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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 - 06332 County Doddridge District West Union
Quad Smithburg 7.5' Pad Name Nash Pad Field/Pool Name _____
Farm name Haug, Robert M., et al Well Number Olivia 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 4,351,831m Easting 524,803m
Landing Point of Curve Northing 4,351,704.31m Easting 524,912.33m
Bottom Hole Northing 4,349,643m Easting 525,604m

Elevation (ft) 1,381' 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 09/25/2013 Date drilling commenced 09/05/2014 Date drilling ceased 10/18/2014
Date completion activities began 11/24/2014 Date completion activities ceased 02/04/2015
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 206', 222' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1561', 1877' 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: _____

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API 47-017 - 06332 Farm name Haug, Robert M., et al Well number Olivia 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	94#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	388'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,597'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	14,591'	New	20#; P-110	N/A	Yes
Tubing		2 3/8"	7,319'		5.95#; 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	196 sx	14.2	1.18	38	0'	8 Hrs.
Surface	Class A	406 sx	15.6	1.44	270	0'	8 Hrs.
Coal							
Intermediate 1	Class A	953 sx	15.6	1.18	813	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,004 sx (Lead); 1,183 sx (Tail)	13.5 (Lead); 15.2 (Tail)	1.44 (Lead); 1.80 (Tail)	2,862	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14,591' MD, 7,118' TVD (BHL); 7,178' TVD (Deepest Point Drilled) Loggers TD (ft) 14,543'

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

Plug back procedure N/A

Kick off depth (ft) 6,494'

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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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	7,108' (top) TVD	7,237' (top) 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 6,230 mcfpd Oil 4 bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	0		0		
* 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 STRC
Address 1560 Good Hope Pike City Clarksburg State WV Zip 26301

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company Nabors Completion & Production Services, Co
Address 1650 Hackers Creek 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 06/05/2015

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

API 47-017-06332 Farm Name Haug, Robert M., et al Well Number Olivia Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	24-Nov-14	14,335	14,505	60	Marcellus
2	14-Dec-14	14,133	14,303	60	Marcellus
3	14-Dec-14	13,932	14,101	60	Marcellus
4	14-Dec-14	13,730	13,900	60	Marcellus
5	15-Dec-14	13,528	13,698	60	Marcellus
6	15-Dec-14	13,327	13,497	60	Marcellus
7	15-Dec-14	13,125	13,295	60	Marcellus
8	15-Dec-14	12,924	13,094	60	Marcellus
9	16-Dec-14	12,722	12,892	60	Marcellus
10	16-Dec-14	12,521	12,691	60	Marcellus
11	17-Dec-14	12,319	12,489	60	Marcellus
12	17-Dec-14	12,117	12,287	60	Marcellus
13	17-Dec-14	11,916	12,086	60	Marcellus
14	17-Dec-14	11,714	11,884	60	Marcellus
15	18-Dec-14	11,513	11,683	60	Marcellus
16	18-Dec-14	11,311	11,481	60	Marcellus
17	19-Dec-14	11,110	11,280	60	Marcellus
18	19-Dec-14	10,908	11,078	60	Marcellus
19	19-Dec-14	10,707	10,877	60	Marcellus
20	19-Dec-14	10,505	10,675	60	Marcellus
21	20-Dec-14	10,303	10,473	60	Marcellus
22	20-Dec-14	10,102	10,272	60	Marcellus
23	20-Dec-14	9,900	10,070	60	Marcellus
24	22-Dec-14	9,699	9,869	60	Marcellus
25	22-Dec-14	9,497	9,667	60	Marcellus
26	22-Dec-14	9,296	9,466	60	Marcellus
27	22-Dec-14	9,094	9,264	60	Marcellus
28	23-Dec-14	8,893	9,063	60	Marcellus
29	23-Dec-14	8,691	8,861	60	Marcellus
30	23-Dec-14	8,489	8,659	60	Marcellus
31	26-Dec-14	8,288	8,458	60	Marcellus
32	26-Dec-14	8,086	8,256	60	Marcellus
33	26-Dec-14	7,885	8,055	60	Marcellus
34	27-Dec-14	7,683	7,853	60	Marcellus
35	27-Dec-14	7,482	7,652	60	Marcellus
36	27-Dec-14	7,280	7,450	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	13-Dec-14	65.7	6,540	5,514	5,710	249,600	6,737	N/A
2	14-Dec-14	65.8	7,026	5,664	5,238	249,600	6,687	N/A
3	14-Dec-14	66.4	6,625	5,793	5,342	250,800	6,646	N/A
4	14-Dec-14	64.9	6,560	5,427	5,080	249,500	6,616	N/A
5	15-Dec-14	65.5	6,616	5,559	4,993	243,200	6,527	N/A
6	15-Dec-14	65.8	6,763	9,498	5,184	241,700	6,531	N/A
7	15-Dec-14	64.5	6,506	5,369	5,117	249,400	6,567	N/A
8	15-Dec-14	65.2	6,534	5,239	5,055	244,800	6,501	N/A
9	16-Dec-14	65.2	6,487	5,350	4,979	247,700	6,495	N/A
10	16-Dec-14	64.2	6,576	5,221	5,424	251,000	6,514	N/A
11	17-Dec-14	64.4	6,462	5,147	4,991	249,500	6,449	N/A
12	17-Dec-14	66.2	6,542	5,405	4,901	235,500	6,559	N/A
13	17-Dec-14	64.4	6,680	9,464	5,221	244,200	6,462	N/A
14	17-Dec-14	64.4	6,245	5,239	5,226	248,100	6,601	N/A
15	18-Dec-14	65.5	6,456	5,369	5,527	247,700	6,426	N/A
16	18-Dec-14	64.0	6,301	5,386	5,293	243,900	6,493	N/A
17	19-Dec-14	64.7	6,932	5,489	4,968	159,100	6,571	N/A
18	19-Dec-14	66.6	6,840	5,545	4,962	248,400	6,367	N/A
19	19-Dec-14	63.7	6,498	5,574	5,331	243,500	6,379	N/A
20	19-Dec-14	65.0	6,303	5,498	5,682	245,800	6,308	N/A
21	20-Dec-14	65.4	6,441	5,682	5,338	244,800	6,347	N/A
22	20-Dec-14	64.1	6,370	5,719	4,893	251,000	6,357	N/A
23	20-Dec-14	63.7	6,324	5,404	5,664	249,100	6,341	N/A
24	22-Dec-14	63.5	6,654	5,288	5,080	247,900	6,282	N/A
25	22-Dec-14	65.6	6,308	5,376	5,282	249,400	6,315	N/A
26	22-Dec-14	63.3	6,116	5,559	4,575	251,000	6,225	N/A
27	22-Dec-14	64.6	6,322	5,516	4,524	247,500	6,205	N/A
28	23-Dec-14	64.4	6,222	5,427	4,499	248,400	6,248	N/A
29	23-Dec-14	65.3	6,178	5,383	4,949	245,600	6,212	N/A
30	23-Dec-14	65.1	6,042	5,600	4,845	247,000	6,127	N/A
31	26-Dec-14	64.8	6,222	5,841	5,859	248,500	6,133	N/A
32	26-Dec-14	64.2	5,902	5,600	5,006	209,500	6,689	N/A
33	26-Dec-14	64.4	5,926	5,231	5,177	246,700	6,108	N/A
34	27-Dec-14	65.0	5,971	5,323	4,768	245,500	6,006	N/A
35	27-Dec-14	63.8	6,488	6,025	4,386	247,000	6,184	N/A
36	27-Dec-14	65.6	6,153	6,469	4,531	246,200	6,112	N/A
	AVG=	64.9	6,420	5,728	5,100	8,768,100	230,327	TOTAL

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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	206'	N/A	206'	N/A
Fresh Water	222'	N/A	222'	N/A
Shale	0	37	0	37
Siltstone	37	317	37	317
Sandstone	317	332	317	332
Siltstone/ Trace Coal	332	397	332	397
Sandstone	397	557	397	557
Silty Limestone	557	677	557	677
Sandstone	677	717	677	717
Siltstone	717	797	717	797
Limestone/Shale	797	837	797	837
Siltstone/ Sandstone	837	897	837	897
Limestone	897	917	897	917
Sandstone/ Siltstone	917	977	917	977
Limestone	977	997	977	997
Siltstone/ Limestone	997	1,357	997	1,357
Shale	1,357	1,397	1,357	1,397
Sandstone	1,397	1,437	1,397	1,437
Shale/ Sandstone	1,437	1,617	1,437	1,617
Sandstone	1,617	1,677	1,617	1,677
Sandstone/ Trace Coal	1,677	1,717	1,677	1,717
Sandstone / Siltstone	1,717	2,129	1,717	2,131
Big Lime	2,129	2,279	2,131	2,281
Big Injun	2,279	2,710	2,281	2,712
Gantz Sand	2,710	2,842	2,712	2,844
Fifty Foot Sandstone	2,842	2,924	2,844	2,926
Gordon	2,924	3,217	2,926	3,219
Fifth Sandstone	3,217	3,342	3,219	3,344
Bayard	3,342	3,611	3,344	3,613
Warren	3,611	3,987	3,613	3,989
Speechley	3,987	4,318	3,989	4,320
Baltown	4,318	4,789	4,320	4,791
Bradford	4,789	5,259	4,791	5,261
Benson	5,259	5,532	5,261	5,534
Alexander	5,532	5,808	5,534	5,810
Elk	5,808	6,362	5,810	6,364
Rhinstreet	6,362	6,635	6,364	6,642
Sycamore	6,635	6,857	6,642	6,884
Middlesex	6,857	7,007	6,884	7,068
Burkett	7,007	7,034	7,068	7,107
Tully	7,034	7,108	7,107	7,237
Marcellus	7,108	NA	7,237	NA

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Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	12/13/2014
Job End Date:	12/27/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06332-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Olivia Unit 1H
Longitude:	-80.71228300
Latitude:	39.31552500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,178
Total Base Water Volume (gal):	9,673,734
Total Base Non Water Volume:	0

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	Water					
			Water	7732-18-5	100.00000	89.84528	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	5.51578	
			Aluminum Oxide	1344-28-1	1.10000	0.06073	
			Iron Oxide	1309-37-1	0.10000	0.00552	
			Titanium Oxide	13463-67-7	0.10000	0.00552	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	3.44475	
			Aluminum Oxide	1344-28-1	1.10000	0.03793	
			Titanium Oxide	13463-67-7	0.10000	0.00345	
			Iron Oxide	1309-37-1	0.10000	0.00345	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	0.79399	
			Aluminum Oxide	1344-28-1	1.10000	0.00874	

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				Iron Oxide	1309-37-1		0.10000	0.00080	
HCl Acid (12.5-18.0%) 22 Baume		Bulk Acid		Titanium Oxide	13463-67-7		0.10000	0.00080	
	Nabors Completion and Production Services			Water	7732-18-5		87.50000	0.18346	
				Hydrochloric Acid	7647-01-0		18.00000	0.03774	
WFR-6W	Nabors Completion and Production Services	Friction Reducer		Anionic Water-Soluble Polymer Emulsion	Proprietary		100.00000	0.06178	
LSG-100L	Nabors Completion and Production Services	Gelling Agents		Petroleum Distillates	64742-47-8		70.00000	0.05774	
Super TSC-LT	Nabors Completion and Production Services	Paraffin & Scale Additives		100% Non-Hazardous Mixture	Proprietary		100.00000	0.01695	
AQUACAR DB 20	Nabors Completion and Production Services	Biocides		Polyethylene glycol	25322-68-3		54.50000	0.00853	
				2,2-Dibromo-3-nitro- propionamide (DBNPA)	10222-01-2		20.00000	0.00313	
				Sodium bromide	7647-15-6		4.00000	0.00063	
				Dibromoacetonitrile	3252-43-5		3.00000	0.00047	
Super GREEN SOLV- M	Nabors Completion and Production Services	Paraffin & Scale Additives							
				Aliphatic Hydrocarbons	Proprietary		95.00000	0.00216	
				Dodecane	Proprietary		14.00000	0.00032	
				tetradecane	Proprietary		11.00000	0.00025	
				Tridecane	Proprietary		9.00000	0.00021	
				Undecane	Proprietary		8.00000	0.00018	
OB-2 LT	Nabors Completion and Production Services	Gel Breakers							
				Ammonium Persulfate	7727-54-0		85.00000	0.00070	
				Crystalline Silica (in the form of quartz)	14808-60-7		10.00000	0.00008	
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors		isopropyl Alcohol	67-63-0		40.00000	0.00016	
				Glycol Ethers	111-46-6		40.00000	0.00016	
				Propargyl Alcohol	107-19-7		40.00000	0.00016	
				Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7		10.00000	0.00004	
EB-4L	Nabors Completion and Production Services	Gel Breakers							

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Other Ingredients	Nabors Completion and Production Services	Other Ingredients	Ethylene Glycol	107-21-1	40.00000	0.00016
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.						
			Copolymer	Proprietary	100.00000	0.06178
			guar gum	9000-30-0	50.00000	0.04124
			Water	7732-18-5	40.00000	0.02471
			Isoparaffinic Solvent	64742-47-8	26.00000	0.01606
			Water	7732-18-5	60.00000	0.01017
			Proprietary	Proprietary	50.00000	0.00848
			Water	7732-18-5	32.00000	0.00501
			Proprietary	Proprietary	15.00000	0.00254
			Proprietary	Proprietary	15.00000	0.00254
			Ethylene Glycol	107-21-1	4.00000	0.00247
			Ethoxylated alcohols	Proprietary	4.00000	0.00247
			Surfactant Blend	Proprietary	3.00000	0.00185
			Surfactant	68439-51-0	2.00000	0.00165
			Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00165
			Sugar	57-50-1	100.00000	0.00041
			Proprietary	Proprietary	100.00000	0.00041
			Water	7732-18-5	100.00000	0.00020
			Water	7732-18-5	48.00000	0.00019
			Monobromo-3-nitropropionamide	1113-55-9	1.00000	0.00016
			2,2-Dibromomaltonamide	73003-80-2	1.00000	0.00016
			Alkali Chloride salt	Proprietary	15.00000	0.00012
			2-Propenamide as residual	79-06-1	0.10000	0.00006
			2-Butoxyethanol	111-76-2	13.00000	0.00005
			Proprietary	Proprietary	10.00000	0.00004
			Proprietary	Proprietary	1.00000	0.00000
			Proprietary	Proprietary	1.00000	0.00000
			Proprietary	Proprietary	1.00000	0.00000
			Proprietary	Proprietary	1.00000	0.00000
			Proprietary	Proprietary	0.99000	0.00000
			Proprietary	Proprietary	0.02000	0.00000
			Organophylic Clay	68953-58-2		

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

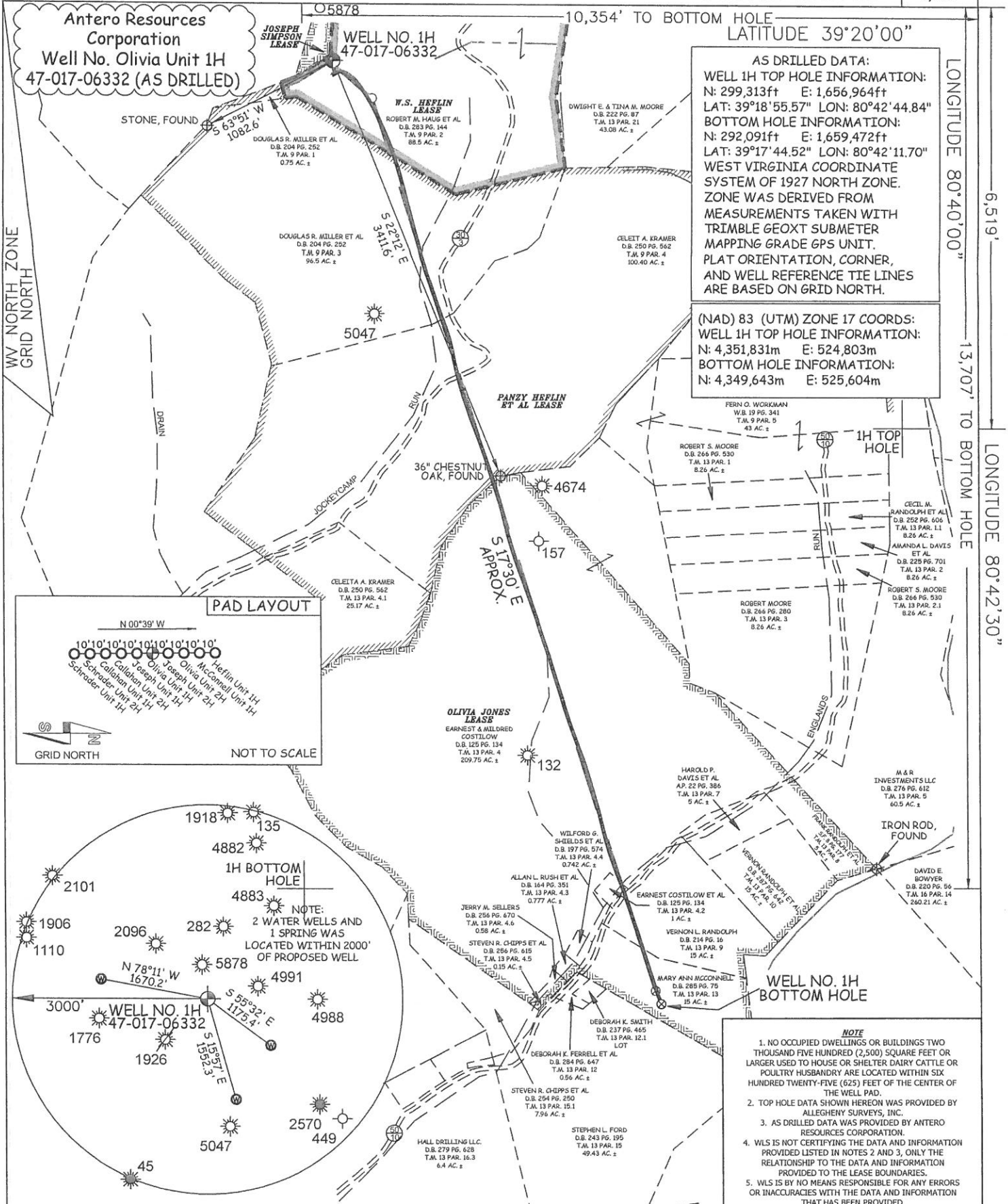
** Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

LATITUDE 39°20'00" | -1,166'

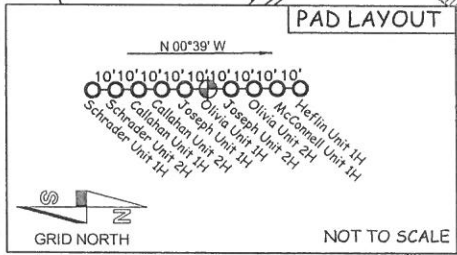
LATITUDE 39°20'00"

LONGITUDE 80°40'00" | 6,519'
LONGITUDE 80°42'30" | 13,707' TO BOTTOM HOLE



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 299,313ft E: 1,656,964ft
 LAT: 39°18'55.57" LON: 80°42'44.84"
BOTTOM HOLE INFORMATION:
 N: 292,091ft E: 1,659,472ft
 LAT: 39°17'44.52" LON: 80°42'11.70"
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: 4,351,831m E: 524,803m
BOTTOM HOLE INFORMATION:
 N: 4,349,643m E: 525,604m



- 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 # 13-027WA
 DRAWING # OLIVIAUNIT1HAD
 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
 P.O. BOX 17
 PENNSBORO, WV 26415

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# OLIVIA UNIT #1H

API WELL # 47 - 017 - 06332
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
 WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 LOCATION: ELEVATION 1,430' ORIGINAL - 1,381' AS-DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE SMITHBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER ROBERT M. HAUG ET AL ACREAGE 88.5 ACRES +/-
 OIL & GAS ROYALTY OWNER W.S. HEFLIN; PANZY HEFLIN ET AL; OLIVIA JONES LEASE ACREAGE 89 ACRES±; 222.5 ACRES±; 260 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 7,118' TVD 14,591' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPLER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313