

AUG 10 2015

WR-35
Rev. 8/23/13

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Page ___ of ___

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

API 47-017-06259 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name RJ Smith Pad Field/Pool Name _____
Farm name Smith, Robert J. Well Number Mishka 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 4,357,420m Easting 523,017m
Landing Point of Curve Northing 4,357,349.56m Easting 523,261.94m
Bottom Hole Northing 4,354,409m Easting 524,453m

Elevation (ft) 998' 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 07/03/2013 Date drilling commenced 01/31/2014 Date drilling ceased 04/28/2014
Date completion activities began 05/21/2014 Date completion activities ceased 08/24/2014
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 231' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1344' 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

Reviewed by:

AUG 10 2015

WR-35 WV GEOLOGICAL SURVEY
Rev. 8/23/13 MORGANTOWN, WV

Page ___ of ___

API 47-017 - 06259 Farm name Smith, Robert J. Well number Mishka Unit 1H

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	133#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	490'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,572'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	14,520'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	7,130'		4.7#; N-80	N/A	
Packer type and depth set		N/A					

Comment Details SIDETRACK: Fish in hole from 14,520' to 17,832'. Unable to POOH, sidetracked at 10,720'.

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	576 sx	15.6	1.18	340	0'	8 Hrs.
Coal							
Intermediate 1	Class A	949 sx	15.6	1.18	806	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,014 sx (Lead); 1,207 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	2,852	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,932' MD, 6,831' TVD (BHL); 6,893' TVD (Deepest Point Drilled) Loggers TD (ft) 17,884'
Deepest formation penetrated Marcellus Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 6,251'

**This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Duff Unit 2H, API #47-017-06247). Please reference the wireline logs submitted with Form WR-35 for the Duff 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

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AUG 10 2015

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API 47-017-06259 Farm Name Smith, Robert J. Well Number Mishka Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	21-May-14	14,246	14,418	60	Marcellus
2	5-Aug-14	14,042	14,214	60	Marcellus
3	5-Aug-14	13,837	14,010	60	Marcellus
4	5-Aug-14	13,633	13,805	60	Marcellus
5	6-Aug-14	13,429	13,601	60	Marcellus
6	6-Aug-14	13,225	13,397	60	Marcellus
7	6-Aug-14	13,020	13,193	60	Marcellus
8	6-Aug-14	12,816	12,988	60	Marcellus
9	7-Aug-14	12,612	12,784	60	Marcellus
10	7-Aug-14	12,408	12,580	60	Marcellus
11	7-Aug-14	12,203	12,376	60	Marcellus
12	8-Aug-14	11,999	12,171	60	Marcellus
13	8-Aug-14	11,795	11,967	60	Marcellus
14	8-Aug-14	11,591	11,763	60	Marcellus
15	8-Aug-14	11,386	11,559	60	Marcellus
16	9-Aug-14	11,182	11,354	60	Marcellus
17	9-Aug-14	10,978	11,150	60	Marcellus
18	9-Aug-14	10,463	10,633	60	Marcellus
19	9-Aug-14	10,262	10,432	60	Marcellus
20	9-Aug-14	10,061	10,231	60	Marcellus
21	9-Aug-14	9,860	10,029	60	Marcellus
22	10-Aug-14	9,659	9,828	60	Marcellus
23	10-Aug-14	9,457	9,627	60	Marcellus
24	10-Aug-14	9,256	9,426	60	Marcellus
25	10-Aug-14	9,055	9,225	60	Marcellus
26	11-Aug-14	8,854	9,024	60	Marcellus
27	11-Aug-14	8,653	8,822	60	Marcellus
28	11-Aug-14	8,452	8,621	60	Marcellus
29	11-Aug-14	8,250	8,420	60	Marcellus
30	12-Aug-14	8,049	8,219	60	Marcellus
31	12-Aug-14	7,848	8,018	60	Marcellus
32	12-Aug-14	7,647	7,816	60	Marcellus
33	15-Aug-14	7,446	7,615	60	Marcellus
34	15-Aug-14	7,244	7,414	60	Marcellus

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API 47-017-06259 Farm Name Smith, Robert J. Well Number Mishka 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	4-Aug-14	79.3	7,495	6,092	4,968	274,429	7,024	N/A
2	5-Aug-14	79.4	7,534	5,994	4,713	274,868	6,988	N/A
3	5-Aug-14	78.2	7,544	5,998	5,421	273,853	7,007	N/A
4	5-Aug-14	63.5	6,619	N/A	5,585	203,720	7,516	N/A
5	5-Aug-14	77.8	7,548	5,950	5,006	273,995	6,987	N/A
6	6-Aug-14	77.9	7,407	5,903	4,719	222,225	6,196	N/A
7	6-Aug-14	73.0	7,336	5,749	4,831	272,995	6,893	N/A
8	6-Aug-14	78.8	7,290	6,333	5,802	273,782	6,927	N/A
9	7-Aug-14	79.0	7,417	5,816	5,025	278,804	6,903	N/A
10	7-Aug-14	79.0	7,442	5,758	5,026	273,421	6,854	N/A
11	7-Aug-14	79.1	7,168	5,529	4,588	273,788	6,777	N/A
12	8-Aug-14	78.2	7,508	5,667	5,142	273,172	6,791	N/A
13	8-Aug-14	79.1	7,334	5,810	4,866	275,098	6,812	N/A
14	8-Aug-14	75.3	7,279	5,854	5,070	275,335	6,895	N/A
15	8-Aug-14	78.8	7,111	6,100	5,871	273,819	6,697	N/A
16	9-Aug-14	79.3	7,176	5,791	4,358	274,986	6,696	N/A
17	9-Aug-14	78.0	7,029	5,940	5,245	272,486	6,646	N/A
18	9-Aug-14	76.4	7,123	5,820	4,585	274,605	6,762	N/A
19	9-Aug-14	73.6	7,222	6,165	4,535	271,836	6,723	N/A
20	9-Aug-14	76.0	7,262	5,963	4,148	275,492	6,681	N/A
21	9-Aug-14	79.0	7,248	6,011	4,130	482,737	6,684	N/A
22	10-Aug-14	79.2	7,100	5,960	4,284	484,676	6,732	N/A
23	10-Aug-14	75.8	7,469	N/A	5,279	218,692	7,093	N/A
24	10-Aug-14	75.4	7,266	6,046	5,641	221,981	6,981	N/A
25	10-Aug-14	77.7	7,310	N/A	4,476	273,347	6,645	N/A
26	11-Aug-14	75.6	7,344	N/A	5,099	253,815	7,138	N/A
27	11-Aug-14	73.9	7,758	6,139	5,466	170,143	7,161	N/A
28	11-Aug-14	76.6	6,948	5,995	4,489	274,851	6,665	N/A
29	11-Aug-14	78.0	6,825	5,755	5,177	273,886	6,640	N/A
30	12-Aug-14	77.9	6,806	5,781	4,533	270,188	6,555	N/A
31	12-Aug-14	76.6	6,798	5,612	5,505	272,712	6,609	N/A
32	12-Aug-14	77.3	6,753	5,935	5,683	262,972	6,533	N/A
33	15-Aug-14	77.1	6,707	5,502	5,454	278,638	6,723	N/A
34	15-Aug-14	79.3	6,318	6,205	4,184	297,545	6,876	N/A
AVG=		77.0	7,191	5,906	4,968	9,398,892	231,810	TOTAL

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API 47-017-06259 Farm Name Smith, Robert J. Well Number Mishka Unit 1H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	231'	N/A	231'	N/A
Sandstone/ Siltstone	0	591	0	591
Sandy Shale/ Dolostone	Est. 591	691	Est. 591	691
Sandstone/ Siltstone	Est. 691	871	Est. 691	871
Silty Shale	Est. 871	1,021	Est. 871	1,021
Sandstone/ Siltstone	Est. 1021	1,101	Est. 1021	1,101
Sandstone/ Trace Coal	Est. 1101	1,191	Est. 1101	1,191
Sandstone/ Siltstone	Est. 1191	1,641	Est. 1191	1,641
Limestone/ Sandstone	Est. 1641	1,701	Est. 1641	1,701
Sandstone/ Trace Coal	Est. 1701	1,731	Est. 1701	1,731
Sandy Shale	Est. 1731	1,861	Est. 1731	1,861
Sandstone/ Siltstone	Est. 1861	1,941	Est. 1861	1,941
Limestone/ Sandstone	Est. 1941	1,966	Est. 1941	1,966
Big Lime	1,966	2,125	1,966	2,125
Big Injun	2,125	2,516	2,125	2,516
Gantz Sand	2,516	2,654	2,516	2,654
Fifty Foot Sandstone	2,654	2,732	2,654	2,732
Gordon	2,732	3,090	2,732	3,090
Fifth Sandstone	3,090	3,100	3,090	3,100
Bayard	3,100	3,461	3,100	3,461
Warren	3,461	3,852	3,461	3,852
Speechley	3,852	4,102	3,852	4,103
Baltown	4,102	4,575	4,103	4,579
Bradford	4,575	5,073	4,579	5,077
Benson	5,073	5,338	5,077	5,342
Alexander	5,338	5,528	5,342	5,532
Elk	5,528	6,050	5,532	6,055
Rhinestreet	6,050	6,415	6,055	6,429
Sycamore	6,415	6,599	6,429	6,679
Middlesex	6,599	6,742	6,679	6,989
Burkett	6,742	6,770	6,989	7,051
Tully	6,770	6,830	7,051	7,205
Marcellus	6,830	NA	7,205	NA

*Please note Antero determines shallow formation tops based on mud and/or wireline logs that are only run on one well on a multi-well pad (please reference Wireline Logs submitted for the Duff Unit 2H, API # 47-017-06247). 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:	8/4/2014
Job End Date:	8/15/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06259-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Mishka Unit 1H
Longitude:	-80.73298100
Latitude:	39.36584700
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,893
Total Base Water Volume (gal):	10,070,508
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	89.98280	
Sand, White, 40/70	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		5.76606	
Sand, White, 20/40	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		2.94645	
Sand, White, 100 mesh	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.81484	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.23253	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.08713	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.05541	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01733	SmartCare Product

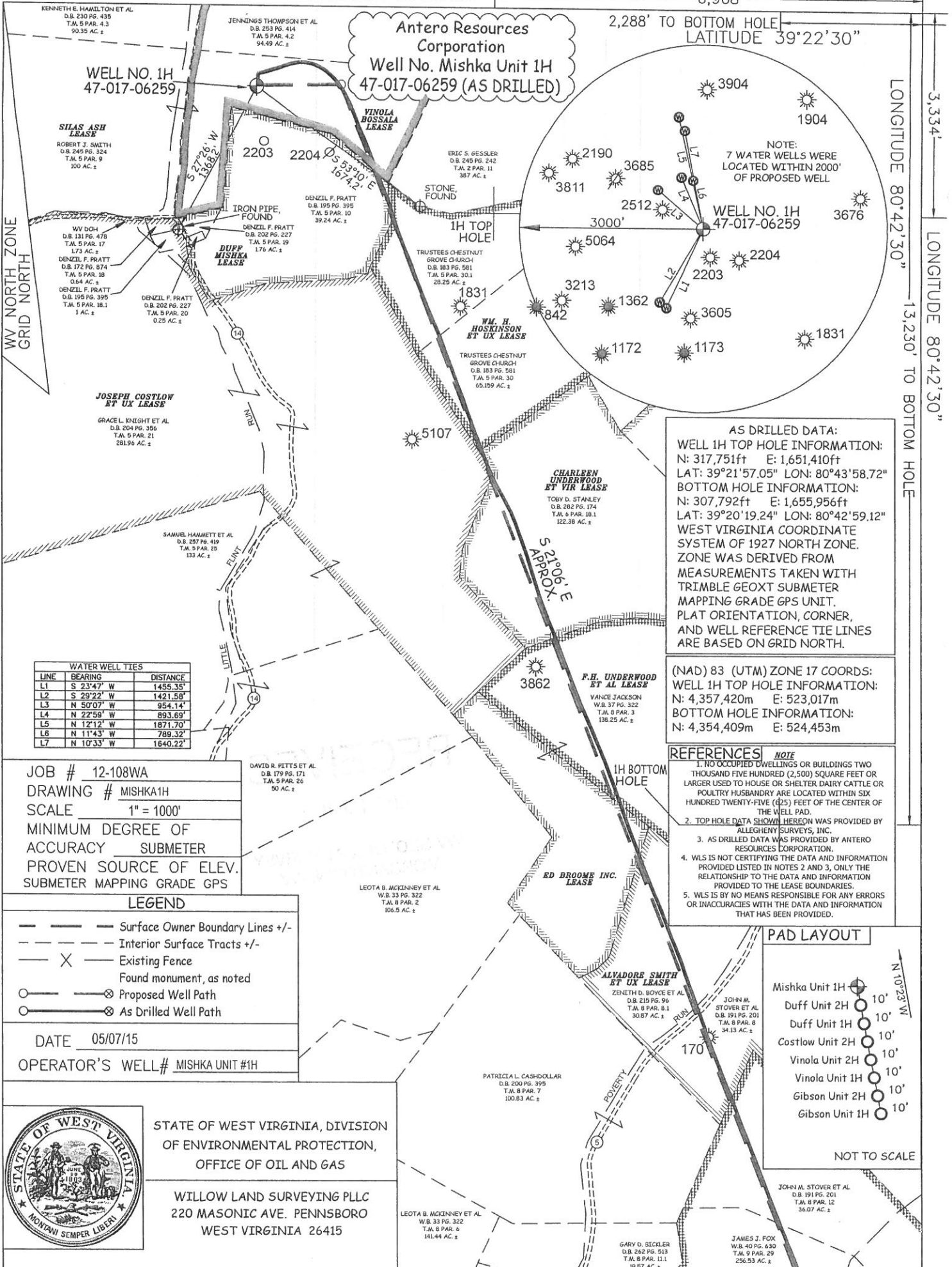
LATITUDE 39°22'30"

6,968'

2,288' TO BOTTOM HOLE
LATITUDE 39°22'30"

LONGITUDE 80°42'30"

LONGITUDE 80°42'30"



JOB # 12-108WA
 DRAWING # MISHKA1H
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

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

DATE 05/07/15
 OPERATOR'S WELL# MISHKA 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 - 06259

STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,004' ORIGINAL - 998' AS-DRILLED WATERSHED MCELROY CREEK
 QUADRANGLE SMITHBURG 7.5' DISTRICT GRANT COUNTY DODDRIDGE

SURFACE OWNER ROBERT J. SMITH ACREAGE 100 ACRES +/-

OIL & GAS ROYALTY OWNER VINOLA BOSSALA; DUFF MISHKA; WM. H. HOSKINSON ET UX; CHARLEEN UNDERWOOD ET VIR; JOSEPH COSTLOW ET UX; F.H. UNDERWOOD ET AL; ED BROOME INC.; ALVADORE SMITH ET UX; DEPI LEASE ACREAGE 120 ACRES±; 41 ACRES±; 228.50 ACRES±; 145.3 ACRES±; 350ACRES±; 102 ACRES±; 36.25 ACRES±; 65 ACRES±; 65.10 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 6,830' TVD 17,932' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6