



west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, September 16, 2020
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for VULCAN 1H
47-095-02701-00-00

Lateral Length

ANTERO RESOURCES CORPORATION

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A handwritten signature in blue ink, appearing to read "James A. Martin".

James A. Martin
Chief

Operator's Well Number: VULCAN 1H
Farm Name: RICHARD D. PYLES
U.S. WELL NUMBER: 47-095-02701-00-00
Horizontal 6A New Drill
Date Modification Issued: September 16, 2020

Promoting a healthy environment.

Check# 220083

7/23/2020

\$5,000.00

PERMIT MODIFICATION API # 47-095-02701

WW-6B
(04/15)

API NO. 47-095 - 02701
OPERATOR WELL NO. Vulcan Unit 1H
Well Pad Name: Pyles Pad

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

1) Well Operator: Antero Resources Corporation Operator ID: 494507062 County: 095 - Tyler District: Ellsworth Quadrangle: Porter Falls 7.5'

2) Operator's Well Number: Vulcan Unit 1H Well Pad Name: Pyles Pad

3) Farm Name/Surface Owner: Richard D. Pyles Public Road Access: US Route 34

4) Elevation, current ground: 1081' Elevation, proposed post-construction: ~1081'

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

Other

(b) If Gas Shallow X Deep

Horizontal X

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7100' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7100' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 23100' MD

11) Proposed Horizontal Leg Length: 14263'

12) Approximate Fresh Water Strata Depths: 61'

13) Method to Determine Fresh Water Depths: 47-095-01958

14) Approximate Saltwater Depths: 2200'

15) Approximate Coal Seam Depths: None Identified

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

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:

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WV Department of
Environmental Protection

WW-6B
(04/15)

API NO. 47- 095 - 02701

OPERATOR WELL NO. Vulcan Unit 1H

Well Pad Name: Pyles Pad

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	20"	New	H-40	94#	80	80	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	300	300	CTS, 417 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500	2500	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	23100	23100	5944 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

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	20"	24"	0.438"	1530	50	Class A	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

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PACKERS

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

WW-6B
(10/14)

API NO. 47- 095 - 02701

OPERATOR WELL NO. Vulcan Unit 1H

Well Pad Name: Pyles Pad

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

Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale.

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): 23.71 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.00 acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

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

SEP 14 2020

Conductor: no additives, Class A cement.

Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

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25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

WW-6A1

Operator's Well Number Vulcan Unit 1H

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>Richard D. Pyles Lease</u>			
Richard D. Pyles	Antero Resources Corporation	1/8+	0562/0590
<u>Joseph L. Sitko et ux Lease</u>			
Joseph L. Sitko et ux	TNG LLC	1/8	0375/0384
TNG LLC	Chesapeake Appalachia LLC	Assignment	0375/0261
Chesapeake Appalachia LLC	Statoil USA Onshore Properties	Assignment	0423/0152
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0022/0144
<u>Helen E. Boggs Lease</u>			
Helen E. Boggs	Energy Production Inc.	1/8+	0429/0656
Energy Production Inc.	Antero Resources Corporation	Assignment	0465/0312
<u>William S. Nash et al Lease</u>			
William S. Nash et al	Statoil USA Onshore Properties	1/8	0463/0515
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<u>Ridgetop Capital II LP Lease (TM 22 PCL 3)</u>			
Ridgetop Capital II LP	Statoil USA Onshore Properties	Assignment	0387/0206
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<u>Ridgetop Capital II LP Lease (TM 22 PCL 3)</u>			
Ridgetop Capital II LP	Statoil USA Onshore Properties	Assignment	0387/0206
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<u>BRC Appalachian Minerals I LLC Lease</u>			
BRC Appalachian Minerals I LLC	BRC Working Interest Company	1/8	0369/0300
BRC Working Interest Company	Chesapeake Appalachia LLC	Assignment	0369/0784
Chesapeake Appalachia LLC	Statoil USA Onshore Properties	Assignment	0378/0764
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<u>Anthony Bruce Parr Lease</u>			
Anthony Bruce Parr	Antero Resources Corporation	1/8+	0031/0723

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WV Department of Environmental Protection

*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.

WW-6A1

Operator's Well Number Vulcan Unit 1H

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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<u>Grantor, lessor, etc.</u>	<u>Grantee, lessee, etc.</u>	<u>Royalty</u>	<u>Book/Page</u>
<u>Ronald P. Webb Lease</u> Ronald P. Webb	Antero Resources Corporation	1/8	0044/0697
<u>Kendra K. Wyke Lease</u> Kendra K. Wyke	Antero Resources Corporation	1/8+	0044/0694
<u>Richard Lee White II Lease</u> Richard Lee White II	Antero Resources Corporation	1/8	0023/0777

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WW-6A1
(5/13)

Operator's Well No. Vulcan Unit 1H

**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)**

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- (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>Kendra K. Wyke Lease</u>	Kendra K. Wyke	Antero Resources Corporation	1/8+	0044/0694

*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.

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

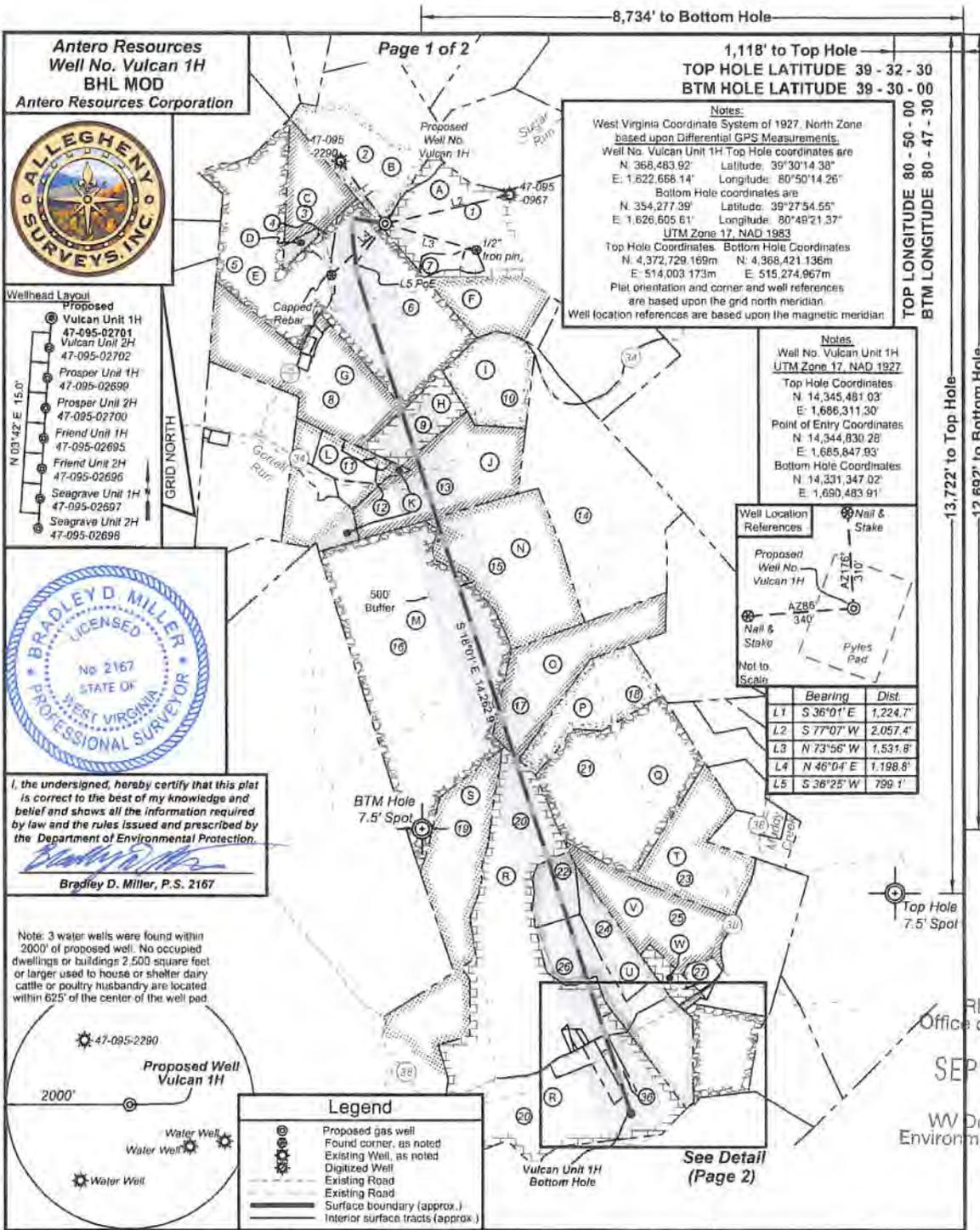
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

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

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Corporation
 By: Tim Rady
 Its: VP of Land

*Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act

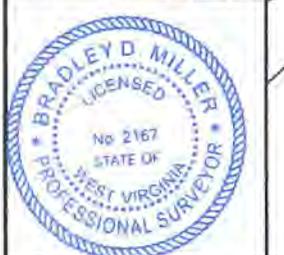


Antero Resources
Well No. Vulcan 1H
BHL MOD
Antero Resources Corporation



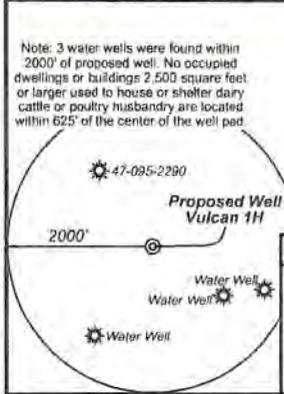
Wellhead Layout

Proposed Vulcan Unit 1H	47-095-02701
Vulcan Unit 2H	47-095-02702
Prosper Unit 1H	47-095-02699
Prosper Unit 2H	47-095-02700
Friend Unit 1H	47-095-02695
Friend Unit 2H	47-095-02696
Seagrave Unit 1H	47-095-02697
Seagrave Unit 2H	47-095-02698



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 rules issued and prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167



Legend

	Proposed gas well
	Found corner, as noted
	Digitized Well, as noted
	Existing Road
	Surface boundary (approx.)
	Interior surface tracts (approx.)

Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Vulcan Unit 1H Top Hole coordinates are
N. 368,483.92' Latitude: 39°30'14.38"
E. 1,622,668.14' Longitude: 80°50'14.26"
Bottom Hole coordinates are
N. 354,277.39' Latitude: 39°27'54.55"
E. 1,626,605.61' Longitude: 80°48'21.37"
UTM Zone 17, NAD 1983
Top Hole Coordinates: Bottom Hole Coordinates
N. 4,372,729.169m N. 4,368,421.136m
E. 514,003.173m E. 515,274.967m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Notes:
Well No. Vulcan Unit 1H
UTM Zone 17, NAD 1927
Top Hole Coordinates
N. 14,345,481.03'
E. 1,686,311.30'
Point of Entry Coordinates
N. 14,344,830.28'
E. 1,685,847.93'
Bottom Hole Coordinates
N. 14,331,347.02'
E. 1,690,483.91'

Well Location References

Bearing	Dist.
L1 S 36°01' E	1,224.7'
L2 S 77°07' W	2,057.4'
L3 N 73°56' W	1,531.8'
L4 N 46°04' E	1,198.8'
L5 S 36°25' W	799.1'

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FILE NO: 189-54-E-19
DRAWING NO: Vulcan Unit 1H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: July 30 2020
OPERATOR'S WELL NO. Vulcan 1H
API WELL NO
47 - 095 - 02701
STATE COUNTY PERMIT

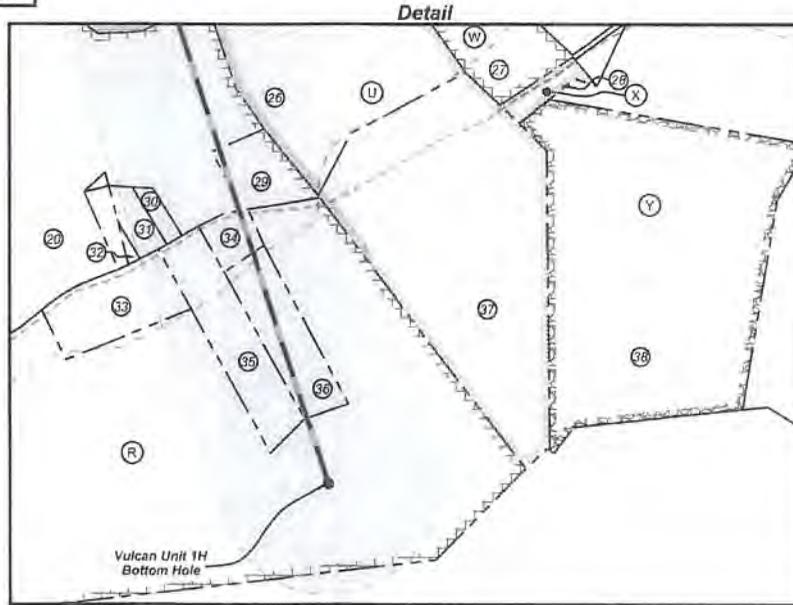
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler 45.79.042; 177.79.919; 22.95.69.50; 90.222.65; 97.2.271

SURFACE OWNER: Richard D. Pyles, Ronald P. Webb, Richard L. White, II, Kendra K. Wyke, Ridgeton Capital II, LP (2), BRC Appalachian Minerals I, LLC, Anthony Bruce Parr, ACREAGE: 168.5
ROYALTY OWNER: Richard D. & Cathy J. Pyles, Joseph L. Silko, et ux, William S. Nash, et al, Helen E. Boggas, LEASE NO: ACREAGE: 97.2

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,100' TVD 23,100' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stampler - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313



ID	TMP/Par	Owner	DB/PG	Acres
1	16-42	Richard D. Pyles	379/20	168.50
2	16-22	Joseph L. Silko, et ux	298/13	61.70
3	16-23	Joseph L. Silko	314/462	29.70
4	16-44.1	Carl Straight	543/598	3.70
5	15-38	Rodney A. & Candis L. Nash	351/701	85.48
6	16-44	Robert A. Pyles, et al	335/482	87.82
7	16-42.1	Richard D. Pyles	336/815	4.56
8	15-32	William S. & Opal Marie Nash	335/188	78.58
9	22-3	Harold L. & Deborah C. Holloway	287/669	22.95
10	16-43	Alfred L. Eddy	344/22	37.10
11	22-1	Robert I. Reed & Floyd W. Reed	321/763	37.60
12	22-2	Ronald Hartline & Jamie Barnhart	591/741	1.50
13	22-4	Stephen H. & Barbara J. Dunthorn	216/40	69.00
14	22-6	Antero Resources Inc.	662/782	131.57
15	22-5	Antero Resources Corporation	662/782	84.97
16	22-41	Anthony B. Parr	342/763	22.00
17	22-40	Ronald P. & Sandra L. Webb	282/1	65.00
18	22-39	Ronald P. & Sandra L. Webb	770/587	45.00
19	28-9	David & Cheryl L. Barrick	263/606	87.53
20	28-31	Victor A. & Lorraine B. Weekley	AR49/717	271.00
21	22-38	Bruce & Sandra L. Parr	368/790	113.0
22	22-37	B.W. Weekley	107/562	15.78
23	22-34	Raymond L. Parr, et al	329/181	55.25
24	22-36	B.W. Weekley	107/562	23.50
25	22-35	Marie Eddy	344/356	52.96
26	28-32	B.W. Weekley	107/562	33.31
27	28-43	Wanda J. Parr	327/435	8.02
28	28-42	Robert H. Anderson	238/76	0.99
29	28-31.1	Joshua M. & Crystal L. Rocchio	348/33	2.30
30	28-31.16	William Morgan	374/472	0.50
31	28-31.12	William Morgan	374/472	1.00
32	28-31.19	James & Peggy Morgan	377/10	0.14
33	28-31.10	Danny Swiger & Peggy Smith	356/675	4.00
34	28-31.20	Nandy Wells	445/315	1.00
35	28-31.3	David Lantz & Rita Parr	618/689	5.00
36	28-31.2	David Lantz & Rita Parr	618/689	4.00
37	28-33	B.W. Weekley	107/562	25.30
38	28-35	Shir N. Baker Jr.	WB 38/1	32.00

Leases	
A	Richard D. & Cathy J. Pyles
B	Joseph L. Silko, et ux
C	Joseph L. Silko, et ux
D	Bruce Winkelmann
E	Helen E. Boggs
F	Richard D. & Cathy J. Pyles
G	William S. Nash, et al
H	Ridgetop Capital II, LP
I	Alfred Lonzo Eddy
J	Ridgetop Capital II, LP
K	Marjorie R. Asher Longston, et vir
L	Ridgetop Capital II, LP
M	Anthony Bruce Parr
N	BRC Appalachian Minerals I, LLC
O	Ronald P. Webb
P	Carol J. Knapp
Q	Anthony Bruce Parr, et ux
R	Kendra K. Wyke
S	OPEN
T	Nancy L. Mains
U	Richard Lee White, II
V	Larry Stevens
W	Wanda J. Parr
X	Lucille Adams
Y	Bounty Minerals, LLC

RECEIVED
Office of Oil and Gas
SEP 14 2020
WV Department of
Environmental Protection

FILE NO: 189-54-E-19
DRAWING NO: Vulcan Unit 1H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY:
Submeter
PROVEN SOURCE OF ELEVATION:
WVDOT, Harrisville, WV



DATE: July 30 2020
OPERATOR'S WELL NO. Vulcan 1H
API WELL NO
47 - 095 - 02701
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler 45, 79, 042;
SURFACE OWNER: Richard D. Pyles, Ronald P. Webb, Richard L. White, II, Kendra K. Wyke; 177, 79, 919;
Ridgetop Capital II, LP (2); BRC Appalachian Minerals I, LLC, Anthony Bruce Parr; 22,95, 69, 50;
ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Silko, et ux; William S. Nash, et al; Helen E. Boggs. LEASE NO: ACREAGE: 168.5 90, 222, 65;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION 97.2, 271
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD 7,100' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 23,100' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

8,734' to Bottom Hole

1,118' to Top Hole

TOP HOLE LATITUDE 39 - 32 - 30
BTM HOLE LATITUDE 39 - 30 - 00

TOP LONGITUDE 80 - 50 - 00
BTM LONGITUDE 80 - 47 - 30

Antero Resources
Well No. Vulcan 1H
BHL MOD
Antero Resources Corporation



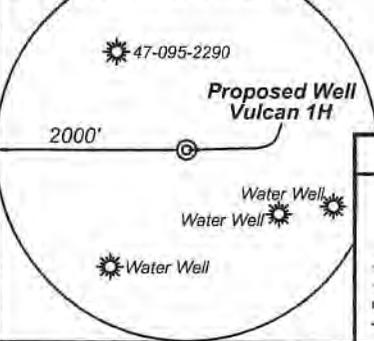
- Wellhead Layout
- Proposed Vulcan Unit 1H 47-095-02701
 - Vulcan Unit 2H 47-095-02702
 - Prosper Unit 1H 47-095-02699
 - Prosper Unit 2H 47-095-02700
 - Friend Unit 1H 47-095-02695
 - Friend Unit 2H 47-095-02696
 - Seagrave Unit 1H 47-095-02697
 - Seagrave Unit 2H 47-095-02698



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 rules issued and prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167

Note: 3 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



Legend

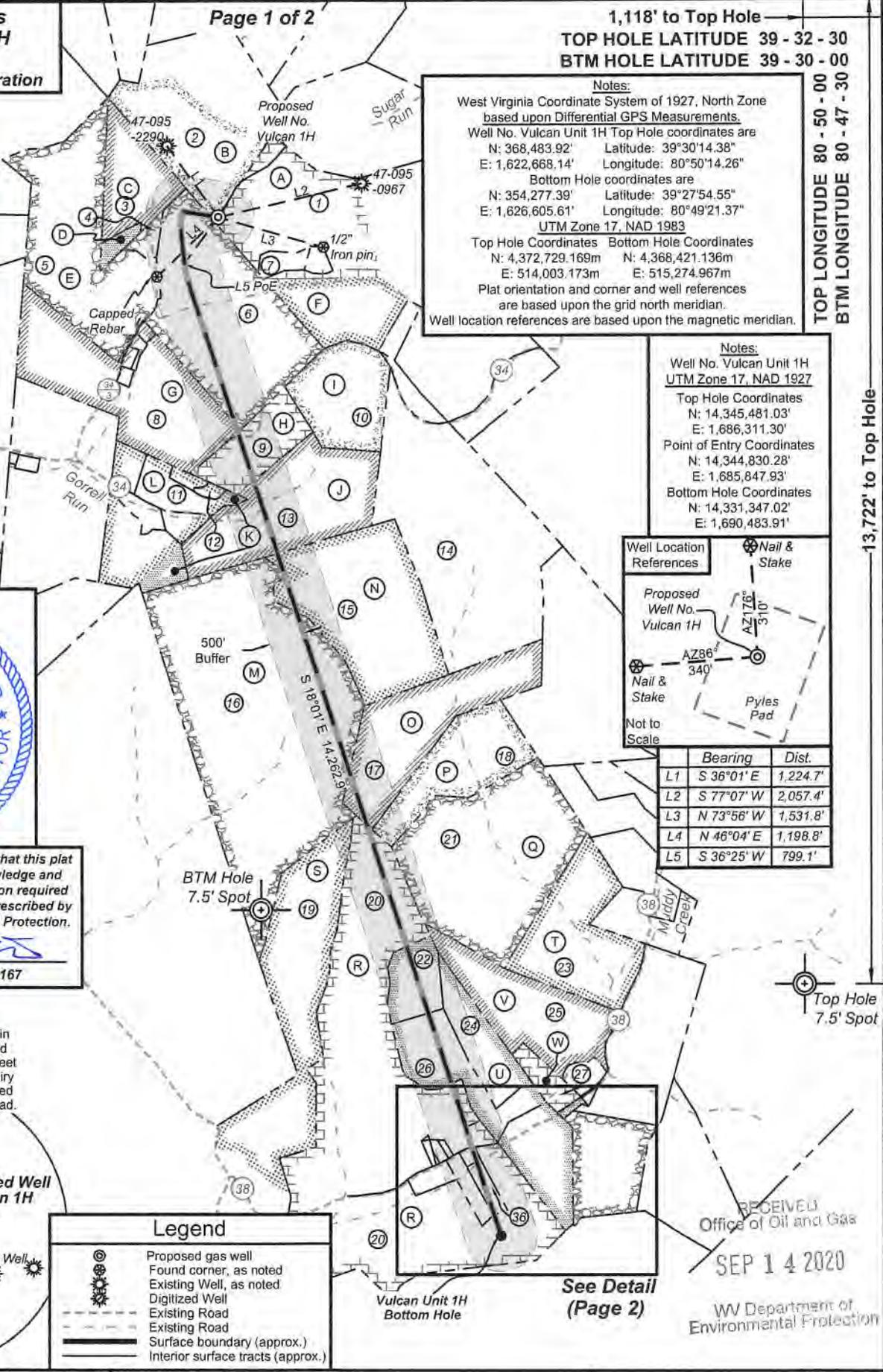
- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Digitized Well
- Existing Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)

Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Vulcan Unit 1H Top Hole coordinates are
N: 368,483.92' Latitude: 39°30'14.38"
E: 1,622,668.14' Longitude: 80°50'14.26"
Bottom Hole coordinates are
N: 354,277.39' Latitude: 39°27'54.55"
E: 1,626,605.61' Longitude: 80°49'21.37"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,372,729.169m N: 4,368,421.136m
E: 514,003.173m E: 515,274.967m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Notes:
Well No. Vulcan Unit 1H
UTM Zone 17, NAD 1927
Top Hole Coordinates
N: 14,345,481.03'
E: 1,686,311.30'
Point of Entry Coordinates
N: 14,344,830.28'
E: 1,685,847.93'
Bottom Hole Coordinates
N: 14,331,347.02'
E: 1,690,483.91'



	Bearing	Dist.
L1	S 36°01' E	1,224.7'
L2	S 77°07' W	2,057.4'
L3	N 73°56' W	1,531.8'
L4	N 46°04' E	1,198.8'
L5	S 36°25' W	799.1'



13,722' to Top Hole
12,692' to Bottom Hole

RECEIVED
Office of Oil and Gas
SEP 14 2020
WV Department of Environmental Protection

FILE NO: 189-54-E-19
DRAWING NO: Vulcan Unit 1H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

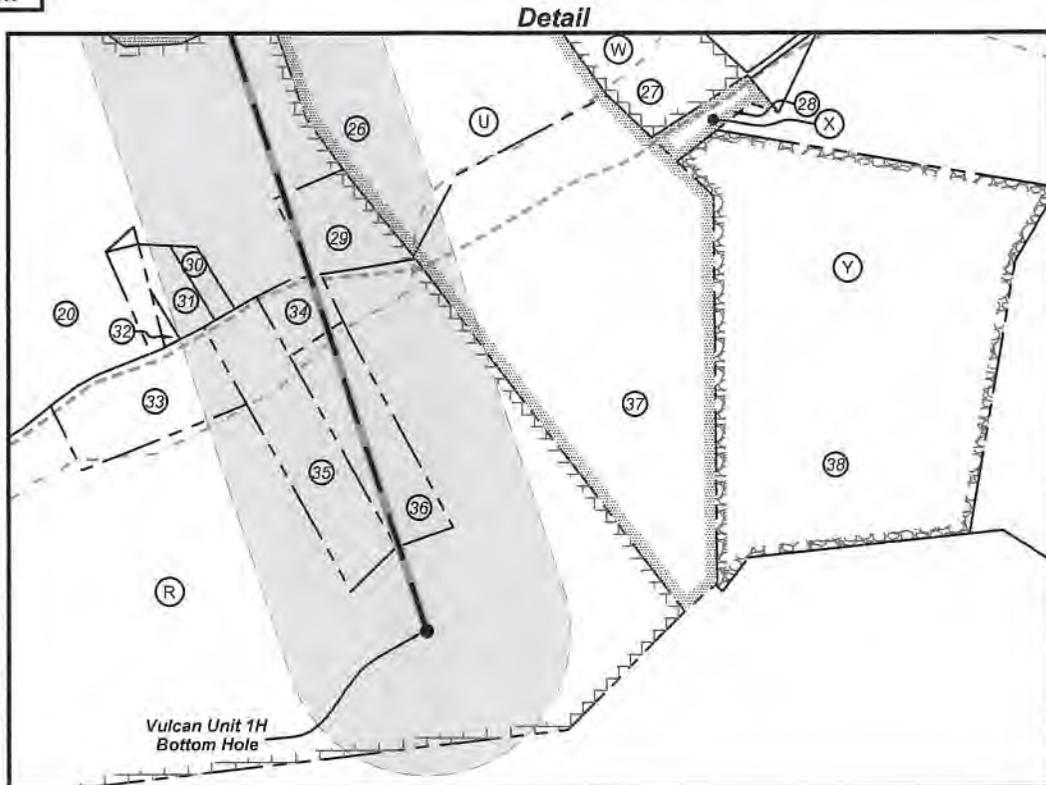
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: July 30 2020
OPERATOR'S WELL NO. Vulcan 1H
API WELL NO MOD
47 - 095 - 02701
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler 45; 79.042; 177; 79.919;
SURFACE OWNER: Richard D. Pyles Ronald P. Webb; Richard L. White, II; Kendra K. Wyke; ACREAGE: 168.5 22.95; 69.50;
ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Sitko, et ux; William S. Nash, et al; Helen E. Boggs. LEASE NO: _____ ACREAGE: 97.2; 271 90; 222; 65;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,100' TVD
23,100' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313



ID	TM/Par	Owner	DB/PG	Acres
1	16-42	Richard D. Pyles	379/20	168.50
2	16-22	Joseph L. Jr. & Karen L. Sitko	296/13	81.70
3	16-23	Joseph L. Sitko	314/462	29.70
4	16-44.1	Carl Straight	543/ 598	3.70
5	15-38	Rodney A. & Candis L. Nash	351/701	85.48
6	16-44	Robert A. Pyles, et al	335/482	87.82
7	16-42.1	Richard D. Pyles	336/815	4.56
8	15-32	William S. & Opal Marie Nash	335/188	78.58
9	22-3	Harold L. & Deborah C. Holloway	287/669	22.95
10	16-43	Alfred L. Eddy	344/22	37.10
11	22-1	Robert I. Reed & Floyd W. Reed	321/763	37.60
12	22-2	Ronald Hartline & Jamie Barnhart	591/741	1.50
13	22-4	Stephen H. & Barbara J. Dunthorn	216/40	69.00
14	22-6	Antero Resources Inc.	662/782	131.57
15	22-5	Antero Resources Corporation	662/782	84.67
16	22-41	Anthony B. Parr	342/763	222.00
17	22-40	Ronald P. & Sandra L. Webb	282/1	65.00
18	22-39	Ronald P. & Sandra L. Webb	270/587	45.00
19	28-9	David & Cheryl L. Barrick	263/606	87.53
20	28-31	Victor A. & Lorraine B. Weekley	AR49/717	271.00
21	22-38	Bruce & Sandra L. Parr	368/790	113.0
22	22-37	B.W. Weekley	107/562	15.78
23	22-34	Raymond L. Parr, et al	329/181	55.25
24	22-36	B.W. Weekley	107/562	23.50
25	22-35	Marie Eddy	344/358	52.96
26	28-32	B.W. Weekley	107/562	33.31
27	28-43	Wanda J. Parr	327/435	8.02
28	28-42	Robert H. Anderson	238/76	0.99
29	28-31.1	Joshua M. & Crystal L. Rocchio	348/33	2.30
30	28-31.16	William Morgan	374/472	0.50
31	28-31.12	William Morgan	374/472	1.00
32	28-31.19	James & Peggy Morgan	377/10	0.14
33	28-31.10	Danny Swiger & Peggy Smith	356/675	4.00
34	28-31.20	Randy Wells	445/315	1.00
35	28-31.3	David Lantz & Rita Parr	618/689	5.00
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37	28-33	B.W. Weekley	107/562	25.30
38	28-35	Shir N. Baker Jr.	WB 38/1	32.00

Leases	
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H	Ridgetop Capital II, LP
I	Alfred Lonzo Eddy
J	Ridgetop Capital II, LP
K	Marjorie R. Asher Longston, et vir
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P	Carol J. Knapp
Q	Anthony Bruce Parr, et ux
R	Kendra K. Wyke
S	OPEN
T	Nancy L. Mains
U	Richard Lee White, II
V	Larry Stevens
W	Wanda J. Parr
X	Lucille Adams
Y	Bounty Minerals, LLC

RECEIVED
Office of Oil and Gas

SEP 14 2020

WV Department of
Environmental Protection

FILE NO: 189-54-E-19
DRAWING NO: Vulcan Unit 1H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY:
Submeter
PROVEN SOURCE OF ELEVATION:
WVDOT, Harrisville, WV

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

DATE: July 30 2020
OPERATOR'S WELL NO. Vulcan 1H
API WELL NO H001
47 - 095 - 02701
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler 45; 79.042;
SURFACE OWNER: Richard D. Pyles Ronald P. Webb; Richard L. White, II; Kendra K. Wyke; 177; 79.919;
ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Sitko, et ux; William S. Nash, et al; Helen E. Boggs; Ridgetop Capital II, LP (2); BRC Appalachian Minerals I, LLC; Anthony Bruce Parr; ACREAGE: 168.5 22.95; 69.50;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION 90; 222; 65;
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD LEASE NO: ACREAGE: 97.2; 271
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,100' TVD
23,100' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

8,734' to Bottom Hole

1,118' to Top Hole

TOP HOLE LATITUDE 39 - 32 - 30
BTM HOLE LATITUDE 39 - 30 - 00

TOP LONGITUDE 80 - 50 - 00
BTM LONGITUDE 80 - 47 - 30

Antero Resources
Well No. Vulcan 1H
BHL MOD
Antero Resources Corporation



- Wellhead Layout Proposed
- Vulcan Unit 1H 47-095-02701
 - Vulcan Unit 2H 47-095-02702
 - Prosper Unit 1H 47-095-02699
 - Prosper Unit 2H 47-095-02700
 - Friend Unit 1H 47-095-02695
 - Friend Unit 2H 47-095-02696
 - Seagrave Unit 1H 47-095-02697
 - Seagrave Unit 2H 47-095-02698



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 rules issued and prescribed by the Department of Environmental Protection.

Bradley D. Miller, P.S. 2167

Note: 3 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



Legend

- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Digitized Well
- Existing Road
- Existing Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)

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BTM Hole 7.5' Spot

Top Hole 7.5' Spot

Vulcan Unit 1H Bottom Hole

See Detail (Page 2)

FILE NO: 189-54-E-19
DRAWING NO: Vulcan Unit 1H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: July 30 2020
OPERATOR'S WELL NO. Vulcan 1H
API WELL NO MODI
47 - 095 - 02701
STATE COUNTY PERMIT

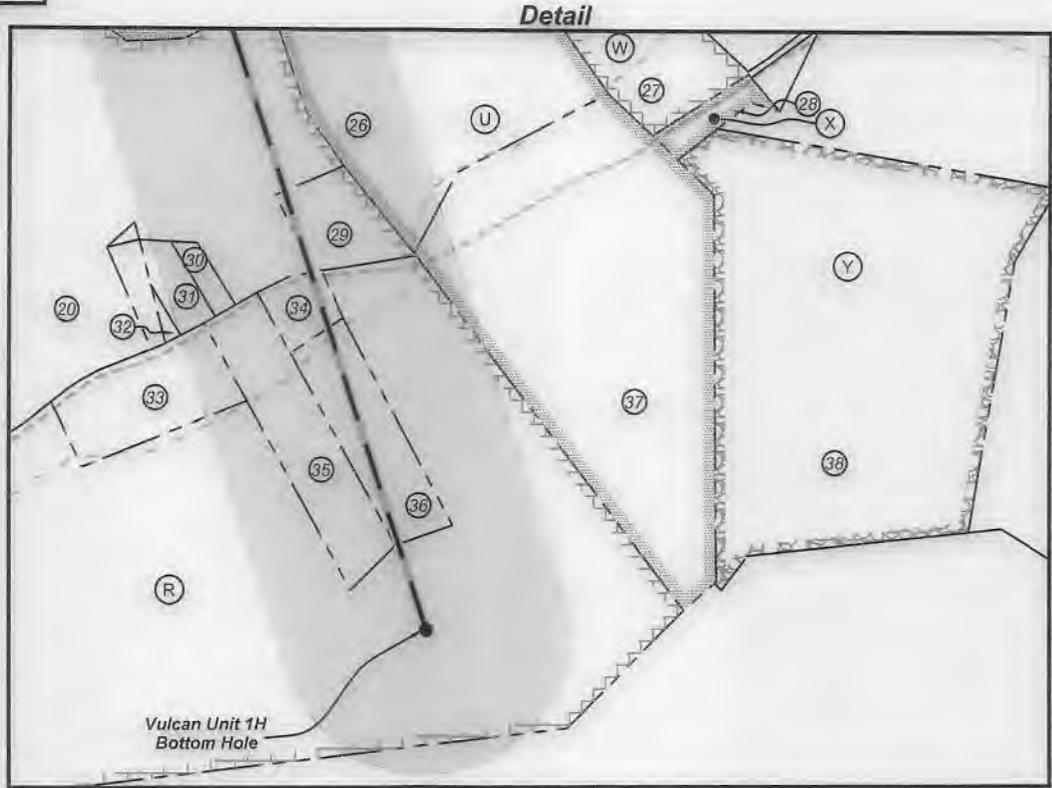
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(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler 45; 79.042; 177; 79.919; 22.95; 69.50; 90; 222; 65; 97.2; 271

SURFACE OWNER: Richard D. Pyles Ronald P. Webb; Richard L. White, II; Kendra K. Wyke; Ridgetop Capital II, LP (2); BRC Appalachian Minerals I, LLC; Anthony Bruce Parr; ACREAGE: 168.5
ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Sitko, et ux; William S. Nash, et al; Helen E. Boggs; LEASE NO: ACREAGE: 97.2; 271

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD 7,100' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 23,100' MD

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26	28-32	B.W. Weekley	107/562	33.31
27	28-43	Wanda J. Parr	327/435	8.02
28	28-42	Robert H. Anderson	238/76	0.99
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36	28-31.2	David Lantz & Rita Parr	618/689	4.00
37	28-33	B.W. Weekley	107/562	25.30
38	28-35	Shirl N. Baker Jr.	WB 38/1	32.00

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P	Carol J. Knapp
Q	Anthony Bruce Parr, et ux
R	Kendra K. Wyke
S	OPEN
T	Nancy L. Mains
U	Richard Lee White, II
V	Larry Stevens
W	Wanda J. Parr
X	Lucille Adams
Y	Bounty Minerals, LLC

FILE NO: 189-54-E-19
DRAWING NO: Vulcan Unit 1H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY:
Submeter
PROVEN SOURCE OF ELEVATION:
WVDOT, Harrisville, WV

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

DATE: July 30 2020
OPERATOR'S WELL NO. Vulcan 1H
API WELL NO MOD1
47 - 095 - 02701
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler 45; 79.042;
SURFACE OWNER: Richard D. Pyles Ronald P. Webb; Richard L. White, II; Kendra K. Wyke; ACREAGE: 168.5 177; 79.919;
ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Sitko, et ux; William S. Nash, et al; Helen E. Boggs. LEASE NO: ACREAGE: 22.95; 69.50;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION 90; 222; 65;
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD 97.2; 271
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,100' TVD
23,100' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
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