

WR-35
Rev (9-11)

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

DATE: 4/2/13
API #: 47-085-09960

Farm name: Williamson, Andrew & Et Al Operator Well No.: Nicholson Unit 2H

LOCATION: Elevation: 1142' Quadrangle: Pullman 7.5'

District: Union County: Ritchie
Latitude: 2.675 Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 4.704 Feet West of 80 Deg. 52 Min. 30 Sec.

Company: Antero Resources Appalachian Corp

| Address: | Casing & Tubing | Used in drilling | Left in well | Cement fill up Cu. Ft. |
|--|-----------------|------------------|--------------|------------------------|
| 1625 17th Street Denver, CO 80202 | 20" 94# | 40' | 40' | 38 Cu. Ft Class A |
| Agent: CT Corporation System | 13-3/8" 54.5# | 334' | 334' | 464 Cu. Ft. Class A |
| Inspector: Sam Ward | 9-5/8" 36# | 2560' | 2560' | 1042 Cu. Ft. Class A |
| Date Permit Issued: <u>5/29/2012</u> | 5-1/2" 20# | 13,929' | 13,929' | 3399 Cu. Ft. Class H |
| Date Well Work Commenced: <u>7/13/2012</u> | | | | |
| Date Well Work Completed: <u>9/21/2012</u> | 2-3/8" 4.7# | 6816' | | |
| Verbal Plugging: <u>N/A</u> | | | | |
| Date Permission granted on: <u>N/A</u> | | | | |
| Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/> | | | | |
| Total Vertical Depth (ft): <u>6,630' TVD (deepest point drilled)</u> | | | | |
| Total Measured Depth (ft): <u>6621' TVD, 13,929' MD (BHL)</u> | | | | |
| Fresh Water Depth (ft.): <u>85'</u> | | | | |
| Salt Water Depth (ft.): <u>None</u> | | | | |
| Is coal being mined in area (N/Y)? <u>No</u> | | | | |
| Coal Depths (ft.): <u>No coal layers observed</u> | | | | |
| Void(s) encountered (N/Y) Depth(s) <u>No, N/A</u> | | | | |

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OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation N/A- Waiting on Pipeline Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow N/A Bbl/d
Final open flow _____ MCF/d Final open flow N/A Bbl/d
Time of open flow between initial and final tests N/A Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

Katherine
Signature

4/19/13
Date

4 06/12/2015
W.S. 6/02/15

Were core samples taken? Yes _____ No Were cuttings caught during drilling? Yes No _____Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes - CBL, Dual Laterolog/Gamma Ray, and Photo Density/Compensated Neutron/Gamma Ray

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 6,812 - 13,863' MD (1,488 holes)

Frac'd w/ 13,500 gals 15% HCL Acid, 146,592 bbls Slick Water carrying 736,700# 100 mesh, 2,650,200# 40/70 and 1,459,500# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

| Formations Encountered: | Top Depth | / | Bottom Depth |
|-------------------------|-----------|---|--------------|
| <u>Surface:</u> | | | |
| Big Lime | 2,115' | | 2,178' |
| Big Injun | 2,179' | | 2,462' |
| Gantz Sand | 2,463' | | 2,597' |
| Fifty Foot Sand | 2,598' | | 2,709' |
| Gordon | 2,710' | | 2,084' |
| Fifth Sandstone | 3,085' | | 3,191' |
| Bayard | 3,192' | | 3,961' |
| Speechley | 3,962' | | 4,165' |
| Balltown | 4,166' | | 4,636' |
| Bradford | 4,637' | | 5,027' |
| Benson | 5,028' | | 5,268' |
| Alexander | 5,269' | | 5,467' |
| Elk | 5,468' | | 5,815' |
| Rhinestreet | 5,816' | | 6,240' |
| Sycamore | 6,241' | | 6,410' |
| Middlesex | 6,411' | | 6,522' |
| Burket | 6,523' | | 6,555' |
| Tully | 6,556' | | 6,576' |
| Marcellus | 6,577' | | 6,630' TVD |

WELL NAME: Nicholson 2H
API #: 47-085-09960

List of Additives Used for Fracturing Or Stimulating Well

| ADDITIVES | CHEMICAL ABSTRACT SERVICE NUMBER (CAS #) |
|---|---|
| Petroleum Distillate Hydrotreated | 64742-47-8 |
| Mineral Spirits | 8052-41-3 |
| Ethoxylated Alcohols | 68551-12-2 |
| Propylene Glycol | 57-55-6 |
| SUPER TSC | Proprietary |
| Water | 7732-18-5 |
| Sodium Hydroxide | 1310-73-2 |
| Sodium Chloride | 7647-14-5 |
| Ammonium Persulfate | 7727-54-0 |
| Silica, Crystalline Quartz | 14808-60-7 |
| Solvent naphtha, (petroleum) heavy aliphatic | 64742-96-7 |
| 2,2-Dibromo-3-Nitrilopropionamide | 10222-01-2 |
| Polyethylene Glycol (PEG) | 25322-68-3 |
| Hydrochloric Acid | 7647-01-0 |
| Ethylene Glycol | 107-21-1 |
| Ethylene Glycol Monobutyl Ether (2-Butoxyethanol) | 111-76-2 |
| Propargyl Alcohol | 107-19-7 |
| Isopropanol (Isopropyl Alcohol) | 67-63-0 |
| Proprietary Blend | Proprietary |
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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Discharge Monitoring Report
Oil and Gas General Permit

Company Name: Antero Resources Appalachian Cooperation
API No: 47085099600000 County: Ritchie
District: Union Well No: Nicholson Unit 2H
Farm Name: Andrews Williamson
Discharge Date/s From:(MMDDYY) N/A To: (MMDDYY) N/A
Discharge Times. From: N/A To: N/A
Total Volume to be Disposed from this facility (gallons): 784644

Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: _____ (Include a topographical map of the Area.)
- (2) UIC: _____ Permit No. _____
- (3) Offsite Disposal: _____ Site Location: _____
- (4) Reuse: 784644 Alternate Permit Number: 47085099600000
- (5) Centralized Facility: _____ Permit No. _____
- (6) Other method: _____ (Include an explanation)

Follow Instructions below to determine your treatment category:

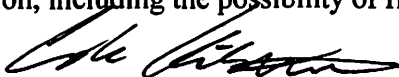
Optional Pretreatment test: N/A Cl- mg/l N/A DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?
(Y/N) N If yes, who? _____ and place a four (4) on line 7.
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) Y If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) N If yes, go to line 4
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) N/A If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) N If yes, go to line 6
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) N/A If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. 3 is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: Pit Integrity Good

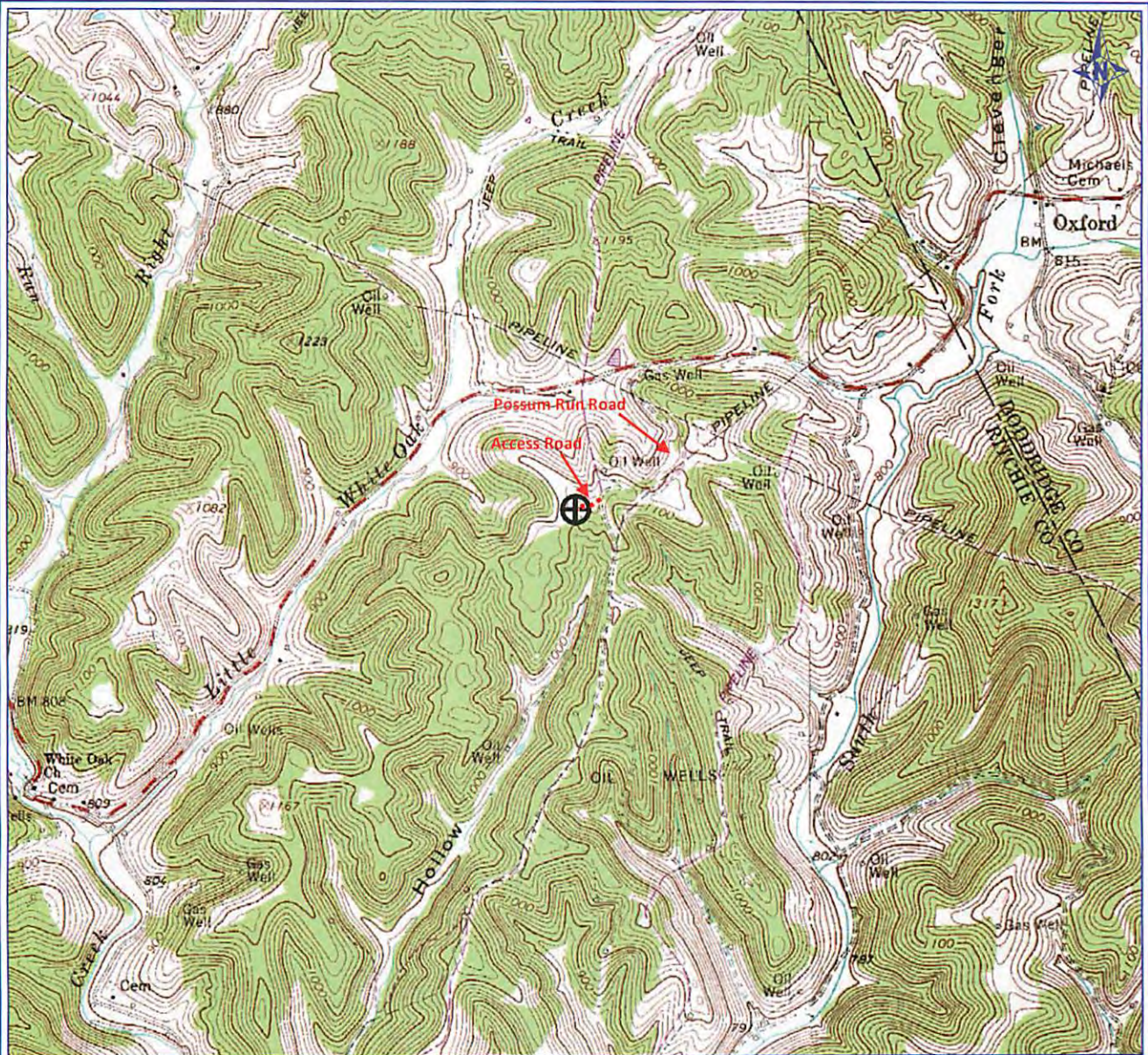
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2013 APR 22 P 1:50
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Name of Principal Exec. Officer: Cole Kilstrom
Title of Officer: Env. Specialist
Date Completed: 3/11/2013

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.



Signature of a Principal Exec. Officer or Authorized agent.



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WV Department of
Environmental Protection

Antero Resources Corporation

APPALACHIAN BASIN

Nicholson Unit 2H

RITCHIE COUNTY

REMARKS

QUADRANGLE: PULLMAN
WATERSHED: LITTLE WHITE OAK
DISTRICT: UNION



February 24, 2012

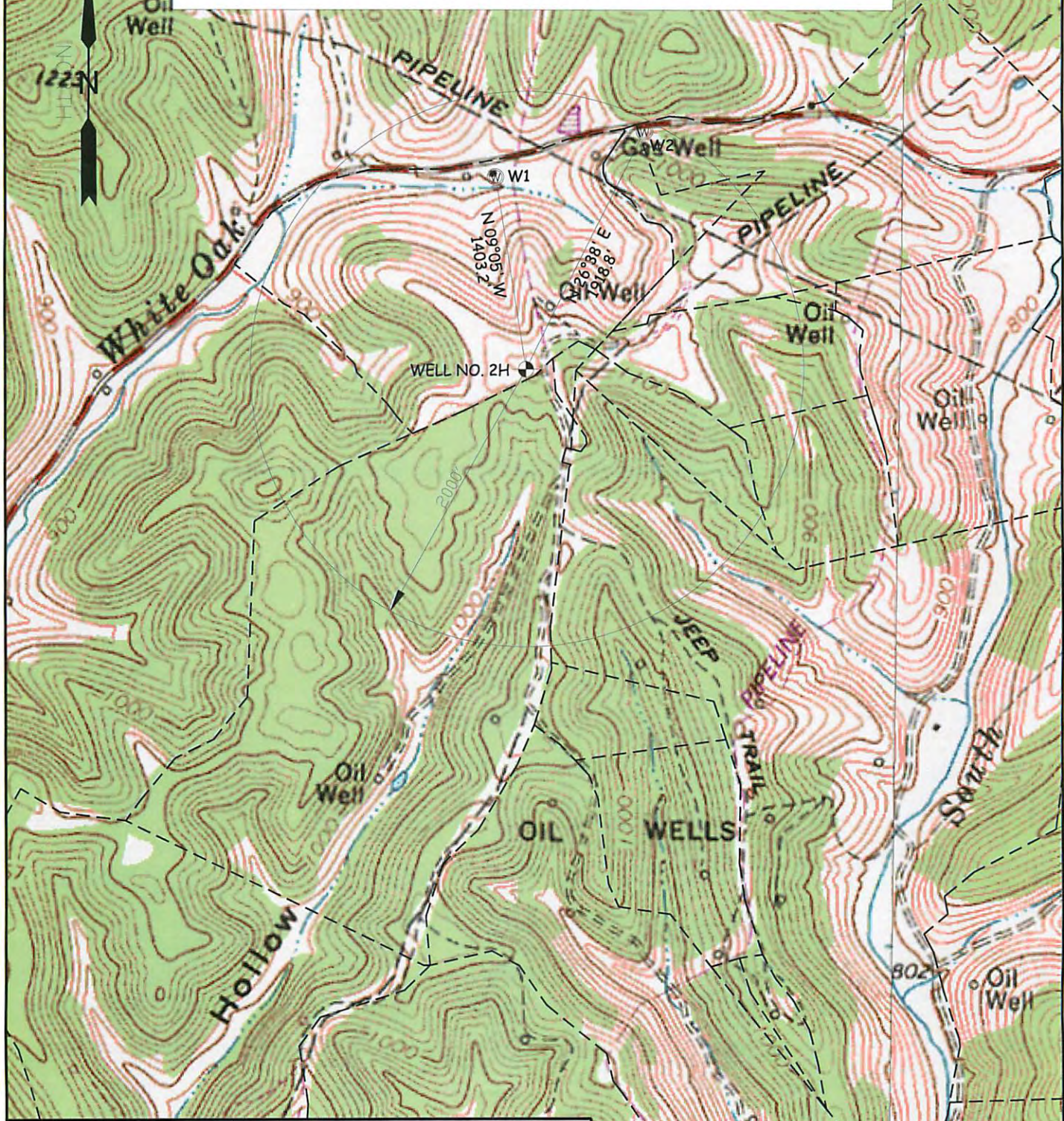
06/12/2015

85-9960

FORM WW-9

PAGE OF

ANTERO RESOURCES APPALACHAIN CORPORATION NICHOLSON UNIT #2H



| WELL | SURFACE OWNER | ADDRESS |
|------|-------------------|--|
| W1 | ANDREW WILLIAMSON | 731 FOUR MILE CREEK, BRANCLAND, WV 25506 |
| W2 | TRACY KNIGHT | P.O. BOX 138, PULLMAN, WV 26421 |

WILLOW LAND SURVEYING PLLC
 P.O. BOX 17, PENNSBORO, WV 26415
 (304) 659-1717

TOPO SECTION(S) OF :

 PULLMAN 7.5' QUAD
 OXFORD 7.5' QUAD

DATE: 02/15/11 DRAWN BY: DRR

SCALE : 1-INCH = 1000-FEET



06/12/2015

LATITUDE 39°12'30"

2,675'

LONGITUDE 80°52'30"

LONGITUDE 80°50'00"

11,062' TO BOTTOM HOLE

10,987' TO BOTTOM HOLE

LATITUDE 39°12'30"

Antero Resources Appalachian Corporation Well No. Nicholson Unit 2H

GEORGE P. BLACK
HEIRS ET AL
LEASE

ANDREW
WILLIAMSON ET AL
D.B. 263 PG. 314
T.M. 14 PAR. 2,2
93.81 AC. ±

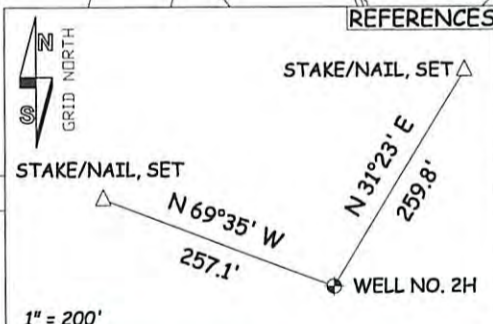
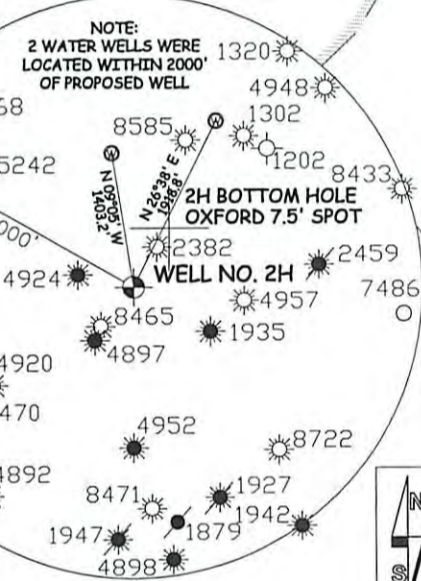
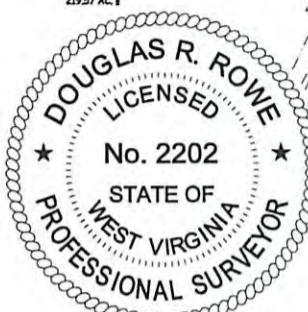
N:256786
E:1608144

TRACY DIGHT ET AL
D.B. 277 PG. 354
T.M. 9 PAR. 21
100 AC. ±

NOTES:
WELL 2H TOP HOLE INFORMATION:
N: 256,309ft E: 1,607,635ft
LAT: 39°11'43.5" LON: 80°53'04.0"
BOTTOM HOLE INFORMATION:
N: 249,898ft E: 1,611,038ft
LAT: 39°10'40.7" LON: 80°52'19.5"
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.

2H TOP HOLE
PULLMAN 7.5' SPOT

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,338,479m E: 509,994m
BOTTOM HOLE INFORMATION:
N: 4,336,543m E: 511,063m

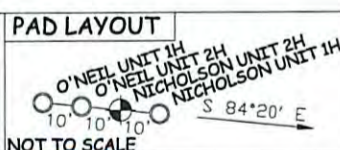


LEGEND

- Surface Owner Boundary Lines +/-
- - - Interior Surface Tracts +/-
- x - x - x - Existing Fence
- ⊕ Found monument, as noted

JOB # 12-006
DRAWING # NICHOLSONUNIT2H
SCALE 1" = 1000'
MINIMUM DEGREE OF
ACCURACY SUBMETER
PROVEN SOURCE OF ELEV.
SUBMETER MAPPING GRADE GPS

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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

DOUGLAS R. ROWE P.S. 2202

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

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1,142' WATERSHED LITTLE WHITE OAK CREEK

DATE 02/16/12
OPERATOR'S WELL# NICHOLSON UNIT #2H
API WELL # 47 - 085 - 9960
STATE COUNTY PERMIT

QUADRANGLE PULLMAN 7.5' (TH); OXFORD 7.5' (BH) DISTRICT UNION COUNTY RITCHIE
SURFACE OWNER ANDREW WILLIAMSON ET AL ACREAGE 93.81 ACRES +/-
OIL & GAS ROYALTY OWNER GEORGE P. BLACK HEIRS ET AL; NAOMI ALLENDER ET AL; CHUCK NICHOLSON; DAVID WEEKLEY ET AL LEASE ACREAGE 93 ACRES +/-; 27.91 ACRES ± 315 ACRES ±; 62.75 ACRES ±

PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR
STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) ___
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___ ESTIMATED DEPTH 6,900' TVD 15,100' MD
TARGET FORMATION MARCELLUS
WELL OPERATOR ANTERO RESOURCES APPALACHIAN CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1625 17TH STREET ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

02/12/2015