



---

west virginia department of environmental protection

---

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

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

PERMIT MODIFICATION APPROVAL  
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for MARKLE UNIT 2H  
47-095-02350-00-00

Lateral Extension

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.



James A. Martin  
Chief

Operator's Well Number: MARKLE UNIT 2H  
Farm Name: RITCHIE PETROLEUM INC.  
U.S. WELL NUMBER: 47-095-02350-00-00  
Horizontal 6A / Horizontal 6A Well - 1  
Date Issued: 9/14/2016

Promoting a healthy environment.

09/16/2016



June 8, 2016

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

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Attn: Mr. Taylor Brewer  
601 57<sup>th</sup> Street  
Charleston, WV 25304

Mr. Brewer:

Antero Resources Corporation (Antero) would like to submit the following permit modification for one approved well on the Terry Snider Pad. We are requesting to extend the horizontal lateral length which will change the bottom hole location of the Markle Unit 2H (API# 47-095-02350).

Please note:

- The Measured Depth has not changed; therefore, the Production Casing/Cement program on the revised Form WW-6B will remain the same.
- The revised lateral length and bottom hole location will not be drilling through any new leases; therefore, a revised Form WW-6A1 has not been included.

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised lateral length program
- REVISED Mylar Plat, which shows the new bottom hole location

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

Thank you in advance for your consideration.

Sincerely,

Natalie Komp  
Permitting Agent  
Antero Resources Corporation

RECEIVED  
Office of Oil and Gas

JUN 09 2016

WV Department of  
Environmental Protection

Enclosures

09/16/2016

WW-6B  
(04/15)

API NO. 47-095 - 02350  
 OPERATOR WELL NO. Markle Unit 2H  
 Well Pad Name: Existing Terry Snider Pad

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

1) Well Operator: Antero Resources Corp. 494507062 095 - Tyler Meade Pennsboro 7.5'  
 Operator ID County District Quadrangle

2) Operator's Well Number: Markle Unit 2H Well Pad Name: Existing Terry Snider Pad

3) Farm Name/Surface Owner: Ritchie Petroleum, Inc. Public Road Access: CR 20

4) Elevation, current ground: 1147' Elevation, proposed post-construction: 1147'

5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
 Other \_\_\_\_\_  
 (b) If Gas Shallow  Deep \_\_\_\_\_  
 Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s): 4709502350 M&P  
Marcellus Shale: 6700' TVD, Anticipated Thickness 75 feet, Associated Pressure 2800#

8) Proposed Total Vertical Depth: 6700'

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 16,500'

11) Proposed Horizontal Leg Length: 9206'

12) Approximate Fresh Water Strata Depths: 124', 376'

13) Method to Determine Fresh Water Depths: Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: 1968'

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

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

RECEIVED  
 Office of Oil and Gas  
 JUN 09 2016  
 WV Department of  
 Environmental Protection

WW-6B  
(04/15)

PERMIT MODIFICATION API# 47-095-02350  
 API NO. 47- 095 - 02350  
 OPERATOR WELL NO. Markle Unit 2H  
 Well Pad Name: Existing Terry Snider 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#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	430' *see #19	430'	CTS, 597 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2400'	2400'	CTS 977 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16500'	16500'	4160 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

4709502350 MDY

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"/0.33"	2730/1730	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"	0.361"	12630	2500	Lead-HPOZ & T&H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200			
Liners							

**PACKERS**

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

RECEIVED  
Office of Oil and Gas

JUN 09 2016

WV Department of  
Environmental Protection

WW-6B  
(10/14)

API NO. 47- 095 - 02350

OPERATOR WELL NO. Markle Unit 2H

Well Pad Name: Existing Terry Snider 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.

\*Antero will be air drilling the fresh water string which makes it difficult to determine when freshwater is encountered, therefore we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

**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."

Max Pressure - 9300 lbs

Max Rate - 80 bpm

**21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 38.07 acres with modification**

**22) Area to be disturbed for well pad only, less access road (acres): 6.64 existing 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.

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

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 + 0.5% C51.

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

**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,

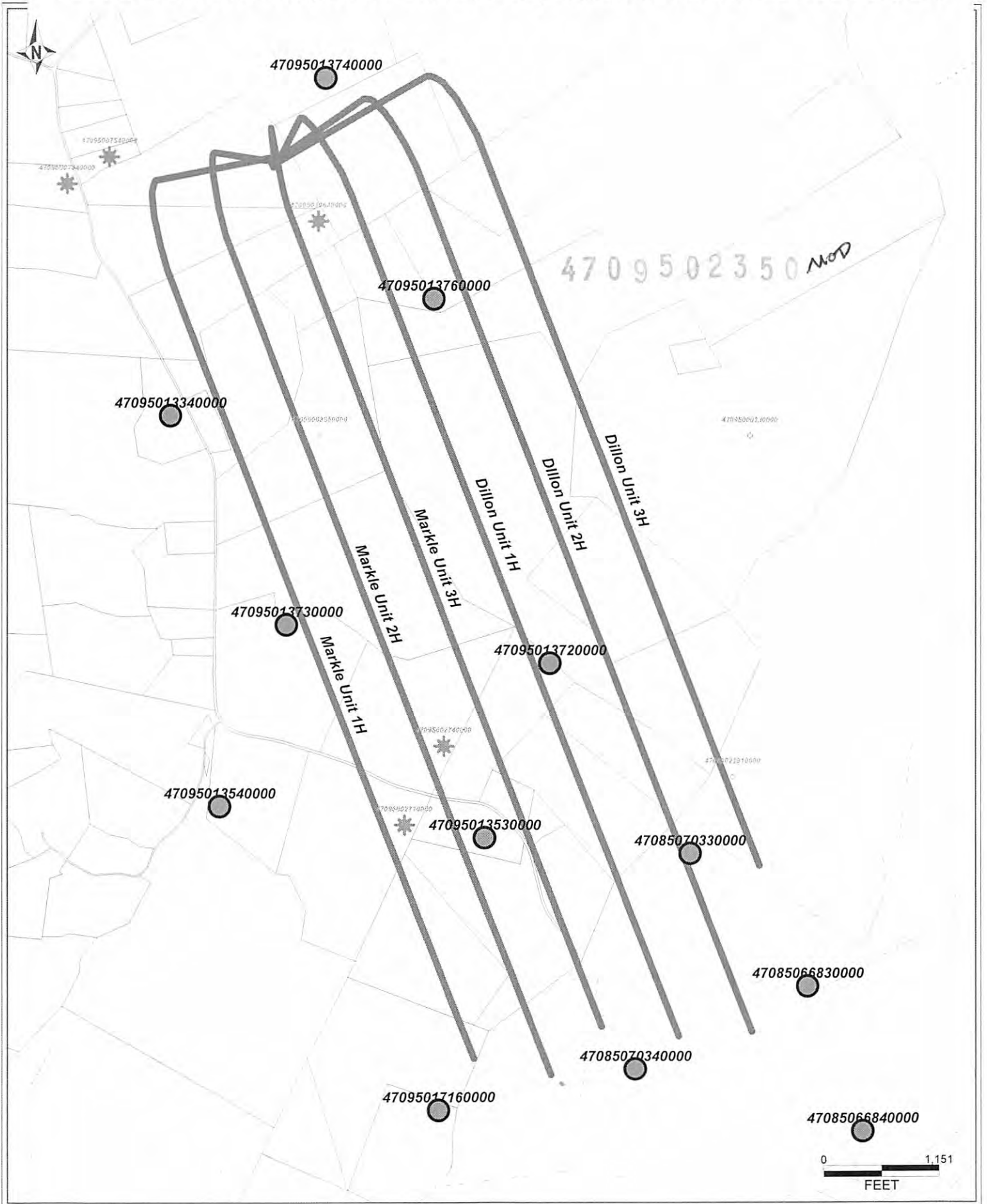
circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

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.

47 0 0 5 0 2 3 5 0 *ms*

RECEIVED  
Office of Oil and Gas  
JUN 09 2016  
WV Dept of Environmental Protection

\*Note: Attach additional sheets as needed.



# MARKLE-DILLON UNIT (TERRY SNIDER PAD) - AREA OF REVIEW 35-8-5.11 PAGE 2

UWI (APINum)	Well Name	Well Num	Operator	Hist Oper	TD	ELEV_GR	TD (SSTVD)	Perforated Interval (shallowest, Deepest)	Perforated Formations	Productible Formation(s) not perf'd
47085066840000	DOTY CONRAD P ET AL	J-801	ALLIANCE PETR CORP	J & J ENTERPRISES	5999	944	-5055	4,443' - 5,785'	Riley, Rhinestreet	Big Lime, Big Injun, Benson
47085070330000	EDWARDS B THOMAS	WK-349	ALLIANCE PETR CORP	KEPCO INCORPORATED	5998	1192	-4806	4,713' - 5,984'	Big Injun, Rhinestreet	Big Lime, Riley, Benson
47085066830000	DOTY CONRAD P ET AL	J-802	ALLIANCE PETR CORP	J & J ENTERPRISES	5979	1026	-4953	2,033' - 5,857'	Big Injun, Rhinestreet	Big Lime, Riley, Benson
47085070340000	EDWARDS B THOMAS	WK-348	ALLIANCE PETR CORP	KEPCO INCORPORATED	5955	991	-4964	4,521' - 5,799'	Riley, Rhinestreet	Big Lime, Big Injun, Benson
47095013760000	MCCULLOUGH HAROLD & WILMA	1	CONSOL GAS COMPANY	CHESTERFIELD EN CORP	5214	1121	-4093	5,010' - 5,018'	Benson	Big Lime, Big Injun, Riley
47095017160000	COX BILLY J & MARGARET K	1	ALLIANCE PETR CORP	OHIO L & M	5194	1166	-4028	2,064' - 5,030'	Big Lime, Benson	Big Injun, Riley
47095013720000	COLLINS NEAL	2	CONSOL GAS COMPANY	CHESTERFIELD EN CORP	5181	1166	-3995	2,182' - 5,050'	Big Injun, Benson	Big Lime, Riley
47095013530000	COLLINS NEAL	1	CONSOL GAS COMPANY	CHESTERFIELD EN CORP	5132	942	-4190	4,808 - 4,818'	Benson	Big Lime, Big Injun, Riley
47095013730000	RICHARDS SYLVIA	2	CONSOL GAS COMPANY	CHESTERFIELD EN CORP	5062	1010	-4052	4,874' - 4,881'	Benson	Big Lime, Big Injun, Riley
47095013340000	AYRES VICTOR	3845	CONSOL GAS COMPANY	CNG DEVELOPMENT CO	5045	826	-4219	4,712' - 4,718'	Benson	Big Lime, Big Injun, Riley
47095013740000	HILL PALMER	1	CONSOL GAS COMPANY	CHESTERFIELD EN CORP	5035	895	-4140	4,790' - 4,800'	Benson	Big Lime, Big Injun, Riley
47095013540000	RICHARDS SYLVIA	1	CONSOL GAS COMPANY	CHESTERFIELD EN CORP	4987	950	-4037	4,812' - 4,820'	Benson	Big Lime, Big Injun, Riley
47095007540000	DILLON CLINTON & VIRGINIA	5	DUPKE ROGER C OIL CO	SECURITY G&O INC	3491	905	-2586		N/A	N/A
47095007340000	DILLON CLINTON S & VIRGINIA H	1	DUPKE ROGER C OIL CO	SECURITY G&O INC	3359	805	-2554		N/A	N/A
47085022910000	BLANCE STEWART	1	SULLIE OIL COMPANY	SULLIE OIL COMPANY	2400	1148	-1252		N/A	N/A
47095000230000	E A HILL	1	UNKNOWN	UNKNOWN	2289	1150	-1139		N/A	N/A
47095002740000	FLOYD C MARKLE	2	MCCULLOUGH WELL SRVC	SULLIE OIL COMPANY	2130	1038	-1092		N/A	N/A
47095003550000	DONSEL (SP DONZEL) ANKROM	1	UNKNOWN	UNKNOWN	1992	916	-1076		N/A	N/A
47095002710000	FLOYD C MARKLE	1	MCCULLOUGH WELL SRVC	SULLIE OIL COMPANY	1977	888	-1089		N/A	N/A

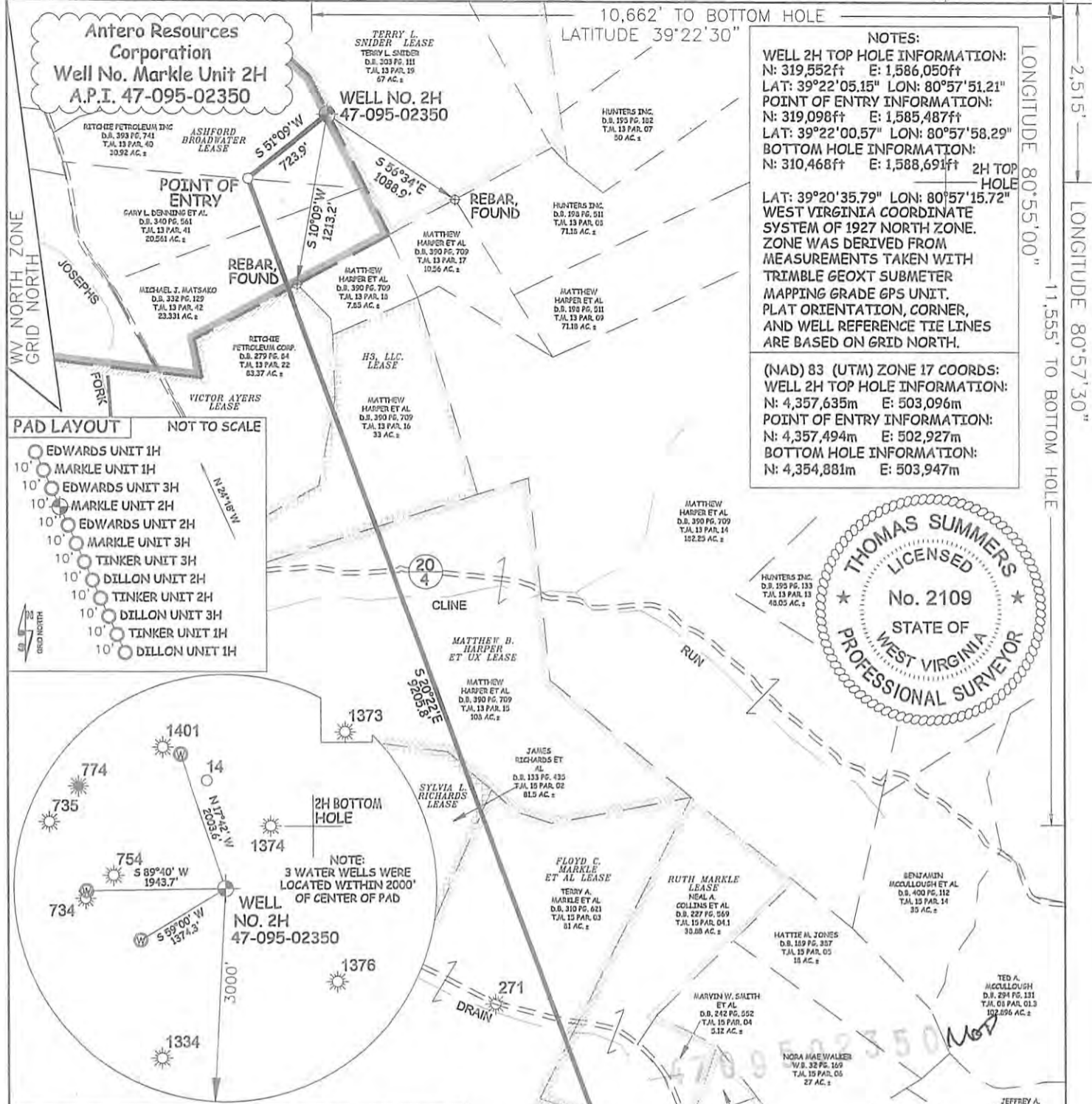
API - reasonably expected to penetrate a depth that could be within range of fracture propagation

API - not reasonably expected to penetrate a depth that could be within range of fracture propagation; therefore no additional details (perforated formation and producing zones) are required as outlined in 35CSR8-5.12

\*\*All reported data is correct to the best of our knowledge with the resources available

4709502350 N/A

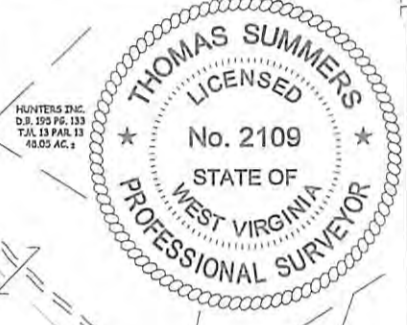
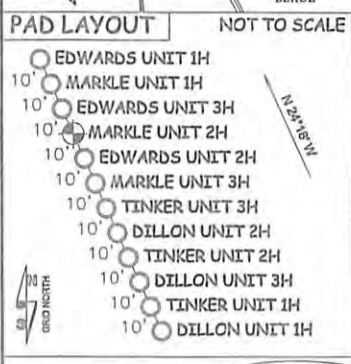
LATITUDE 39°22'30" 1,665'



**NOTES:**  
**WELL 2H TOP HOLE INFORMATION:**  
 N: 319,552ft E: 1,586,050ft  
 LAT: 39°22'05.15" LON: 80°57'51.21"  
**POINT OF ENTRY INFORMATION:**  
 N: 319,098ft E: 1,585,487ft  
 LAT: 39°22'00.57" LON: 80°57'58.29"  
**BOTTOM HOLE INFORMATION:**  
 N: 310,468ft E: 1,588,691ft  
 2H TOP HOLE  
 LAT: 39°20'35.79" LON: 80°57'15.72"  
 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: 4,357,635m E: 503,096m  
**POINT OF ENTRY INFORMATION:**  
 N: 4,357,494m E: 502,927m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,354,881m E: 503,947m

LONGITUDE 80°55'00"  
 2,515'  
 LONGITUDE 80°57'30"  
 1,555' TO BOTTOM HOLE



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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



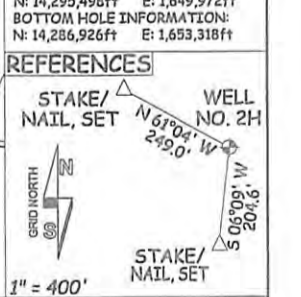
STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
 WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 16-008WA  
 DRAWING # MARKLE2HR3  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS  
 STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

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

*Thomas Summers*  
 THOMAS SUMMERS P.S. 2109  
 DATE 06/02/16  
 OPERATOR'S WELL# MARKLE UNIT #2H

NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HERDABANDY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.



WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  47 - 095 - 02350  
 (IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW  STATE COUNTY PERMIT  
 LOCATION: ELEVATION 1,171' ORIGINAL - 1,147' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK DISTRICT MEADE COUNTY TYLER  
 QUADRANGLE PENNSBORO 7.5' ACREAGE 30.92 ACRES +/-  
 SURFACE OWNER RITCHIE PETROLEUM INC. LEASE ACRES 503.712 ACRES +/-; 67 ACRES +/-; 97 ACRES +/-; 33 ACRES +/-  
 OIL & GAS ROYALTY OWNER ASHFORD BROADWATER; TERRY L. SNIDER; VICTOR AYERS; H3, LLC.; 100 ACRES +/-; 81.5 ACRES +/-; 81 ACRES +/-; 44 ACRES +/-; 43.57 ACRES +/-; 21 ACRES +/-  
 MATTHEW B. HARPER ET UX; SYLVIA L. RICHARDS; FLOYD C. MARKLE ET AL.; RUTH MARKLE; HATTIE JONES; THE WINSTON FAMILY TRUST  
 PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL  
 (SPECIFY) MOD BHL PLUG & ABANDON WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,700' TVD 16,500' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

09/16/2016



LATITUDE 39°22'30" 1,665'

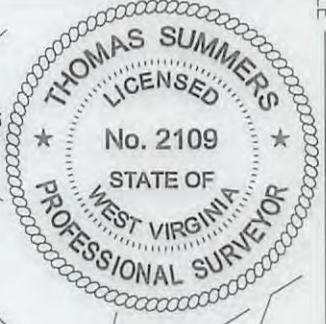
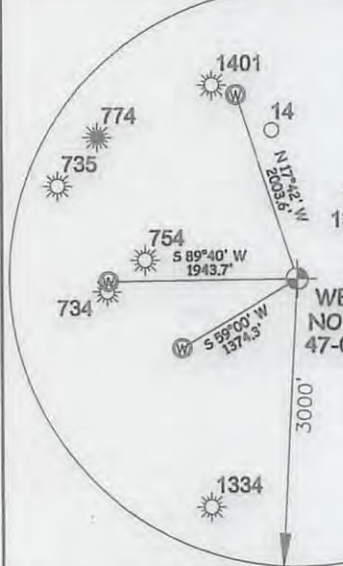
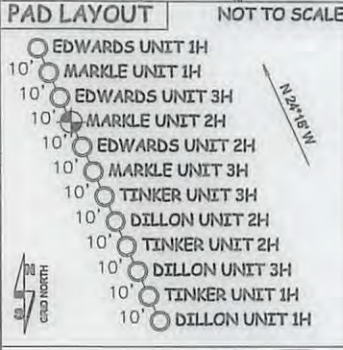
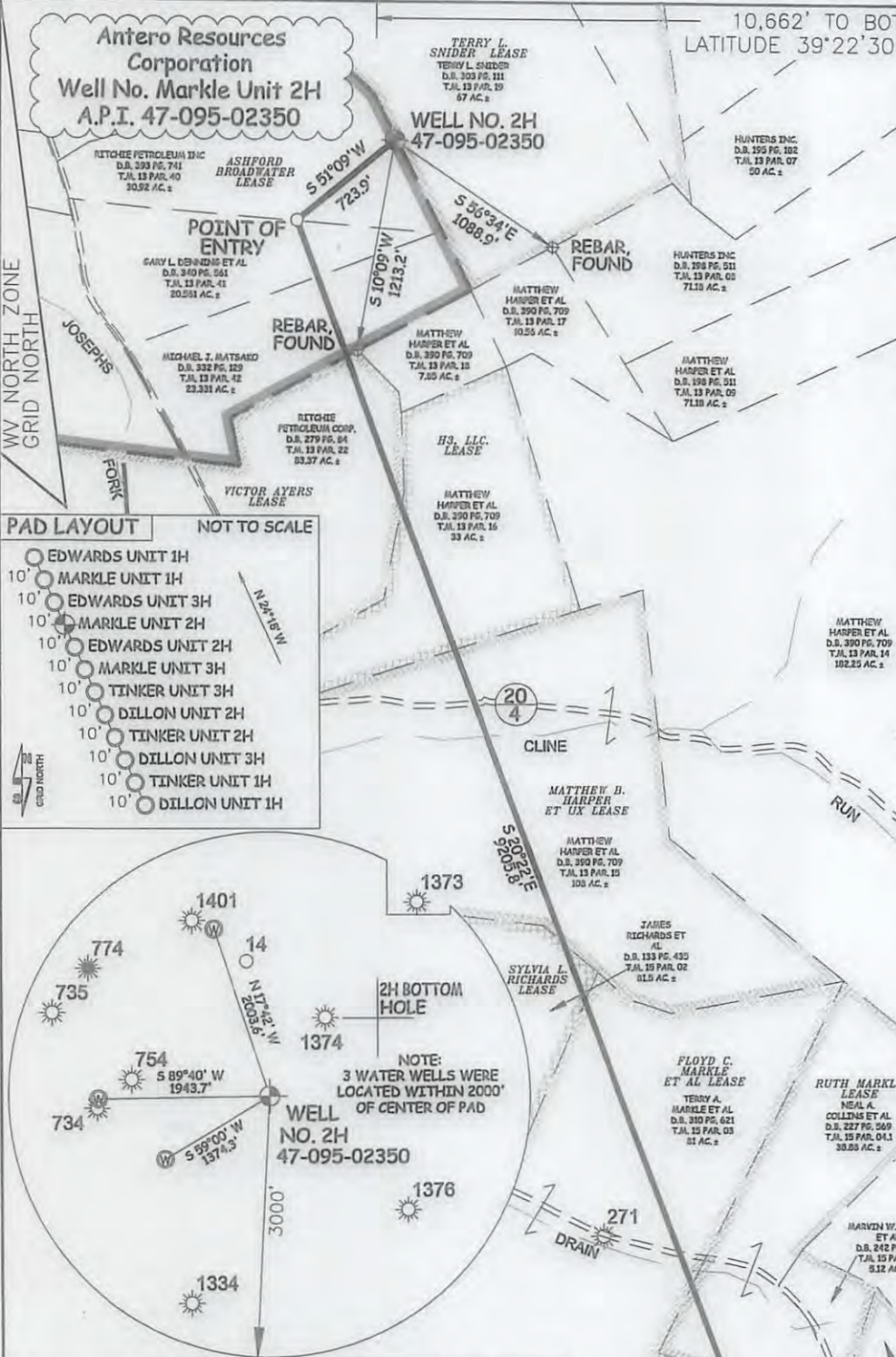
10,662' TO BOTTOM HOLE  
LATITUDE 39°22'30"

LONGITUDE 80°55'00"  
2,515'  
LONGITUDE 80°57'30"  
11,555' TO BOTTOM HOLE

**NOTES:**  
 WELL 2H TOP HOLE INFORMATION:  
 N: 319,552ft E: 1,586,050ft  
 LAT: 39°22'05.15" LON: 80°57'51.21"  
 POINT OF ENTRY INFORMATION:  
 N: 319,098ft E: 1,585,487ft  
 LAT: 39°22'00.57" LON: 80°57'58.29"  
 BOTTOM HOLE INFORMATION:  
 N: 310,468ft E: 1,588,691ft 2H TOP HOLE

LAT: 39°20'35.79" LON: 80°57'15.72"  
 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: 4,357,635m E: 503,096m  
 POINT OF ENTRY INFORMATION:  
 N: 4,357,494m E: 502,927m  
 BOTTOM HOLE INFORMATION:  
 N: 4,354,881m E: 503,947m



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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 16-008WA  
 DRAWING # MARKLE2HR3  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS  
 STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

**LEGEND**  
 - - - Surface Owner Boundary Lines +/-  
 - - - Interior Surface Tracts +/-  
 X Existing Fence  
 Found monument, as noted

THOMAS SUMMERS P.S. 2109  
 DATE 06/02/16  
 OPERATOR'S WELL# MARKLE UNIT #2H

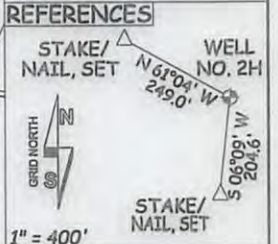
THE WINSTON FAMILY TRUST LEASE  
 HAROLD J. JEWELL D.B. 249 PG. 37 T.J. 03 PAR. 11 21 AC.±

ORLA JEWELL ET AL D.B. 114 PG. 115 T.J. 08 PAR. 13 26.51 AC.±

NED O. SHREVE ET AL D.B. 103 PG. 423 T.J. 08 PAR. 20 24.5 AC.±

NOTE: NO OCCUPIED DWELLINGS OR 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.

(NAD) 27 (UTM) ZONE 17 COORDS:  
 WELL 2H TOP HOLE INFORMATION:  
 N: 14,295,962ft E: 1,650,528ft  
 POINT OF ENTRY INFORMATION:  
 N: 14,295,498ft E: 1,649,972ft  
 BOTTOM HOLE INFORMATION:  
 N: 14,286,926ft E: 1,653,318ft



WELL TYPE: OIL GAS  LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02350  
 (IF "GAS") PRODUCTION  STORAGE DEEP SHALLOW X STATE COUNTY PERMIT  
 LOCATION: ELEVATION 1,171' ORIGINAL - 1,147' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK QUADRANGLE PENNSBORO 7.5' DISTRICT MEADE COUNTY TYLER  
 SURFACE OWNER RITCHIE PETROLEUM INC. ACREAGE 30.92 ACRES +/-  
 OIL & GAS ROYALTY OWNER ASHFORD BROADWATER; TERRY L. SNIDER; VICTOR AYERS; H3, LLC.; LEASE ACREAGE 503.712 ACRES±; 67 ACRES±; 97 ACRES±; 33 AC±; MATTHEW B. HARPER ET UX; SYLVIA L. RICHARDS; FLOYD C. MARKLE ET AL; RUTH MARKLE; HATTIE JONES; THE WINSTON FAMILY TRUST 108 ACRES±; 81.5 ACRES±; 81 ACRES±; 44 ACRES±; 43.57 ACRES±; 21 ACRES±  
 PROPOSED WORK: DRILL  CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X  
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD BHL PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,700' TVD 16,500' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 DENVER, CO 80202 CHARLESTON, WV 25313

09/16/2016