

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

API 47 - 017 - 06397 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name Chestnut Pad Field/Pool Name _____
Farm name Trustee Chestnut Grove Church Well Number McMillan Unit 1H
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 4,357,130m Easting 524,019m
Landing Point of Curve Northing 4,357,081.38m Easting 524,287.16m
Bottom Hole Northing 4,354,382m Easting 525,379m

Elevation (ft) 1,115' 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 12/30/2013 Date drilling commenced 03/14/2014 Date drilling ceased 06/18/2014
Date completion activities began 08/02/2014 Date completion activities ceased 02/17/2015
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 67', 122' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 900'; 1,143' Void(s) encountered (Y/N) depths None
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) No

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Reviewed by:
JK 7/24/15
08/14/2015

API 47-017-06397 Farm name Trustee Chestnut Grove Church Well number McMillan 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	24"	20"	40'	New	133#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	363'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,518'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	17,044'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	7,207'		4.7#; N-80	N/A	
Packer type and depth set		N/A					

Comment Details Set cement plug from 5,700' - 6,200' with 260 sx of Class H cement.

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	100 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	430 sx	15.6	1.18	252	0'	8 Hrs.
Coal							
Intermediate 1	Class A	987 sx	15.6	1.18	789	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,132 sx (Lead); 1,505 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	3,442	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,044' MD; 7,030' TVD (BHL & Deepest Point Drilled) Loggers TD (ft) 16,999'
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6,388'

**This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Hoskinson Unit 2H, API #47-017-06400. Please reference the wireline logs submitted with Form WR-35 for the Hoskinson Unit 2H. A Cement Bond Log has been included with this submittal.

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

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 _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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API 47-017-06397 Farm Name Trustees Chestnut Grove Church Well Number McMillan Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2-Aug-14	16,782	16,949	60	Marcellus
2	30-Sep-14	16,583	16,751	60	Marcellus
3	1-Oct-14	16,385	16,552	60	Marcellus
4	1-Oct-14	16,186	16,354	60	Marcellus
5	1-Oct-14	15,988	16,155	60	Marcellus
6	2-Oct-14	15,789	15,957	60	Marcellus
7	2-Oct-14	15,591	15,758	60	Marcellus
8	3-Oct-14	15,392	15,560	60	Marcellus
9	3-Oct-14	15,194	15,361	60	Marcellus
10	4-Oct-14	14,995	15,163	60	Marcellus
11	4-Oct-14	14,797	14,964	60	Marcellus
12	4-Oct-14	14,598	14,766	60	Marcellus
13	4-Oct-14	14,400	14,567	60	Marcellus
14	5-Oct-14	14,201	14,369	60	Marcellus
15	5-Oct-14	14,003	14,170	60	Marcellus
16	5-Oct-14	13,805	13,972	60	Marcellus
17	6-Oct-14	13,606	13,773	60	Marcellus
18	6-Oct-14	13,408	13,575	60	Marcellus
19	6-Oct-14	13,209	13,376	60	Marcellus
20	6-Oct-14	13,011	13,178	60	Marcellus
21	7-Oct-14	12,812	12,980	60	Marcellus
22	7-Oct-14	12,614	12,781	60	Marcellus
23	7-Oct-14	12,415	12,583	60	Marcellus
24	7-Oct-14	12,217	12,384	60	Marcellus
25	8-Oct-14	12,018	12,186	60	Marcellus
26	8-Oct-14	11,820	11,987	60	Marcellus
27	8-Oct-14	11,621	11,789	60	Marcellus
28	8-Oct-14	11,423	11,590	60	Marcellus
29	9-Oct-14	11,224	11,392	60	Marcellus
30	9-Oct-14	11,026	11,193	60	Marcellus
31	9-Oct-14	10,827	10,995	60	Marcellus
32	9-Oct-14	10,629	10,796	60	Marcellus
33	10-Oct-14	10,430	10,598	60	Marcellus
34	10-Oct-14	10,232	10,399	60	Marcellus
35	10-Oct-14	10,033	10,201	60	Marcellus
36	10-Oct-14	9,835	10,002	60	Marcellus
37	11-Oct-14	9,636	9,804	60	Marcellus
38	11-Oct-14	9,438	9,605	60	Marcellus
39	11-Oct-14	9,239	9,407	60	Marcellus
40	11-Oct-14	9,041	9,208	60	Marcellus
41	12-Oct-14	8,842	9,010	60	Marcellus
42	12-Oct-14	8,644	8,811	60	Marcellus
43	12-Oct-14	8,446	8,613	60	Marcellus
44	13-Oct-14	8,247	8,414	60	Marcellus
45	14-Oct-14	8,049	8,216	60	Marcellus
46	14-Oct-14	7,850	8,017	60	Marcellus
47	14-Oct-14	7,652	7,819	60	Marcellus
48	15-Oct-14	7,453	7,621	60	Marcellus
49	15-Oct-14	7,255	7,422	60	Marcellus

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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	30-Sep-14	72.0	7,650	0	5,003	232,539	6,862	N/A
2	30-Sep-14	73.0	7,406	5,708	5,495	177,048	7,418	N/A
3	1-Oct-14	77.0	7,675	5,771	4,733	217,920	6,983	N/A
4	1-Oct-14	75.0	7,499	5,931	5,139	240,669	6,810	N/A
5	1-Oct-14	78.0	7,652	5,871	4,974	233,118	6,788	N/A
6	2-Oct-14	76.0	7,414	5,936	4,808	250,042	6,902	N/A
7	2-Oct-14	79.0	7,198	5,344	5,043	246,041	6,820	N/A
8	3-Oct-14	79.0	7,419	5,711	5,192	180,885	7,273	N/A
9	3-Oct-14	80.0	7,432	5,705	5,400	227,927	6,697	N/A
10	4-Oct-14	82.0	7,549	5,197	5,024	234,848	6,648	N/A
11	4-Oct-14	83.0	7,227	5,505	4,832	237,385	6,592	N/A
12	4-Oct-14	80.0	7,076	5,571	5,048	233,174	6,598	N/A
13	4-Oct-14	82.0	7,169	5,704	4,682	237,094	6,585	N/A
14	5-Oct-14	83.0	7,230	5,483	5,259	236,103	6,498	N/A
15	5-Oct-14	79.0	7,097	5,544	5,334	238,265	6,501	N/A
16	5-Oct-14	81.0	6,928	5,359	5,511	241,211	6,629	N/A
17	6-Oct-14	83.0	7,171	5,639	5,356	235,228	6,463	N/A
18	6-Oct-14	78.0	7,246	5,405	5,795	235,355	6,466	N/A
19	6-Oct-14	79.0	7,319	5,856	5,553	227,500	6,406	N/A
20	6-Oct-14	83.0	7,287	5,845	4,887	235,520	6,370	N/A
21	7-Oct-14	82.0	7,016	5,466	5,205	234,715	6,379	N/A
22	7-Oct-14	84.0	7,020	5,797	5,421	234,413	6,321	N/A
23	7-Oct-14	80.0	6,821	5,708	5,597	232,290	6,285	N/A
24	7-Oct-14	80.0	6,821	5,703	5,387	222,773	6,242	N/A
25	8-Oct-14	81.0	7,406	5,718	5,047	232,915	6,430	N/A
26	8-Oct-14	79.0	6,926	5,790	5,224	234,042	6,267	N/A
27	8-Oct-14	79.0	6,943	5,757	5,729	211,271	6,263	N/A
28	8-Oct-14	83.0	6,945	5,700	5,356	233,482	6,297	N/A
29	9-Oct-14	80.0	7,417	5,666	5,386	232,547	6,208	N/A
30	9-Oct-14	79.0	6,909	5,734	5,641	235,793	6,198	N/A
31	9-Oct-14	80.0	6,914	5,659	5,597	242,776	6,124	N/A
32	9-Oct-14	80.0	6,909	5,686	5,509	230,547	6,123	N/A
33	10-Oct-14	83.0	7,127	5,544	5,154	231,770	6,141	N/A
34	10-Oct-14	79.0	7,013	5,423	4,767	233,766	6,164	N/A
35	10-Oct-14	80.0	6,890	5,767	4,657	233,334	6,040	N/A
36	10-Oct-14	80.0	6,890	5,504	5,317	229,951	6,136	N/A
37	11-Oct-14	81.0	6,888	5,526	4,904	231,198	6,165	N/A
38	11-Oct-14	79.0	6,795	5,568	4,314	232,414	6,024	N/A
39	11-Oct-14	79.0	6,841	6,044	4,981	233,472	6,060	N/A
40	11-Oct-14	83.0	6,950	5,835	4,857	232,054	5,911	N/A
41	12-Oct-14	83.0	6,950	5,861	5,653	199,769	6,358	N/A
42	12-Oct-14	83.0	6,950	5,727	5,420	233,851	5,860	N/A
43	12-Oct-14	81.0	7,110	5,750	5,270	233,400	5,941	N/A
44	13-Oct-14	78.0	6,912	5,513	4,928	232,967	6,093	N/A
45	14-Oct-14	71.0	6,690	5,650	5,603	169,260	5,924	N/A
46	14-Oct-14	72.0	6,932	5,602	5,470	201,135	5,764	N/A
47	14-Oct-14	72.0	6,932	5,709	5,268	225,574	5,801	N/A
48	15-Oct-14	84.0	6,808	6,107	5,149	229,004	5,781	N/A
49	15-Oct-14	79.0	5,728	6,704	4,235	225,063	5,801	N/A
AVG=		79.5	7,084	5,578	5,186	11,183,418	311,410	TOTAL

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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	67'	N/A	67'	N/A
Fresh Water	122'	N/A	122'	N/A
Shale/Siltstone	0	257	0	257
Shale w/ Coal	est. 257	347	est. 257	347
Shale and Siltstone	est. 347	377	est. 347	377
Shale/Sandstone/Siltstone	est. 377	1,457	est. 377	1,457
Shale and Siltstone w/trace coal	est. 1457	1,487	est. 1457	1,487
Shale/Sandstone/Siltstone	est. 1487	1,637	est. 1487	1,637
Sandstone	est. 1637	1,757	est. 1637	1,757
Sandstone w/trace coal	est. 1757	1,787	est. 1757	1,787
Shale/Sandstone/Siltstone	est. 1787	2,057	est. 1787	2,057
Big Lime	2,057	2,208	2,057	2,208
Big Injun	2,208	2,634	2,208	2,634
Gantz Sand	2,634	2,780	2,634	2,780
Fifty Foot Sandstone	2,780	2,847	2,780	2,847
Gordon	2,847	3,210	2,847	3,210
Fifth Sandstone	3,210	3,249	3,210	3,249
Bayard	3,249	3,588	3,249	3,588
Warren	3,588	3,956	3,588	3,956
Speechley	3,956	4,214	3,956	4,214
Baltown	4,214	4,721	4,214	4,721
Bradford	4,721	5,208	4,721	5,213
Benson	5,208	5,445	5,213	5,465
Alexander	5,445	5,658	5,465	5,698
Elk	5,658	6,217	5,698	6,287
Rhinestreet	6,217	6,522	6,287	6,628
Sycamore	6,522	6,717	6,628	6,848
Middlesex	6,717	6,853	6,848	7,027
Burkett	6,853	6,881	7,027	7,073
Tully	6,881	6,945	7,073	7,210
Marcellus	6,945	NA	7,210	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:	9/30/2014
Job End Date:	10/15/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06397-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	McMillan Unit 1H
Longitude:	-80.72118600
Latitude:	39.36329400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,030
Total Base Water Volume (gall):	13,483,260
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	Operator	Carrier	Water	7732-18-5	100.00000	90.46058	
Sand, White, 40/70	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		4.95654	
Sand, White, 20/40	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		3.34238	
Sand, White, 100 mesh	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.68223	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.20689	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.11819	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.06149	SmartCare Product
Enzyme G-NIE	Baker Hughes	Breaker	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01681	SmartCare Product



	Potassium Chloride	7447-40-7	1.00000	0.00016
	2-butoxy-1-propanol	15821-83-7	0.10000	0.00012
	Polyoxyalkylenes	68951-67-7	30.00000	0.00010
	Fatty Acids	61790-12-3	10.00000	0.00003
	Modified Thiourea Polymer	68527-49-1	7.00000	0.00002
	Propargyl Alcohol	107-19-7	5.00000	0.00002
	Olefin	64743-02-8	5.00000	0.00002
	Formaldehyde	50-00-0	1.00000	0.00000

* 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°22'30" 3,682'

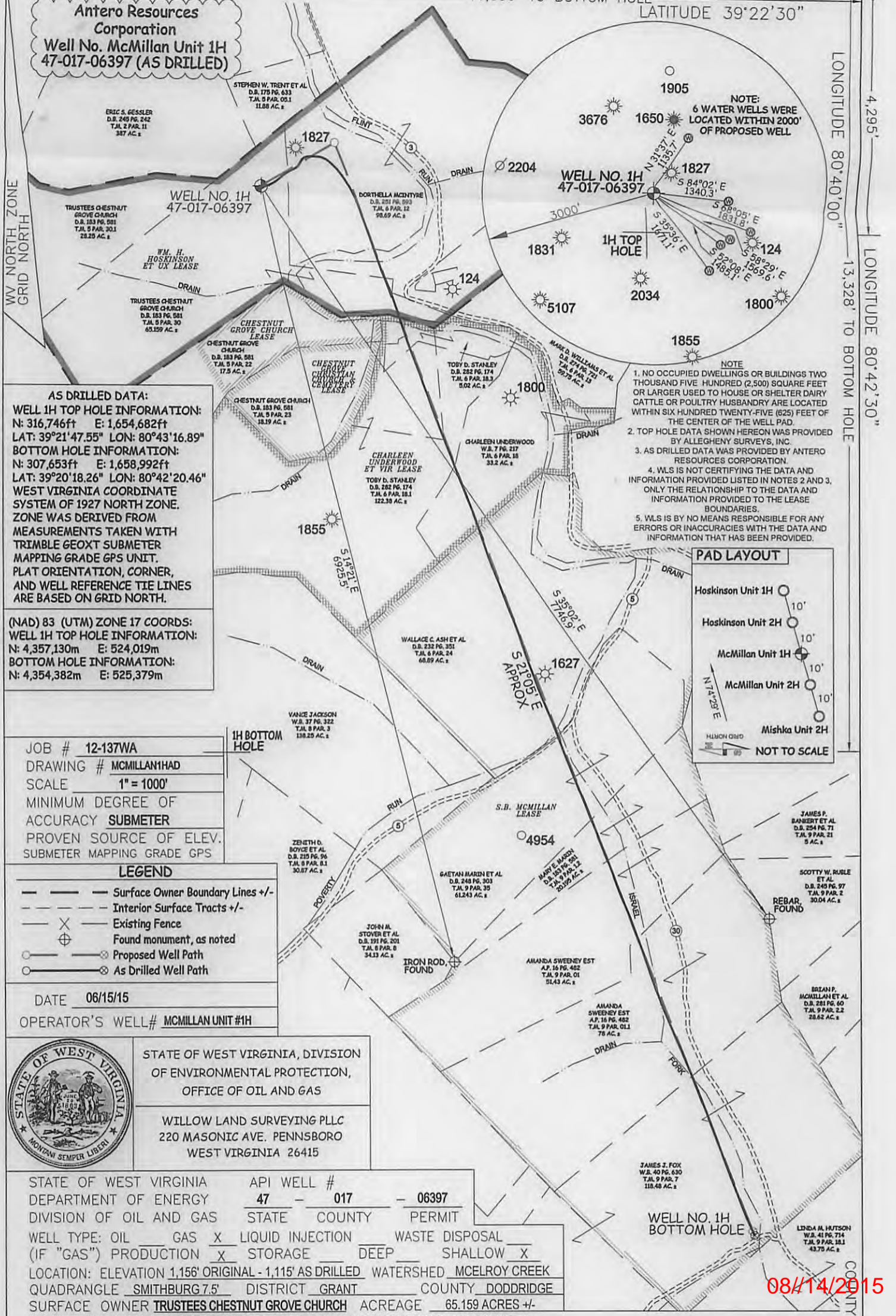
11,036' TO BOTTOM HOLE

LATITUDE 39°22'30"

LONGITUDE 80°40'00" 4,295'
LONGITUDE 80°42'30" 13,328' TO BOTTOM HOLE

Antero Resources Corporation
Well No. McMillan Unit 1H
47-017-06397 (AS DRILLED)

WV NORTH ZONE
GRID NORTH



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 316,746ft E: 1,654,682ft
LAT: 39°21'47.55" LON: 80°43'16.89"
BOTTOM HOLE INFORMATION:
N: 307,653ft E: 1,658,992ft
LAT: 39°20'18.26" LON: 80°42'20.46"
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: 4,357,130m E: 524,019m
BOTTOM HOLE INFORMATION:
N: 4,354,382m E: 525,379m

JOB # 12-137WA
DRAWING # MCMILLAN1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

DATE 06/15/15
OPERATOR'S WELL# MCMILLAN UNIT #1H



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 - 017 - 06397
STATE COUNTY PERMIT
WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
LOCATION: ELEVATION 1,156' ORIGINAL - 1,115' AS DRILLED WATERSHED MCELROY CREEK
QUADRANGLE SMITHBURG 7.5 DISTRICT GRANT COUNTY DODDRIDGE
SURFACE OWNER TRUSTEES CHESTNUT GROVE CHURCH ACREAGE 65.159 ACRES +/-
OIL & GAS ROYALTY OWNER W.M. H. HOSKINSON ET UX; CHARLEEN UNDERWOOD ET VIR; S.B. MCMILLAN
LEASE ACREAGE 228.5 ACRES±; 127.11 ACRES±; 432 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 7,030' TVD 17,044' MD
DIANNA STAMPER
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

08/14/2015