEER KEYSTONE, LLC (A)  
6031 WALLACE RD EXT, STE 300

WEXFORD , PA 15090

Re: Permit approval for GOFF 5-55 211  
47-033-05885-00-00

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: GOFF 5-55 211  
Farm Name: DIMARIA, SHARON E.  
U.S. WELL NUMBER: 47-033-05885-00-00  
Horizontal 6A / New Drill  
Date Issued: 2/28/2017

Promoting a healthy environment.

03/03/2017

# 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

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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.



west virginia department of environmental protection

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

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

**ORDER  
ISSUED UNDER  
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: Mountaineer Keystone, LLC  
6031 Wallace Road Extension, Suite 300  
Wexford, PA 15090

DATE: February 24, 2017  
ORDER NO.: 2017-W-7

**INTRODUCTION**

This Order (hereinafter “Order”) is issued by the Office of Oil and Gas (hereinafter “OOG”), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to Mountaineer Keystone, LLC (hereinafter “Operator”), collectively the “Parties.”

**FINDINGS OF THE CHIEF**

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.
2. Mountaineer Keystone, LLC is a “person” as defined by W. Va. Code §22-6-1(n), with a corporate address as 6031 Wallace Road Extension, Suite 300, Wexford, Pennsylvania.
3. On December 8, 2016 Mountaineer Keystone, LLC submitted well work permit applications identified as API#s 47-033-05885, 47-033-05886, 47-033-05887 and 47-033-05888. The proposed wells are to be located on the Goff 5-55 Pad in Clark District of Harrison County, West Virginia.
4. On December 1, 2016, Mountaineer Keystone, LLC requested a waiver for Wetlands WL 5, WL 6, WL 7, WL 10, WL 11, WL 17, WL 18 and WL 19 outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit applications identified as API#s 47-033-05885, 47-033-05886, 47-033-05887 and 47-033-05888. Wetlands WL 18 and WL 19 are excluded from the waiver.

03/03/2017



## CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that “[i]n addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to... (3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing.”
2. West Virginia Code §22-6A-2(a)(6) requires, in part, that “Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter.”
3. West Virginia Code §22-6A-12(b) requires, in part, that “[n]o 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 Office of Oil and Gas 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 Office of Oil and Gas 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.”

## ORDER

West Virginia Code §22-6A-12(b) requires, in part, that “[n]o 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. The Office of Oil and Gas grants the request for a waiver for Wetlands WL 5, WL 6, WL 7, WL 10, WL 11 and WL 17 from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit applications identified as API#s 47-033-05885, 47-033-05886, 47-033-05887 and 47-033-05888. The Office of Oil and Gas hereby **ORDERS** that Mountaineer Keystone, LLC shall meet the following site construction and operational requirements for the Goff 5-55 Well Pad:

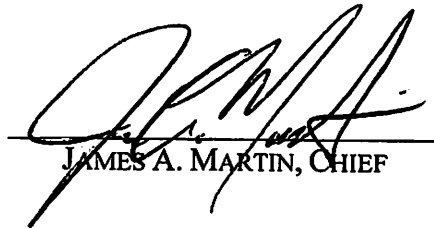
- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24”) in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Wetland WL 5, WL 6, WL 7 and WL 17 are all at the top of the cut slope. Diversion ditches will be used to redirect excess water away from the pad.
- d. Wetland WL 10 and WL 11 are up slope from the access road adjoining the pad, road side ditches will redirect any water from the road down slope away from the wetland.
- e. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- f. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- g. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- h. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
- i. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- j. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (½”) rain within any twenty-four (24) hour period;
- k. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- l. All records from inspections shall be maintained on site for the life of the project and be available upon request.

Thus ORDERED, the 24th day of February, 2017.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By:



JAMES A. MARTIN, CHIEF

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: \_\_\_\_\_

Operator's Well Number: \_\_\_\_\_

Well Operator: Mountaineer Keystone LLCWell Number: 211,212,213,& 214Well Pad Name: Goff 5-55County, District, Quadrangle of Well Location: Harrison, Clark, Wolf Summit

**Answer the questions below to request a waiver from West Virginia Department of Environmental Protection for any wetlands or perennial streams which lie within one hundred feet of proposed project Limit of Disturbance (LOD), which includes any erosion and sediment control devices to be used.**

**This waiver shall be requested pursuant to Chapter 22 Article 6A Section 12 of West Virginia Code, which states:**

§22-6A-12(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.

§22-6A-12(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.

Office of Compliance  
DEC 08 2016  
WV Department of  
Environmental Protection

03/03/2017



11/3/14

Wetland and Perennial Stream Waiver Request

API Number: \_\_\_\_\_

Operator's Well Number: \_\_\_\_\_

**Answer in the space provided, or use additional pages as necessary to fully answer the questions below:**

- 1. Describe the proposed project location, including unique identifying names of all wetlands, and the names of perennial streams for which the waiver is sought.**

See Attached

- 2. Justify the proposed activity by describing alternatives to this project that were considered.**

- a. Include a No-Action Alternative as to show "the future without the project"
- b. Location Alternatives must be shown
- c. Must demonstrate why a one hundred foot buffer cannot be maintained
- d. Describe how the proposed project is the least environmentally damaging practicable alternative

See Attached

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Environmental Protection

03/03/2017

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: \_\_\_\_\_

Operator's Well Number: \_\_\_\_\_

3. **Identify sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. This description should include all additional erosion and sediment control measures and devices that will be used.**

See Attached

4. **Provide mapping, plans, specifications and design analysis for the preferred alternative to the project.**
  - a. **Specify in writing what additional controls, measures, devices, monitoring, etc. will be used to protect these wetlands and/or perennial streams for which the waiver is sought.**

See Attached

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1. Describe the proposed project location, including unique identifying names of all wetlands, and the names of perennial streams for which the waiver is sought.
  - a. The proposed Goff 5-55 site is located on the waters of unnamed tributaries of the West Fork River in Clark District, Harrison County being on the south side of U.S. Route 19 being .72 miles southwest of the intersection of W.V. State Route 98 and U.S. Route 19 near Clarksburg, WV. The site consists of a gas well pad, 3 excess material stockpiles, one topsoil stockpile, and an associated pit. The pad site is located on the edge of a reclaimed coal strip mine where most of the wetlands and streams have originated. As shown on the plans, there are a total of 8 individual wetlands that are proposed to be impacted within 100 feet of the well pad LOD. These wetlands include WL 5, WL 6, WL 7, WL 10, WL 11, WL 17, WL 18, & WL 19. No perennial streams were delineated or proposed to be impacted for this site.
  
2. Justify the proposed activity by describing alternatives to this project that were considered.
  - a. Include a No-Action Alternative as to show "the future without the project"
    - i. The future of this site without this project would most likely continue as it is today. This site is a poorly reclaimed coal strip mine area and most likely would continue as such. However, being within a mile of Clarksburg and adjacent to U.S. Route 19 could prove to be ideal for some certain business ventures.
  - b. Location Alternatives must be shown
    - i. All areas in the vicinity of the well pad were thoroughly reviewed to determine that this area was the best area for construction, wetland and stream impact reduction, and avoidance of gas pipelines. Also avoided in this area, is the County Commission 1.27 acres that has historic value as it is known as the "Poor Farm" cemetery. Moving the well pad to the west would impact the "Poor Farm" cemetery and a Dominion gas pipeline. Moving the pad south would impact much more wetlands and a 12" gas pipeline. Moving the pad north would impact additional streams and Dominion gas pipelines. Moving the pad to the east would also impact more streams and Dominion gas pipelines. As shown on the attached map, our original spot for the was located south of where we show it now. This version would impact a large section of 12" gas pipeline but would also impact more wetlands.
  - c. Must demonstrate why a one hundred foot buffer cannot be maintained
    - i. As discussed in question one above, this site is an old poorly reclaimed coal strip mine that has many wetlands and streams that originate from excessive mine drainage. Due to the number of wetlands on this site, and avoiding the gaslines and the historic "Poor Farm" cemetery, there is no way to propose a feasible gas well pad without being within 100 feet or impacting wetlands or streams.

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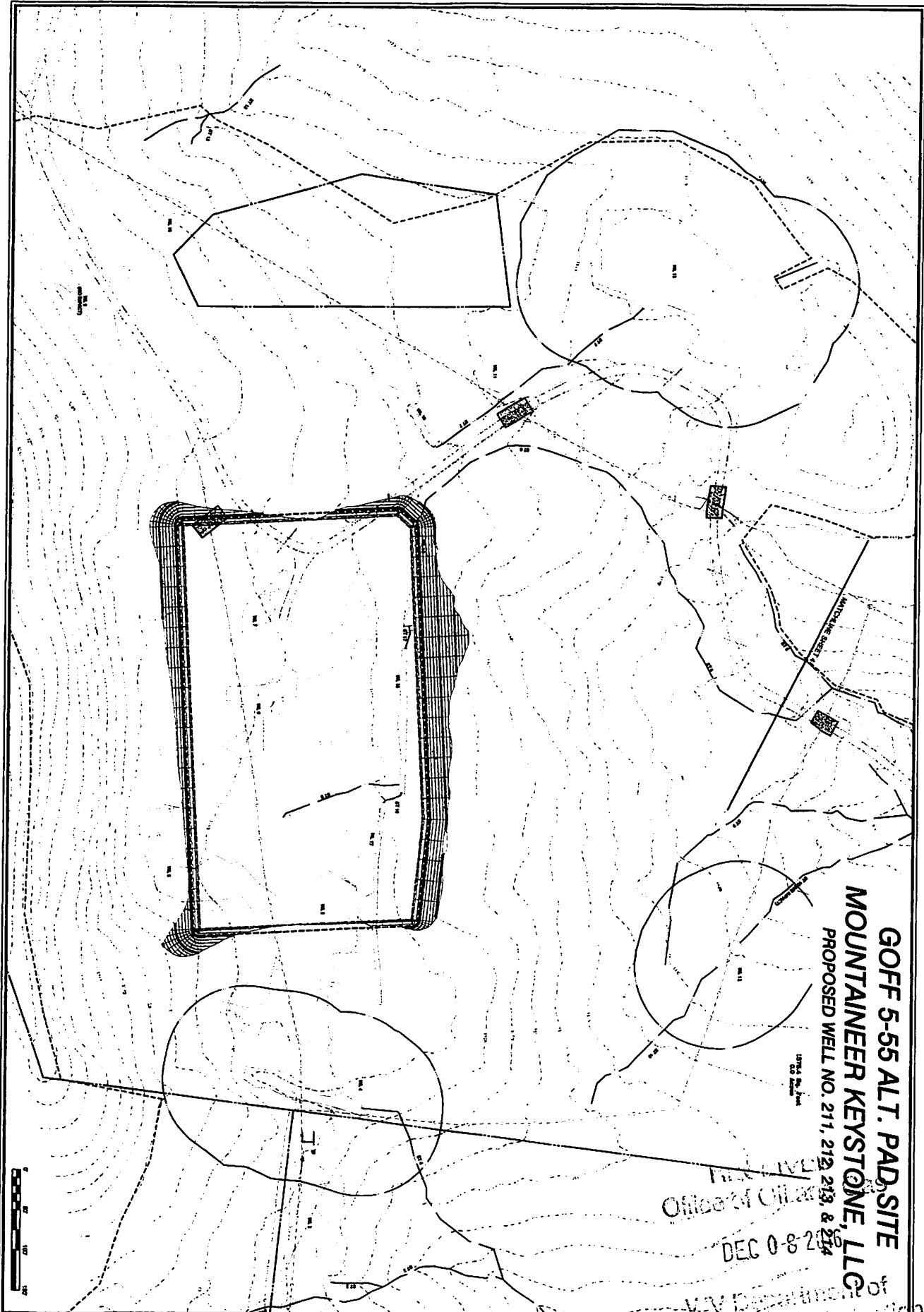
- d. **Describe how the proposed project is the least environmentally damaging practicable alternative**
- i. As shown on the plans, the well pad is designed to impact as little wetlands and streams as possible. The pad is surrounded on the east and west by Streams ST 6 and ST 9. We have only partially impacted Wetlands WL 5, WL 6, WL 7, WL 10, WL 11, and WL 17. As shown on the plans, we have proposed wetland protection berms at the edge of wetland disturbance to avoid draining the wetlands.
3. **Identify sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. This description should include all additional erosion and sediment control measures and devices that will be used.**
- a. As shown on our plans, many measures were identified to ensure proper construction of this well pad along with sufficient erosion and sediment control. As you can see all culvert and keyway drains have proper outlet protection, all slopes greater than 3/1 shall have erosion control matting, all excess material stockpiles and fill slopes have keyways proposed with drainage in mind, all slopes are 2/1 or less, a diversion channel is proposed on the up-slope side of the well pad, and all disturbance is protected by sufficient compost filter sock recommendations. Also, please note the proper berms along with sumps with valves were proposed for this pad. During drilling these valves will remain closed to ensure protection from possible pollutants.
4. **Provide mapping, plans, specifications and design analysis for the preferred alternatives to the project.**
- a. **Specify in writing what additional controls, measures, devices, monitoring, etc. will be used to protect these wetlands and/or perennial streams for which the waiver is sought.**
    - i. Please note that these plans have been reviewed and approved by all agencies. As shown on our plans and mentioned above, sufficient erosion and sediment controls will be installed. This includes sufficient "triple stack" compost filter sock, outlet protection on all culverts and key drains, rip rap diversion ditch on the upslope of the well pad. As shown on the plans, we have proposed wetland protection berms at the edge of wetland disturbance to avoid draining the wetlands. Please see sheet 2 of the site plan for complete construction standards, notes and sequence. See sheets 15-18 for construction details.

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**GOFF 5-55 ALT. PAD SITE**  
**MOUNTAINEER KEYSTONE, LLC**  
 PROPOSED WELL NO. 211, 212, 213, & 214

Office of Oil and Gas  
 DEC 0-8-2014  
 WV Department of Environmental Protection

DATE	12-08-14
SCALE	1" = 40'
DRAWN BY	CHM
CHECKED BY	CHM
DATE	07
BY	

**GOFF 5-55**  
 ALT. SITE EXHIBIT (NOT FOR CONSTRUCTION)  
 CLARK DISTRICT  
 HARRISON COUNTY, WV

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03/03/2017









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

1) Well Operator: Mountaineer Keystone, LLC 494501227 Harrison Clark Mt. Clare  
Operator ID County District Quadrangle

2) Operator's Well Number: Goff 5-55 211 Well Pad Name: Goff 5-55

3) Farm Name/Surface Owner: Sharon E. Dimaria Public Road Access: State Route 19

4) Elevation, current ground: 1154.80 Elevation, proposed post-construction: 1155.5

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

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

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1/11/2017*

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale, 6974.5 ft. top, 7065.5 ft. bottom, 91 ft., 0.5 psi/ft

8) Proposed Total Vertical Depth: 7,044.5 ft.

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 15,865.2 ft.

11) Proposed Horizontal Leg Length: 7,920.9 ft.

12) Approximate Fresh Water Strata Depths: 640'

13) Method to Determine Fresh Water Depths: offsetting wells reported water depths(033-01301, 033-04540, 033-30883, 033-72821, 033-72822, 033-73213, 033-31593, 033-03164)

14) Approximate Saltwater Depths: ~~600'~~ 1,030 ft.

15) Approximate Coal Seam Depths: Pittsburgh-30.5'

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

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

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

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**JAN 11 2017**  
**WV Department of Environmental Protection**

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24"	New	H-40	94#	80'	80'	CTS
Fresh Water	13.375"	New	J-55	54.5#	700'	700'	CTS
Coal							
Intermediate	9.625"	New	J-55	40#	2500'	2500'	CTS
Production	5.5"	New	P-110	20#	15,865'	15,865'	TOC@2,350' MD
Tubing							
Liners							

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1/11/2017

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	36"			0	Type 1, 3% Calcium	1.20
Fresh Water	13.375"	17.5"	0.38"	2730	0	Class A, 3% CaCl2	1.20
Coal							
Intermediate	9.625"	12.25"	0.395"	3950psi	0	Class A, 2% CaCl2	1.29
Production	5.5"	8.5-8.75	0.361"	12,640 psi	9500	Type 1	1.64/1.32
Tubing					5000		
Liners					N/A		

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW-6B  
(10/14)

JAN 11 2017

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

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

The well will be completed using a plug and perforation method and stimulated with a slickwater and sand slurry. The anticipated maximum rate will be 90 bpm and the maximum pressure will be 9,500 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 23.05 acres

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1/11/2017*

22) Area to be disturbed for well pad only, less access road (acres): 6.9 acres

23) Describe centralizer placement for each casing string:

20" - 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 2,600'; there will be no centralizers from 2,600' to surface.

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

24" will be grouted from 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 Type 1 cement, & no greater than 3% calcium chloride. The 5-1/2" production string will be cemented back to 2,350' (+/- 200' above the casing shoe for the 9-5/8") with Type 1 or Class A cement retarder (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 a 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 to 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 the shakers for signs of cuttings. Once at the base of the 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.

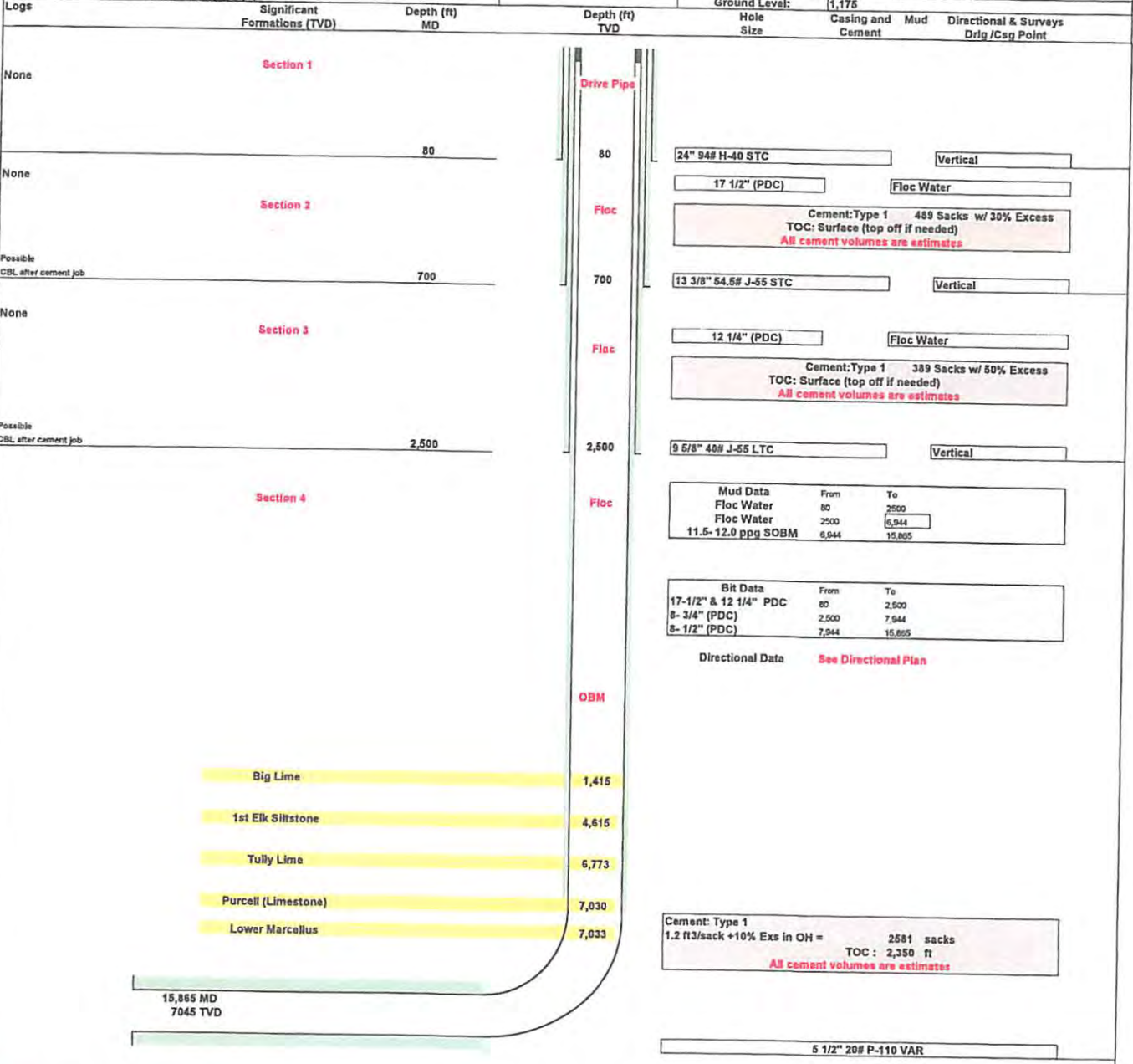




Mountaineer Keystone  
Goff 5-55 211HM  
Casing Design  
Directional Plan # 1 ADC

Other Names:	N/A
Surface Location:	TBD
Bottom Hole Location:	TBD
Total Depth:	15,865 MD (ft) 7,045 TVD (ft)

County:	Harrison
State:	West Virginia
AFE #:	XX   API #: XX
RKB:	21
Ground Level:	1,175



Revision 1

Note: Not drawn to scale

Cement Outside Casing  
Seal Assembly in Annulus

Date Last Revised: 16-Jun-16  
Jarrett Toms

Office of Oil and Gas

JAN 11 2017

WV Department of  
Environmental Protection

03/03/2017



33-05885

## Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near Mountaineer Keystone hydraulic fracturing in Harrison County, WV prior to hydraulic fracturing at the following MK wells on the Goff 5-55 211 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 7,050' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Benson formation (approximately 4,500' 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.

MK, 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, MK 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 MK 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 MK if any changes in water, gas production, pressure or other anomalies are identified.

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**2. Reporting**

MK 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.

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Area of Review Report - **Goff 5-55**

Well Name	API Number	Operator Name / Address	Well Type	Latitude
Goff III 35	033-03022	Alliance Petroleum Corporation	Existing	

Pad, **211** Lateral, **Harrison** County, WV

Uide	Longitude	Total Depth	Perforated Formation(s)
39.278548	-80.401694	4616	Benson

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Well Name	API Number	Operator Name / Address	Well Type	Latitude
Sharon DiMaria B-756	033-04540	Berry Energy, Inc.	Existing	39.256834
JW Sheets AE-16	033-01242	XTO Energy, Inc.	Existing	39.267083
AJ Sheets B-975/S-217	033-01079	Enervest Operating, LLC	Existing	39.272743
Goff III 35	033-03022	Alliance Petroleum Corporation	Existing	39.278548
John Dolan3 K-E-8	033-01928	XTO Energy, Inc.	Existing	39.263454
Pre-29	Pre-29	NA	NA	NA
Pre-29	Pre-29	NA	NA	NA
A Sheets 7272	033-01454	Consolidated Gas Transmission Corp.	Plugged	39.273773
Harrison County Board of Ed	033-04286	PDC Mountaineer, LLC	Plugged	39.276734

<b>Producing Zones not Perforated</b>
NA
NA

33-05885

211 Lateral, Harrison County, WV

Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.383797	3580	Gantz, Fifty-foot, Gordon Stray, Fourth, Fifth, Speechley, Balltown, Greenland Gap	NA
-80.394414	4600	Speechley, Balltown, Riley, Benson	NA
-80.397401	4586	Balltown, Riley, Benson	NA
-80.401694	4616	Benson	NA
-80.391428	4560	Benson	
NA	NA	NA	NA
NA	NA	NA	NA
-80.479418	NA	Developmental only	NA
-80.351274	3020	Little Lime, Greenbrier, Big Lime, Big Injun, Berea Ss, Fifty-foot, Thirty-Foot, Fifth	NA
			NA

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Area of Review Report - **Goff 5-55** Pad, \_\_\_\_\_

Well Name	API Number	Operator Name / Address	Well Type	Latitude	L
Sharon DiMaria B-756	033-04540	Berry Energy, Inc.	Existing	39.256834	

Area of Review Report - **Goff 5-55** Pad, \_\_\_\_\_

Well Name	API Number	Operator Name / Address	Well Type	Latitude
A Sheets 7272	033-01454	Consolidated Gas Transmission Corp.	Plugged	39.273773

**211** Lateral, **Harrison** County, WV

Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.383797	3580	Gantz, Fifty-foot, Gordon Stray, Fourth, Fifth, Speechley, Balltown, Greenland Gap	NA

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Area of Review Report - **Goff 5-55** Pad, \_\_\_\_\_

Well Name	API Number	Operator Name / Address	Well Type	Latitude	L
AJ Sheets B-975/S-217	033-01079	Enervest Operating, LLC	Existing	39.272743	

**211** Lateral, **Harrison** County, WV

Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.479418	NA	Developmental only	NA

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Area of Review Report - **Goff 5-55** Pad, \_\_\_\_\_

Well Name	API Number	Operator Name / Address	Well Type	Latitude
Harrison County Board of	033-04286	PDC Mountaineer, LLC	Plugged	39.276

**211** Lateral, **Harrison** County, WV

Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.397401	4586	Balltown, Riley, Benson	NA

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Area of Review Report - **Goff 5-55** Pad, \_\_\_\_\_

Well Name	API Number	Operator Name / Address	Well Type	Latitude	L
JW Sheets AE-16	033-01242	XTO Energy, Inc.	Existing	39.267083	
John Dolan3 K-E-8	033-01928	XTO Energy, Inc.	Existing	39.263454	





**211** Lateral, **Harrison** County, WV

Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.394414	4600	Speechley, Balltown, Riley, Benson	NA
-80.391428	4560	Benson	NA

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Environment 03/03/2017

WW-9  
(4/16)

API Number 47- 033 - 05885  
Operator's Well No. Golf 5-55 211

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Mountaineer Keystone, LLC OP Code 494501227

Watershed (HUC 10) West Fork River Quadrangle Wolf Summit

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: produced water

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? 60 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 \_\_\_\_\_ )

*SDW  
7/5/2016*

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 a landfill

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. vert: freshwater; horiz: 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? Advanced Disposal Services, Chestnut Valley 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 *Nathan Skeen*

Company Official (Typed Name) Nathan Skeen

Company Official Title Designated Agent

Subscribed and sworn before me this 7<sup>th</sup> day of July, 20 16

*Amy Miller*

Notary Public



Official Seal  
Notary Public, State Of West Virginia  
Amy L. Miller  
1111 Van Voorhis Road Suite G  
Morgantown WV 26605  
My commission expires March 15, 2022

My commission expires 3-15-2022

03/03/2017

**Mountaineer Keystone, LLC**

Proposed Revegetation Treatment: Acres Disturbed 23 acres Prevegetation pH unknown

Lime 2.67 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch 3-4 Tons/acre

**Seed Mixtures**

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	129	Orchard Grass	129
Ryegrass	93	Ryegrass	93
Timothy	45	Timothy	45

**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: *S. D. [Signature]*

Comments: Pre-seed / mulch all disturbed areas as reasonably possible per regulation. Upgrade E&S where needed per WV DEP manual, if necessary.

Title: Inspector OOG

Date: 7/5/2016

Field Reviewed?  Yes  No

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# Mountaineer Keystone

## Site Safety Plan

**Goff 5/55 #211  
WELL PAD**

**911 Address:  
707 Good Hope Pike,  
Clarksburg, WV 26301**

*SDW  
12/5/2016*

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1

03/03/2017

WW-6A1  
(5/13)

Operator's Well No. Goff 5/55 #211, 212, 213, 214

**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 list

**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: Mountaineer Keystone  
 By: Eddie Carder *[Signature]* DEC 08 2016  
 Its: Regulatory Affairs Manager *[Signature]*

Office of Oil and Gas  
WV Department of Environmental Protection

## Attachment to WW-6A1, GOFF 5-55 #211

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
00007245	The Harrison County Commission	Berry Energy Consultants and Managers, Inc.	0.1250	1358/609	100
	Berry Energy Consultants and Managers, Inc.	Berry Energy, Inc.		59/404	
	Berry Energy, Inc.	Chesapeake Appalachia, L.L.C.		1456/376	
	Chesapeake Appalachia, L.L.C.	Statoil USA Onshore Properties, Inc.		1474/769	
	Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		1544/284	
	Statoil USA Onshore Properties, Inc.	SWN Exchange Titleholder LLC		1546/571	
	SWN Exchange Titleholder LLC	SWN Production Company, LLC		59/1188	
	SWN Production Company, LLC and Statoil USA Onshore Properties, Inc.	Mar Key, LLC		1576/307	
00007183	West Virginia Department of Transportation	Mar Key, LLC	0.2000	1569/1225	12.41
00005109 (WVL00992.000)	John J. Dolan and Elizabeth Dolan, his wife	Reserve Gas Company	0.1250 for oil; \$75.00 every three months for each gas well	143/248	300
	Reserve Gas Company	Hope Natural Gas Company		508/573	
	Hope Natural Gas Company	Consolidated Gas Supply Corporation		903/179	
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		1136/250	
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation			
	CNG Transmission Corporation	Dominion Transmission, Inc.			
	Dominion Exploration & Production, Inc., Dominion Transmission, Inc. and Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation		1423/1068	
	Antero Resources Appalachian Corporation	PDC Mountaineer, LLC		1478/660	

00005107 (WVL00990.000)	James W. Sheets and Margaret A. Sheets, his wife and Talitha Sheets, his mother	Sidney W. Jones	0.1250 for oil; \$300 per year for each gas well	145/280	15
	Sidney W. Jones	Fisher Oil Company and O.D. Harrington		148/49	
	Fisher Oil Company and O.D. Harrington	The Philadelphia Company of West Virginia		222/200	
	The Philadelphia Company of West Virginia	The Philadelphia Oil Company		237/352	
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company		236/111	
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company		714/159	
	Equitable Gas Company & Philadelphia Oil Company	Hope Natural Gas Company		790/135	
	Hope Natural Gas Company	Consolidated Gas Supply Corporation		903/179	
	Consolidated Gas Supply Corporation	Cosolidated Gas Transmission Company		1136/250	
	Cosolidated Gas Transmission Company	CNG Transmission Corporation		51/795	
	CNG Transmission Corporation	Dominion Transmission, Inc.		58/362	
	Dominion Exploration & Production, Inc., Dominion Transmission, Inc. and Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation		1423/1068	
	Antero Resources Appalachian Corporation	PDC Mountaineer, LLC		1478/660	

00005108 (WVL00991.000)	Clarence A. Sheets, Jr. and Olive Genevieve Sheets, his wife, Lulu Sheets, widow and Cora M. Sheets, single	Hope Natural Gas Company	0.1250	869/251	46
	Hope Natural Gas Company	Consolidated Gas Supply Corporation		903/179	
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		1136/250	
	Consolidated Gas Transmission Corporation	CNG Development Company		1143/921	
	CNG Development Company	CNG Producing Company			
	CNG Producing Company	Dominion Exploration and Production, Inc.			
	Dominion Exploration & Production, Inc., Dominion Transmission, Inc. and Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation		1423/1068	
	Antero Resources Appalachian Corporation	PDC Mountaineer, LLC		1478/660	
00005106 (WVL00989.000)	A.J. Sheets and N.C. Sheets	South Penn Oil Company	0.1250 for oil; \$300 per year for each gas well	116/563	60
	South Penn Oil Company	Hope Natural Gas Company		240/210	
	Hope Natural Gas Company	Reserve Gas Company		221/210	
	Reserve Gas Company	Hope Natural Gas Company		508/573	
	Hope Natural Gas Company	Cosolidated Gas Supply Corporation		903/179	
	Cosolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		1136/250	
	Consolidated Gas Transmission Corporation	CNG Tansmission Corporation		51/795	
	CNG Tansmission Corporation	Dominion Transmission, Inc.		58/362	
	Dominion Exploration & Production, Inc., Dominion Transmission, Inc. and Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation		1423/1068	
	Antero Resources Appalachian Corporation	PDC Mountaineer, LLC		1478/660	



33-05885

00003556 (WVL00104.000)	Diana Goff Cather and H. Dotson Cather, her husband, and Laura Goff Davis	Petroleum Development Corporation	0.1250	1007/714	1622
	Petroleum Development Corporation	PDC Mountaineer, LLC		1440/364	

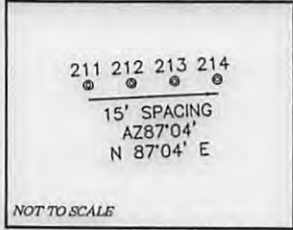


NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- LEASE INFORMATION PROVIDED BY MOUNTAINEER KEYSTONE.  
**211 WELL TIES**

LINE	BEARING	DISTANCE
L1	S 89°33' E	819.34'
L2	S 62°52' E	936.59'
L3	S 79°30' W	2491.80'
L4	N 19°41' W	537.11'
L5	N 19°40' W	7920.90'

GOFF 5-55 WELL LAYOUT



LEGEND

LEASE LINE	---
SURFACE LINE	----
WELL LATERAL	-----
OFFSET LINE	- - - - -
TIE LINE	=====
CREEK	~~~~~
ROAD	=====
FENCE LINE	-----
COUNTY ROUTE	○-----○
STATE ROUTE	○-----○
PROPOSED WELL	☉
EXISTING WELL	☼
PERMITTED WELL	☼

MOUNTAINEER KEYSTONE GOFF 5-55 PAD WELL 211

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'83 S.P.C.(FT) N. 277,544.4 E. 1,719,181.0  
 NAD'83 GEO. LAT-(N) 39.258654 LONG-(W) 80.380508  
 NAD'83 UTM (M) N. 4,345,663.2 E. 553,447.2  
**LANDING POINT**  
 NAD'83 S.P.C.(FT) N. 277,595.9 E. 1,716,550.0  
 NAD'83 GEO. LAT-(N) 39.258724 LONG-(W) 80.389801  
 NAD'83 UTM (M) N. 4,345,665.5 E. 552,645.4  
**BOTTOM HOLE**  
 NAD'83 S.P.C.(FT) N. 285,054.8 E. 1,713,884.4  
 NAD'83 GEO. LAT-(N) 39.279129 LONG-(W) 80.399478  
 NAD'83 UTM (M) N. 4,347,924.4 E. 551,795.5



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 www.slsurveys.com

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

P.S. *Gregory A. Smith*  
 677



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

DATE JUNE 30, 20 16

REVISED SEPTEMBER 7, 20 16

OPERATORS WELL NO. 211

API WELL NO. 47 - 033 - 05885HLA  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8312P211R2.dwg  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



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

LOCATION: ELEVATION EXISTING: 1,154.80' / PROPOSED: 1,155.20' WATERSHED WEST FORK RIVER

DISTRICT CLARK COUNTY HARRISON QUADRANGLE WOLF SUMMIT

SURFACE OWNER SHARON DIMARIA ACREAGE 69.31±

ROYALTY OWNER COUNTY COMMISSION OF HARRISON COUNTY ACREAGE 85 OF 100±

PROPOSED WORK: LEASE NO. 00007245

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

PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 15,865' TMD / 7,045' TVD

WELL OPERATOR MOUNTAINEER KEYSTONE, LLC DESIGNATED AGENT NATHAN SKEEN

ADDRESS 6031 WALLACE RD. EXT. SUITE 300 ADDRESS 65 PROFESSIONAL PLACE

WEXFORD, PA 15090 BRIDGEPORT, WV 26330

TRACT #	SURFACE OWNER	SURFACE ACREAGE	OIL & GAS LEASE #
326-46.4	SHARON DIMARIA	69.31±	00004472 & 00007245
326-46.9	COUNTY COMMISSION OF HARRISON COUNTY	1.27±	00007245
326-46	HARRISON COUNTY BUILDING COMMISSION	9±	00007245
326-46.2	COUNTRY CLUB CHRYSLER PLYMOUTH	7.46±	00007245
U.S. ROUTE 19	STATE OF W.V. (WEST MILFORD & NEW SALEM TURNPIKE)		00007183
326-29.2	DOLAN HEIRS	77.09±	00005109
326-29	DOLAN HEIRS	152.60±	00005109
325-20	OLIVE SHEETS	31.86±	00005107 & 00005108
325-44	ALLEN HILL ETAL	5±	00005108
325-19	OLIVE SHEETS	13.51±	00005108
305-33	OLIVE SHEETS	53.52±	00005106
305-33.1	PAUL SHEETS ETAL	0.98±	00005106
305-32	LAURA GOFF DAVIS	233.50±	00003556
305-32.1	HARRISON CO. BOE	39.16±	00003556
305-32.3	HARRISON CO. BOE	2.71±	00003556
306-63	H. DOTSON CATHER TRUSTEE	208.72±	00003556

NAD'83 GRID NORTH

LONGITUDE (NAD'83) 80°22'30"

4,567'

BOTTOM HOLE

12,024'

TOP HOLE

TOP HOLE





June 28, 2016

Mr. James Martin, Chief of Oil and Gas  
WV DEP  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25301

RE: Ownership of Roadways; Goff 5-55 Pad

Dear Marty:

In preparation of filing a permit application for the above referenced well, Mountaineer Keystone's Title Department conducted a thorough title examination to determine ownership of the oil and gas underlying all roadways crossed by the proposed well. The findings of our examination show that some of the roadways crossed by the proposed well are owned in fee by the West Virginia Department of Transportation, Division of Highways and that some are right of ways only. 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 as 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 our leasehold as provided in the application materials.

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

Sincerely,

A handwritten signature in blue ink that reads "Orla Lavender".

Orla Lavender  
*Director of Title and Land Records*

RECEIVED  
Office of Oil and Gas

DEC 08 2016

### 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.

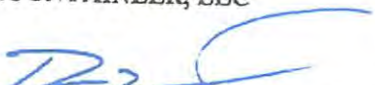
[Signature Page Follows]

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:   
Name: Robert Kozal  
Title: CEO

**PDC MOUNTAINEER, LLC**

By:   
Name: Robert Kozal  
Title: CEO

**PDC MOUNTAINEER HOLDINGS, LLC**

By:   
Name: Robert Kozal  
Title: CEO



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

<b>Authorized Shares</b>

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

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

<b>Annual Reports</b>	
Date filed	

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

Date of Notice Certification: 12/08/2016

API No. 47- 033 - 65885  
Operator's Well No. #211  
Well Pad Name: Goff 5-55

**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>5534464.25</u>
County:	<u>Harrison</u>		Northing:	<u>434564.22</u>
District:	<u>Clark</u>	Public Road Access:	<u>US 19 to Oakmound Road (19/12)</u>	
Quadrangle:	<u>Mount Clare</u>	Generally used farm name:	<u>Laura Goff Davis</u>	
Watershed:	<u>West Fork River</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 type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><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><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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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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03/03/2017  
Environmental Protection

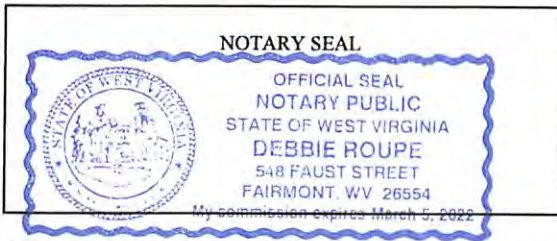


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(1/12)

**Certification of Notice is hereby given:**

THEREFORE, I Nathan Skeen, 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>Mountaineer Keystone, LLC</u>	Address:	<u>6031 Wallace Road Ext., Suite 300</u>
By:	<u>Nathan Skeen</u> 		<u>Wexford, Pennsylvania 15090</u>
Its:	<u>Agent</u>	Facsimile:	<u></u>
Telephone:	<u>(724) 940-1204</u>	Email:	<u>nskeen@mkeystone.com</u>



Subscribed and sworn before me this 6<sup>th</sup> day of December 2016  
Debbie Roupe Notary Public  
 My Commission Expires March 5, 2022

**Oil and Gas Privacy Notice:**

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

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WV Department of  
Environmental Protection  
03/03/2017



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(9-13)

API NO. 47-033-05885  
OPERATOR WELL NO. Goff 5/55 #211  
Well Pad Name: Goff 5/55

**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:** 12/7/16 **Date Permit Application Filed:** 12/8/16

**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: Sharon E. Dimaria  
Address: 419 East Main Street  
Clarksburg, WV 26301  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: Sharon E. Dimaria 419 East Main Street Clarksburg, WV 26301  
Address: Laura Goff Davis PO Box 707 Clarksburg, WV 26302

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

SURFACE OWNER(s) (Road and/or Other Disturbance)  
Name: Sharon E. Dimaria  
Address: 419 East Main Street  
Clarksburg, WV 26301  
Name: Laura Goff Davis  
Address: PO Box 707  
Clarksburg, WV 26302

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

SURFACE OWNER(s) (Impoundments or Pits)  
Name: Laura Goff Davis  
Address: PO Box 707  
Clarksburg, WV 26302

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

\*Please attach additional forms if necessary

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WV Department of Environmental Protection  
03/03/2017

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

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



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(8-13)

API NO. 47- 033 - 05885  
OPERATOR WELL NO. Goff 5/55 #211  
Well Pad Name: Goff 5/55

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 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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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.**

WV Department of  
Environmental Protection  
03/03/2017

**Time Limits and Methods for Filing Comments.**

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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03/03/2017



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API NO. 47- 033- 05885  
OPERATOR WELL NO. Goff 5/55 #211  
Well Pad Name: Goff 5/55

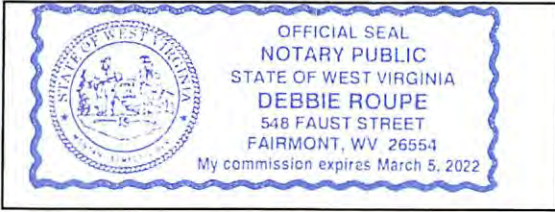
Notice is hereby given by: FODDIE CARDER

Well Operator: Mountaineer Keystone, LLC  
Telephone: (724)940-1204  
Email: ecarder@mkeystone.com

Address: 65 Professional Place, Suite 200  
Bridgeport, West Virginia 26330  
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](mailto:deprivacyofficer@wv.gov).



Subscribed and sworn before me this 6<sup>th</sup> day of December 2016

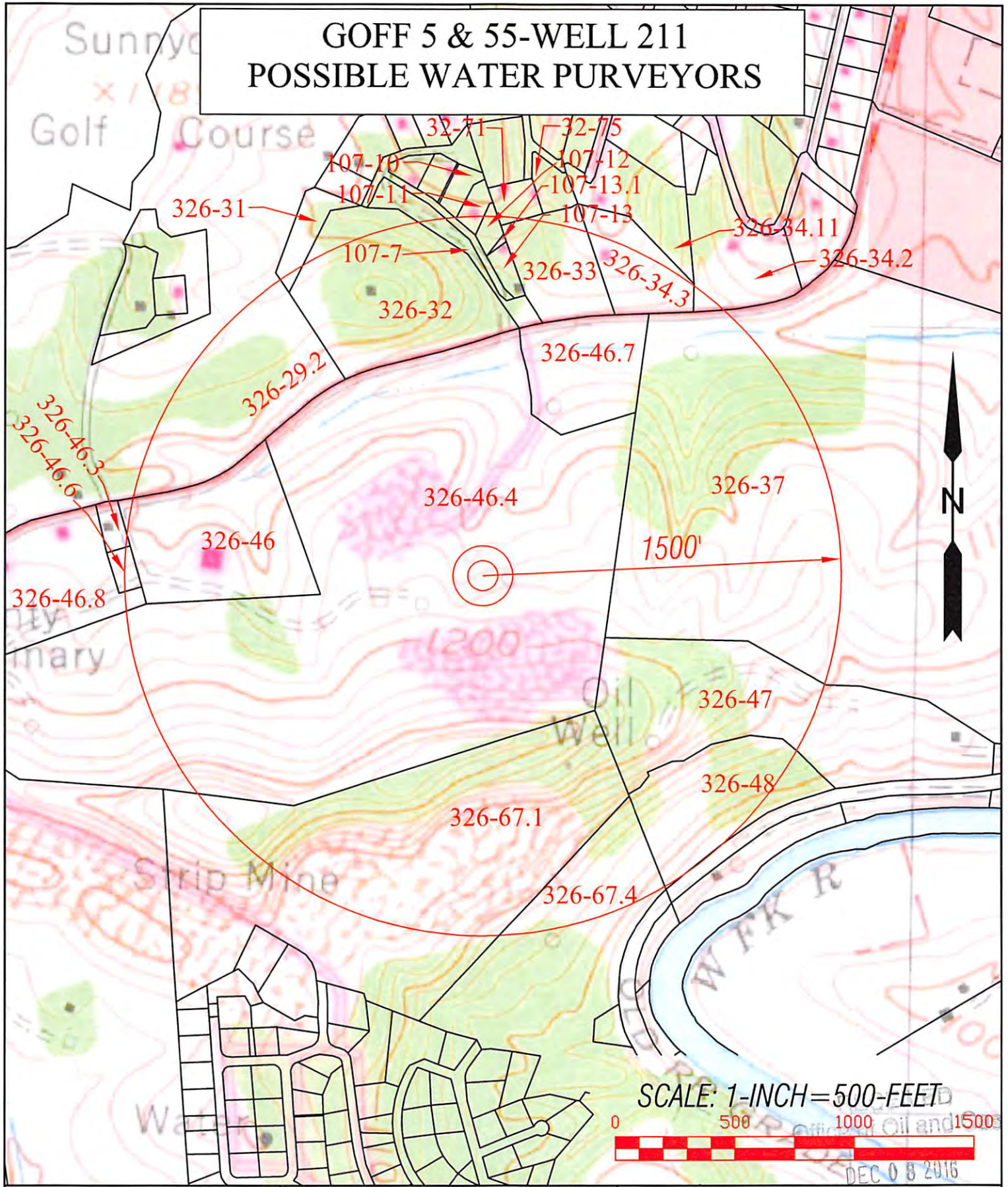
Debbie Roupe Notary Public

My Commission Expires March 5, 2022

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WV Department of  
Environmental Protection 03/03/2017



# GOFF 5 & 55-WELL 211 POSSIBLE WATER PURVEYORS



TOPO SECTIONS OF:  
 WOLF SUMMIT & CLARKSBURG WV 7.5' QUADS

COUNTY	DISTRICT
HARRISON	CLARK

OPERATOR:  
**MOUNTAINEER KEYSTONE, LLC**  
 6031 WALLACE RD. EXT, SUITE 300  
 WEXFORD, PA 15090 **03/03/2017**

DRAWN BY C.P.M.	FILE NO. 8312	DATE 06-8-16	CADD FILE: 8312WATER211.DWG
--------------------	------------------	-----------------	--------------------------------



33-05885



**326-29.2**

Dolan Heirs  
Ann Dolan Wilson  
615 6<sup>th</sup> St.  
Glendale, WV 26038

**326-32**

Roger & Linda Smith  
818 Good Hope Pike  
Clarksburg, WV 26301

**326-34.2**

David & Katherine Clovis  
304 Emerson Rd.  
Clarksburg, WV 26301

**326-34.3**

Aristotle & Joyce Rabanal  
210 John St.  
Clarksburg, WV 26301

**326-37**

Laura Goff Davis  
P.O. Box 707  
Clarksburg, WV 26302

**326-46**

Harrison County Building Commission ✓  
301 W. Main Street  
Clarksburg, WV 26301

**326-46.3**

**326.46.6**

County Commission of Harrison County ✓  
301 W. Main Street  
Clarksburg, WV 26301

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33-0588 5



**326-46.4**

**326-46.7**

Sharon Dimaria  
419 E. Main Street  
Clarksburg, WV 26301

**326-46.8**

Kermit & Deborah Stutler  
RR 1 Box 64  
Lost Creek, WV 26385

**326-47**

Richard W. Mitchell et al  
303 S. Alexander Ave.  
Clarksburg, WV 26301

**326-48**

Marty & Deborah Perri  
1169 Sand Cut Rd.  
Clarksburg, WV 26301

**326-67.1**

**326-67.4**

Pope Properties Parkersburg Phase II  
101 Wyndham Knob  
North Parkersburg, WV 26104

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**Possible Water Purveyors within 1500' of Goff 5 & 55  
Well 211**

**32-71**

John & Roberta Wilfong  
105 Forest Dr.  
Clarksburg, WV 26301

**32-75**

Michael & Jeanne Dyer  
104 Forest Dr.  
Clarksburg, WV 26301

**107-7**

Darryl King Et Al  
265 Shadow Hills Dr.  
Clarksburg, WV 26301

**107-10**

George Randall Cain Et Ux  
236 Shadow Hills Dr.  
Clarksburg, WV 26301

**107-11**

Mark & Maryann Ware  
RR 1 Box 222  
Clarksburg, WV 26301

**107-12****107-13.1**

Richard Sheets  
RR 1 Box 224  
Clarksburg, WV 26301

**107-13**

Scott & Michelle Miles  
56 Shadow Hill Dr.  
Clarksburg, WV 26301

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33-05885

**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:** 5/10/2016      **Date of Planned Entry:** 5/17/2016

**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:** Sharon E. Dimaria (Pad and possible Pit)  
**Address:** 419 East Main Street  
Clarksburg, WV 26301

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

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

COAL OWNER OR LESSEE

**Name:** Sharon E. Dimaria  
**Address:** 419 East Main Street  
Clarksburg, WV 26301

MINERAL OWNER(s)

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

\*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:

<b>State:</b> <u>West Virginia</u>	<b>Approx. Latitude &amp; Longitude:</b> <u>39.259750; -80.381834</u>
<b>County:</b> <u>Harrison</u>	<b>Public Road Access:</b> <u>US 19 to Oakmound Road (19/12)</u>
<b>District:</b> <u>Clark</u>	<b>Watershed:</b> <u>West Fork River</u>
<b>Quadrangle:</b> <u>Mt. Clare</u>	<b>Generally used farm name:</b> <u>Michael Dimaria</u>

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 57<sup>th</sup> 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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

**Well Operator:** Mountaineer Keystone, LLC  
**Telephone:** 724-940-1202  
**Email:** amiller@mkeystone.com

**Address:** 6031 Wallace Road Extension, Suite 300  
Wexford, PA 15090  
**Facsimile:** 800-428-0981

**Oil and Gas Privacy Notice:**

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

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03/03/2017



33-05885

WW-6A3  
(1/12)

Operator Well No. Goff 5-55 #211

**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:** 5/10/2016      **Date of Planned Entry:** 5/17/2016

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

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**Notice is hereby provided to:**

SURFACE OWNER(s)

Name: Laura Goff Davis (access road and possible pit)  
Address: P.O. Box 707  
Clarksburg, WV 26302

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

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

COAL OWNER OR LESSEE

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

MINERAL OWNER(s)

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

\*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:	<u>West Virginia</u>	Approx. Latitude & Longitude:	<u>39.259750; -80.381834</u>
County:	<u>Harrison</u>	Public Road Access:	<u>US 19 to Oakmound Road (19/12)</u>
District:	<u>Clark</u>	Watershed:	<u>West Fork River</u>
Quadrangle:	<u>Mt. Clare</u>	Generally used farm name:	<u>Michael Dimaria</u>

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 57<sup>th</sup> 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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

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Telephone: 724-940-1202  
Email: amiller@mkeystone.com

Address: 6031 Wallace Road Extension, Suite 300  
Wexford, PA 15090  
Facsimile: 800-428-0981

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

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

- PERSONAL SERVICE     
 REGISTERED MAIL     
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**Notice is hereby provided to:**

SURFACE OWNER(s)

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

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

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

COAL OWNER OR LESSEE

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

MINERAL OWNER(s)

Name: Harrison County Commission  
Address: 301 W. Main Street  
Clarksburg, WV 26301

\*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  
**County:** Harrison  
**District:** Clark  
**Quadrangle:** Mt. Clare

**Approx. Latitude & Longitude:** 39.259750; -80.381834  
**Public Road Access:** US 19 to Oakmound Road (19/12)  
**Watershed:** West Fork River  
**Generally used farm name:** Michael Dimaria

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 57<sup>th</sup> 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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

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**Well Operator:** Mountaineer Keystone, LLC  
**Telephone:** 724-940-1202  
**Email:** amiller@mkeystone.com

**Address:** 6031 Wallace Road Extension, Suite 300  
Wexford, PA 15090  
**Facsimile:** 800-428-0981

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 Environmental Protection  
 03/03/2017



**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:** 12/07/2016      **Date Permit Application Filed:** 12/08/2016

**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: Sharon E. DiMaria  
Address: 419 East Main Street  
Clarksburg, West Virginia 26301

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

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>553464.25</u>
County:	<u>Harrison</u>		Northing:	<u>4345644.22</u>
District:	<u>Clark</u>	Public Road Access:	<u>US.19 To Oakmound Road (19/12)</u>	
Quadrangle:	<u>Mount Clare</u>	Generally used farm name:	<u>Laura Goff Davis</u>	
Watershed:	<u>West Fork River</u>			

**This Notice Shall Include:**

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

Well Operator: Mountaineer Keystone. LLC  
Telephone: (724)940-1204  
Email: ecarder@mkeystone.com

Address: 65 Professional Place, Suite 200  
Bridgeport, West Virginia 26330  
Facsimile: (304)848-9134

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Office of Oil and Gas

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03/03/2017







WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

Reissued December 2, 2016

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

Subject: DOH Permit for the Goff 5 & 55 Pad, Harrison County  
Goff 211, 212, 213, & 214 Well Sites

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit # 04 -2016-0484 to Mountaineer Keystone, LLC for access to the well site located off of US 19 in Harrison County.

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

Very Truly Yours,

Gary K. Clayton  
Regional Maintenance Engineer  
Central Office O&G Coordinator

Cc: Amy L. Miller  
Mountaineer Keystone, LLC  
CH, OM, D-4

Office of Oil and Gas

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WV Department of  
Environmental Protection

03/03/2017



<b>WellName # Goff 5-55 214</b>			
<b>FRACTURING ADDITIVES</b>			
	<b>PURPOSE</b>	<b>TRADE NAME</b>	<b>CAS #</b>
<b>Additive #1:</b>	Friction Reducer	WFRA-405	Proprietary
<b>Additive #2:</b>	Scale Inhibitor	SI-1000	7440-21-3
<b>Additive #3:</b>	Biocide	BIOCLEAR 2000	25314-61-8
<b>Additive #4:</b>	Gelling Agent	LGC-15	9000-30-0
<b>Additive #5:</b>	Corrosion Inhibitor	AI-300	111-76-2
<b>Additive #6:</b>	Gel Breaker	AP-One	7727-54-0
<b>Additive #7:</b>	Acid	HCl - 7.5%	7647-01-0





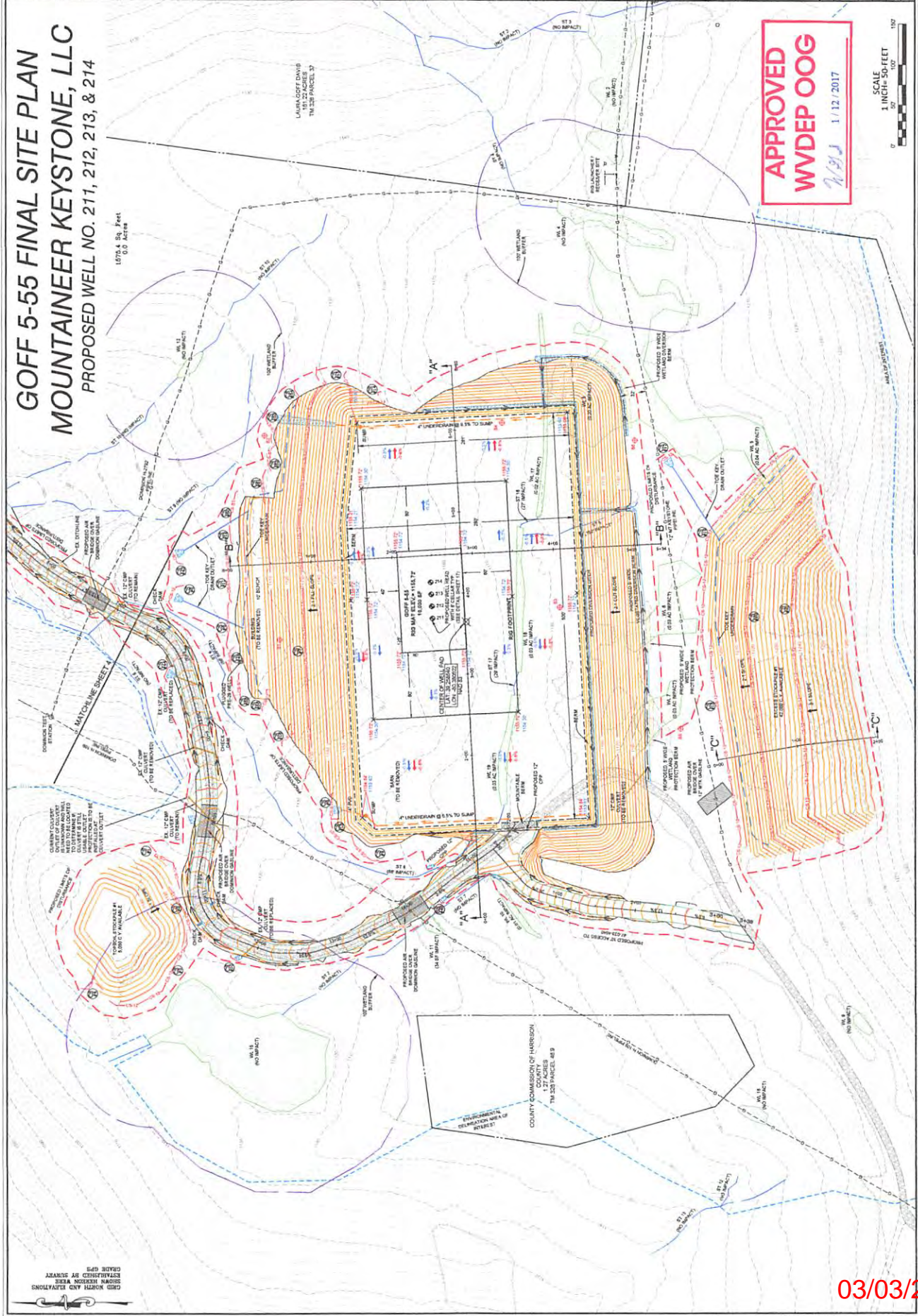


THIS DOCUMENT WAS  
PREPARED BY SLS  
LAND & ENERGY  
DEVELOPMENT, LLC  
FOR MOUNTAINEER  
KEYSTONE, LLC

GOFF 5-55  
SITE PLAN  
CLARK DISTRICT  
HARRISON COUNTY, WV

DATE: 6-24-16  
SCALE: 1" = 50'  
DESIGNED BY: DMB  
FILE NO: 6312  
SHEET: 6 OF 19  
REV: 12-05-2016

**GOFF 5-55 FINAL SITE PLAN  
MOUNTAINEER KEYSTONE, LLC  
PROPOSED WELL NO. 211, 212, 213, & 214**



**APPROVED  
WVDEP OOG**  
*[Signature]*  
1/12/2017

SCALE  
1 INCH = 50 FEET

GOFF NORTH AND EASTWAYS  
SHOWN IN RED  
RENDERED BY SURVEY  
ORDER 678

03/03/2017



# GOFF 5-55 F. MOUNTAINEER PROPOSED WELL N

## PROJECT INFORMATION

PROJECT NAME: GOFF 5-55

### SURFACE OWNERS:

SHARON DIMARIA  
TM 326 PAR 46.4  
CLARK DISTRICT  
HARRISON COUNTY, WV  
TOTAL PROPERTY AREA: 69.31 ACRES

SHARON DIMARIA  
TM 326 PAR 46.7  
CLARK DISTRICT  
HARRISON COUNTY, WV  
TOTAL PROPERTY AREA: 4.58 ACRES

LAURA GOFF DAVIS  
TM 326 PAR 37  
CLARK DISTRICT  
HARRISON COUNTY, WV  
TOTAL PROPERTY AREA: 161.22 ACRES

### SITE LOCATION:

THE GOFF 5-55 WELL PAD IS LOCATED ON THE SOUTHERN SIDE U.S. ROUTE 19, APPROXIMATELY 0.72 MILES SOUTH OF THE INTERSECTION OF COUNTY ROUTE 98 AND U.S. ROUTE 19.

## PROPERTY DISTURBANCE COMPUTATIONS

PARCEL 46.4	= 12.34 ± ACRES
PARCEL 46.7	= 0.05 ± ACRES
PARCEL 37	= 10.61 ± ACRES
<b>TOTAL SITE DISTURBANCE</b>	<b>= 23.00 ± ACRES</b>

## LOCATION COORDINATES

PAD SITE ENTRANCE  
LATITUDE: 39.261482 LONGITUDE: -80.379924 (NAD 83)

EXISTING GOFF 7, 8, 16, & 17 ENTRANCE TO ACCESS PIT  
LATITUDE: 39.260570 LONGITUDE: -80.369922 (NAD 83)

CENTER OF WELL PAD  
LATITUDE: 39.258540 LONGITUDE: -80.380622 (NAD 83)

CENTER OF ASSOCIATED PIT  
LATITUDE: 39.259798 LONGITUDE: -80.375454 (NAD 83)

## SITE DISTURBANCE COMPUTATIONS

WELL PAD AREA	= 6.0 ± ACRES
MAIN ACCESS AREA	= 1.8 ± ACRES
WELL ROAD AREA	= 0.5 ± ACRES
EXISTING PIT ACCESS AREA	= 4.3 ± ACRES
EXCESS STOCKPILE #1 AREA	= 2.4 ± ACRES
EXCESS STOCKPILE #2 AREA	= 1.0 ± ACRES
EXCESS STOCKPILE #3 AREA	= 1.4 ± ACRES
TOPSOIL STOCKPILE AREA	= 0.7 ± ACRES
ASSOCIATED PIT	= 4.0 ± ACRES
<b>TOTAL SITE DISTURBANCE</b>	<b>= 23.0 ± ACRES</b>

## ENTRANCE PERMIT

MOUNTAINEER KEYSTONE, LLC WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

## MISS UTILITY STATEMENT

MISS UTILITY OF WEST VIRGINIA WAS NOTIFIED FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN; TICKET #1613362955. IN ADDITION, MISS UTILITY WILL BE CONTACTED PRIOR TO START OF THE PROJECT.

## FLOODPLAIN NOTE

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT ARE NOT LOCATED WITHIN A DETERMINED FLOOD HAZARD ZONE PER FLOOD INSURANCE RATE MAP NUMBERS 54033C0146D & 54033C0143D DATED OCTOBER 2ND, 2012.

## GEOTECHNICAL NOTE

SLS LAND & ENERGY DEVELOPMENT CONDUCTED A GEOTECHNICAL EXPLORATION FOR THE SITE IN JUNE 2016. THE DATA OBTAINED FROM THE EXPLORATION INDICATE THAT THE SITE CONTAINS VARIABLE SOIL DEPTHS OVERLYING SHALE AND SANDSTONE BEDROCK. TOPSOIL THICKNESSES RANGE FROM 2 TO 8 INCHES, WITH THE THINNER TOPSOIL DEPTHS OVERLYING FILL WITHIN THE SOUTHERN PORTION OF THE SITE. THE FILL, WHICH IS COMPRISED OF SURFACE MINE SPOIL MATERIAL, EXTENDS TO A MAXIMUM DEPTH OF 18.5 FEET. NATURAL SOILS, GENERALLY PRESENT BENEATH THE TOPSOIL IN THE NORTHERN SITE AREAS AND UNDERLYING THE FILL TO THE SOUTH, CONSIST OF SILTY AND/OR SANDY CLAYS.

## ENVIRONMENTAL NOTE

A WETLAND DELINEATION WAS PERFORMED ON MAY 13TH, 16TH, 17TH, & 20TH, 2016 BY SLS TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE JUNE 2ND, 2016 REPORT PROJECT # 2312, PREPARED BY SLS, SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE REPORT DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION DESCRIBED BY THIS REPORT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

## GENERAL DESCRIPTION

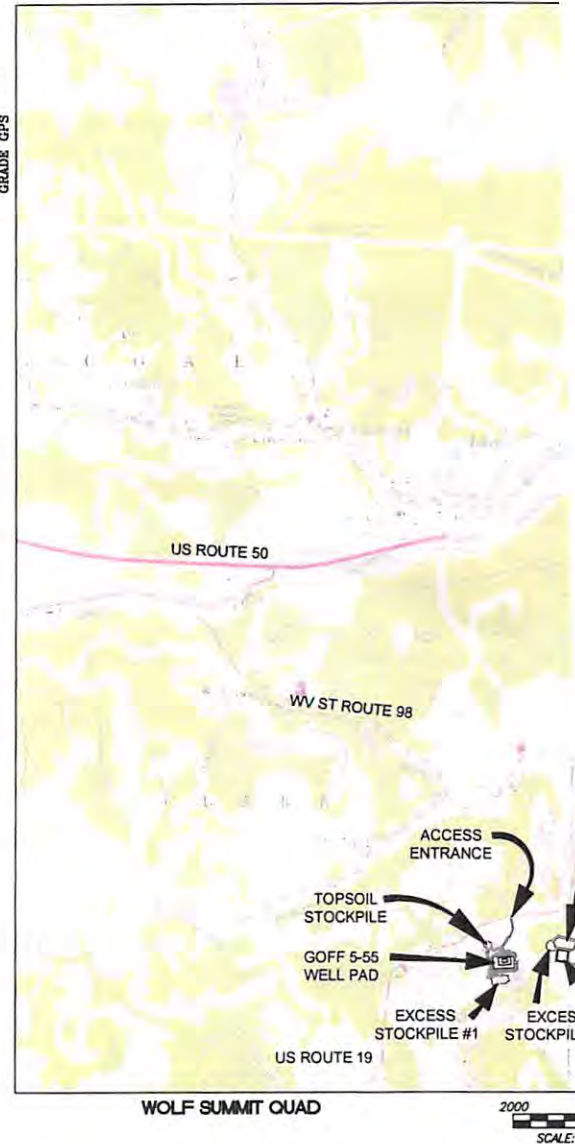
THE GOFF 5-55 PAD AND PIT ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

## RESTRICTIONS NOTES:

1. THERE ARE WETLAND IMPACTS TOTALING 0.23 ACRES WITHIN 100' OF THE WELL PAD LOD.
2. THERE ARE NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD LOD.
3. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
4. THERE ARE NO CROCODA WATER INTAKES OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND LOD.
5. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) BEING DRILLED.
6. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.
7. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.

SITUATE ON THE WATERS OF TRIE  
IN CLARK DISTRICT, HARRI.

GRID NORTH AND ELEVATIONS  
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ESTABLISHED BY SURVEY  
GRADE GPS



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03/03/2017



# FINAL SITE PLAN KEYSTONE, LLC

211, 212, 213, & 214

OPERATOR OF THE WEST FORK RIVER  
IN CLARK COUNTY, WEST VIRGINIA.



## LIST OF DRAWINGS

- 1 - COVER SHEET
- 2 - NOTES
- 3 - OVERALL SHEET INDEX & VOLUMES
- 4 - ACCESS ROAD & TOPSOIL STOCKPILE
- 5 - WELL PAD, ACCESS ROADS, & EXCESS STOCKPILE #2
- 6 - ASSOCIATED PIT & EXISTING PIT ACCESS ROAD
- 7 - EXISTING PIT ACCESS ROAD & EXCESS STOCKPILE #3
- 8 - WELL PAD, ASSOCIATED PIT, AND STOCKPILE PROFILES
- 9 - MAIN ACCESS PROFILE
- 10 - EXISTING PIT ACCESS PROFILE
- 11 - WELL ROAD PROFILE & SECTION - EXISTING PIT ACCESS SECTIONS
- 12 - MAIN ACCESS CROSS SECTIONS
- 13 - WELL PAD RECLAMATION
- 14 - ASSOCIATED PIT RECLAMATION
- 15 - CONSTRUCTION DETAILS
- 16 - CONSTRUCTION DETAILS
- 17 - CONSTRUCTION DETAILS
- 18 - CONSTRUCTION DETAILS

## LEGEND

EXISTING	PROPOSED
INDEX CONTOUR	INDEX CONTOUR
INTERMEDIATE CONTOUR	INTERMEDIATE CONTOUR
BOUNDARY LINE	RECLAMATION 2' CONTOUR
ROAD EDGE OF GRAVEL/DIRT	RECLAMATION 10' CONTOUR
ROAD EDGE OF PAVEMENT	GRADING LIMITS
ROAD CENTERLINE	LIMITS OF DISTURBANCE
DITCHLINE	WELL PAD
CULVERT	WELL HEAD
GUARDRAIL	4" PVC DRAIN PIPE
FENCELINE	SUMP DRAIN
GATE	CONTAINMENT BERM
OVERHEAD UTILITY	PIT/IMPOUNDMENT CL
OVERHEAD UTILITY R/W	PERMETER SAFETY FENCE
POWER POLE	ACCESS GATE WITH
GUY WIRE	EMERGENCY LIFELINE
TELEPHONE LINE	
GASLINE	
GASLINE R/W	
WATERLINE	ROCK CONSTRUCTION
WATER WELL	ENTRANCE
GAS WELL	
TREELINE	
REFERENCE TREE	
DELINEATED STREAM	ROAD EDGE OF GRAVEL
DELINEATED WETLAND	ROAD CENTERLINE
	V-DITCH W/ CHECK DAMS
BUILDING	DITCH RELIEF
	CULVERT (DRC)
BRIDGE	RIP-RAP OUTLET PROTECTION
100' WETLAND/STREAM BUFFER	GUARDRAIL
SLS AREA OF INTEREST	18" COMPOST FILTER SOCK
GEO BORE HOLE	18" COMPOST FILTER SOCK
	24" COMPOST FILTER SOCK
	18" TRIPLE STACK COMPOST
	FILTER SOCK
	SECTION LINE
	MATCHLINE
	X-SECTION GRID INDEX
	X-SECTION GRID INTERMEDIATE
	X-SECTION PROPOSED GRADE
	X-SECTION EXISTING GRADE
	X-SECTION WATER SURFACE
	SPOT ELEVATION
	SUBGRADE ELEVATION
	SUBGRADE SLOPE
	FINISH GRADE ELEVATION
	FINISH GRADE SLOPE

West Virginia  
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*Signature*  
12/5/2016

**OPERATOR**  
MOUNTAINEER KEYSTONE, LLC  
65 PROFESSIONAL PLACE  
SUITE 200  
BRIDGEPORT, WV 26330  
PHONE: (304) 842-3597

**ENGINEER/SURVEYOR**  
SMITH LAND SURVEYING, INC.  
12 VANHORN DRIVE  
P.O. BOX 150  
GLENVILLE, WV 26351  
PHONE: (304) 462-5834



12/02/16  
THIS DOCUMENT WAS  
PREPARED BY: SMITH  
LAND SURVEYING  
FOR: MOUNTAINEER  
KEYSTONE, LLC

COVER SHEET  
**GOFF 5-55**  
SITE PLAN  
CLARK DISTRICT  
HARRISON COUNTY, WV

DATE: 6-24-16  
SCALE: 1" = 2000'  
DESIGNED BY: DBS  
FILE NO.: 8312  
SHEET 1 OF 18  
REV: 12-02-2016

RECEIVED  
Office of Oil and Gas  
WV Department of Environmental Protection

03/03/2017