

JUN 01 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 - 06262 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name Delbert Leatherman Pad Field/Pool Name _____
Farm name Leatherman, Delbert E. et al Well Number Vanscoy 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 4,349,925m Easting 526,476m
Landing Point of Curve Northing 4,350,036.49m Easting 526,303.27m
Bottom Hole Northing 4,351,989m Easting 525,665m

Elevation (ft) 1,181' 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 06/25/2013 Date drilling commenced 02/01/2014 Date drilling ceased 03/29/2014
Date completion activities began 04/26/2014 Date completion activities ceased 07/04/2014
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 95', 215' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1136', 1600' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 327', 1517' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) No

Reviewed by: _____

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API 47-017 - 06262 Farm name Leatherman, Delbert E. et al Well number Vanscoy 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	30"	20"	40'	New	94#; K-55	N/A	Yes
Surface	17 1/2"	13 3/8"	357'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,583'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	14,042'	New	20#; P-110	N/A	Yes
Tubing		2 3/8"	7,063'		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	200 sx	15.2	1.86	109	0'	8 Hrs.
Surface	Class A	381 sx	15.6	1.18	248	0'	8 Hrs.
Coal							
Intermediate 1	Class A	565 sx	14.5	1.3	809	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,063 sx (Lead); 1,097 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	2,740	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14,042' MD, 7,027' TVD (BHL & Deepest Point Drilled) Loggers TD (ft) 13,993'

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

Plug back procedure N/A

Kick off depth (ft) 6,262'

**This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Langfitt Unit 2H, API #47-017-06204). Please reference the wireline logs submitted with Form WR-35 for the Langfitt 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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API 47- 017 - 06262 Farm name Leatherman, Delbert E. et al Well number Vanscoy Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>6,882' (top)</u> TVD	<u>7,030' (top)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,550 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 9779 mcfpd Oil 1 bpd NGL _____ bpd Water 91 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	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	
	<u>0</u>		<u>0</u>		

*** PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling, LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

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

Stimulating Company US Well Services
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Megan Darling Telephone 303-357-7230
Signature Megan C. Darling Title Permitting Agent Date 05/29/2015

API 47-017-06262 Farm Name Leatherman, Delbert E., et al Well Number Vanscoy Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	26-Apr-14	13,787	13,954	60	Marcellus
2	25-May-14	13,590	13,756	60	Marcellus
3	25-May-14	13,392	13,559	60	Marcellus
4	25-May-14	13,195	13,361	60	Marcellus
5	26-May-14	12,997	13,164	60	Marcellus
6	26-May-14	12,800	12,966	60	Marcellus
7	26-May-14	12,602	12,769	60	Marcellus
8	26-May-14	12,405	12,571	60	Marcellus
9	27-May-14	12,207	12,374	60	Marcellus
10	27-May-14	12,010	12,176	60	Marcellus
11	27-May-14	11,812	11,979	60	Marcellus
12	28-May-14	11,615	11,782	60	Marcellus
13	28-May-14	11,417	11,584	60	Marcellus
14	28-May-14	11,220	11,387	60	Marcellus
15	29-May-14	11,022	11,189	60	Marcellus
16	29-May-14	10,825	10,992	60	Marcellus
17	29-May-14	10,627	10,794	60	Marcellus
18	29-May-14	10,430	10,597	60	Marcellus
19	30-May-14	10,233	10,399	60	Marcellus
20	30-May-14	10,035	10,202	60	Marcellus
21	30-May-14	9,838	10,004	60	Marcellus
22	30-May-14	9,640	9,807	60	Marcellus
23	31-May-14	9,443	9,609	60	Marcellus
24	31-May-14	9,245	9,412	60	Marcellus
25	31-May-14	9,048	9,214	60	Marcellus
26	31-May-14	8,850	9,017	60	Marcellus
27	31-May-14	8,653	8,819	60	Marcellus
28	1-Jun-14	8,455	8,622	60	Marcellus
29	1-Jun-14	8,258	8,424	60	Marcellus
30	1-Jun-14	8,060	8,227	60	Marcellus
31	1-Jun-14	7,863	8,029	60	Marcellus
32	2-Jun-14	7,665	7,832	60	Marcellus
33	2-Jun-14	7,468	7,634	60	Marcellus
34	2-Jun-14	7,270	7,437	60	Marcellus
35	2-Jun-14	7,073	7,239	60	Marcellus

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API 47-017-06262 Farm Name Leatherman, Delbert E., et al Well Number Vanscoy 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	24-May-14	79.0	7,639	N/A	5,311	254,300	6,495	N/A
2	25-May-14	78.0	7,260	5,522	5,007	253,800	6,455	N/A
3	25-May-14	77.0	7,283	5,558	5,125	253,900	6,431	N/A
4	25-May-14	79.0	7,627	5,511	4,188	241,500	6,913	N/A
5	26-May-14	79.0	7,078	5,454	4,699	253,900	6,603	N/A
6	26-May-14	79.0	7,191	5,822	4,985	249,100	6,392	N/A
7	26-May-14	80.0	7,989	5,600	5,161	253,300	6,616	N/A
8	26-May-14	80.0	6,996	5,411	5,536	254,600	6,389	N/A
9	27-May-14	80.0	7,282	5,547	5,382	252,600	6,300	N/A
10	27-May-14	78.0	7,266	5,593	5,243	254,500	6,323	N/A
11	27-May-14	78.0	6,997	5,482	4,978	254,100	6,318	N/A
12	28-May-14	79.0	6,981	5,529	5,586	205,500	6,915	N/A
13	28-May-14	78.0	7,057	5,522	5,296	253,400	6,228	N/A
14	28-May-14	74.0	6,861	5,769	5,368	231,400	6,014	N/A
15	29-May-14	80.0	7,116	5,697	5,440	253,000	6,256	N/A
16	29-May-14	80.0	6,901	5,298	5,529	254,500	6,297	N/A
17	29-May-14	78.0	6,915	5,343	5,479	224,400	5,906	N/A
18	29-May-14	82.0	6,917	5,586	5,965	219,400	6,821	N/A
19	30-May-14	81.0	6,938	6,151	6,051	254,000	6,213	N/A
20	30-May-14	76.6	6,840	5,457	5,693	254,700	6,224	N/A
21	30-May-14	77.1	6,614	5,264	5,486	256,300	6,222	N/A
22	30-May-14	81.0	6,916	5,153	6,090	253,900	6,171	N/A
23	31-May-14	81.0	6,741	6,273	5,679	253,600	6,153	N/A
24	31-May-14	80.0	6,602	5,486	5,271	254,700	6,149	N/A
25	31-May-14	79.0	6,814	5,497	5,422	254,650	6,136	N/A
26	31-May-14	81.0	6,748	5,679	5,765	253,800	6,114	N/A
27	31-May-14	81.0	6,589	5,794	5,583	253,300	6,098	N/A
28	1-Jun-14	80.0	6,701	6,080	5,643	253,900	6,089	N/A
29	1-Jun-14	77.1	6,477	5,164	5,536	255,350	6,116	N/A
30	1-Jun-14	76.9	6,381	5,211	5,490	254,900	6,122	N/A
31	1-Jun-14	81.0	6,459	5,715	5,575	253,900	6,061	N/A
32	2-Jun-14	81.0	6,516	5,672	5,325	254,400	6,038	N/A
33	2-Jun-14	79.0	6,343	5,450	5,304	256,000	6,068	N/A
34	2-Jun-14	80.0	6,337	5,461	5,289	254,000	6,029	N/A
35	2-Jun-14	80.0	6,540	6,301	4,982	241,725	6,579	N/A
	AVG=	79.2	6,912	5,590	5,385	8,730,325	220,254	TOTAL

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API 47-017-06262 Farm Name Leatherman, Delbert E. et al Well Number Vanscoy 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	95'	N/A	95'	N/A
Fresh Water	215'	N/A	215'	N/A
Sandstone/Siltstone w/ trace coal	0	147	0	147
Shale	147	327	147	327
Coal	327	347	327	347
Siltstone	347	637	347	637
Siltstone/Sandstone	637	1,237	637	1,237
Sandstone	1,237	1,297	1,237	1,297
Shale w/ trace coal	1,297	1,317	1,297	1,317
Shale w/ trace coal	1,317	1,337	1,317	1,337
Sandstone	1,337	1,517	1,337	1,517
Coal	1,517	1,557	1,517	1,557
Siltstone	1,557	1,797	1,557	1,797
Sandstone	1,797	1,910	1,797	1,913
Big Lime	1,910	2,023	1,913	2,026
Big Injun	2,023	2,463	2,026	2,466
Gantz Sand	2,463	2,584	2,466	2,587
Fifty Foot Sandstone	2,584	2,654	2,587	2,657
Gordon	2,654	2,970	2,657	2,973
Fifth Sandstone	2,970	2,989	2,973	2,992
Bayard	2,989	3,379	2,992	3,382
Warren	3,379	3,725	3,382	3,728
Speechley	3,725	4,044	3,728	4,047
Baltown	4,044	4,513	4,047	4,516
Bradford	4,513	5,020	4,516	5,023
Benson	5,020	5,285	5,023	5,288
Alexander	5,285	5,492	5,288	5,495
Elk	5,492	6,050	5,495	6,053
Rhinestreet	6,050	6,393	6,053	6,403
Sycamore	6,393	6,630	6,403	6,664
Middlesex	6,630	6,772	6,664	6,842
Burkett	6,772	6,799	6,842	6,882
Tully	6,799	6,882	6,882	7,030
Marcellus	6,882	NA	7,030	NA

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/24/2014
Job End Date:	6/2/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06262-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Vanscoy Unit 1H
Longitude:	-80.69295000
Latitude:	39.29830000
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,027
Total Base Water Volume (gal):	9,250,668
Total Base Non Water Volume:	431,327



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service 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	89.58732	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	10.13766	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.08889	
			Hydrogen Chloride	7641-01-1	18.00000	0.02123	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.03391	
			Petroleum Distillates	64742-47-8	60.00000	0.03211	
			Suspending agent (solid)	14808-60-7	3.00000	0.00519	
			Surfactant	68439-51-0	3.00000	0.00203	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	40.00000	0.02344	
			Anionic Polyacrylamide	Proprietary		0.02344	
			Petroleum Distillates	64742-47-8	22.00000	0.01887	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00293	

SI-1000	J.S. Well Services, LLC	Scale Inhibitor	Crystalline Salt	12125-02-9	5.00000	0.00293
			Anionic Copolymer	Proprietary		0.00420
			Ethylene Glycol	107-21-1	20.00000	0.00380
			Water	7732-18-5	30.00000	0.00317
X-BAC 1020	J.S. Well Services, LLC	Anti-Bacterial Agent	2,2-dibromo-3-nitriopropanamide	10222-01-2	20.00000	0.00440
			Deionized Water	7732-18-5	28.00000	0.00251
AP One	J.S. Well Services, LLC	Gel Breakers	Ammonium Persulfate	7727-54-0	100.00000	0.00143
AI-300	J.S. Well Services, LLC	Acid Corrosion Inhibitor	Ethylene Glycol	107-21-1	31.00000	0.00023
			N,N-Dimethylformamide	68-12-2	15.00000	0.00007
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	13.00000	0.00006
			Cinnamaldehyde	104-55-2	5.00000	0.00006
			2-Butoxyethanol	111-76-2	7.00000	0.00005
			Ethoxylated Nonylphenol	68412-54-4	5.00000	0.00002
			Water	7732-18-5	20.00000	0.00002
			Triethyl Phosphate	78-40-0	3.00000	0.00001
			Isopropyl Alcohol	67-63-0	3.00000	0.00001

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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 MORGANTOWN, WV

LATITUDE 39°20'00"

7,488'

10,124' TO BOTTOM HOLE

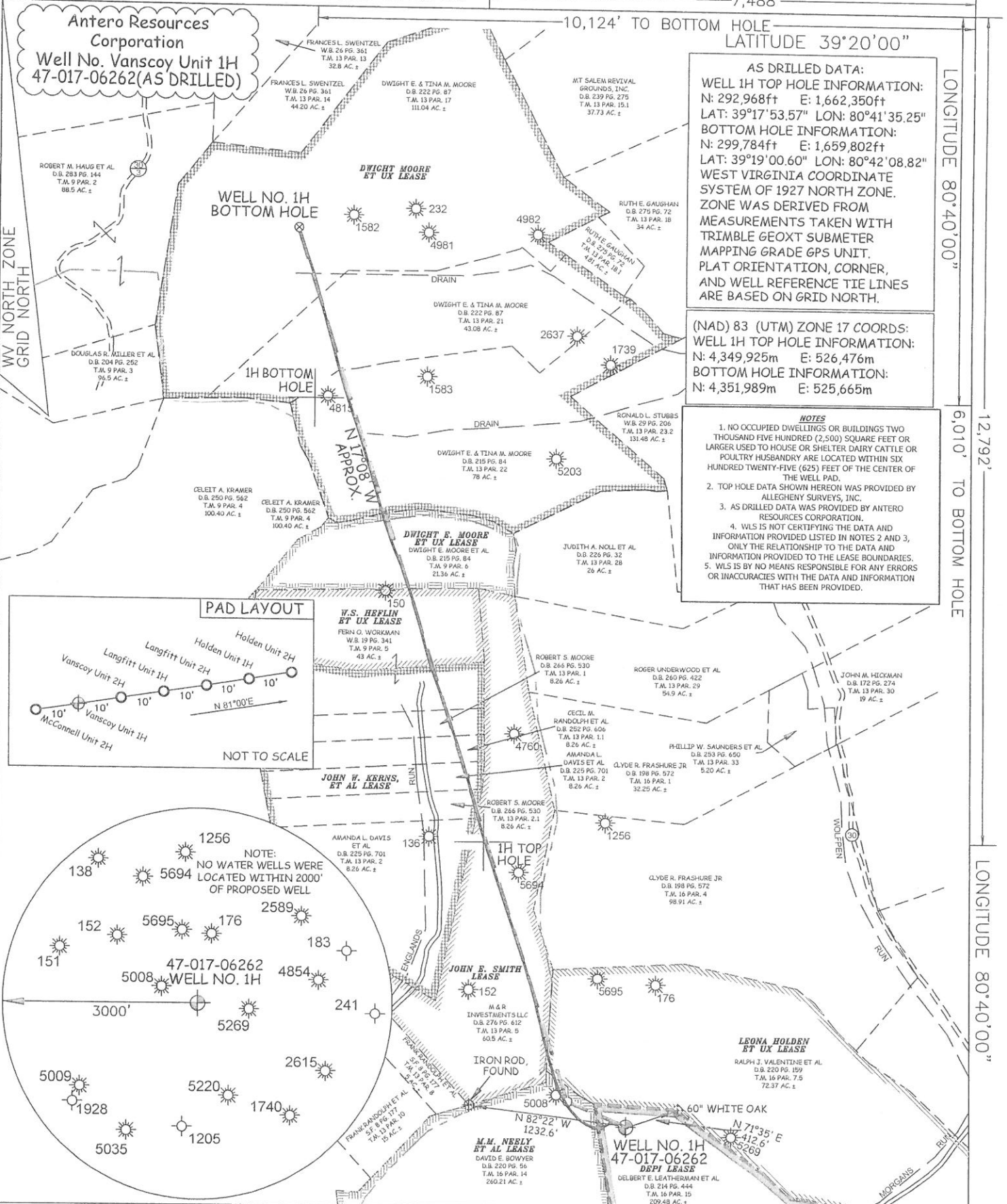
LATITUDE 39°20'00"

LONGITUDE 80°40'00"

12,792'

6,010' TO BOTTOM HOLE

LONGITUDE 80°40'00"

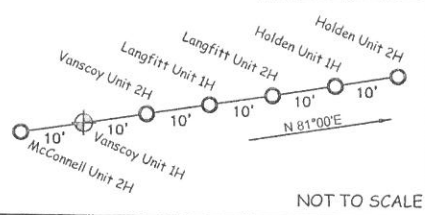


AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 292,968ft E: 1,662,350ft
 LAT: 39°17'53.57" LON: 80°41'35.25"
BOTTOM HOLE INFORMATION:
 N: 299,784ft E: 1,659,802ft
 LAT: 39°19'00.60" LON: 80°42'08.82"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

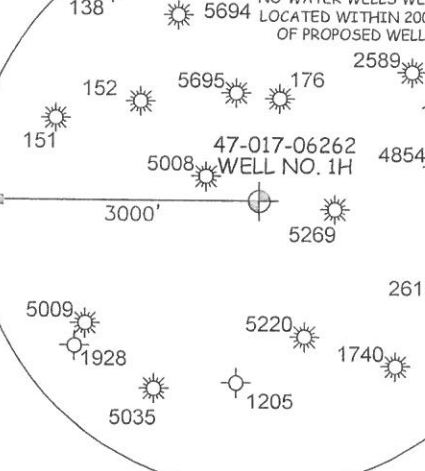
(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
 N: 4,349,925m E: 526,476m
BOTTOM HOLE INFORMATION:
 N: 4,351,989m E: 525,665m

- NOTES**
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.

PAD LAYOUT



NOTE:



JOB # 12-113WA
 DRAWING # VANSKOYUNIT1HAD
 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 +/-
 --- Existing Fence
 ⊕ Found monument, as noted
 ⊙ Proposed Well Path
 ⊗ As Drilled Well Path

DATE 04/15/2015
 OPERATOR'S WELL# VANSKOY UNIT #1H

API WELL # 47 - 017 - 06262
 STATE COUNTY PERMIT

WATERSHED HEADWATERS OF MIDDLE ISLAND CREEK
 QUADRANGLE SMITHBURG 7.5' DISTRICT GRANT COUNTY DODDRIDGE

SURFACE OWNER DELBERT E. LEATHERMAN ET AL ACREAGE 209.48 ACRES +/-
 OIL & GAS ROYALTY OWNER DEPI; M.M. NEELEY ET AL; LEONA HOLDEN ET UX; JOHN E. SMITH; JOHN W. KERNS ET AL; W.S. HEFLIN ET UX; DWIGHT E. MOORE ET UX; LEASE ACREAGE 71 ACRES±; 300 ACRES±; 82.5 ACRES±; 60.5 ACRES±; 86 ACRES±; 46 ACRES±; 21.36 ACRES±; 238 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 7,027' TVD 14,042' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM

5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT