

OCT 12 2017

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

WV Department of
Environmental Protection

API 47-095-02167 County Tyler District McElroy
Quad Centerpoint 7.5' Pad Name Coastal 2 Pad Field/Pool Name ----
Farm name Coastal Lumber Company Well Number Prudence 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 4364390m Easting 523600m
Landing Point of Curve Northing 4364280.899m Easting 524223.149m
Bottom Hole Northing 4360977m Easting 525300m

Elevation (ft) 1188' 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 05/19/2014 Date drilling commenced 06/23/2015 Date drilling ceased 09/21/2015
Date completion activities began 11/10/2016 Date completion activities ceased 01/10/2017
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 60', 180', 220' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1723', 1893' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1301', 1561', 1701' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

APPROVED

NAME: Sam McK
DATE: 10-25-17

Reviewed by:

02/16/2018

API 47-095 - 02167 Farm name Coastal Lumber Company Well number Prudence 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	24"	20"	40'	New	94#, K-55	N/A	Y
Surface	17-1/2"	13-3/8"	402'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2569'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19323'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7574'		4.7#, 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	400 sx	15.6	1.18	472	0'	8 Hrs.
Surface	Class A	469 sx	15.6	1.19	558	0'	8 Hrs.
Coal							
Intermediate 1	Class A	945 sx	15.6	1.18	1115	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1207 sx (Lead) 1834 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.3 (Lead), 1.85 (Tail)	4962	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 19323' MD, 7165' TVD (BHL) & 7196' TVD (Deepest Point Drilled) Loggers TD (ft) 19277' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 7137'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Tabor Unit 2H API #47-095-02165). Please reference the wireline logs submitted with Form WR-35 for Tabor Unit 2H. A Cement Bond Log has been included with this submittal.

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

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
*PLEASE 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)
*PLEASE SEE ATTACHED EXHIBIT 2								

Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>7087' (TOP)</u>	<u>TVD</u>	<u>7625' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3550 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 14386 mcfpd Oil 45 bpd NGL --- bpd Water 1 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	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	

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

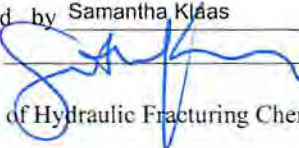
Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Road City Williamsport State PA Zip 17701

Logging Company Allied Horizontal Well Services
Address 381 Colonial Manor Rd. City North Huntington State PA Zip 15642

Cementing Company Nabors Completion & Production Services, Co.
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company CalFrac
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Samantha Klás Telephone 303-357-6759
Signature  Title Permitting Agent Date 10/11/2017

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/11/2016
Job End Date:	12/19/2016
State:	West Virginia
County:	Tyler
API Number:	47-095-02167-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Prudence Unit 2H
Latitude:	39.42872200
Longitude:	-80.72579400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,195
Total Base Water Volume (gal):	24,350,134
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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	89.46694	
Acetic Acid	CWS	Acid					
				Listed Below			

DWP-844	CWS	Microbiocide					
				Listed Below			
DWP-975	CWS	Breaker					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
DAP-925	CWS	Acid Corrosion Inhibitor					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
DWP-111	CWS	Gel Slurry					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					

				Listed Below			
Items above are Trade Names with the exception of Base Water , Items below are the individual ingredients.							
			Crystalline silica (Quartz)	14808-60-7	100.00000	10.31873	
			Hydrochloric acid	7647-01-0	37.00000	0.04778	
			Polymer	26100-47-0	45.00000	0.03141	
			Guar gum	9000-30-0	60.00000	0.02144	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02144	
			Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.02094	
			Calcite	471-34-1	1.00000	0.01743	
			Ammonium chloride	12125-02-9	11.00000	0.00768	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00639	
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00624	
			Illite	12173-60-3	1.00000	0.00556	
			Goethite	1310-14-1	0.10000	0.00455	
			Biotite	1302-27-8	0.10000	0.00289	
			Apatite	64476-38-6	0.10000	0.00289	
			Sorbitan monooleate	1338-43-8	4.00000	0.00279	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00235	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00209	
			Ilmenite	98072-94-7	0.10000	0.00206	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00179	
			1,2-Propanediol	57-55-6	10.00000	0.00156	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00140	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00070	

			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00054	
			Ammonium Persulfate	7727-54-0	100.00000	0.00050	
			Sodium bromide	7647-15-6	4.00000	0.00047	
			Citric acid	77-92-9	60.00000	0.00045	
			Alcohols, C12-14, ethoxylated	84133-50-6	0.50000	0.00035	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00035	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	30.00000	0.00011	
			Acrylamide	79-06-1	0.10000	0.00007	
			Methanol	67-56-1	60.00000	0.00003	
			Alcohols, C14-15, ethoxylated	68951-67-7	30.00000	0.00002	
			Hydrated magnesium silicate	14807-96-6	1.00000	0.00002	
			Fatty acids, tall-oil	61790-12-3	30.00000	0.00002	
			Modified thiourea polymer	68527-49-1	30.00000	0.00002	
			Sodium chloride	7647-14-5	1.00000	0.00001	
			Alkenes, C>10 a-	64743-02-8	5.00000	0.00001	
			Formaldehyde	50-00-0	0.10000	0.00001	
			Poly(tetrafluoroethylene)	9002-84-0	1.00000	0.00001	
			Propargyl Alcohol	107-19-7	10.00000	0.00001	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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(l) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

LATITUDE 39°27'30"

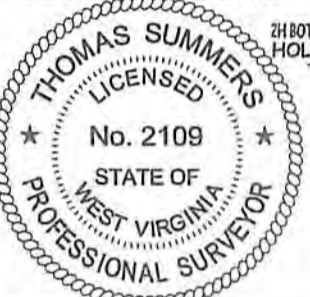
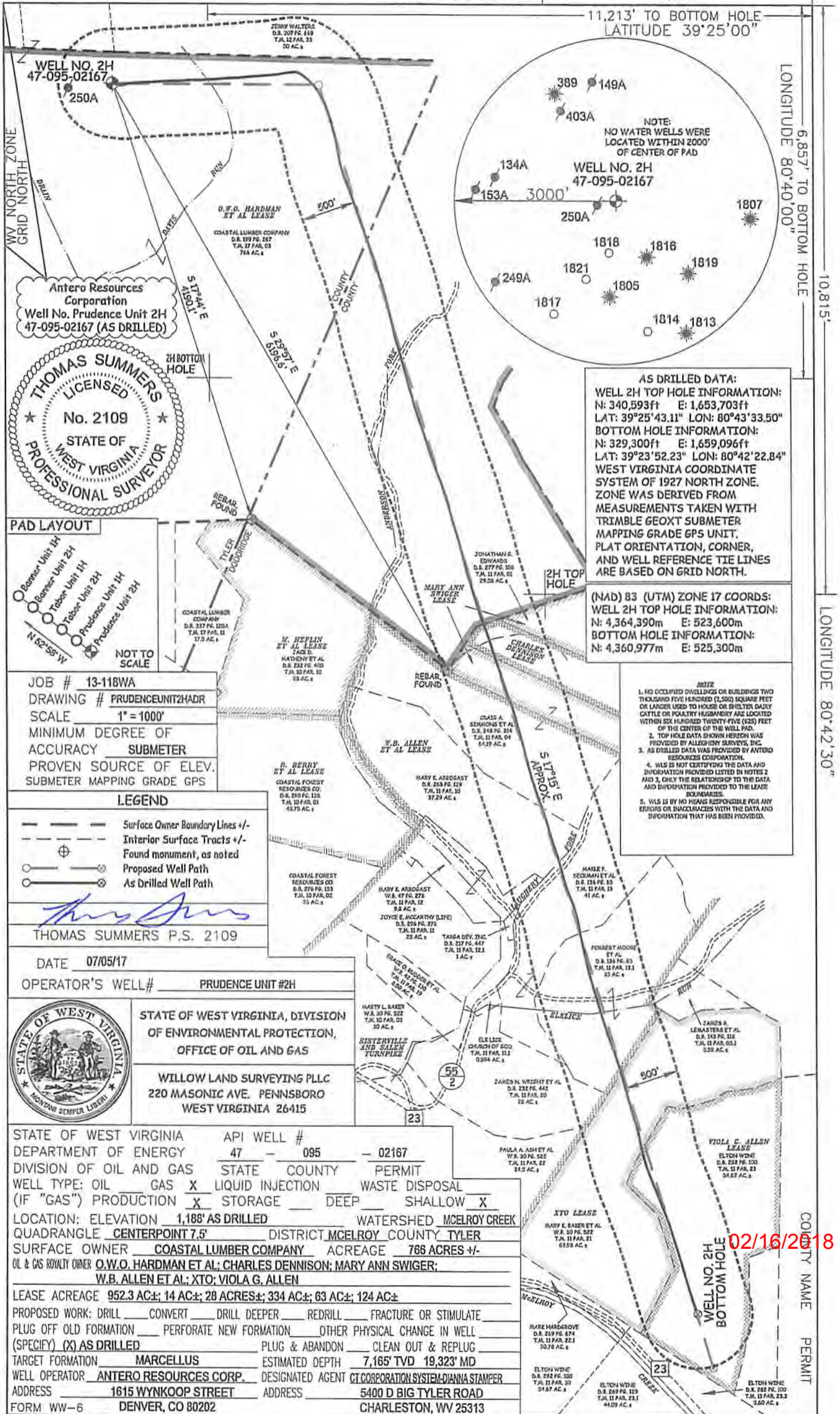
4,982'

11,213' TO BOTTOM HOLE
LATITUDE 39°25'00"

LONGITUDE 80°40'00"

10,815'

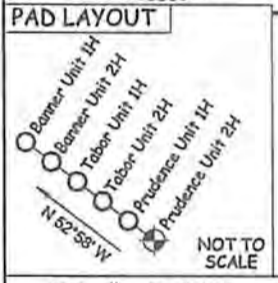
LONGITUDE 80°42'30"



AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
 N: 340,593ft E: 1,653,703ft
 LAT: 39°25'43.11" LON: 80°43'33.50"
BOTTOM HOLE INFORMATION:
 N: 329,300ft E: 1,659,096ft
 LAT: 39°23'52.23" LON: 80°42'22.84"
 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: 4,364,390m E: 523,600m
BOTTOM HOLE INFORMATION:
 N: 4,360,977m E: 525,300m

- NOTE**
1. 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.
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 4. 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.
 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



JOB # 13-118WA
 DRAWING # PRUDENCEUNIT2HADR
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

THOMAS SUMMERS P.S. 2109

DATE 07/05/17
 OPERATOR'S WELL# PRUDENCE UNIT #2H

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

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

API WELL # 47 - 095 - 02167

STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,188' AS DRILLED WATERSHED MCELROY CREEK QUADRANGLE CENTERPOINT 7.5' DISTRICT MCELROY COUNTY TYLER

SURFACE OWNER COASTAL LUMBER COMPANY ACREAGE 766 ACRES +/-

OIL & GAS ROYALTY OWNER O.W.O. HARDMAN ET AL; CHARLES DENNISON; MARY ANN SWIGER; W.B. ALLEN ET AL; XTO; VIOLA G. ALLEN

LEASE ACREAGE 952.3 AC±; 14 AC±; 28 ACRES±; 334 AC±; 63 AC±; 124 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,165' TVD 19,323' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM/DIANNA STAMPER

ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD

FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

02/16/2018

COUNTY NAME PERMIT

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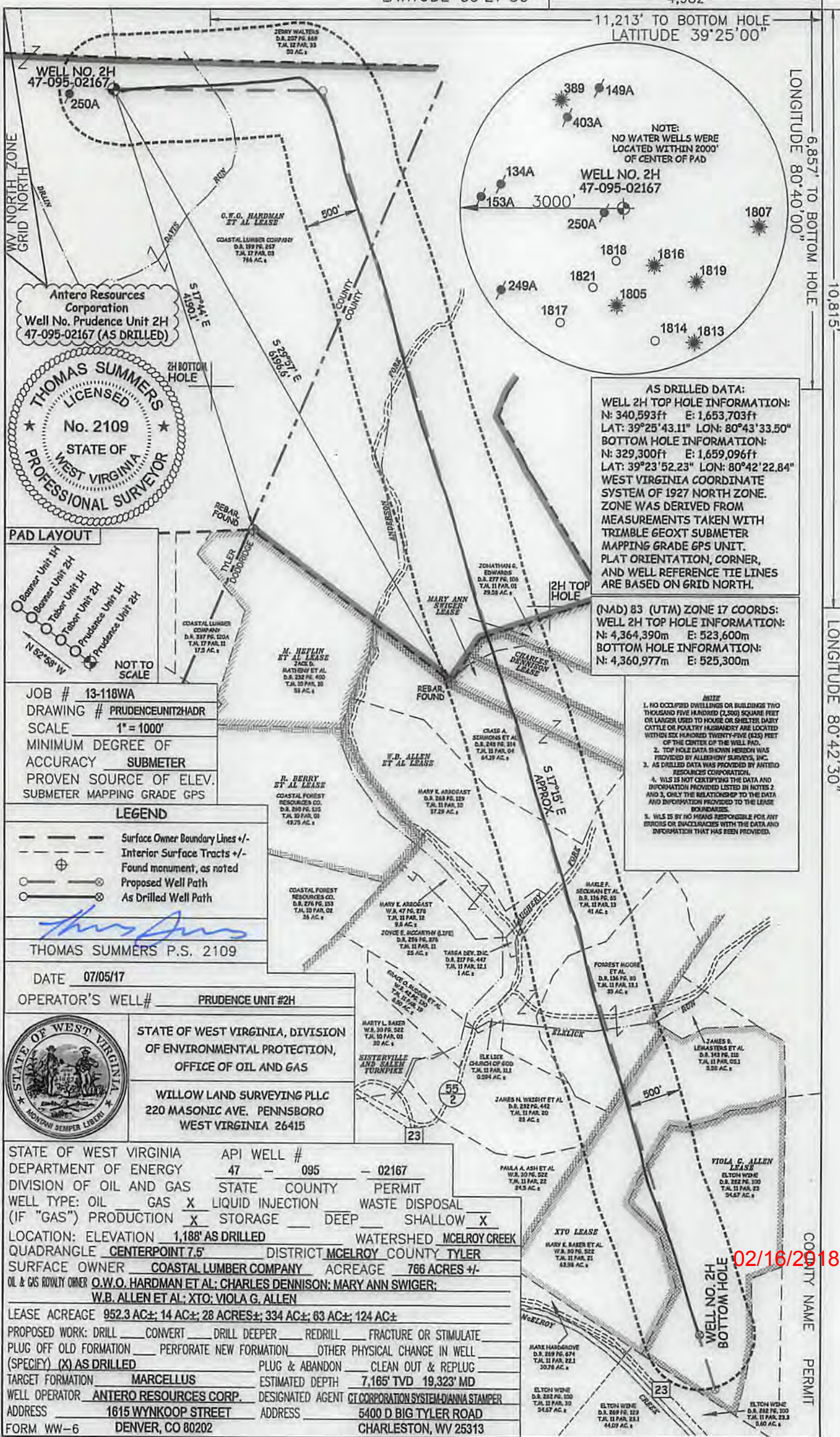
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11,213' TO BOTTOM HOLE
LATITUDE 39°25'00"

LONGITUDE 80°40'00"

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NOTE:
NO WATER WELLS WERE
LOCATED WITHIN 2000'
OF CENTER OF PAD

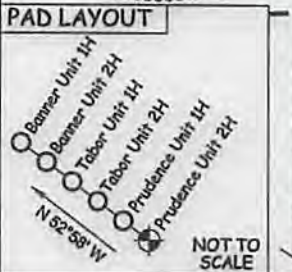
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Well No. Prudence Unit 2H
47-095-02167 (AS DRILLED)

THOMAS SUMMERS
LICENSED
No. 2109
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PROFESSIONAL SURVEYOR



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