

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-085-10100 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Noland Pad Field/Pool Name -----
Farm name Darrell A. Noland, et al Well Number Penns Park Unit 2H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4349952m Easting 501886m
Landing Point of Curve Northing 4350431.99m Easting 501704.97m
Bottom Hole Northing 4352002m Easting 501067m

Elevation (ft) 1143' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air - Foam & 4% KCL
Mud - Polymer

Date permit issued 6/24/2014 Date drilling commenced 3/16/2015 Date drilling ceased 6/24/2015
Date completion activities began 3/8/2016 Date completion activities ceased 5/9/2016
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 124', 216' Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths N

Is coal seam being mined? Y
APPROVED
NAME: Michael Laff
DATE: 12-21-2016

Received
Office of Oil & Gas
JUL 18 2016
Reviewed by: _____

API 47-085 - 10100 Farm name Darrell A. Noland, et al Well number Penns Park Unit 2H

| CASING STRINGS | Hole Size | Casing Size | Depth | New or Used | Grade wt/ft | Basket Depth(s) | Did cement circulate (Y/N) * Provide details below* |
|---------------------------|---------------|-------------|---------|-------------|-------------|-----------------|--|
| Conductor | 30" | 20" | 40' | New | 94#/H-40 | N/A | Y |
| Surface | 17-1/2" | 13-3/8" | 596' | New | 54.5#/J-55 | N/A | Y |
| Coal | | | | | | | |
| Intermediate 1 | 12-1/4" | 9-5/8" | 2493' | New | 36#/J-55 | N/A | Y |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 8-3/4"/8-1/2" | 5-1/2" | 13,402' | New | 20#/P-110 | N/A | Y |
| Tubing | | 2-3/8" | 6463' | | 5.95#/N-80 | | |
| Packer type and depth set | | N/A | | | | | |

Comment Details _____

| CEMENT DATA | Class/Type of Cement | Number of Sacks | Slurry wt (ppg) | Yield (ft ³ /sks) | Volume (ft ³) | Cement Top (MD) | WOC (hrs) |
|----------------|----------------------|--------------------------------|--------------------------|------------------------------|---------------------------|--------------------------------|-----------|
| Conductor | Class A | 193 sx | 15.6 | 1.18 | 38 Cu. Ft. | 0' | 8 Hrs. |
| Surface | Class A | 710 sx | 15.6 | 1.18 | 414 Cu. Ft. | 0' | 8 Hrs. |
| Coal | | | | | | | |
| Intermediate 1 | Class A | 975 sx | 15.6 | 1.18 | 781 Cu. Ft. | 0' | 8 Hrs. |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | Class H | 1046 sx (Lead), 1271 sx (Tail) | 14.5 (Lead), 15.2 (Tail) | 1.30 (Lead), 1.85 (Tail) | 2614 Cu. Ft. | ~500' into Intermediate Casing | 8 Hrs. |
| Tubing | | | | | | | |

Drillers TD (ft) 13,402' MD, 6410' TVD (BHL), 6420' TVD (Deepest Point Drilled) Loggers TD (ft) 13,402' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5772'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor - 0
 Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface
 Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface
 Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

Received
Office of Oil & Gas
JUL 18 2016

API 47- 085 - 10100 Farm name Darrell A. Noland, et al Well number Penns Park Unit 2H

PERFORATION RECORD

| Stage No. | Perforation date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formation(s) |
|-----------|------------------|------------------------|------------------------|------------------------|--------------|
| | | | | | |
| | | | SEE ATTACHED EXHIBIT 1 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

| Stage No. | Stimulations Date | Ave Pump Rate (BPM) | Ave Treatment Pressure (PSI) | Max Breakdown Pressure (PSI) | ISIP (PSI) | Amount of Proppant (lbs) | Amount of Water (bbls) | Amount of Nitrogen/other (units) |
|-----------|-------------------|---------------------|------------------------------|------------------------------|------------|--------------------------|------------------------|----------------------------------|
| | | | | | | | | |
| | | | SEE ATTACHED EXHIBIT 2 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Received
Office of Oil & Gas

JUL 18 2016

Please insert additional pages as applicable.

API 47- 085 - 10100 Farm name Darrell A. Noland, et al Well number Penns Park Unit 2H

| <u>PRODUCING FORMATION(S)</u> | <u>DEPTHS</u> | |
|-------------------------------|-----------------|----------------|
| Marcellus | 6394' (Top) TVD | 6830' (Top) MD |
| | | |
| | | |
| | | |

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 9904 mcfpd Oil 184 bpd NGL --- bpd Water 1129 bpd GAS MEASURED BY Estimated Orifice Pilot

| LITHOLOGY/ FORMATION | TOP | BOTTOM | TOP | BOTTOM | DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC) |
|-------------------------------|-------------------------|--------------------|-------------------|-------------------|--|
| | DEPTH IN FT NAME TVD | DEPTH IN FT TVD | DEPTH IN FT MD | DEPTH IN FT MD | |
| | 0 | | 0 | | |
| SEE ATTACHED EXHIBIT 3 | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please insert additional pages as applicable.


Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Road City Williamsport State PA Zip 17701

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Nabors Completion & Production Services, Co. (bought Superior)
Address 1650 Hackers Creeks City Jane Lew State WV Zip 26378

Stimulating Company US Well Services
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Natalie Komp Telephone 303-357-6820
Signature  Title Permitting Agent Date 7/11/2016

Received
Office of Oil & Gas
JUL 18 2016

API 47-085-10100 Farm Name Darrell A. Noland, et al Well Number Penns Park Unit 2H

EXHIBIT 1

| Stage No. | Perforation Date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formations |
|-----------|------------------|------------------------|----------------------|------------------------|------------|
| 1 | 8-Mar-16 | 13,144 | 13,310 | 60 | Marcellus |
| 2 | 26-Mar-16 | 12,946 | 13,113 | 60 | Marcellus |
| 3 | 27-Mar-16 | 12,749 | 12,915 | 60 | Marcellus |
| 4 | 27-Mar-16 | 12,552 | 12,718 | 60 | Marcellus |
| 5 | 27-Mar-16 | 12,354 | 12,521 | 60 | Marcellus |
| 6 | 27-Mar-16 | 12,157 | 12,324 | 60 | Marcellus |
| 7 | 28-Mar-16 | 11,960 | 12,126 | 60 | Marcellus |
| 8 | 28-Mar-16 | 11,763 | 11,929 | 60 | Marcellus |
| 9 | 28-Mar-16 | 11,565 | 11,732 | 60 | Marcellus |
| 10 | 28-Mar-16 | 11,368 | 11,534 | 60 | Marcellus |
| 11 | 29-Mar-16 | 11,171 | 11,337 | 60 | Marcellus |
| 12 | 29-Mar-16 | 10,974 | 11,140 | 60 | Marcellus |
| 13 | 29-Mar-16 | 10,776 | 10,943 | 60 | Marcellus |
| 14 | 29-Mar-16 | 10,579 | 10,745 | 60 | Marcellus |
| 15 | 30-Mar-16 | 10,382 | 10,548 | 60 | Marcellus |
| 16 | 30-Mar-16 | 10,184 | 10,351 | 60 | Marcellus |
| 17 | 30-Mar-16 | 9,987 | 10,154 | 60 | Marcellus |
| 18 | 30-Mar-16 | 9,790 | 9,956 | 60 | Marcellus |
| 19 | 31-Mar-16 | 9,593 | 9,759 | 60 | Marcellus |
| 20 | 31-Mar-16 | 9,395 | 9,562 | 60 | Marcellus |
| 21 | 31-Mar-16 | 9,198 | 9,364 | 60 | Marcellus |
| 22 | 31-Mar-16 | 9,001 | 9,167 | 60 | Marcellus |
| 23 | 1-Apr-16 | 8,803 | 8,970 | 60 | Marcellus |
| 24 | 1-Apr-16 | 8,606 | 8,773 | 60 | Marcellus |
| 25 | 1-Apr-16 | 8,409 | 8,575 | 60 | Marcellus |
| 26 | 1-Apr-16 | 8,212 | 8,378 | 60 | Marcellus |
| 27 | 1-Apr-16 | 8,014 | 8,181 | 60 | Marcellus |
| 28 | 2-Apr-16 | 7,817 | 7,983 | 60 | Marcellus |
| 29 | 2-Apr-16 | 7,620 | 7,786 | 60 | Marcellus |
| 30 | 3-Apr-16 | 7,422 | 7,589 | 60 | Marcellus |
| 31 | 3-Apr-16 | 7,225 | 7,392 | 60 | Marcellus |
| 32 | 3-Apr-16 | 7,028 | 7,194 | 60 | Marcellus |
| 33 | 3-Apr-16 | 6,831 | 6,997 | 60 | Marcellus |

Received
Office of Oil & Gas
JUL 18 2016

EXHIBIT 2

| Stage No. | Stimulations Date | Avg Pump Rate | Avg Treatment Pressure (PSI) | Max Breakdown Pressure (PSI) | ISIP (PSI) | Amount of Proppant (lbs) | Amount of Water (bbls) | Amount of Nitrogen/ other (units) |
|-----------|-------------------|---------------|------------------------------|------------------------------|--------------|--------------------------|------------------------|-----------------------------------|
| 1 | 26-Mar-16 | 72.7 | 6,751 | N/A | 4,431 | 299,150 | 7,826 | N/A |
| 2 | 26-Mar-16 | 70.8 | 6,442 | 6,077 | 4,983 | 299,600 | 7,795 | N/A |
| 3 | 27-Mar-16 | 71.0 | 6,384 | 5,916 | 4,283 | 299,355 | 7,771 | N/A |
| 4 | 27-Mar-16 | 72.5 | 6,531 | 6,016 | 4,338 | 296,195 | 7,735 | N/A |
| 5 | 27-Mar-16 | 73.3 | 6,549 | 5,507 | 4,380 | 299,450 | 7,844 | N/A |
| 6 | 27-Mar-16 | 71.9 | 6,515 | 6,066 | 5,070 | 292,150 | 7,704 | N/A |
| 7 | 28-Mar-16 | 73.0 | 6,602 | 5,920 | 4,227 | 298,390 | 8,700 | N/A |
| 8 | 28-Mar-16 | 73.0 | 6,524 | 6,083 | 4,809 | 295,080 | 7,699 | N/A |
| 9 | 28-Mar-16 | 73.0 | 6,585 | 5,843 | 4,568 | 298,570 | 7,670 | N/A |
| 10 | 28-Mar-16 | 72.0 | 6,416 | 6,113 | 4,314 | 300,600 | 7,694 | N/A |
| 11 | 29-Mar-16 | 71.0 | 6,306 | 5,910 | 4,772 | 298,770 | 7,840 | N/A |
| 12 | 29-Mar-16 | 73.1 | 6,321 | 5,429 | 4,732 | 296,100 | 7,642 | N/A |
| 13 | 29-Mar-16 | 73.9 | 6,428 | 5,896 | 4,784 | 297,800 | 7,596 | N/A |
| 14 | 29-Mar-16 | 73.0 | 6,284 | 5,357 | 4,693 | 299,030 | 7,627 | N/A |
| 15 | 30-Mar-16 | 73.0 | 6,350 | 5,944 | 4,232 | 298,760 | 7,598 | N/A |
| 16 | 30-Mar-16 | 70.0 | 6,165 | 6,676 | 4,811 | 299,500 | 7,599 | N/A |
| 17 | 30-Mar-16 | 73.0 | 6,433 | 6,839 | 3,414 | 299,610 | 7,594 | N/A |
| 18 | 30-Mar-16 | 74.0 | 6,316 | 6,737 | 4,385 | 298,870 | 7,561 | N/A |
| 19 | 31-Mar-16 | 75.0 | 6,392 | 7,304 | 4,796 | 299,220 | 7,562 | N/A |
| 20 | 31-Mar-16 | 75.0 | 6,459 | 7,031 | 4,299 | 299,450 | 7,584 | N/A |
| 21 | 31-Mar-16 | 75.6 | 6,539 | 6,691 | 4,267 | 298,650 | 7,532 | N/A |
| 22 | 31-Mar-16 | 75.0 | 6,280 | 5,368 | 4,232 | 299,480 | 7,513 | N/A |
| 23 | 1-Apr-16 | 75.0 | 6,321 | 5,251 | 3,536 | 299,020 | 7,508 | N/A |
| 24 | 1-Apr-16 | 73.0 | 6,293 | 5,529 | 3,718 | 299,690 | 7,508 | N/A |
| 25 | 1-Apr-16 | 75.3 | 6,858 | 6,365 | 4,056 | 265,500 | 8,654 | N/A |
| 26 | 1-Apr-16 | 74.2 | 5,954 | 5,804 | 4,011 | 299,600 | 7,473 | N/A |
| 27 | 1-Apr-16 | 75.0 | 6,080 | 6,021 | 4,727 | 298,920 | 7,449 | N/A |
| 28 | 2-Apr-16 | 75.0 | 6,299 | 6,051 | 4,560 | 299,160 | 7,438 | N/A |
| 29 | 2-Apr-16 | 74.8 | 6,366 | 5,783 | 5,119 | 299,250 | 8,887 | N/A |
| 30 | 3-Apr-16 | 73.5 | 6,156 | 6,409 | 4,914 | 298,800 | 7,428 | N/A |
| 31 | 3-Apr-16 | 74.9 | 6,234 | 6,523 | 4,611 | 300,350 | 7,411 | N/A |
| 32 | 3-Apr-16 | 75.0 | 6,074 | 5,495 | 4,498 | 299,425 | 7,391 | N/A |
| 33 | 3-Apr-16 | 75.0 | 6,388 | 6,261 | 3,115 | 298,800 | 7,365 | N/A |
| AVG= | | 73.5 | 6,382 | 6,069 | 4,415 | 9,822,295 | 254,198 | TOTAL |

Received
Office of Oil & Gas
JUL 18 2016

EXHIBIT 3

| LITHOLOGY/ FORMATION | TOP DEPTH (TVD) | BOTTOM DEPTH (TVD) | TOP DEPTH (MD) | BOTTOM DEPTH (MD) |
|----------------------|-----------------|--------------------|----------------|-------------------|
| | From Surface | From Surface | From Surface | From Surface |
| Fresh Water | 124 | N/A | 124 | N/A |
| Fresh Water | 216 | N/A | 216 | N/A |
| Siltstone/Sandstone | 0 | 139 | 0 | 139 |
| Sandstone | 139 | 219 | 139 | 219 |
| Shale | 219 | 359 | 219 | 359 |
| Siltstone/Shale | 359 | 399 | 359 | 399 |
| Trace Coal | 399 | 659 | 399 | 659 |
| Siltstone | 659 | 699 | 659 | 699 |
| Sandstone | 699 | 739 | 699 | 739 |
| Siltstone/Shale | 739 | 759 | 739 | 759 |
| Sandstone | 759 | 779 | 759 | 779 |
| Shale/Limestone | 779 | 819 | 779 | 819 |
| Siltstone | 819 | 879 | 819 | 879 |
| Shale | 879 | 959 | 879 | 959 |
| Shale | 959 | 999 | 959 | 999 |
| Shale/Limestone | 999 | 1,259 | 999 | 1,259 |
| Siltstone/Shale | 1,259 | 1,359 | 1,259 | 1,359 |
| Sandstone | 1,359 | 1,579 | 1,359 | 1,579 |
| Sandstone | 1,579 | 2,016 | 1,579 | 2,017 |
| Big Lime | 2,016 | 2,882 | 2,017 | 2,884 |
| Fifty Foot Sandstone | 2,882 | 3,005 | 2,884 | 3,006 |
| Gordon | 3,005 | 3,409 | 3,006 | 3,411 |
| Fifth Sandstone | 3,409 | 3,466 | 3,411 | 3,468 |
| Bayard | 3,466 | 3,962 | 3,468 | 3,963 |
| Speechley | 3,962 | 4,218 | 3,963 | 4,219 |
| Baltown | 4,218 | 4,660 | 4,219 | 4,661 |
| Bradford | 4,660 | 5,022 | 4,661 | 5,024 |
| Benson | 5,022 | 5,246 | 5,024 | 5,248 |
| Alexander | 5,246 | 6,145 | 5,248 | 6,191 |
| Sycamore | 6,145 | 6,230 | 6,191 | 6,308 |
| Middlesex | 6,230 | 6,321 | 6,308 | 6,454 |
| Burkett | 6,321 | 6,357 | 6,454 | 6,545 |
| Tully | 6,357 | 6,394 | 6,545 | 6,830 |
| Marcellus | 6,394 | NA | 6,830 | NA |

Received
Office of Oil & Gas
JUL 18 2016

Hydraulic Fracturing Fluid Product Component Information Disclosure

| | |
|--------------------------------|------------------------------|
| Job Start Date: | 3/26/2016 |
| Job End Date: | 4/3/2016 |
| State: | West Virginia |
| County: | Ritchie |
| API Number: | 47-085-10100-00-00 |
| Operator Name: | Antero Resources Corporation |
| Well Name and Number: | Penns Park 2H |
| Latitude: | 39.29894610 |
| Longitude: | -80.97812860 |
| Datum: | NAD83 |
| Federal Well: | NO |
| Indian Well: | NO |
| True Vertical Depth: | 6,425 |
| Total Base Water Volume (gal): | 11,048,010 |
| Total Base Non Water Volume: | 0 |



Hydraulic Fracturing Fluid Composition:

| Trade Name | Supplier | Purpose | Ingredients | Chemical Abstract Service Number (CAS #) | Maximum Ingredient Concentration in Additive (% by mass)** | Maximum Ingredient Concentration in HF Fluid (% by mass)** | Comments |
|------------------------|-------------------------|------------------|---|--|--|--|----------|
| Water | Antero Resources | Base Fluid | | | | | |
| Sand | J.S. Well Services, LLC | Proppant | | | 100.00000 | 85.72483 | |
| HCL Acid (12.6%-18.0%) | J.S. Well Services, LLC | Bulk Acid | Crystalline Silica, quartz | 14808-60-7 | 100.00000 | 13.90604 | |
| LGC-15 | J.S. Well Services | Gelling Agents | | | | | |
| | | | Water | 7732-18-5 | 87.50000 | 0.13396 | |
| | | | Hydrogen Chloride | 7647-01-0 | 18.00000 | 0.03200 | |
| | | | Guar Gum | 9000-30-0 | 50.00000 | 0.05327 | |
| | | | Petroleum Distillates | 64742-47-8 | 60.00000 | 0.05045 | |
| | | | Suspending agent (solid) | 14808-60-7 | 3.00000 | 0.00815 | |
| | | | Surfactant | 68439-51-0 | 3.00000 | 0.00320 | |
| WFRA-405 | J.S. Well Services | Friction Reducer | | | | | |
| | | | Water | 7732-18-5 | 60.00000 | 0.03152 | |
| | | | 2-Propenoic acid, polymer with 29003-06-9 propanamide | 29003-06-9 | 30.00000 | 0.01576 | |
| | | | Hydrated light distillate (petroleum) | 64742-47-8 | 30.00000 | 0.01269 | |

Office of Oil & Gas
 JUL 18 2016

| | | | | | | |
|------------|--------------------|---------------------------|---|------------|-----------|---------|
| SI-1100 | U.S. Well Services | Scale Inhibitor | Ethoxylated alcohol blend | 68002-97-1 | 4.00000 | 0.00210 |
| | | | Water | 7732-18-5 | 80.00000 | 0.00982 |
| | | | Ethylene Glycol | 107-21-1 | 25.00000 | 0.00347 |
| | | | Copolymer of Maleic and Acrylic acid | 52255-49-9 | 10.00000 | 0.00145 |
| | | | Potassium salt of diethylene triamine penta (methylene phosphonic acid) | 15827-60-8 | 7.50000 | 0.00124 |
| | | | Hexamethylene tramine penta (methylene phosphonic acid) | 34690-00-1 | 5.00000 | 0.00080 |
| | | | Phosphino carboxylic acid polymer | 71050-62-9 | 5.00000 | 0.00080 |
| | | | Hexamethylene diamine penta (methylene phosphonic acid) | 23605-74-5 | 2.00000 | 0.00032 |
| X-BAC 1020 | U.S. Well Services | Anti-Bacterial Agent | 2,2-dibromo-3-nitropropionamide | 10222-01-2 | 20.00000 | 0.00401 |
| | | | Deionized Water | 7732-18-5 | 28.00000 | 0.00229 |
| AP One | U.S. Well Services | Gel Breakers | Ammonium Persulfate | 7727-54-0 | 100.00000 | 0.00153 |
| AI-302 | U.S. Well Services | Acid Corrosion Inhibitors | Water | 7732-18-5 | 95.00000 | 0.00029 |
| | | | 2-Propyn-1-ol compound with methylcycirane | 38172-91-7 | 15.00000 | 0.00005 |

Ingredients shown above are subject to 29 CFR 1910.1200(f) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
 ** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
 Ingredient information for chemicals subject to 29 CFR 1910.1200(f) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Received
 Office of Oil & Gas
 APR 18 2016



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

July 13, 2016

West Virginia Department of Environmental Protection
Office of Oil and Gas
Attn: John Kearney
601 57th Street
Charleston, WV 25304

Mr. Kearney:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report) and corresponding logs for the following well:

- Knoll Unit 1H (API# 47-085-10098) – Noland Pad
- Knoll Unit 2H (API# 47-085-10181) – Noland Pad
- Penns Park Unit 1H (API# 47-085-10099) – Noland Pad
- Penns Park Unit 2H (API# 47-085-02182) – Noland Pad 47-085-10100
- Owo Unit 1H (API# 47-095-02179) – Coastal 1 Pad
- Owo Unit 2H (API# 47-095-02180) – Coastal 1 Pad
- James Gray Unit 1H (API# 47-095-02187) – Coastal 1 Pad

If you have any questions please feel free to contact me at (303) 357-6820.

Sincerely,

Natalie Komp
Permitting Agent
Antero Resources Corporation

Enclosures

Received
Office of Oil & Gas
JUL 18 2016

LATITUDE 39°20'00"

5,650'

LATITUDE 39°20'00"

LONGITUDE 80°57'30"

12,554'

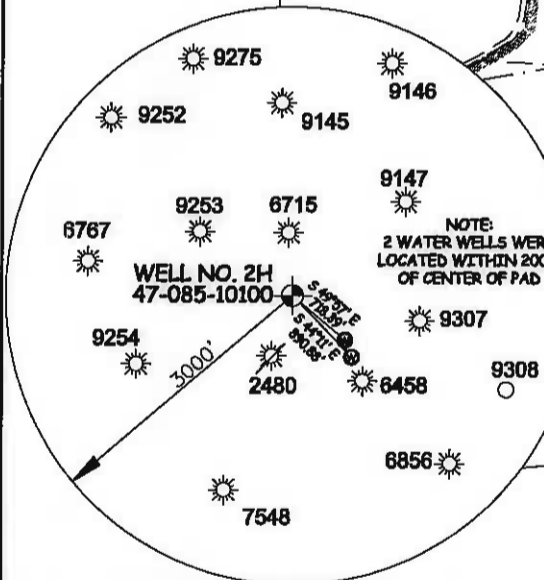
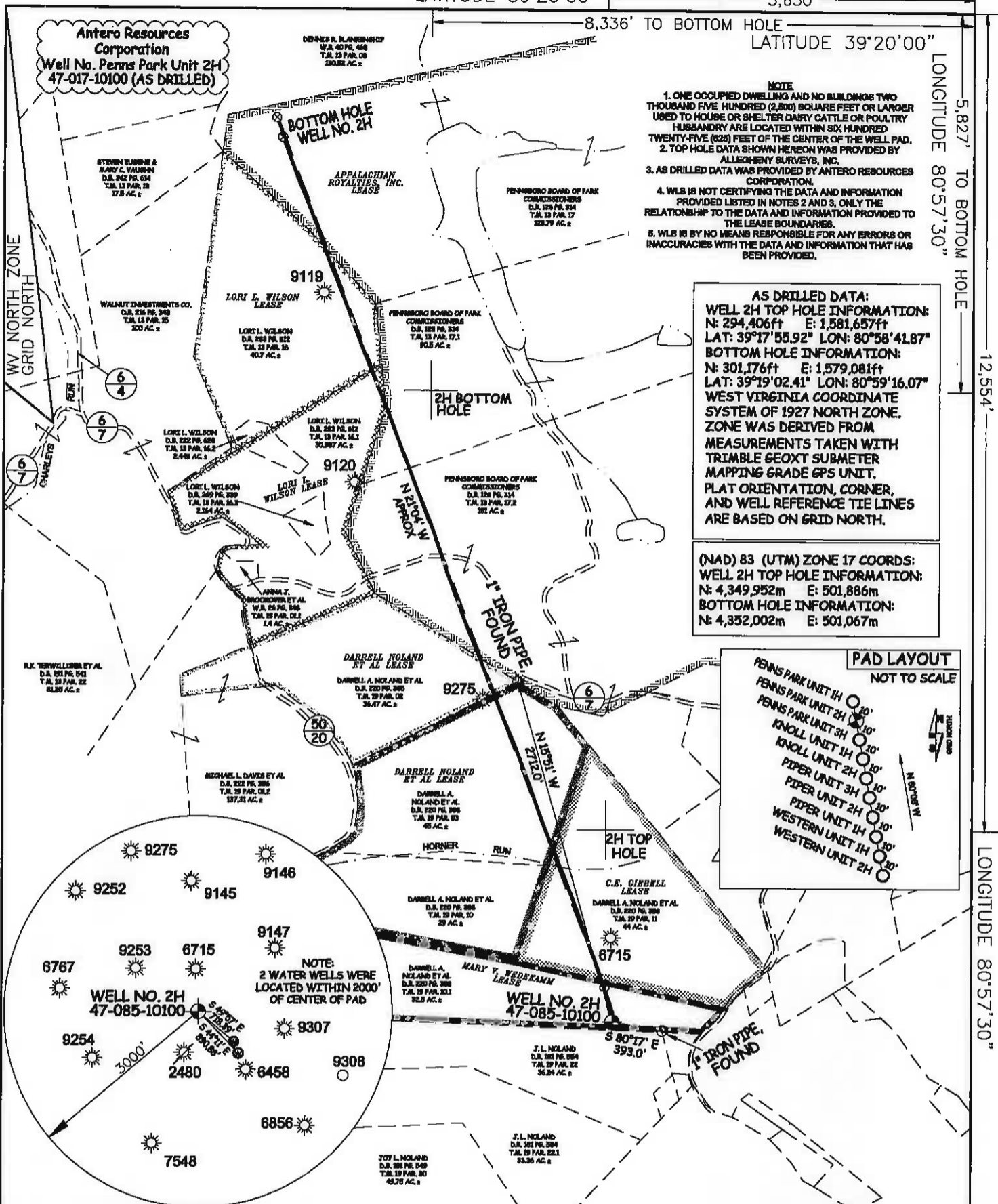
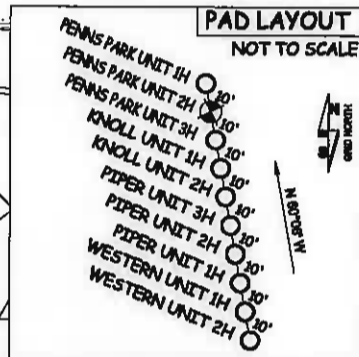
LONGITUDE 80°57'30"

Antero Resources Corporation
Well No. Penns Park Unit 2H
47-017-10100 (AS DRILLED)

- NOTE
- ONE OCCUPIED DWELLING AND NO BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 294,406ft E: 1,581,657ft
LAT: 39°17'55.92" LON: 80°58'41.87"
BOTTOM HOLE INFORMATION:
N: 301,176ft E: 1,579,081ft
LAT: 39°19'02.41" LON: 80°59'16.07"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,349,952m E: 501,886m
BOTTOM HOLE INFORMATION:
N: 4,352,002m E: 501,067m



JCB # 13-010WA
DRAWING # PENNSPARK2HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



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

WILLOW LAND SURVEYING PLLC
266 HUSHERS RUN RD PENNSBORO WEST VIRGINIA 26415

- LEGEND
- Surface Owner Boundary Lines +/-
 - Interior Surface Tracts +/-
 - Existing Fence
 - Found monument, as noted
 - Proposed Well Path
 - As Drilled Well Path

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

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

LOCATION: ELEVATION 1,159' ORIGINAL - 1,143' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE

SURFACE OWNER DARRELL A. NOLAND ET AL ACREAGE 32.5 ACRES +/-
OIL & GAS ROYALTY OWNER MARY V. WEDDEKAMP, C.E. GEBEL; DARRELL NOLAND ET AL; DARRELL NOLAND ET AL; LORI L. WILSON; LORI L. WILSON; APPALACHIAN ROYALTIES INC. LEASE ACREAGE 32.5 ACRES; 44 ACRES; 74 ACRES; 40 ACRES; 42 ACRES; 40 ACRES; 372.5 ACRES

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,410' TVD 13,402' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1815 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

LATITUDE 39°20'00"

5,650'

LATITUDE 39°20'00"

LONGITUDE 80°57'30"

5,827' TO BOTTOM HOLE

12,554'

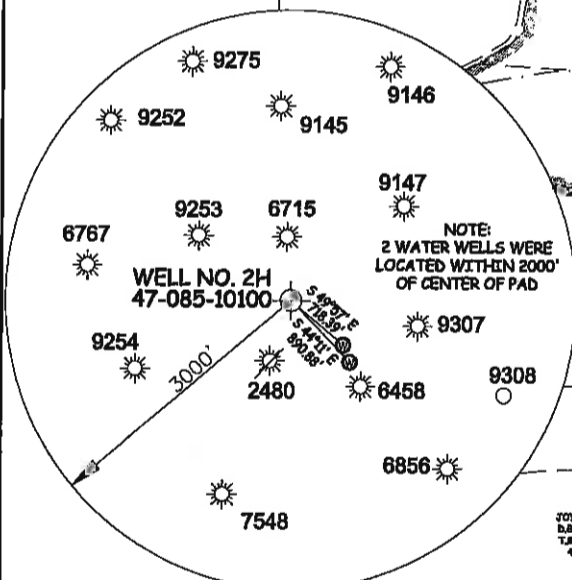
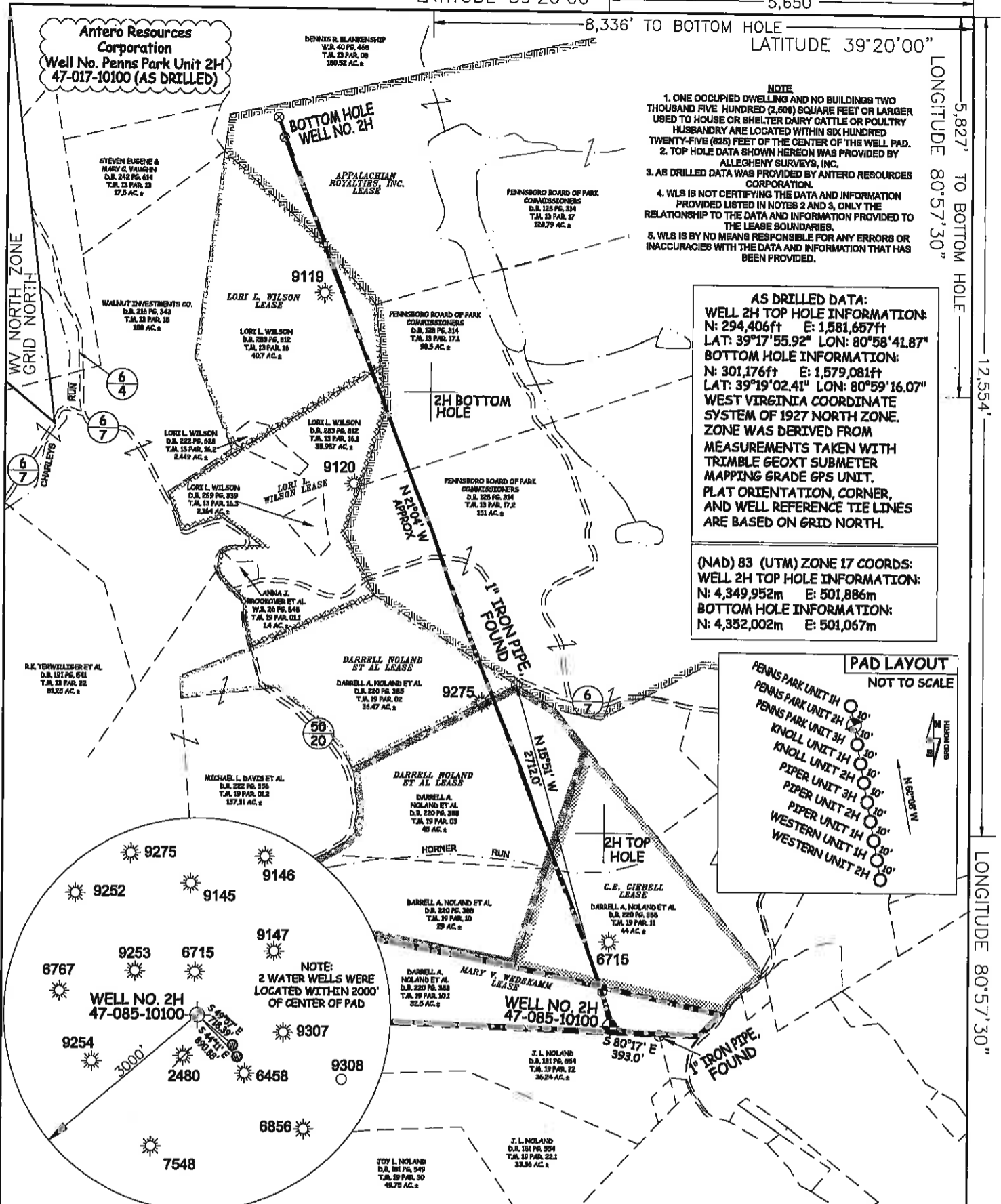
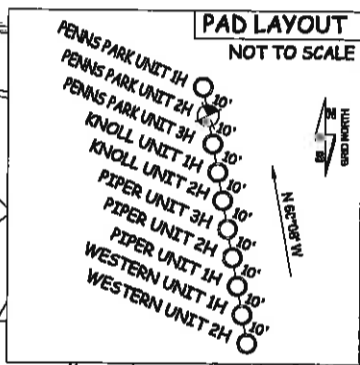
LONGITUDE 80°57'30"

Antero Resources Corporation
Well No. Penns Park Unit 2H
47-017-10100 (AS DRILLED)

- NOTE
- ONE OCCUPIED DWELLING AND NO BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 294,406ft E: 1,581,657ft
LAT: 39°17'55.92" LON: 80°58'41.87"
BOTTOM HOLE INFORMATION:
N: 301,176ft E: 1,579,081ft
LAT: 39°19'02.41" LON: 80°59'16.07"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,349,952m E: 501,886m
BOTTOM HOLE INFORMATION:
N: 4,352,002m E: 501,067m



JOB # 13-010WA
DRAWING # PENNSPARK2HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
266 HUSHERS RUN RD PENNSBORO WEST VIRGINIA 26415

LEGEND
--- Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
--- Existing Fence
--- Found monument, as noted
--- Proposed Well Path
--- As Drilled Well Path

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW
LOCATION: ELEVATION 1,159' ORIGINAL - 1,143' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER

DATE 09/22/15
OPERATOR'S WELL # PENNS PARK UNIT 2H
API WELL # 47 - 085 - 10100
STATE COUNTY PERMIT

SURFACE OWNER DARRELL A. NOLAND ET AL ACREAGE 32.5 ACRES +/-
OIL & GAS ROYALTY OWNER MARY V. WEDEKAMP, C.E. GIBBELL, DARRELL NOLAND ET AL, DARRELL NOLAND ET AL, LORI L. WILSON, LORI L. WILSON, APPALACHIAN ROYALTIES INC.
LEASE ACREAGE 32.5 ACRES +/- 44 ACRES +/- 74 ACRES +/- 40 ACRES +/- 42 ACRES +/- 40 ACRES +/- 372.5 ACRES +/-

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL ___
(SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 8,410' TVD 13,402' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT