



west virginia department of environmental protection

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

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 5-55 212
47-033-05886-00-00

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 5-55 212
Farm Name: DIMARIA, SHARON E.
U.S. WELL NUMBER: 47-033-05886-00-00
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

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 57th 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

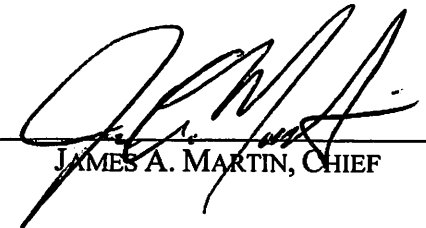
West Virginia Code §22-6A-12(b) requires, in part, that “[n]o well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland. The Office of Oil and Gas grants the request for a waiver for Wetlands 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

4703305886

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: _____

Operator's Well Number: _____

Well Operator: Mountaineer Keystone LLC

Well Number: 211,212,213,& 214

Well Pad Name: Goff 5-55

County, 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 THE SECRETARY
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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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

FILED
Office of Oil and Gas
DEC 08 2016
WV Department of
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03/03/2017

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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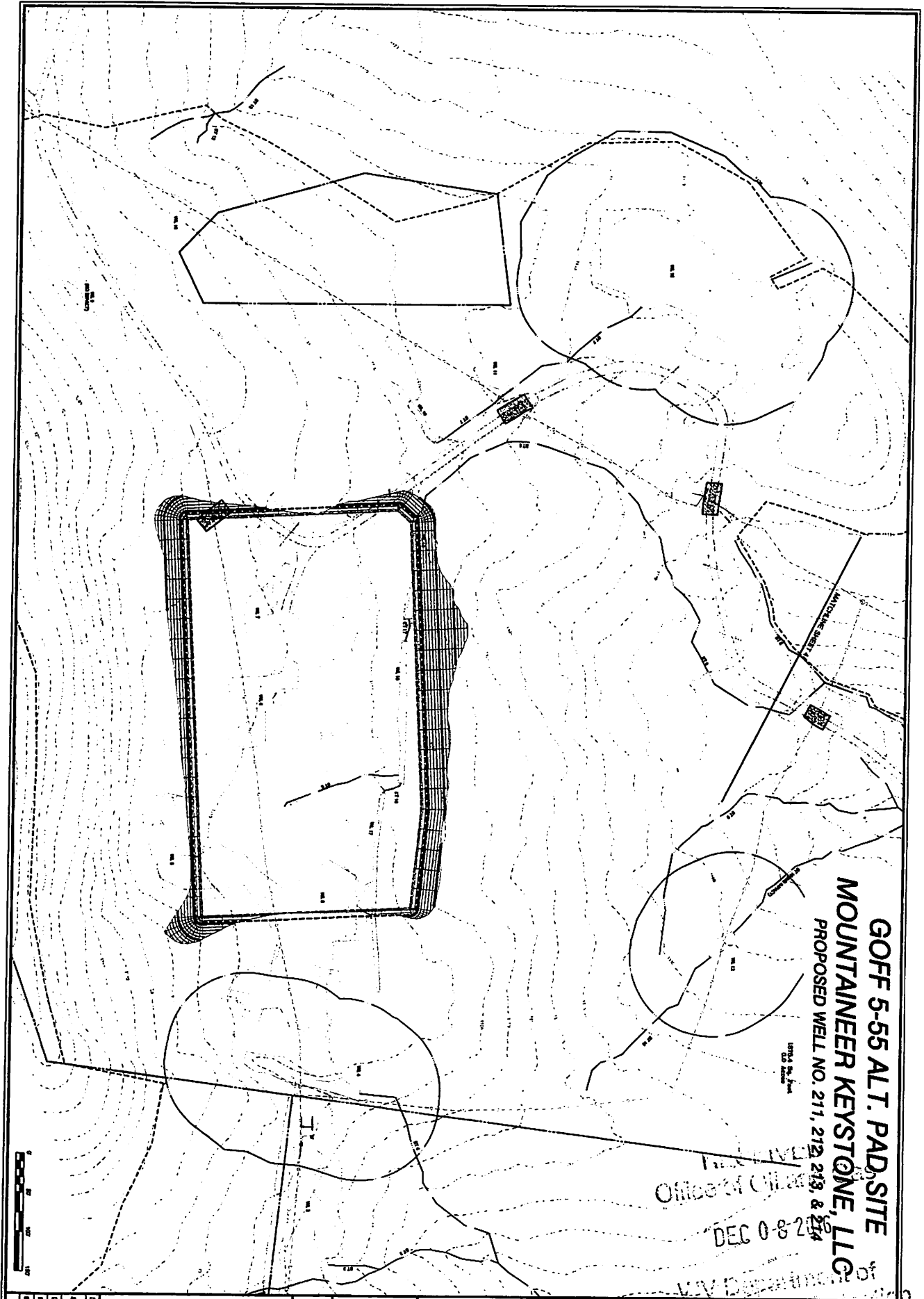
- d. **Describe how the proposed project is the least environmentally damaging practicable alternative**
- i. As shown on the plans, the well pad is designed to impact as little wetlands and streams as possible. The pad is surrounded on the east and west by Streams ST 6 and ST 9. We have only partially 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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03/03/2017



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

Office of Chief
 DEC 08 2014
 WV Department of
 Environmental Protection

DATE: 12-08-14
SCALE: 1" = 40'
DESIGNED BY: CJK
DRAWN BY: CJK
CHECKED BY: [blank]
DATE: 12-08-14

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

THIS DOCUMENT IS THE PROPERTY OF SLS AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

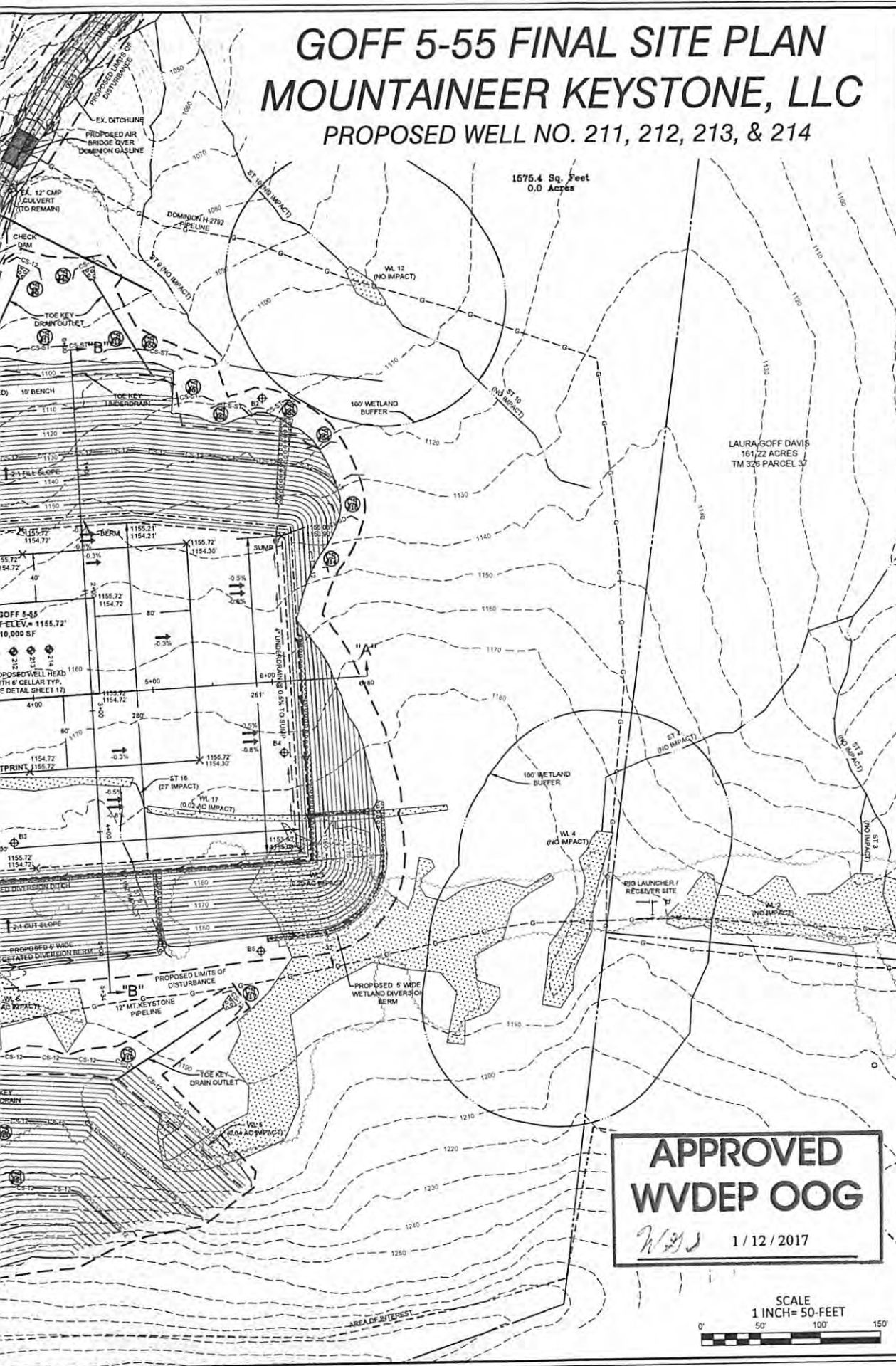


03/03/2017

GOFF 5-55 FINAL SITE PLAN

MOUNTAINEER KEYSTONE, LLC

PROPOSED WELL NO. 211, 212, 213, & 214



**Mountaineer
Keystone** LLC



THIS DOCUMENT WAS
PREPARED BY: SMITH
LAND SURVEYING

FOR: MOUNTAINEER
KEYSTONE, LLC

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

APPROVED
WVDEP OOG
WJD 1 / 12 / 2017



DATE: 6-24-16
SCALE: 1" = 50'
DESIGNED BY: DBS
FILE NO. 8312
SHEET 5 OF 19
REV: 12-05-2016

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 5-55 212 Well Pad Name: Goff 5-55

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

4) Elevation, current ground: 1156.30 Elevation, proposed post-construction: 1155.5

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

(b) If Gas Shallow Deep
Horizontal

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. (TVD heel)-6974.5 (TVD toe), 91 ft., 0.5 psi/ft Base of Marcellus Shale, 7065.5 (TVD heel)-7065.5ft (TVD toe)

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

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 16,231.7 ft.

11) Proposed Horizontal Leg Length: 8,458.7ft.

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: ~~Approx~~ 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

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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#	16,232'	16,232'	TOC@2,350' MD
Tubing							
Liners							

SDW
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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Office of Oil and Gas
JAN 11 2017
WV Department of Environmental Protection

WW-6B
(10/14)

API NO. 47- 033 05886
JAN 11 2017 OPERATOR WELL NO. Goff 5-55 212
Well Pad Name: Goff 5-55

WV Department of
Environmental Protection

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

*SDW
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 notices, 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.

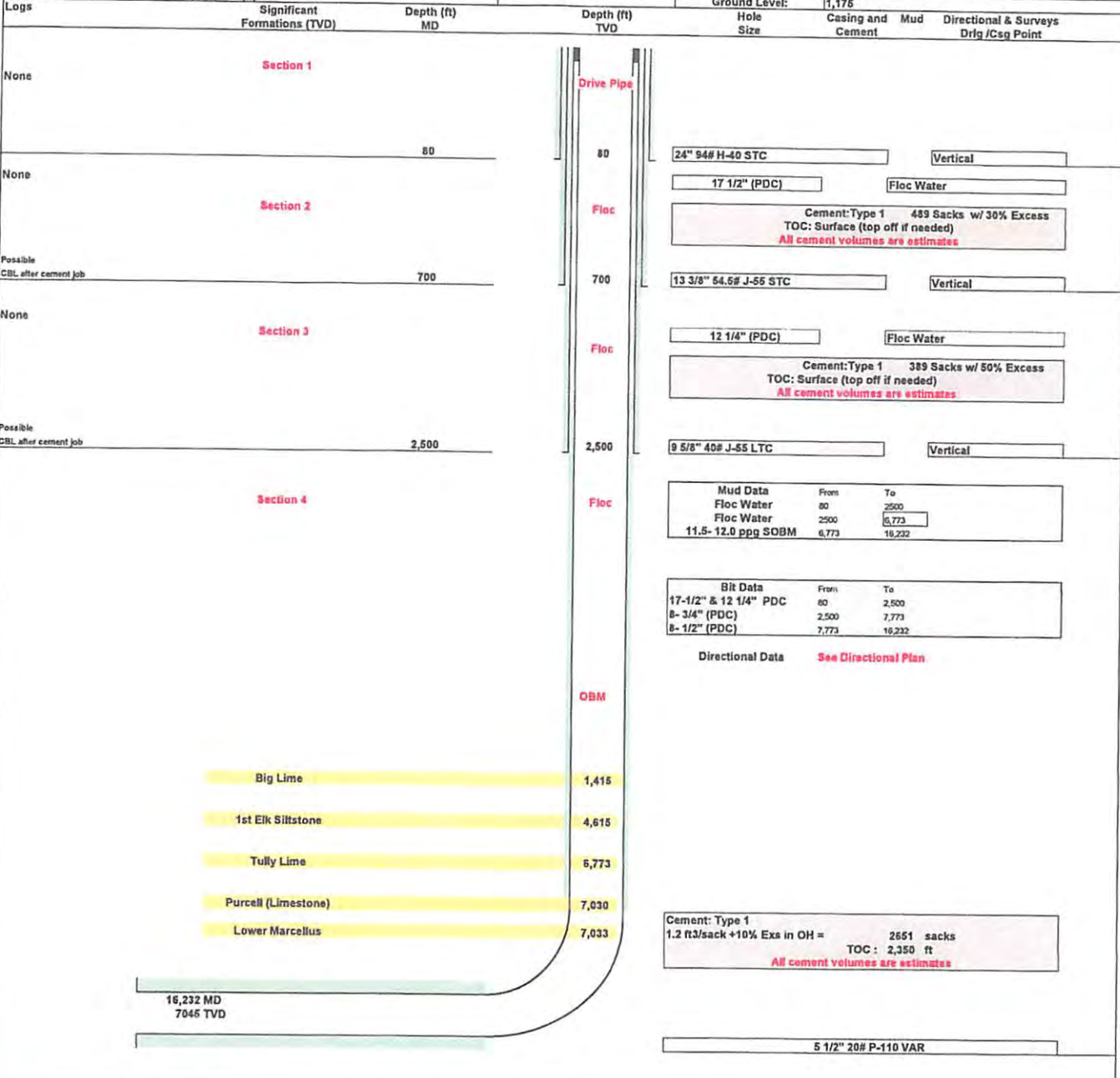
33-05886



Mountaineer Keystone
 Goff 5-55 212HM
 Casing Design
 Directional Plan # 1 ADC

Other Names:	N/A
Surface Location:	TBD
Bottom Hole Location:	TBD
Total Depth:	16,232 MD (ft) 7,045 TVD (ft)

County:	Harrison
State:	West Virginia
AFE #:	XX
RKB:	21
Ground Level:	1,176



24" 94# H-40 STC Vertical

17 1/2" (PDC) Floc Water

Cement: Type 1 489 Sacks w/ 30% Excess
 TOC: Surface (top off if needed)
 All cement volumes are estimates

12 1/4" (PDC) Floc Water

Cement: Type 1 389 Sacks w/ 50% Excess
 TOC: Surface (top off if needed)
 All cement volumes are estimates

Mud Data	From	To
Floc Water	80	2500
Floc Water	2500	5,773
11.5- 12.0 ppg SOBM	6,773	16,232

Bit Data	From	To
17-1/2" & 12 1/4" PDC	80	2,500
8- 3/4" (PDC)	2,500	7,773
8- 1/2" (PDC)	7,773	16,232

Directional Data See Directional Plan

Cement: Type 1
 1.2 ft³/sack +10% Exs in OH = 2651 sacks
 TOC : 2,350 ft
 All cement volumes are estimates

Revision 1

Note: Not drawn to scale

Date Last Revised: 16-Jun-16 Jarrett Toms

Cement Outside Casing Seal Assembly in Annulus

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 JAN 11 2017
 WV Department of Environmental Protection
 03/03/2017



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 5-55 212 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 4,600' 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.



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** Pad, _____

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude
Sharon DiMaria B-756	033-04540	Berry Energy, Inc.	Existing	39.256834	
AJ Sheets B-975/S-217	033-01079	Enervest Operating, LLC	Existing	39.272743	
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	

212 Lateral, **Harrison** County, WV

Latitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.383797	3580	Gantz, Fifty-foot, Gordon Stray, Fourth, Fifth, Speechley, Balltown, Greenland Gap	NA
-80.397401	4586	Balltown, Riley, 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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03/03/2017

Area of Review Report - **Goff 5-55** Pad, _____

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

212 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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WV Department of
Environmental Protection

03/03/2017

Area of Review Report - **Goff 5-55** Pad, _____

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

212 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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WV Department of
Environmental Protection

03/03/2017

Area of Review Report - **Goff 5-55** Pad, _____

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude
John Dolan3 K-E-8	033-01928	XTO Energy, Inc.	Existing	39.263454	

212 Lateral, **Harrison** County, WV

Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
-80.391428	4560	Benson	NA

WW-9
(4/16)

API Number 47-033 - 05886
Operator's Well No. Goff 5-55 212

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
12/5/2016

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 [Signature]

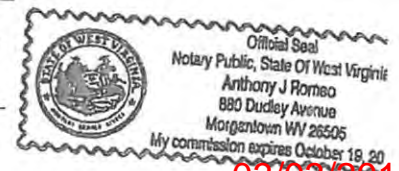
Company Official (Typed Name) Nathan Skeen

Company Official Title Designated Agent

Subscribed and sworn before me this 2nd day of December, 2016

Anthony J. Romeo Notary Public

My commission expires 10/19/2019



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
Orchard Grass	129
Ryegrass	93
Timothy	45

Seed Type	lbs/acre
Orchard Grass	129
Ryegrass	93
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: [Signature]

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

Title: Inspector

Date: 12/5/2016

Field Reviewed? Yes No

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DEC 08 2016

Mountaineer Keystone

Site Safety Plan

**Goff 5/55 #212
WELLPAD**

SDW
12/5/2016

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DEC 08 2016

WV Department of
Environmental Protection

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

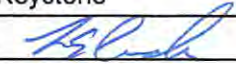
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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

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DEC 08 2016

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 
 Its: Regulatory Affairs Manager

Attachment to WW-6A1, GOFF 5-55 #212

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 (WV100992.000)	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		
00007277	Joe D. Robinson and Christine M. Robinson, husband and wife	Mar Key, LLC	0.1800	1579/570	0.72

See drilling agreement and Secretary of State documents attached.

00004784 (WV100809.001)	Kevin Whigham, single	PDC Mountaineer, LLC	0.1250	1461/135	20.549
00004785 (WV100809.002)	Sondra S. Brown, widow	PDC Mountaineer, LLC	0.1250	1461/118	22.341
00004786 (WV100809.003)	Kevin Patton	PDC Mountaineer, LLC	0.1250	1461/130	20.549
00004787 (WV100809.004)	Billie Ann Clevenger	PDC Mountaineer, LLC	0.1250	10 27/46	34.1195
00004788 (WV100809.005)	Sherry Cork Daetwyler and Daniel K. Daetwyler, her husband	PDC Mountaineer, LLC	0.1250	1461/146	21.824
00004789 (WV100809.006)	Ronald D. Cork	PDC Mountaineer, LLC	0.1250	1461/149	55.428649
00005108 (WV100991.000)	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 (WV00989.000)	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	Consolidated Gas Supply Corporation		903/179	
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		1136/250	
	Consolidated Gas Transmission Corporation	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		
00003556 (WV00104.000)	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	

33-056810

West Virginia Secretary of State — Online Data Services

Business and Licensing

Online Data Services Help

Business Organization Detail

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MAR KEY LLC

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

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

Authorized Shares

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

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

Annual Reports
Date filed

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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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: [Signature]
Name: Robert Kasal
Title: CEO

PDC MOUNTAINEER, LLC

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

PDC MOUNTAINEER HOLDINGS, LLC

By: [Signature]
Name: Robert Kasal
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.

RIVER RIDGE ENERGY, LLC

Organization Information									
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason	
LLC Limited Liability Company	11/3/2009		11/3/2009	Foreign	Profit				

Organization Information			
Business Purpose	2111 - Mining, Quarrying, Oil & Gas Extraction - Oil and Gas Extraction - Crude Oil and Natural Gas Extraction		Capital Stock
Charter County			Control Number 99H90
Charter State	DE	Excess Acres	
At Will Term	A	Member Managed	MBR
At Will Term Years	Par Value		
Authorized Shares			

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

1/31/2017

WV SOS - Business and Licensing - Corporations - Online Data Services

Address	WEXFORD, PA, 15090 USA
Type	Address

Officers	
Type	Name/Address
Member	PDC MOUNTAINEER HOLDINGS, LLC 6031 WALLACE ROAD EXTENSION, SUITE 300 WEXFORD, PA, 15090
Type	Name/Address

Name Changes	
Date	Old Name
1/12/2017	PDC MOUNTAINEER, LLC
Date	Old Name

Date	Amendment
1/12/2017	NAME CHANGE: FROM PDC MOUNTAINEER, LLC
6/13/2016	AMEND FILED TO CHNGE MGR TO MBR MANAGED & RMV ALL MBRS AND ADD PDC KA2
Date	Amendment

Annual Reports	
Date filed	
6/20/2016	
6/30/2015	
5/27/2014	
6/21/2013	
6/21/2012	
6/15/2011	
5/5/2010	
Date filed	

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

Tuesday, January 31, 2017 — 1:29 PM

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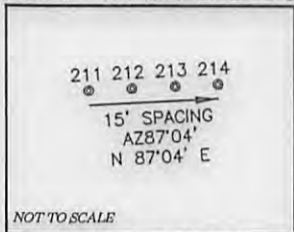
NOTES ON SURVEY

1. 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.
2. LEASE INFORMATION PROVIDED BY MOUNTAINEER KEYSTONE.

212 WELL TIES

LINE	BEARING	DISTANCE
L1	S 64°16' W	1823.69'
L2	N 19°39' W	587.99'
L3	N 19°39' W	8458.64'
L4	S 89°29' E	804.37'
L5	S 62°24' E	923.64'

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	☼

LATITUDE(NAD'83) 39°17'30"

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±	00004472 & 00007245
326-46.8	KERMIT & DEBORAH STUTLER	3.71±	00004472 & 00007245
326-29.2	DOLAN HEIRS	77.09±	00005109
326-29	DOLAN HEIRS	152.60±	00005109
110-08	ANN WILSON ET AL.	1.1±	00004784 - 00004789
110-09	JOE ROBINSON ET AL.	0.72±	00007277
110-1	ROBERT ZILLAFRO ET AL.	1.1±	00004784 - 00004789
325-45	OLIVE SHEETS	0.27±	00007290
325-47	OLIVE SHEETS	0.89±	00007290
326-1.10	SONDRA BROWN	8.55±	00006699
325-21	OLIVE SHEETS	1.88±	00005108
325-20	OLIVE SHEETS	31.86±	00005107 & 00005108
305-33	OLIVE SHEETS	53.52±	00005106
306-58	H. DOTSON CATHER TRUSTEE	3.06±	00003556
306-38	HARRISON CO. BOE	4.59±	00003556
305-32.1	HARRISON CO. BOE	39.16±	00003556
305-32.3	HARRISON CO. BOE	2.71±	00003556
305-32	LAURA GOFF DAVIS	233.50±	00003556
306-63	H. DOTSON CATHER TRUSTEE	208.72±	00003556
	STATE OF W.V. (WEST MILFORD & NEW SALEM TURNPIKE)		00007183 00004623

NAD'83 GRID NORTH

LONGITUDE (NAD'83) 80°22'30"

4,343'

BOTTOM HOLE

12,023'

TOP HOLE

TOP HOLE

COUNTY NAME

PERMIT

MOUNTAINEER KEYSTONE
GOFF 5-55 PAD
WELL 212

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

NAD'83 S.P.C.(FT) N. 277,545.2 E. 1,719,195.9
 NAD'83 GEO. LAT-(N) 39.258656 LONG-(W) 80.380455
 NAD'83 UTM (M) N. 4,345,663.5 E. 553,451.8

LANDING POINT

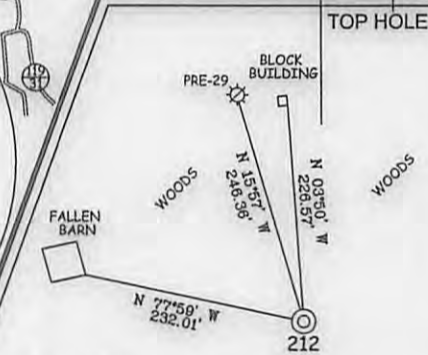
NAD'83 S.P.C.(FT) N. 277,307.1 E. 1,717,355.3
 NAD'83 GEO. LAT-(N) 39.257953 LONG-(W) 80.386947
 NAD'83 UTM (M) N. 4,345,581.6 E. 552,892.2

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 285,272.9 E. 1,714,510.2
 NAD'83 GEO. LAT-(N) 39.279745 LONG-(W) 80.397275
 NAD'83 UTM (M) N. 4,347,994.0 E. 551,985.1



REFERENCES



1" = 200'

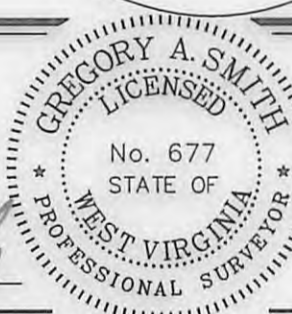


Land & Energy Development
 Solutions from the ground up.
 P.O. Box 150 • 12 Vannom Drive • Glenville, WV 26351 • (304) 462-5634
 www.slsurveys.com

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. 677

Gregory A. Smith



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

DATE OCTOBER 10, 20 16

REVISED _____, 20 _____

OPERATORS WELL NO. 212

API WELL NO. 47 - 033 - 05886 H6A

STATE WV COUNTY HARRISON PERMIT 03/03/2016

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8312P212.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: 1,156.30' / 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 16,232' TMD / 7,045' TVD

WELL OPERATOR MOUNTAINEER KEYSTONE, LLC

DESIGNATED AGENT NATHAN SKEEN

ADDRESS 6031 WALLACE RD. EXT. SUITE 300
WEXFORD, PA 15090

ADDRESS 65 PROFESSIONAL PLACE
BRIDGEPORT, WV 26330

33-05886



June 28, 2016

Mr. James Martin, Chief of Oil and Gas
WV DEP
601 57th 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.

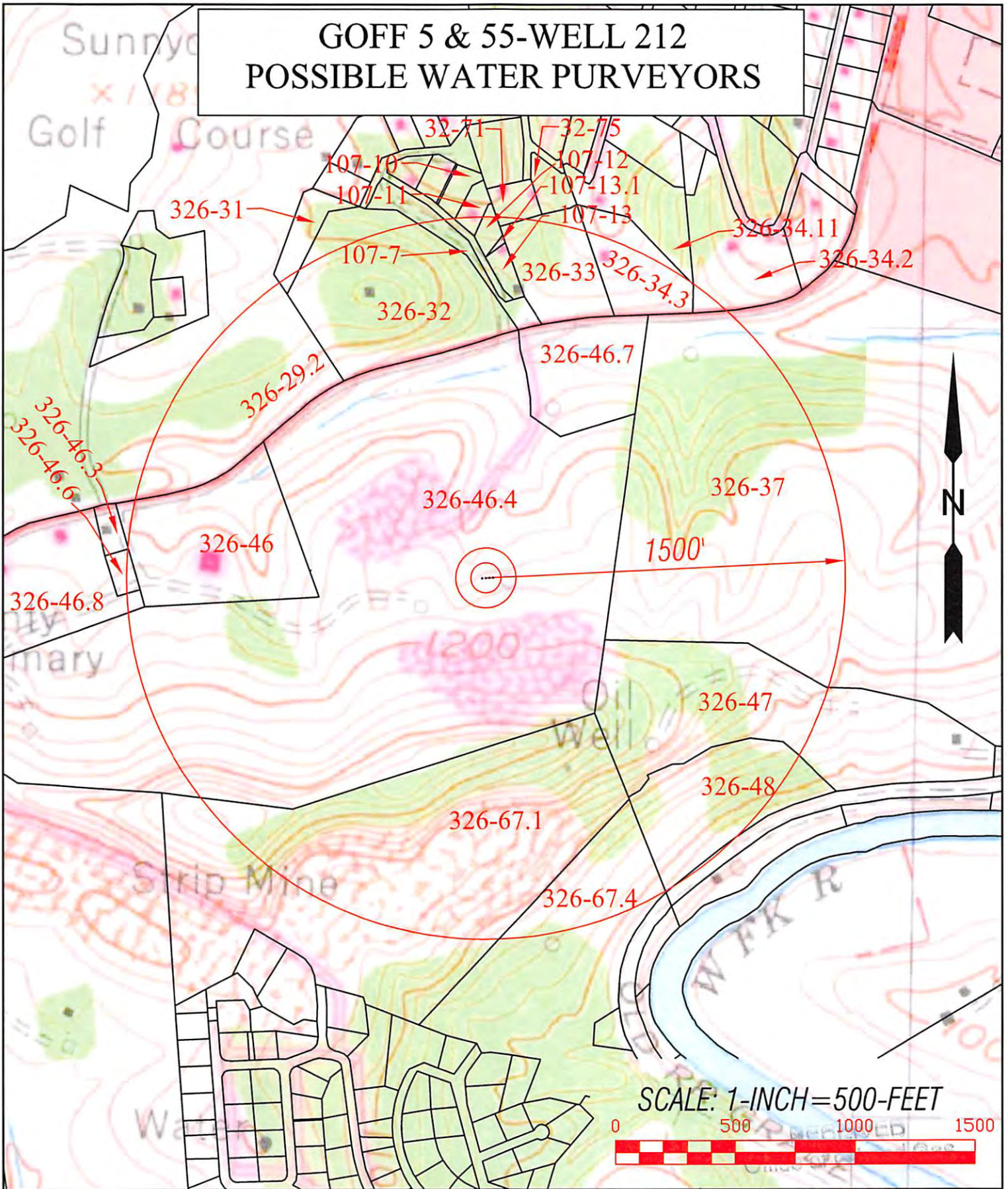
Sincerely,

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

Orla Lavender
Director of Title and Land Records

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Office of Oil and Gas
DEC 08 2016
WV Department of
Environmental Protection

GOFF 5 & 55-WELL 212 POSSIBLE WATER PURVEYORS



SCALE: 1-INCH=500-FEET




SLS

DRAWN BY C.P.M.	FILE NO. 8312	DATE 06-8-16	CADD FILE: 8312WATER212.DWG
--------------------	------------------	-----------------	--------------------------------

TOPO SECTIONS OF: WOLF SUMMIT & CLARKSBURG WV 7.5' QUADS	
COUNTY HARRISON	DISTRICT CLARK

OPERATOR:
MOUNTAINEER KEYSTONE, LLC
 6031 WALLACE RD. EXT, SUITE 300
 WEXFORD, PA 15090
 DEC 08 2016
 03/03/2017



**Possible Water Purveyors within 1500' of Goff 5 & 55
Well 212**

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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33-05886



326-29.2

Dolan Heirs
Ann Dolan Wilson
615 6th 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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Environmental Protection

33-05886



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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03/03/2017

**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:

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 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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.

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 WV Department of
 Environmental Protection
 03/03/2017

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

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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 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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.

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REC-118-519
WV Department of
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: <u>Laura Goff Davis</u>	Name: _____
Address: <u>P.O. Box 707</u>	Address: _____
<u>Clarksburg, West Virginia 26330</u>	_____

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>5534468.76</u>
County: <u>Harrison</u>	Northing: <u>4345644.96</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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: <u>Mountaineer Keystone, LLC</u>	Address: <u>65 Professional Place, Suite 200</u>
Telephone: <u>(724) 940-1204</u>	<u>Bridgeport, West Virginia 26330</u>
Email: <u>ecarder@mkeystone.com</u>	Facsimile: <u>(304) 848-9134</u>

Oil and Gas Privacy Notice:

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

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Environmental Protection
03/03/2017



33-05886

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 57th 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

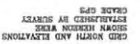
RECEIVED
Office of Oil and Gas

DEC 08 2016

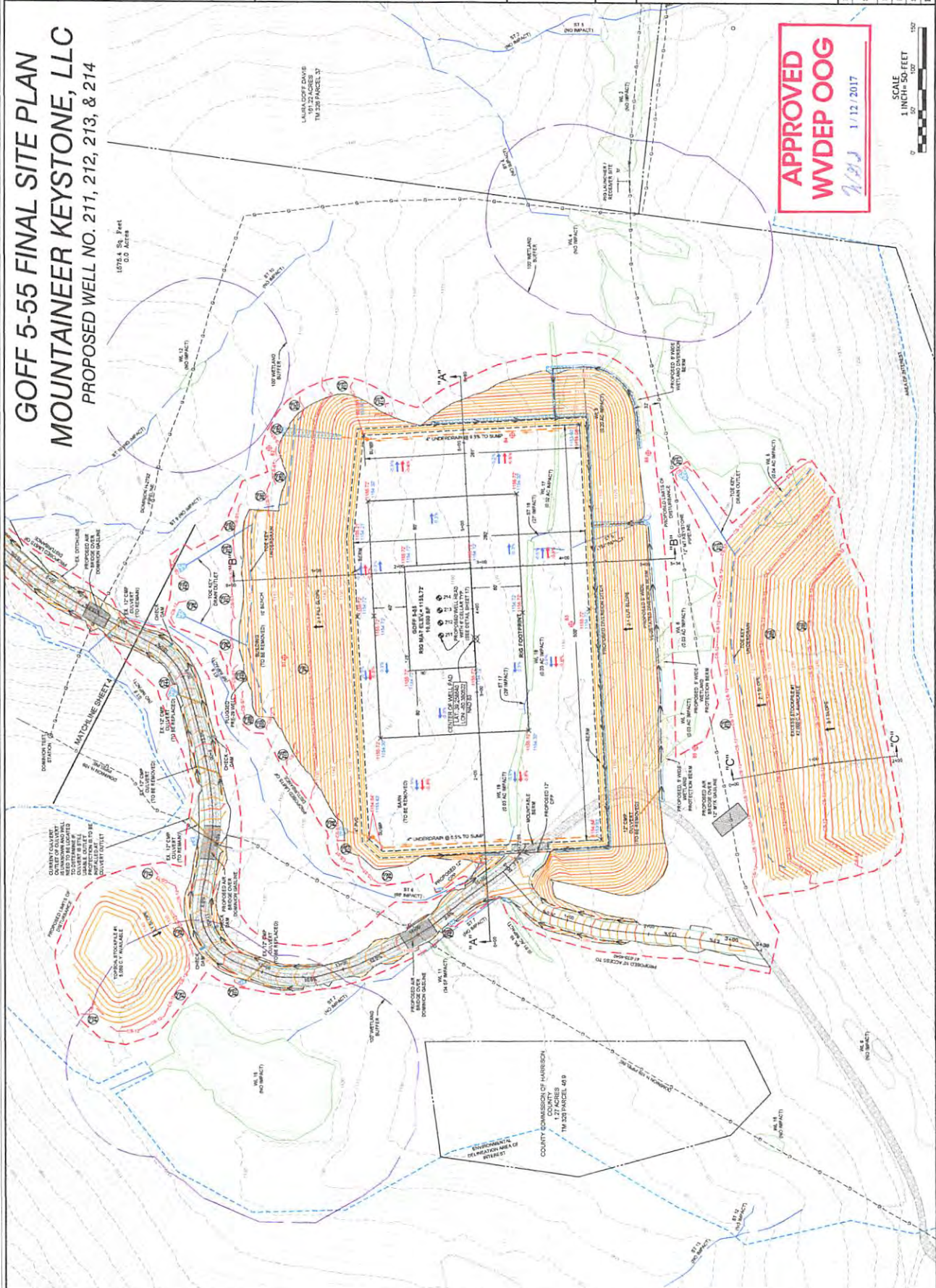
WV Department of Environmental Protection 03/03/2017

WellName # Goff 5-55 212			
FRACTURING ADDITIVES			
	PURPOSE	TRADE NAME	CAS #
Additive #1:	Friction Reducer	WFRA-405	Proprietary
Additive #2:	Scale Inhibitor	SI-1000	7440-21-3
Additive #3:	Biocide	BIOCLEAR 2000	25314-61-8
Additive #4:	Gelling Agent	LGC-15	9000-30-0
Additive #5:	Corrosion Inhibitor	AI-300	111-76-2
Additive #6:	Gel Breaker	AP-One	7727-54-0
Additive #7:	Acid	HCl - 7.5%	7647-01-0

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



GRID NORTH AND ELEVATIONS
OBTAINED BY SURVEY
EARTH CURVES
SCALE 1" = 50'

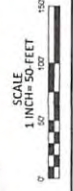


LAUREL GOLF COURSE
191.22 ACRES
TR 328 PARCEL 37

1878.4 SQ. FT.
0.0 ACRES

LAUREL GOLF COURSE
191.22 ACRES
TR 328 PARCEL 37

APPROVED
WVDEP OOG
WVS 1/12/2017



DATE: 8-24-16
DESIGNED BY: DBE
FILE NO.: 8312
SHEET 5 OF 18
REV: 12-05-2016

THIS DOCUMENT WAS
LAND SUBMITTED
FOR MOUNTAINEER
KEYSTONE, LLC

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

LAND & ENERGY DEVELOPMENT
SLS
Architectural and Engineering Firm



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
TOTAL SITE DISTURBANCE	= 23.00 ± ACRES

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: -80.360522 (NAD 83)

CENTER OF ASSOCIATED PIT
LATITUDE: 39.259795 LONGITUDE: -80.375464 (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	= 4.2 ± 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
TOTAL SITE DISTURBANCE	= 23.0 ± ACRES

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 54033C0145D & 54033Q163D 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 # 6312, 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.

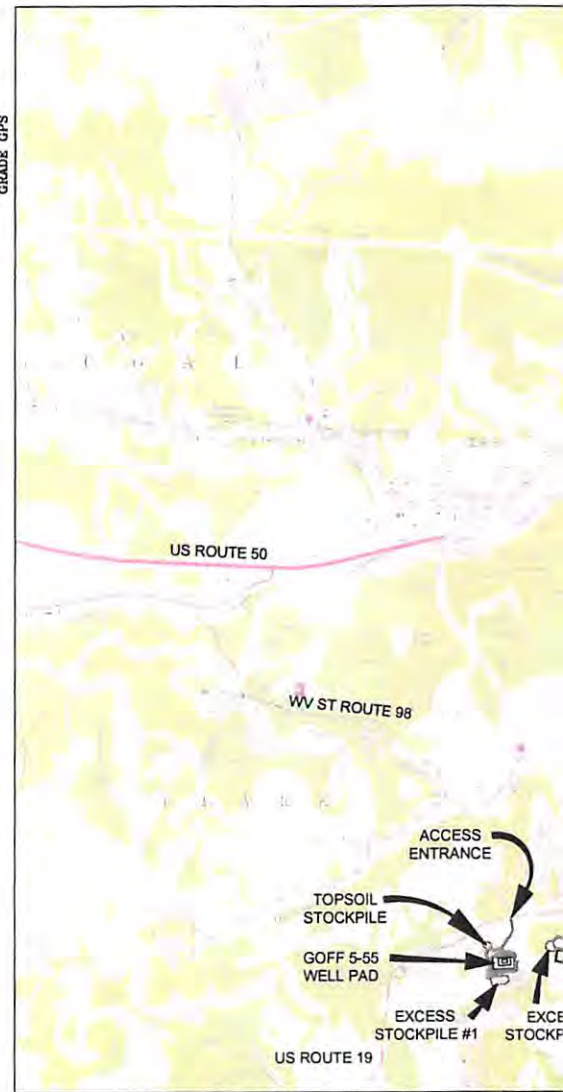
GENERAL DESCRIPTION

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 GROUNDWATER INTAKE 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.

GRID NORTH AND ELEVATIONS
SHOWN HEREON WERE
ESTABLISHED BY SURVEY
GRADE GPS



WOLF SUMMIT QUAD

2000
SCALE

MISS Utility
1-800
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IT'S

03/03/2017

FINAL SITE PLAN KEYSTONE, LLC

211, 212, 213, & 214

CLARKSBURG QUAD
CLARK COUNTY, WEST VIRGINIA.



West Virginia
45-4848
a State Law
Chapter 24-C)
you call two
before you dig in
West Virginia.
THE LAW!!

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/IMPONDMENT CL
OVERHEAD UTILITY R/W	PERIMETER SAFETY FENCE
POWER POLE	ACCESS GATE WITH EMERGENCY LIFELINE
GUY WIRE	
TELEPHONE LINE	
GASLINE	
GASLINE R/W	
WATERLINE	
WATER WELL	ROCK CONSTRUCTION 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	
GEO BORE HOLE	18" COMPOST FILTER SOCK
	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

Smith Land Surveying
12/5/2016

OPERATOR

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65 PROFESSIONAL PLACE
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**Mountaineer
Keystone** LLC



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

03/03/2017