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WR-35
Rev. 8/23/13

Page ___ of ___

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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

API 47 - 017 - 06621 County Doddridge District Central
Quad Oxford 7.5' Pad Name Robert Williams Pad Field/Pool Name ---
Farm name Williams, Robert Well Number McGee Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop St. 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 4343158m Easting 511856m
Landing Point of Curve Northing 4342881.48m Easting 511899.02m
Bottom Hole Northing 4340651m Easting 512958m

Elevation (ft) 990' 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 11/14/2014 Date drilling commenced 11/19/2014 Date drilling ceased 2/12/2015
Date completion activities began 4/6/2015 Date completion activities ceased 6/17/2015
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 57' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1507' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: _____

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API 47-017 - 06621 Farm name Williams, Robert Well number McGee Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/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"	463'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2521'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	15251'	New	23# P-110	N/A	Y
Tubing		2-3/8"	6624'		4.7# N-80	N/A	
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	150 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	554 sx	15.6	1.18	322	0'	8 Hrs.
Coal							
Intermediate 1	Class A	925 sx	15.6	1.18	790	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	875 sx (Lead) 1345 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.81 Tail	3031	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15253' MD, 5606' TVD (BHL); 6545' TVD (Deepest point drilled) Loggers TD (ft) 15204'
Deepest formation penetrated Marcellus Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 5829'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Pike Unit 1H API #47-017-06289). Please reference the wireline logs submitted with Form WR-35 for the Pike Unit 1H. 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 _____

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	6-Apr-15	14,990	15,160	60	Marcellus
2	11-Apr-15	14,789	14,959	60	Marcellus
3	12-Apr-15	14,587	14,757	60	Marcellus
4	17-May-15	14,386	14,556	60	Marcellus
5	18-May-15	14,184	14,354	60	Marcellus
6	18-May-15	13,983	14,153	60	Marcellus
7	18-May-15	13,781	13,951	60	Marcellus
8	19-May-15	13,580	13,750	60	Marcellus
9	19-May-15	13,378	13,548	60	Marcellus
10	19-May-15	13,177	13,347	60	Marcellus
11	19-May-15	12,975	13,145	60	Marcellus
12	20-May-15	12,774	12,944	60	Marcellus
13	20-May-15	12,572	12,742	60	Marcellus
14	20-May-15	12,371	12,541	60	Marcellus
15	20-May-15	12,169	12,339	60	Marcellus
16	21-May-15	11,968	12,138	60	Marcellus
17	21-May-15	11,766	11,936	60	Marcellus
18	21-May-15	11,565	11,735	60	Marcellus
19	21-May-15	11,363	11,533	60	Marcellus
20	21-May-15	11,162	11,332	60	Marcellus
21	22-May-15	10,961	11,130	60	Marcellus
22	22-May-15	10,759	10,929	60	Marcellus
23	22-May-15	10,558	10,727	60	Marcellus
24	22-May-15	10,356	10,526	60	Marcellus
25	23-May-15	10,155	10,324	60	Marcellus
26	23-May-15	9,953	10,123	60	Marcellus
27	23-May-15	9,752	9,922	60	Marcellus
28	23-May-15	9,550	9,720	60	Marcellus
29	23-May-15	9,349	9,519	60	Marcellus
30	24-May-15	9,147	9,317	60	Marcellus
31	24-May-15	8,946	9,116	60	Marcellus
32	24-May-15	8,744	8,914	60	Marcellus
33	24-May-15	8,543	8,713	60	Marcellus
34	24-May-15	8,341	8,511	60	Marcellus
35	25-May-15	8,140	8,310	60	Marcellus
36	25-May-15	7,938	8,108	60	Marcellus
37	25-May-15	7,737	7,907	60	Marcellus
38	26-May-15	7,535	7,705	60	Marcellus
39	26-May-15	7,334	7,504	60	Marcellus
40	26-May-15	7,132	7,302	60	Marcellus
41	26-May-15	6,931	7,101	60	Marcellus
42	26-May-15	6,729	6,899	60	Marcellus

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API 47-017-06621 Farm Name Williams, Robert Well Number McGee Unit 1H

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	11-Apr-15	59.2	7,233	5,733	4,016	141,100	7,205	N/A
2	12-Apr-15	50.0	7,892	6,026	4,048	25,530	7,505	N/A
3	12-Apr-15	61.4	7,472	5,876	5,114	134,750	7,272	N/A
4	17-May-15	57.8	7,533	6,400	4,698	134,400	6,714	N/A
5	18-May-15	62.7	7,354	6,146	4,887	151,730	7,351	N/A
6	18-May-15	49.1	8,246	6,448	4,740	39,000	6,560	N/A
7	19-May-15	62.6	6,999	5,807	4,080	130,700	6,881	N/A
8	19-May-15	60.7	7,087	5,848	4,179	158,070	6,769	N/A
9	19-May-15	61.0	7,276	5,841	4,760	177,750	6,530	N/A
10	19-May-15	60.5	7,004	6,418	5,137	127,380	7,067	N/A
11	19-May-15	62.3	7,125	5,858	4,439	112,140	6,693	N/A
12	20-May-15	63.3	7,116	5,645	3,549	242,270	6,746	N/A
13	20-May-15	60.4	6,955	5,794	4,694	150,550	6,413	N/A
14	20-May-15	59.6	7,239	6,213	4,895	117,900	6,691	N/A
15	20-May-15	62.6	7,636	5,877	5,001	116,800	6,564	N/A
16	21-May-15	66.3	7,001	5,687	5,279	234,860	7,005	N/A
17	21-May-15	65.1	6,887	5,644	4,703	236,450	6,451	N/A
18	21-May-15	65.0	7,117	6,415	4,792	201,100	6,881	N/A
19	21-May-15	67.1	7,045	5,654	5,285	181,500	6,938	N/A
20	22-May-15	67.1	6,947	6,101	4,468	223,560	6,931	N/A
21	22-May-15	64.7	6,997	5,934	4,775	194,400	6,744	N/A
22	22-May-15	63.1	7,420	5,963	4,605	173,050	6,886	N/A
23	22-May-15	62.4	6,673	5,878	5,143	236,170	6,452	N/A
24	22-May-15	64.7	6,846	5,991	5,479	231,420	6,140	N/A
25	23-May-15	65.3	6,929	5,761	5,385	235,310	6,071	N/A
26	23-May-15	64.1	6,796	5,305	5,400	246,730	6,253	N/A
27	23-May-15	64.0	6,663	5,999	5,246	223,470	6,339	N/A
28	23-May-15	66.2	6,891	5,716	5,421	233,175	6,807	N/A
29	24-May-15	65.3	6,703	5,776	5,674	242,055	6,171	N/A
30	24-May-15	64.8	6,615	5,862	5,561	241,290	6,133	N/A
31	24-May-15	63.2	7,059	5,554	5,028	219,560	6,267	N/A
32	24-May-15	63.1	7,099	6,248	5,257	195,670	6,595	N/A
33	24-May-15	65.7	6,681	5,947	5,733	242,975	6,259	N/A
34	24-May-15	66.4	6,699	5,836	4,746	248,115	6,175	N/A
35	25-May-15	63.4	6,762	5,933	5,357	209,380	6,549	N/A
36	25-May-15	63.0	6,786	5,769	5,329	168,970	6,009	N/A
37	25-May-15	61.2	7,300	5,887	4,528	137,370	6,106	N/A
38	26-May-15	62.0	6,704	5,926	5,018	215,730	6,100	N/A
39	26-May-15	62.8	6,721	5,769	4,871	241,680	6,201	N/A
40	26-May-15	63.2	6,593	5,450	4,814	246,090	6,225	N/A
41	26-May-15	66.5	6,436	5,418	5,679	247,520	6,230	N/A
42	27-May-15	67.0	6,296	6,033	5,053	247,840	6,062	N/A
AVG=		62.8	7,020	5,890	4,925	7,915,510	275,941	TOTAL

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API 47-017-06621 Farm Name Williams, Robert Well Number McGee Unit 1H

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	57'	N/A	57'	N/A
Shale/ Sandstone	0	427	0	427
Limestone/ Sandstone	est. 427	507	est. 427	507
Shale/ Siltstone	est. 507	587	est. 507	587
Sandstone/ Trace Coal	est. 587	607	est. 587	607
Sandstone/ Siltstone	est. 607	687	est. 607	687
Sandstone/ Limestone	est. 687	787	est. 687	787
Shale/ Sandstone	est. 787	947	est. 787	947
Siltstone/ Limestone	est. 947	1327	est. 947	1327
Shale/ Trace Coal	est. 1327	1387	est. 1327	1387
Shale/ Sandstone	est. 1387	1427	est. 1387	1427
Shale/ Coal	est. 1427	1487	est. 1427	1487
Sandstone	est. 1487	1527	est. 1487	1527
Sandstone/ Trace Coal	est. 1527	1667	est. 1527	1667
Sandstone/ Siltstone	est. 1667	1907	est. 1667	1907
Sandstone/ Trace Coal	est. 1907	1991	est. 1907	1994
Big Lime	1991	2082	1994	2085
Big Injun	2082	2414	2085	2417
Gantz Sand	2414	2598	2417	2601
Fifty Foot Sandstone	2598	2666	2601	2669
Gordon	2666	2992	2669	2995
Fifth Sandstone	2992	3031	2995	3034
Bayard	3031	3409	3034	3412
Warren	3409	3769	3412	3772
Speechley	3769	4065	3772	4068
Baltown	4065	4526	4068	4529
Bradford	4526	4925	4529	4928
Benson	4925	5183	4928	5186
Alexander	5183	5356	5186	5359
Elk	5356	5774	5359	5777
Rhinestreet	5774	6155	5777	6178
Sycamore	6136	6300	6159	6354
Middlesex	6300	6422	6354	6544
Burkett	6422	6450	6544	6606
Tully	6450	6478	6606	6690
Marcellus	6478	NA	6690	NA

*Please note Antero determines shallow formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/11/2015
Job End Date:	5/27/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06621-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	McGee Unit 1H
Longitude:	-80.86262200
Latitude:	39.23764700
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,545
Total Base Water Volume (gal):	12,139,402
Total Base Non Water Volume:	441,887

WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Antero Resources	Base Fluid	Water	7732-18-5	100.00000	92.21180	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	7.20945	
LGC-15	U.S. Well Services	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.11262	
			Petroleum Distillates	64742-47-8	60.00000	0.10666	
			Suspending agent (solid)	14808-60-7	3.00000	0.01722	
			Surfactant	68439-51-0	3.00000	0.00676	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.16268	
			Hydrogen Chloride	7647-01-0	18.00000	0.03886	
WFRA-405	U.S. Well Services	Friction Reducer	Anionic Polyacrylamide	Proprietary	40.00000	0.03292	
			Water	7732-18-5	40.00000	0.03292	
			Sodium Chloride	7647-14-5	20.00000	0.01646	
			Petroleum Distillates	64742-47-8	20.00000	0.01325	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00412	

SI-1100	J.S. Well Services	Scale Inhibitor					
			Di Water	7732-18-5	80.00000	0.01043	
			Ethylene Glycol	107-21-1	40.00000	0.00590	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	10.00000	0.00176	
			2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1	10.00000	0.00168	
			hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6	10.00000	0.00163	
			Copolymer of Maleic and Acrylic acid	26677-99-6	10.00000	0.00154	
			bis (hexamethylene) tramine penta (methylene phosphonic acid) - phosphate acid	40623-75-4	10.00000	0.00150	
			Acrylic polymer	52255-49-9	5.00000	0.00065	
K-BAC 1020	J.S. Well Services	Anti-Bacterial Agent					
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00420	
			Deionized Water	7732-18-5	28.00000	0.00240	
AP One	J.S. Well Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00227	
AI-301	J.S. Well Services	Acid Corrosion Inhibitors					
			Diethylene Glycol	111-46-6	30.00000	0.00012	
			Methenamine	100-97-0	20.00000	0.00070	
			Hydrogen Chloride	7647-01-0	10.00000	0.00004	
			Polyethylene polyamine	68603-67-8	10.00000	0.00004	
			Coco amine	61791-14-8	5.00000	0.00002	

Ingredients shown above are subject to 29 CFR 1910.1200(i) 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(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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LATITUDE 39°15'00"

8,344'

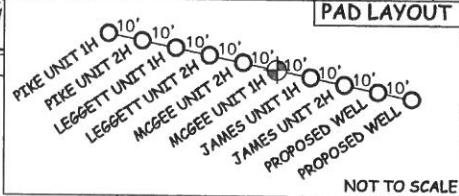
4,741' TO BOTTOM HOLE

LATITUDE 39°15'00"

Antero Resources Corporation
Well No. McGee Unit 1H
47-017-06621 (AS DRILLED)

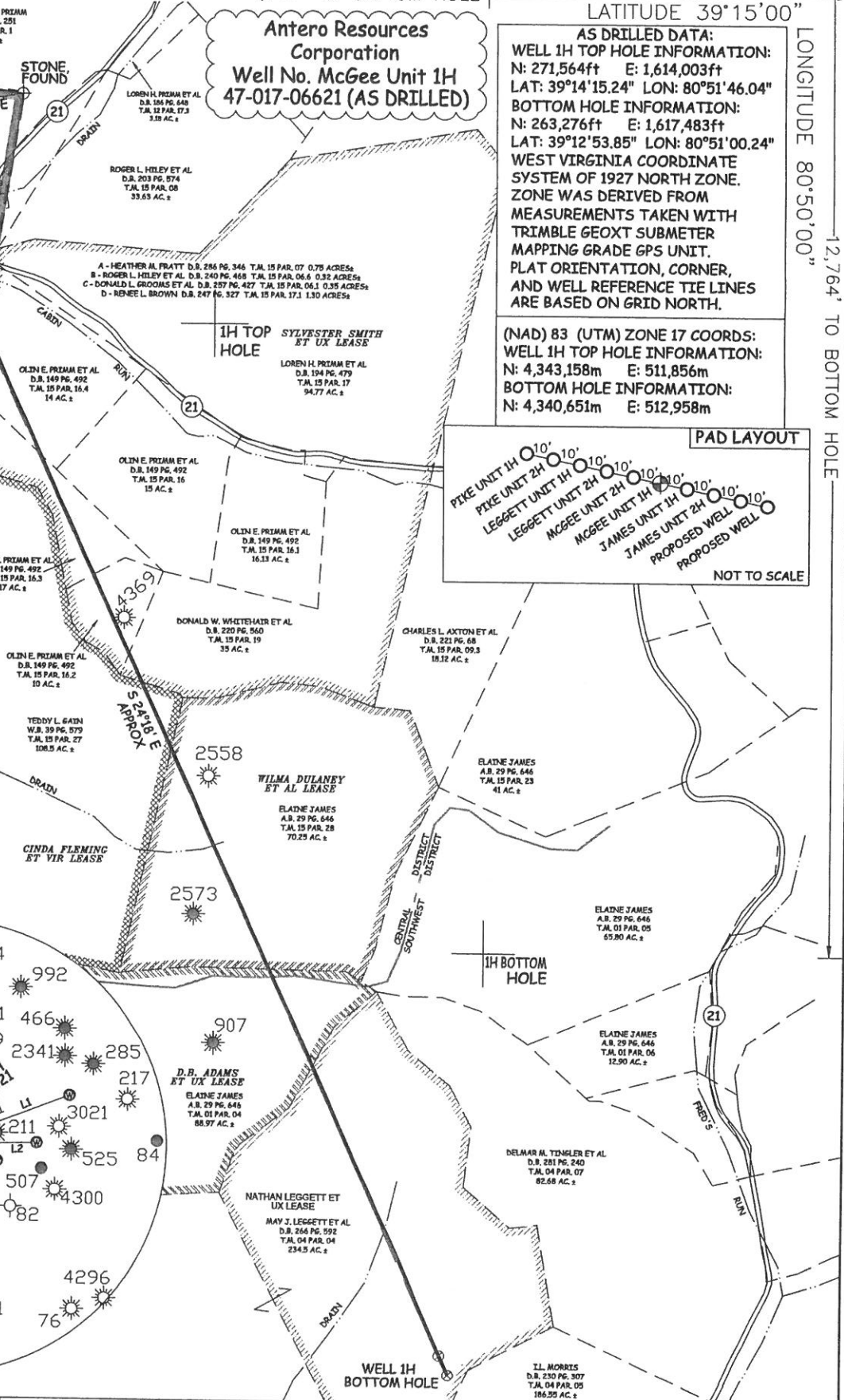
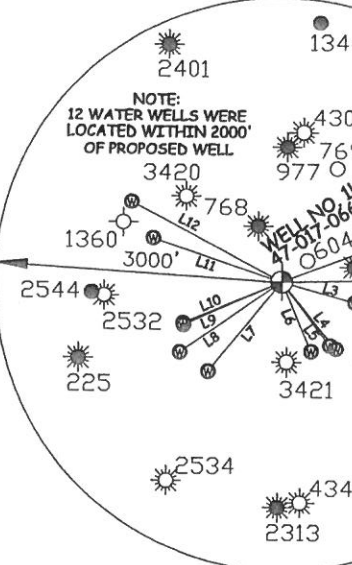
AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 271,564ft E: 1,614,003ft
LAT: 39°14'15.24" LON: 80°51'46.04"
BOTTOM HOLE INFORMATION:
N: 263,276ft E: 1,617,483ft
LAT: 39°12'53.85" LON: 80°51'00.24"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE 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 1H TOP HOLE INFORMATION:
N: 4,343,158m E: 511,856m
BOTTOM HOLE INFORMATION:
N: 4,340,651m E: 512,958m



LINE	BEARING	DISTANCE
L1	N 67°41' E	1795.2'
L2	N 87°27' E	1234.4'
L3	S 75°11' E	736.8'
L4	S 37°48' E	847.9'
L5	S 35°32' E	781.0'
L6	S 20°18' E	745.8'
L7	S 41°40' W	1225.3'
L8	S 57°01' W	1326.9'
L9	S 88°00' W	1181.8'
L10	S 88°58' W	1159.1'
L11	N 71°40' W	1478.2'
L12	N 82°34' W	1837.0'

- 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 # 14-075WA
DRAWING # MCGEE1HAD
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
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

LEGEND
- - - Surface Owner Boundary Lines +/-
- - - Interior Surface Tracts +/-
X 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 1,000' ORIGINAL - 990' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE OXFORD 7.5' DISTRICT CENTRAL COUNTY DODDRIDGE

SURFACE OWNER ROBERT WILLIAMS ACREAGE 37.67 ACRES +/-
OIL & GAS ROYALTY OWNER H.B. WILLIAMS ET UX; SYLVESTER SMITH ET UX; CINDA FLEMING ET VIR; WILMA DULANEY ET AL; D.B. ADAMS ET UX; NATHAN LEGGETT ET UX LEASE ACREAGE 307 ACRES±; 210 ACRES±; 123.86 ACRES±; 67 ACRES±; 89 ACRES±; 93 ACRES±
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 6,506' TVD 15,253' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM
FORM WW-6 DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

4,529'
12,764' TO BOTTOM HOLE
LONGITUDE 80°50'00"