



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

Monday, September 18, 2017
WELL WORK PERMIT
Horizontal 6A / Fracture

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for SHUMAN HAYNES 1H
47-103-02936-00-00

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: SHUMAN HAYNES 1H
Farm Name: HAYNES, SHUMAN
U.S. WELL NUMBER: 47-103-02936-00-00
Horizontal 6A / Fracture
Date Issued: 9/18/2017

Promoting a healthy environment.

09/22/2017

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. 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.
2. 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.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. 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.
6. 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.
7. The entire well pad shall be bermed so as to prevent runoff from leaving the pad during drilling and completion operations, including a mountable berm at pad entrance.

6/12

WW-6B
(04/15)

Fracture

API NO. 47- 103 - 02936 47-103-02936 F
OPERATOR WELL NO. Shuman Haynes 1H
Well Pad Name: Existing Haynes Pad

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

1) Well Operator: Antero Resources Corpora 494507062 103 - Wetzel Center Pine Grove 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Shuman Haynes 1H Well Pad Name: Existing Haynes Pad

3) Farm Name/Surface Owner: Shuman Haynes Public Road Access: WV-7

4) Elevation, current ground: 841' Elevation, proposed post-construction: 841'

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

Other

(b) If Gas Shallow X Deep

Horizontal X

6) Existing Pad: Yes or No Yes

DAH
6-27-17

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 6974' TVD, Anticipated Thickness- 50 feet, Associated Pressure- 4000 psi

8) Proposed Total Vertical Depth: 6974' TVD

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 14500' TMD

11) Proposed Horizontal Leg Length: 6572'

12) Approximate Fresh Water Strata Depths: 75'

13) Method to Determine Fresh Water Depths: Landowner Water Wells (2)

14) Approximate Saltwater Depths: 1502'

15) Approximate Coal Seam Depths: 695'

16) Approximate Depth to Possible Void (coal mine, karst, other): 695'

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No X

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

RECEIVED
Office of Oil and Gas

JUN 30 2017

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	26"	New	N/A	85#	40'	40'	CTS
Fresh Water	16"	New	A-252	58#	300'	300'	CTS
Coal	11 3/4"	New	AT-50	42#	1140'	1140'	CTS
Intermediate	8 5/8"	New	J-55	32#	2212'	2212'	CTS
Production	5-1/2"	New	P-110	20#	14500'	14500'	CTS
Tubing							
Liners							

Existing

*Dmit
6-27-17*

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	26"	30"	0.312"	N/A		N/A	N/A
Fresh Water	16"	20"	0.312"	1360		Class A	1.21
Coal	11 3/4"	14 3/4"	0.333"	2480		Class A	1.21
Intermediate	8 5/8"	10 5/8"	0.352"	3430		Class A	1.19
Production	5-1/2"	7 7/8"	0.361"	12640		Class A/H	1.43/2.43
Tubing							
Liners							

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

RECEIVED
Office of Oil and Gas

JUN 30 2017

Page 2 of 3

WV Department of
Environmental Protection

09/22/2017

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

This well has been drilled to TD - 14500'. Antero is requesting approval to perforate, fracture the existing horizontal shallow well and complete Marcellus Shale.

DMH
6-27-17

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

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

Anticipated Max Pressure - 9300 lbs
Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 6.38 Existing Acres

22) Area to be disturbed for well pad only, less access road (acres): 4.57 Existing Acres

23) Describe centralizer placement for each casing string:

Conductor: None Used

Freshwater: Every third joint and top 2 joints Coal: Every third joint and top 2 joints

Intermediate: Every third joint and top 2 joints

Production: Every third joint in the horizontal section through the top of the curve; Every 5th joint from the top of the curve to surface

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

see attached sheet

25) Proposed borehole conditioning procedures:

Freshwater: Circulate Air/Foam at T.D. of hole section for 1/2 hour to 1 hour or until the hole is clean

Coal: Circulate Air/Foam at T.D. of hole section for 1/2 hour to 1 hour or until the hole is clean

Intermediate: Circulate Air/Foam at T.D. of hole section for 1/2 hour to 1 hour or until the hole is clean

Production: Circulate drilling fluid through the drill stage for 1 to 10 hours or until shaker screens are clear and drill string can be pulled freely

*Note: Attach additional sheets as needed.

RECEIVED
Office of Oil and Gas

Page 3 of 3

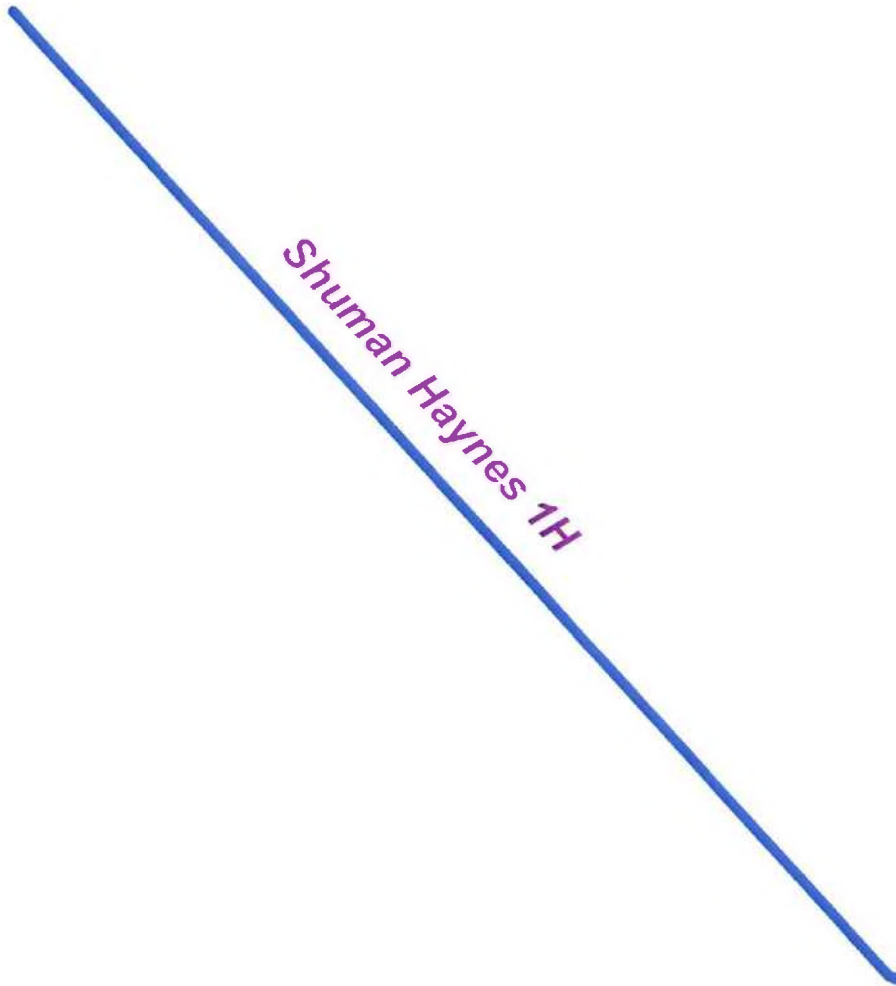
JUN 30 2017

WV Department of
Environmental Protection

09/22/2017



Shuman Haynes Unit 1H AOR Diagram



Shuman Haynes 1H

47103027390000



RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection

SHUMAN HAYNES 1H (HAYNES PAD) - AREA OF REVIEW 35-8-5.11 PAGE 2

UWI (API Num)	Well Name	Well Number	Operator	Hist Oper	TD
47103027390000	RUSH JOHN	404 N-3H	ASCENT RESOURCES-MAR	HG ENERGY LLC	12592

Approx distance to well	ELEV_GR	TD (SSTVD)	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
880	1450		8,000-12,161 MD (about 7,552 TVD)	Marcellus	n/a

RECEIVED
 Office of Oil and Gas
JUN 12 2017
 WV Department of
 Environmental Protection

103-02963F

#3-D

WW-9
(4/16)

API Number 47 - 103 - 02936
Operator's Well No. Shuman Haynes 1H

47-103-02936 F

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

RECEIVED
Office of Oil and Gas

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

JUN 30 2017

Operator Name Antero Resources Corporation OP Code 494507062 WV Department of Environmental Protection
Watershed (HUC 10) Fishing Creek Quadrangle Pine Grove 7.5'

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be tracked and hauled off site.)

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number *UIC Permit # will be provided on Form WR-34)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/WV0109410)

DMH
6-27-17

Will closed loop system be used? If so, describe: Yes, fluids stored in tanks, cuttings removed offsite and taken to landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Surface - Air/Freshwater, Intermediate - Dual/SHF Form, Production - Water Based Mud or Synthetic Based Mud

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

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Drill cuttings stored in tanks, removed offsite and taken to landfill.

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

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)

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 *Cole Kilstrom*

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental & Regulatory Manager

Subscribed and sworn before me this 9th day of June, 20 17

Signature

Notary Public

My commission expires 7/8/2020



Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 6.38 existing acres Prevegetation pH _____

Lime 2-4 Tons/acre or to correct to pH 6.5

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

RECEIVED
Office of Oil and Gas

JUN 30 2017

WV Department of
Environmental Protection

Well Pad Construction (4.57 Acres) + Access Road Construction (0.51 Acres) + Topsoil/Excess Material (0.09 Acres) + Additional Clearing (1.21 Acres) = 6.38 Acres

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Crownvetch	10-15
Field Bromegrass	40	Tall Fescue	30
*or type of grass seed requested by surface owner		*or type of grass seed requested by surface owner	

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: _____

Title: Oil + Gas Inspector Date: 6-27-17

Field Reviewed? Yes No

Form WW-9 Additives Attachment

SURFACE INTERVAL

1. Fresh Water
2. Soap –Foamer AC
3. Air

INTERMEDIATE INTERVAL

STIFF FOAM RECIPE:

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 (11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard (9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

PRODUCTION INTERVAL

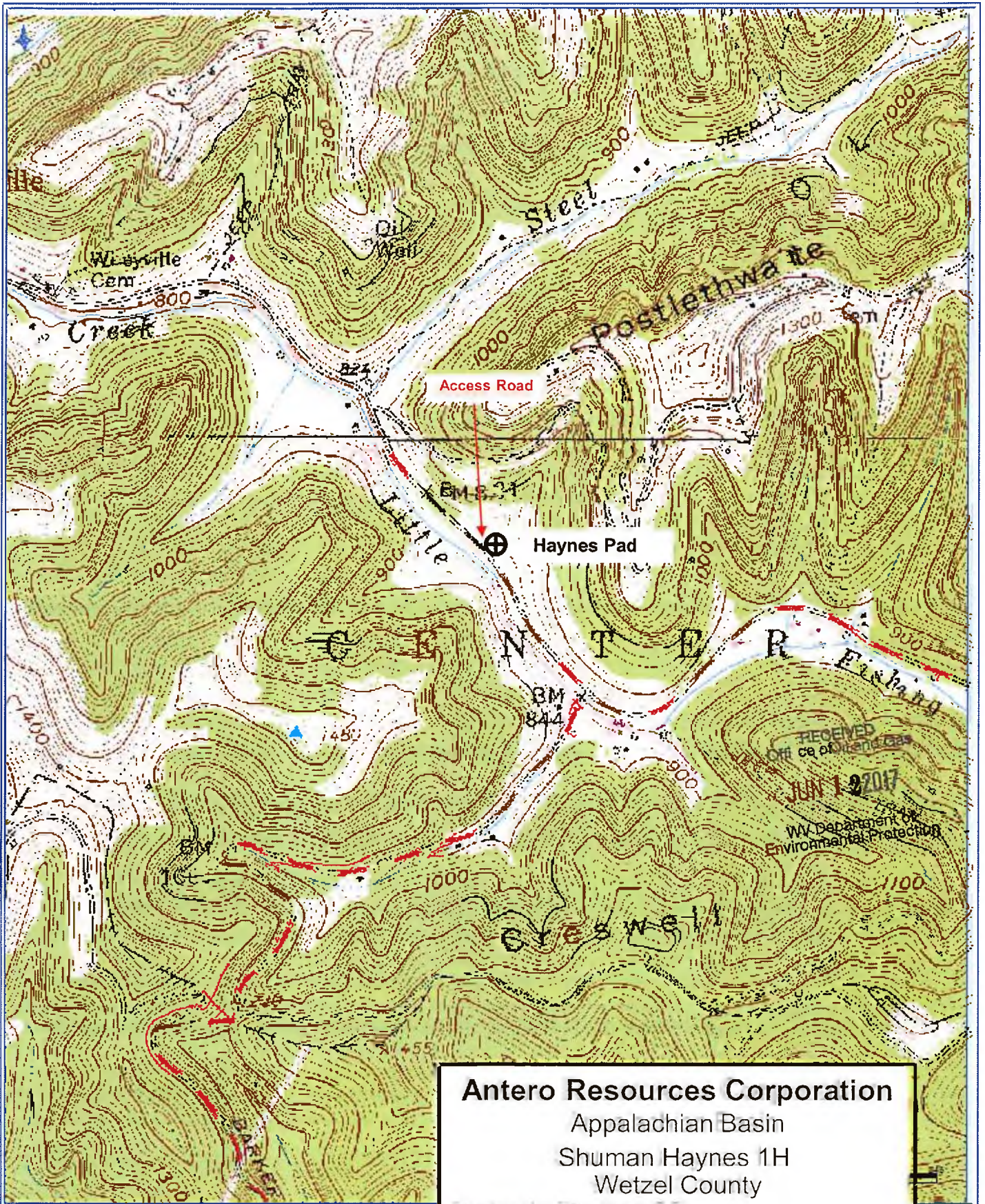
1. Alpha 1655
Salt Inhibitor
2. Mil-Carb
Calcium Carbonate
3. Cottonseed Hulls
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime
Calcium Hydroxide – Lime
11. LD-9
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica
Hydro-Biotite Mica – LCM

RECEIVED
Office of Oil and Gas
JUN 12 2017
WW Department of
Environmental Protection

09/22/2017

13. Escaid 110
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous
Inorganic Salt
18. D-D
Drilling Detergent – Surfactant
19. Terra-Rate
Organic Surfactant Blend
20. W.O. Defoam
Alcohol-Based Defoamer
21. Perma-Lose HT
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite
Natural Graphite – LCM
25. Mil Bar
Barite – Weighting Agent
26. X-Cide 102
Biocide
27. Soda Ash
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol
Amine Acid complex – Shale Stabilizer
29. Sulfatrol
Sulfonated Asphalt – Shale Control Additive
30. Xanvis
Viscosifier For Water-Based Muds
31. Milstarch
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube
Drilling Fluid Lubricant

RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection



Antero Resources Corporation
Appalachian Basin
Shuman Haynes 1H
Wetzel County

Quadrangle: Pine Grove 7.5'
Watershed: Fishing Creek
District: Center
Date: 6-05-2017

AS DRILLED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4387558.13
E:528198.12
LAT/LON DATUM-WGS84
LAT:39.637339
LON:-80.671389

BHL is located on topo map 10,658 feet south of Latitude: 39° 40' 00"
SHL is located on topo map 948 feet south of Latitude: 39° 37' 30"

AS DRILLED PLAT

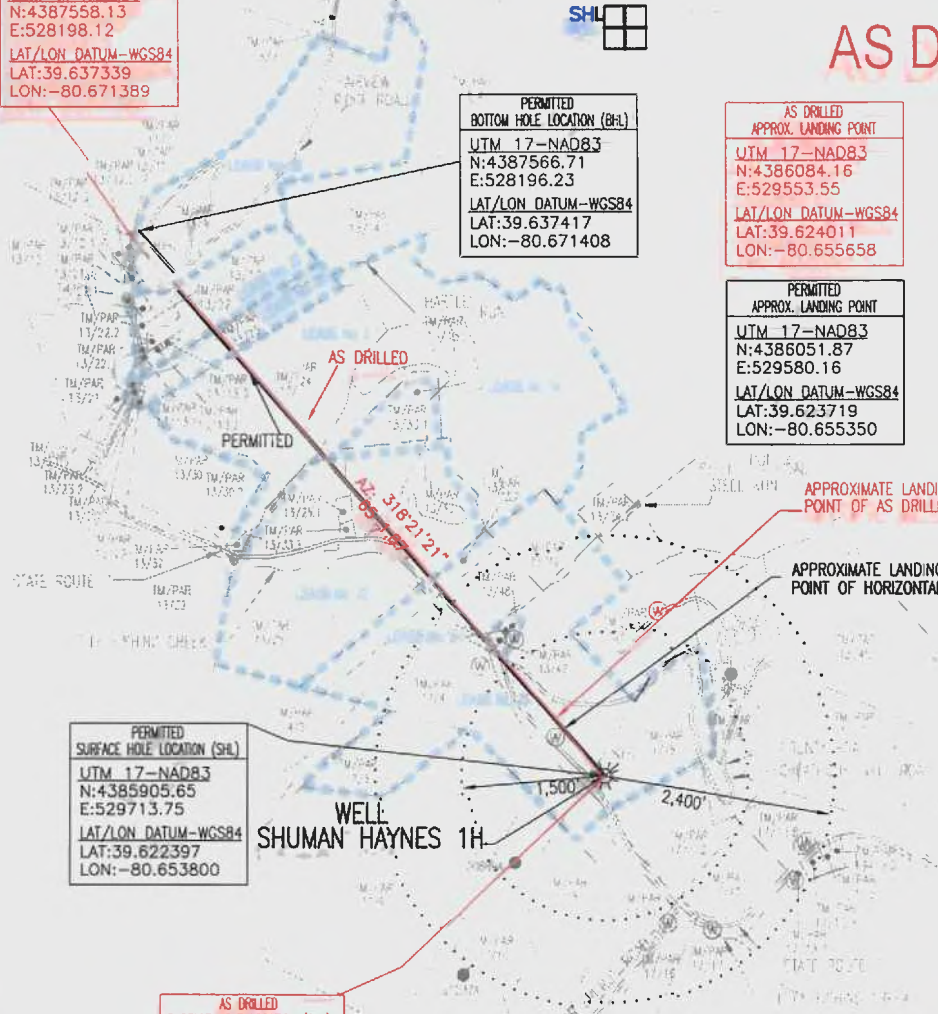
PERMITTED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4387566.71
E:528196.23
LAT/LON DATUM-WGS84
LAT:39.637417
LON:-80.671408

AS DRILLED
APPROX. LANDING POINT
UTM 17-NAD83
N:4386084.16
E:529553.55
LAT/LON DATUM-WGS84
LAT:39.624011
LON:-80.655658

PERMITTED
APPROX. LANDING POINT
UTM 17-NAD83
N:4386051.87
E:529580.16
LAT/LON DATUM-WGS84
LAT:39.623719
LON:-80.655350

NO.	NAME
24	JUNE POSTLETHWAIT
25	LEONARD FORGYCE
33	EARL & MARY HUGGINS
33.2	SHUMAN E. HAYNES
47	JOHN A. HAYNES
4	SHUMAN E. HAYNES
5	SHUMAN E. HAYNES

REFERENCE
DETAIL



PERMITTED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4385905.65
E:529713.75
LAT/LON DATUM-WGS84
LAT:39.622397
LON:-80.653800

AS DRILLED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4385905.47
E:529713.69
LAT/LON DATUM-WGS84
LAT:39.62239586
LON:-80.65380007

NOTES

- 1 There are no water wells or developed springs within 250' of proposed well.
- 2 There are no existing buildings within 625' of proposed well. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
- 3 There are no native trout streams within 300' of proposed well. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
- 4 It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LEGEND

- + TOPO MAP POINT
- ☼ PROPOSED GAS WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- (W) WATER SOURCE
- LEASE BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE

WELLS WITHIN 2400'

- EXISTING WELLS
- ⊕ PLUGGED WELLS

LEASE NO.	AC.	GAS ROYALTY OWNER
23	144.41	SHUMAN HAYNES
30	2.0938	JOHN A. HAYNES
22	99.25	CAROLYN SUE & JOHN C. HEIMLICH, et al
3	45.625	ROCK CAMP, et al
36, 37	46.5	JANICE L. WHIPKEY
39	77.37	DRILLING APPALACHIAN CORPORATION, LLC

Blue Mountain Inc.
10125 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

FILE #: SHUMAN HAYNES 1H-AS DRILLED
DRAWING #: SHUMAN HAYNES 1H-AS DRILLED
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/2500
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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

Signed: *George D. Six*
R.P.E.: _____ L.L.S.: P.S. No. 2000

GEORGE D. SIX
LICENSED
No. 2000
STATE OF
WEST VIRGINIA
PROFESSIONAL SURVEYOR

PLACE SEAL HERE

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

OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: MARCH 28, 2017

OPERATOR'S WELL #: SHUMAN HAYNES 1H-AS DRILLED

API WELL #: 47 103 02936
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: FISHING CREEK ELEVATION: 840.85' - AS-BUILT ELEVATION

COUNTY/DISTRICT: WETZEL/CENTER QUADRANGLE: PINE GROVE, WV 7.5'

SURFACE OWNER: SHUMAN HAYNES ACREAGE: 27.50±

OIL & GAS ROYALTY OWNER: SEE ABOVE CHART ACREAGE: 415.2488±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): FRAC

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,974'± TMD: 14,500'±

WELL OPERATOR ANTERO RESOURCES CORPORATION DESIGNATED AGENT DIANNA STAMPER CT CORPORATION SYSTEM
Address 1615 WYNKOOP STREET Address 5400 D BIG TYLER ROAD
City DENVER State CO Zip Code 80202 City CHARLESTON State WV Zip Code 25313

BHL is located on topo map 1,336 feet west of Longitude: 80° 40' 00"
SHL is located on topo map 8,112 feet west of Longitude: 80° 37' 30"

09/22/2017



911 Address
16863 Mountaineer Hwy
Wileyville, WV 26581

Well Site Safety Plan

Antero Resources

RECEIVED
Office of Oil and Gas

JUN 30 2017

WV Department of
Environmental Protection

Well Name: Shuman Haynes 1H

Pad Location: HAYNES PAD
Wetzel County/Central District

GPS Coordinates:

Entrance - Lat 39°37'22.4214"/Long -80°39'18.2118" (NAD83)

Pad Center - Lat 39°37'20.6256"/Long -80°39'13.68" (NAD83)

Driving Directions:

From intersection of I-79 and Hwy 50 near Clarksburg: Head southwest to northwest turnpike (0.5mi). Continue in US-50W (5.2mi). Slight right toward Co Rd 5035 and then merge onto Co Rd 5035 (0.3mi). Turn right toward Wilsonburg Rd (0.2mi). Continue straight onto Wilsonburg Rd (0.5mi). Turn right onto Bean Run/Gregory Run (5.8mi). Turn left onto North Fork Rd (2.2mi). Turn left onto Barker Run Rd (3.6mi). Turn left onto WV-7 W. Turn right at Haynes Pad on right, visible from road (0.3mi).

Alternate Route:

From the town of Reader: Head west on WV-20 S/Galmish Rd/State Hwy 20 (4.3mi). Turn left onto Co Rd 20/3 (75ft). Turn left onto N Fork Rd (2.2mi). Turn left onto Barker Run Rd (3.36mi). Turn left on WV-7 W (0.1mi).

*DMH
6-27-17*

EMERGENCY (24 HOUR) CONTACT 1-800-878-1373

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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Shuman Haynes Lease</u>			
Shuman Haynes et ux Drilling Appalachian Corporation	Drilling Appalachian Corporation Antero Resources Corporation	1/8+ Assignment	120A/733 179A/300
<u>John A. Haynes Lease</u>			
John A. Haynes Drilling Appalachian Corporation	Drilling Appalachian Corporation Antero Resources Corporation	1/8+ Assignment	120A/735 179A/300
<u>Carolyn Sue & John C. Heimlich, et al Lease</u>			
John C. Heimlich Drilling Appalachian Corporation	Drilling Appalachian Corporation Antero Resources Corporation	1/8+ Assignment	131A/846 179A/300
<u>Paul E. Blatt et ux Lease</u>			
Paul E. Blatt et ux Drilling Appalachian Corporation	Drilling Appalachian Corporation Antero Resources Corporation	1/8+ Assignment	148A/570 179A/300
<u>Rock Camp, et al Lease</u>			
Rock Camp Oil Co, et al Drilling Appalachian Corporation	Drilling Appalachian Corporation Antero Resources Corporation	1/8+ Assignment	126A/155 179A/300
<u>Janice L. Whipkey Lease 36,37</u>			
Janice L. Whipkey Drilling Appalachian Corporation	Drilling Appalachian Corporation Antero Resources Corporation	1/8+ Name Change	142A/869 179A/300

*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

CONTINUED ON NEXT PAGE

RECEIVED
Office of Oil and Gas

JUN 12 2017

WV Department of
Environmental Protection

09/22/2017

**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
<u>Drilling Appalachian Corporation, LLC Lease</u>	Drilling Appalachian Corporation	Drilling Appalachian Corporation	1/8+	173A/194
	Drilling Appalachian Corporation	Antero Resources Corporation	Assignment	179A/300

*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**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:

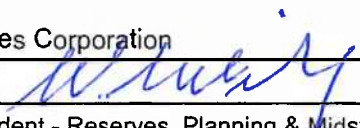
- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

RECEIVED
Office of Oil and Gas

JUN 12 2017

WV Department of
Environmental Protection

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: Antero Resources Corporation
 By: Ward McNeilly 
 Its: Senior Vice President - Reserves, Planning & Midstream

103-02936F



Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

June 9, 2017

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

RE: Shuman Haynes 1H (API# 47-103-02936)
Quadrangle: Pine Grove 7.5'
Wetzel County/Center District, West Virginia

*Frac Perm. # 4 ja
9/12/17*

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Shuman Haynes 1H horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Shuman Haynes 1H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

A handwritten signature in blue ink, appearing to read "Houston Eagleston", is written over a blue horizontal line.

Houston Eagleston
Senior Landman

RECEIVED
Office of Oil and Gas

JUN 12 2017

WV Department of
Environmental Protection

09/22/2017

Certification of Notice is hereby given:

THEREFORE, I Ward McNeilly, 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: Antero Resources Corporation
By: Ward McNeilly *W. McNeilly*
Its: Senior Vice President - Midstream, Planning & Reserves
Telephone: 303-357-7310

Address: 1615 Wynkoop Street
Denver, CO 80202
Facsimile: 303-357-7315
Email: shjohnson@anteroresources.com



Subscribed and sworn before me this 8 day of June 2017
Shelby Marie Johnson Notary Public
My Commission Expires 7/8/2020

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.

RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection

**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: 6/9/2017 **Date Permit Application Filed:** 6/9/2017

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: Shuman Haynes
Address: 16614 Mountaineer Hwy
Wileyville, WV 26581

Name: _____
Address: _____

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

Name: Shuman Haynes
Address: 16614 Mountaineer Hwy
Wileyville, WV 26581

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Consolidation Coal Company c/o Leatherwood, Inc
Address: CNX Center 1000 Consol Energy Drive
Cannonsburg, PA 15317

COAL OPERATOR

Name: _____
Address: _____

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL, SPRING OR OTHER WATER SUPPLY SOURCE

Name: Shuman E. Haynes
Address: 16614 Mountaineer Hwt
Wileyville, WV 26581

*PLEASE NOTE THERE ARE 5 ADDITIONAL WATER SOURCES SHOWN ON THE ATTACHED MAP, BUT THEY ARE LOCATED GREATER THAN 1500' FROM THE SUBJECT PAD LOCATION

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary. RECEIVED Office of Oil and Gas

JUN 12 2017
WV Department of Environmental Protection
09/22/2017

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

RECEIVED
JUN 12 2017

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from an 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

09/22/2017

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

RECEIVED
Office of Oil and Gas

JUN 12 2017

WV Department of
Environmental Protection

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.**

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.

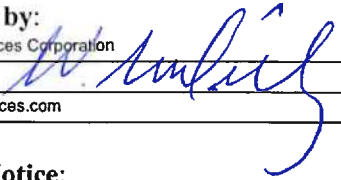
RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection

WW-6A
(8-13)

API NO. 47- 103 - 02936 **F**
OPERATOR WELL NO. Shuman Haynes 1H
Well Pad Name: Existing Haynes Pad

Notice is hereby given by:

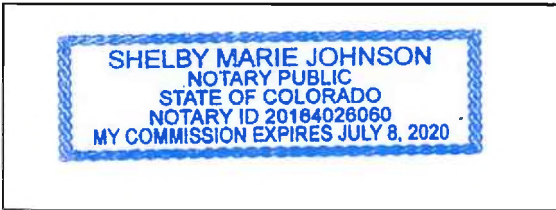
Well Operator: Antero Resources Corporation
Telephone: (303) 357-7310
Email: shjohnson@anteroresources.com



Address: 1615 Wynkoop Street
Denver, CO 80202
Facsimile: 303-357-7315

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.



Subscribed and sworn before me this 9th day of June 2017.

sgor Notary Public

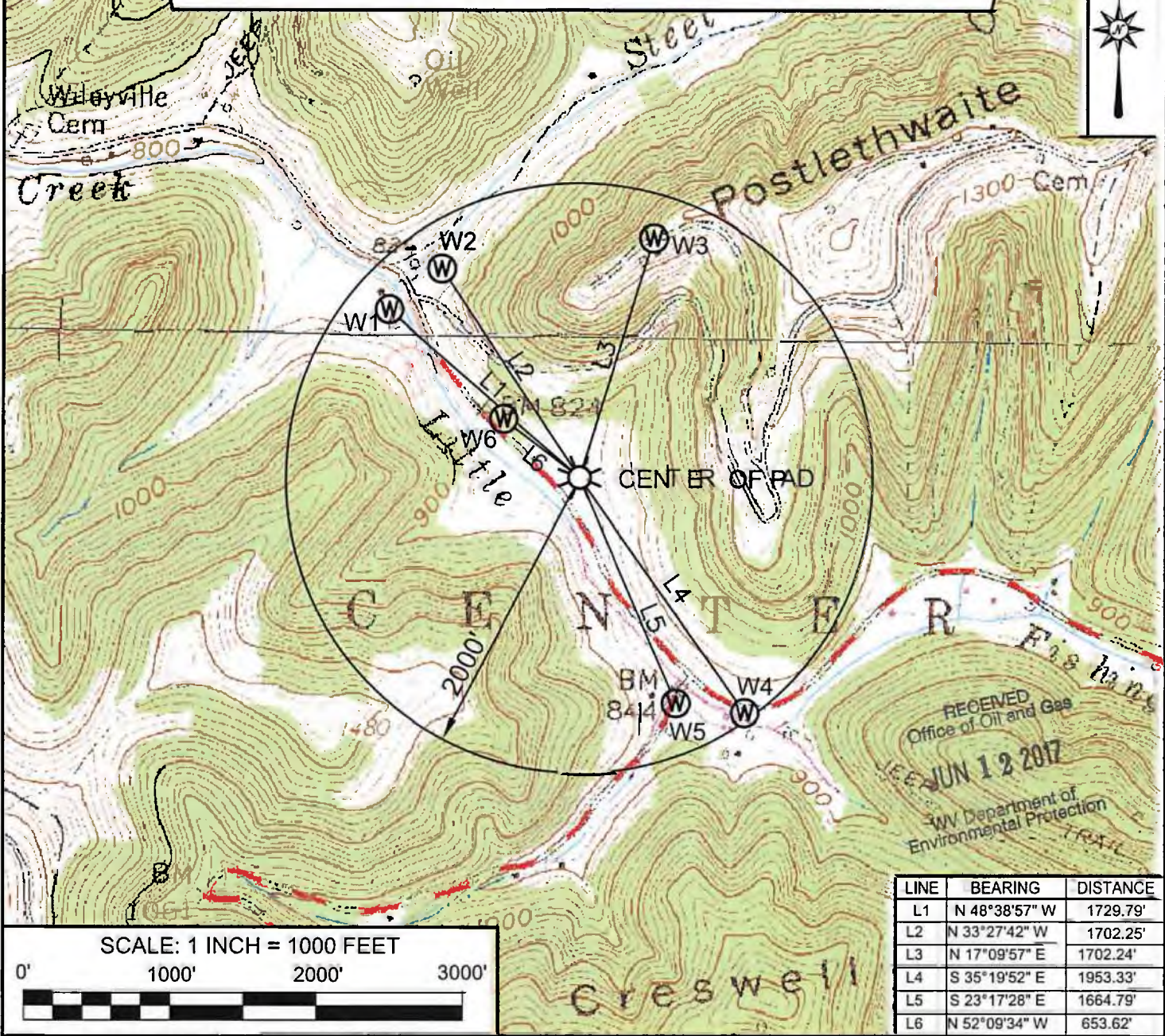
My Commission Expires 7/8/2020

RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection

09/22/2017

103-02936F

SHUMAN HAYNES WATER PURVEYOR MAP



LINE	BEARING	DISTANCE
L1	N 48°38'57" W	1729.79'
L2	N 33°27'42" W	1702.25'
L3	N 17°09'57" E	1702.24'
L4	S 35°19'52" E	1953.33'
L5	S 23°17'28" E	1664.79'
L6	N 52°09'34" W	653.62'

WELL	SURFACE OWNER	ADDRESS	DIST.-T/M-PAR	LATITUDE	LONGITUDE
W1	SHUMAN E. HAYNES	16614 MOUNTAINEER HWY; WILEYVILLE, WV 26581	1-17-4	39°37'31.76"	80°39'30.46"
W2	JOHN A. HAYNES	15 POSTLETHWAIT RIDGE ROAD; WILEYVILLE, WV 26581	1-13-48	39°37'34.55"	80°39'25.91"
W3	ROBERT W. & KATHY D. GREATHOUSE	829 POSTLETHWAIT RIDGE ROAD; LITTLETON, WV 26581	1-13-43	39°37'36.77"	80°39'07.52"
W4	THOMAS D. MCBEE PATRICIA MICHELLE PRESTON	186 HONEY RUN RD; WILEYVILLE, WV 26581	1-17-17	39°37'05.03"	80°38'58.98"
W5	DAVID M. & LORETTA TEAGARDEN	42 BARKER RUN RD; WILEYVILLE, WV 26581	1-17-11	39°37'05.60"	80°39'05.02"
W6	SHUMAN E. HAYNES	16614 MOUNTAINEER HWY; WILEYVILLE, WV 26581	1-17-4	39°37'24.53"	80°39'20.34"

SURVEYING AND MAPPING SERVICES PERFORMED BY: **Blue Mountain Inc.**
 11023 MASON DIXON HIGHWAY
 BURTON, WV 26562
 PHONE: (304) 662-6486

PREPARED FOR: **Antero Resources Corporation**
 1615 Wyncoop Street
 Denver, Colorado 80202

DATE: 08 JUNE 2017
 TOPO SECTION(S) OF: PINE GROVE 7.5' QUAD
 WILEYVILLE 7.5' QUAD
 COUNTY - DISTRICT: WETZEL - CENTER

09/22/2017

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

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

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 05/23/2017 **Date Permit Application Filed:** 06/09/2017

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

HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

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

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

Name: Shuman E. Haynes
Address: 16614 Mountaineer Hwy
Wileyville, WV 26581

Name: _____
Address: _____

RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection

Notice is hereby given:

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

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>529713.69m (Approximate Pad Center)</u>
County: <u>Wetzel</u>		Northing: <u>4385905.47m (Approximate Pad Center)</u>
District: <u>Center</u>	Public Road Access: <u>WV-7</u>	
Quadrangle: <u>Pine Grove 7.5'</u>	Generally used farm name: <u>Shuman Haynes</u>	
Watershed: <u>Fishing Creek</u>		

This Notice Shall Include:

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

Notice is hereby given by:

Well Operator: Antero Resources Appalachian Corporation
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7310
Email: shjohnson@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Shelby Johnson
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7223
Email: shjohnson@anteroresources.com
Facsimile: 303-357-7315

Oil and Gas Privacy Notice:

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

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

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

Date of Notice: 06/09/2017 **Date Permit Application Filed:** 06/09/2017

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: Shuman Haynes
Address: 16614 Mountaineer Hwy
Wileyville, WV 26581

RECEIVED
Office of Oil and Gas

JUN 12 2017
WV Department of
Environmental Protection

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>529713.69m</u>
County: <u>Doddridge</u>		Northing: <u>4385905.47m</u>
District: <u>Central</u>	Public Road Access: <u>WV-7</u>	
Quadrangle: <u>Pine Grove 7.5'</u>	Generally used farm name: <u>Shuman Haynes</u>	
Watershed: <u>Fishing Creek</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: Antero Resources Corporation
Telephone: (303) 357-7310
Email: shjohnson@anteroresources.com

Address: 1615 Wynkoop Street
Denver, CO 80202
Facsimile: 303-357-7315

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.

List of Anticipated Additives Used for Fracturing or Stimulating Well

103-02936F

Additives	Chemical Abstract Service Number (CAS #)
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	Proprietary
Anionic polymer	Proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	Proprietary
Demulsifier Base	Proprietary
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
Guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	Proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Sillica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7
Solvent Naphtha, petroleum, heavy aliph	64742-96-7
Soybean Oil, Me ester	67784-80-9
Copolymer of Maleic and Acrylic Acid	52255-49-9
DETA phosphonate	15827-60-8
Hexamethylene Triamine Penta	34690-00-1
Phosphino Carboxylic acid polymer	71050-62-9
Hexamethylene Diamine Tetra	23605-75-5
2-Propenoic acid, polymer with 2 propenamide	9003-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
Diethylene Glycol	111-46-6
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

RECEIVED
Office of Oil and Gas
JUN 12 2017
WV Department of
Environmental Protection

09/22/2017

103-02936F



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Jim Justice
Governor

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

May 19, 2017

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

Subject: DOH Permit for the Shuman Haynes Pad, Wetzel County
Shuman Haynes 1H Well site

47-103-02936

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2013-0368 which has been transferred to Antero Resources for access to the State Road for a well site located off of WV Route 7 in Wetzel County.

This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

Cc: Shelby Johnson
Antero Resources
CH, OM, D-6
File

RECEIVED
Office of Oil and Gas

JUN 13 2017

WV Department of
Environmental Protection
09/22/2017

Haynes Well Pad Site
Antero Resources Corporation
Exhibit A: Site As-Built

WVDEP 006
ACCEPTED AS-BUILT
WJ 7/24/2017



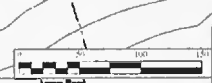
Antero
 PREPARED BY: [Name]
 CHECKED BY: [Name]
 DATE: [Date]

Surveying
 [Logo]

Haynes Well Pad Site
 Cedar District
 West Virginia

Well Pad Area Bound Profile

Station	Elevation
0+00	815.00
0+10	814.50
0+20	814.00
0+30	813.50
0+40	813.00
0+50	812.50
0+60	812.00
0+70	811.50
0+80	811.00
0+90	810.50
1+00	810.00
1+10	809.50
1+20	809.00
1+30	808.50
1+40	808.00
1+50	807.50
1+60	807.00
1+70	806.50
1+80	806.00
1+90	805.50
2+00	805.00
2+10	804.50
2+20	804.00
2+30	803.50
2+40	803.00
2+50	802.50
2+60	802.00
2+70	801.50
2+80	801.00
2+90	800.50
3+00	800.00

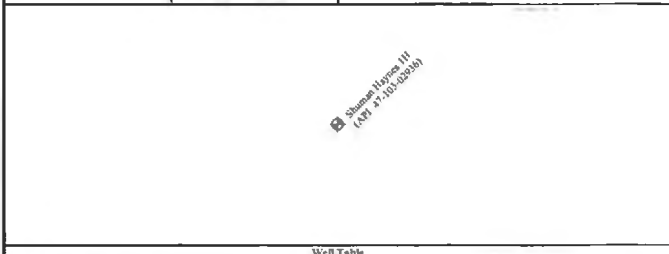


Site Worked Area

Symbol	Description
[Symbol]	Original Ground Profile
[Symbol]	Proposed Ground Profile
[Symbol]	Well Pad Boundary
[Symbol]	Well Pad Area
[Symbol]	Well Pad Structure
[Symbol]	Well Pad Foundation
[Symbol]	Well Pad Access Road
[Symbol]	Well Pad Driveway
[Symbol]	Well Pad Parking Area
[Symbol]	Well Pad Storage Area
[Symbol]	Well Pad Office Area
[Symbol]	Well Pad Maintenance Area
[Symbol]	Well Pad Fuel Area
[Symbol]	Well Pad Waste Area
[Symbol]	Well Pad Utility Area
[Symbol]	Well Pad Security Area
[Symbol]	Well Pad Safety Area
[Symbol]	Well Pad Emergency Area
[Symbol]	Well Pad Containment Area
[Symbol]	Well Pad Isolation Area
[Symbol]	Well Pad Evacuation Area
[Symbol]	Well Pad Assembly Area
[Symbol]	Well Pad Meeting Area
[Symbol]	Well Pad Training Area
[Symbol]	Well Pad Testing Area
[Symbol]	Well Pad Demonstration Area
[Symbol]	Well Pad Exhibition Area
[Symbol]	Well Pad Conference Area
[Symbol]	Well Pad Seminar Area
[Symbol]	Well Pad Workshop Area
[Symbol]	Well Pad Lecture Area
[Symbol]	Well Pad Presentation Area
[Symbol]	Well Pad Performance Area
[Symbol]	Well Pad Entertainment Area
[Symbol]	Well Pad Recreation Area
[Symbol]	Well Pad Amusement Area
[Symbol]	Well Pad Entertainment Area
[Symbol]	Well Pad Performance Area
[Symbol]	Well Pad Entertainment Area



Site Entrance	Center of Well Pad
WV-N NAD 83 N: 411682.23	WV-N NAD 83 N: 410896.04
WV-N NAD 83 E: 1643150.46	WV-N NAD 83 E: 1643502.60
WV-N NAD 27 N: 411065.50	WV-N NAD 27 N: 410895.30
WV-N NAD 27 E: 1674589.24	WV-N NAD 27 E: 1674941.38
Lat. NAD 83: 39.62289459	Lat. NAD 83: 39.6229516
Lon. NAD 83: -80.65505861	Lon. NAD 83: -80.65380007
Lat. NAD 27: 39.62281369	Lat. NAD 27: 39.62231494
Lon. NAD 27: -80.65524454	Lon. NAD 27: -80.65398604
UTM 17 NAD 83 N: 4385960.41	UTM 17 NAD 83 N: 4385905.47
UTM 17 NAD 83 E: 520605.46	UTM 17 NAD 83 E: 529713.69
	Pad Elev.: 840.85'



Shuman Hayes III
WV-N NAD 83 N: 410896.04
WV-N NAD 83 E: 1643502.60
WV-N NAD 27 N: 410895.30
WV-N NAD 27 E: 1674941.38
Lat. NAD 83: 39.6229516
Lon. NAD 83: -80.65380007
Lat. NAD 27: 39.62231494
Lon. NAD 27: -80.65398604
UTM 17 NAD 83 N: 4385905.47
UTM 17 NAD 83 E: 529713.69

Project Contacts	Survey and Engineer
Operator: Antero Resources Corporation 535 White Oaks Blvd Hedgesport, WV 26030 Phone: (304) 842-4100 Fax: (304) 842-4102	Kenneth Kelly 304-338-6935 O/E
Elk Wagner - Environmental Engineer Office: (304) 842-4068 Cell: (304) 476-9770	John P. See 304-443-0220 O/E
Jon McEvers - Operations Superintendent Office: (303) 357-6799 Cell: (303) 808-2423	Zachary Summerfield 304-338-6937 O/E
Aaron Kuntzer - Construction Supervisor Cell: (405) 227-8344	Geotechnical Engineer American Geotech. Inc. Kanti Patel 304-340-4271 O/E
Robert B. Wilks - Field Engineer Office: (304) 842-4100 Cell: (304) 627-7405	

Geotechnical
 A geotechnical investigation was not provided for the purpose of this as-built survey.

Environmental
 Wetland delineations were not provided for the purpose of this as-built survey.

Topographic Information:
 The topographic information shown herein is based on aerial photography by PhotoMosaic Aerial Mapping, Durbin, WV.

MISS UTILITY OF WEST VIRGINIA
 1-800-245-4848
 West Virginia State Law Section XIV, Chapter 24-G requires that you call two business days before you dig in the state of West Virginia.
IT'S THE LAW

Know what's below. Call before you dig.

The WV Mines Website was consulted. Previous mining activities are not within the AOI.

Antero Shapefiles & WVDEP Website files show that there is one active and/or abandoned gas well within the AOI

Floodplain Conditions	
Do site construction activities take place in a floodplain:	NO
Permit needed from county floodplain coordinator:	NO
Flood Hazard Zone:	X
HFA-RAS Study completed:	N/A
Floodplains shown on drawings:	N/A
TRM Map Number (if any):	541011 (1) (1) (1)
Acreages of construction in floodplain:	N/A



Approach Routes:
 From the intersection of OH Rt 7 and WV Rt 2 near New Martinsville, WV. Follow WV Rt 2 South for 1.6 mi. Turn Left onto WV Rt 7 East. Follow WV Rt 7 East for 16.9 mi. The site entrance will be on the Left (Northeast) side of the road.



Site Locations (NAD 27)		
Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.62281369	-80.65524454
Center of Well Pad	39.62231494	-80.65398604

09/22/2017

