

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

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AN 1 4 2020

WV Department of
Environmental Protection

API 47 - 095 - 02547 County Tyler District McElroy
Quad Shirley 7.5' Pad Name Alta Pad Field/Pool Name -----
Farm name Stephen Grimm Well Number Lindsey 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 4360568m Easting 521819m
Landing Point of Curve Northing 4360771.34m Easting 520945.40m
Bottom Hole Northing 4363343m Easting 520122m

Elevation (ft) 827' 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 3/1/2019 Date drilling commenced 12/2/2018 Date drilling ceased 4/21/2019
Date completion activities began 6/12/2019 Date completion activities ceased 8/13/2019
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 29, 66, 369 Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1093, 1159, 1260 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 G/CB
2/20/2020

API 47-095 - 02547 Farm name Stephen Grimm Well number Lindsey 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"	113'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	506'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2702'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16883'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7315'		4.7#, N-80		
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	294 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	418 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	920 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	766 sx (Lead) 2162 sx (Tail)	14.0 (Lead), 15.2 (Tail)	1.47 (Lead), 1.83 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

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Drillers TD (ft) 16853' MD, 6566' TVD (BHL), 6636' (Deepest Point Drilled) Loggers TD (ft) 16853' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

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Kick off depth (ft) 6270'

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

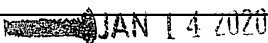
WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

API 47- 095 - 02547 Farm name Stephen Grimm Well number Lindsey Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
*PLEASE SEE ATTACHED EXHIBIT 1					
					RECEIVED Office of Oil and Gas
					

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

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Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
*PLEASE SEE ATTACHED EXHIBIT 2								

Please insert additional pages as applicable.

API 47- 095 - 02547 Farm name Stephen Grimm Well number Lindsey Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6548' (TOP)</u>	<u>TVD</u>	<u>7377' (TOP)</u> <u>MD</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 3534 mcfpd Oil 24 bpd NGL --- bpd Water 0 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	

***PLEASE SEE ATTACHED EXHIBIT 3**

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Please insert additional pages as applicable.

Drilling Contractor Patterson UTI Drilling Company LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company KLX Energy Services
Address 3040 Post Oak Boulevard City Houston State TX Zip 77056

Cementing Company C&J Energy Services
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company Baker Hughes
Address 837 Phillippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223
Signature [Signature] Title Permitting Agent Date 1/13/2020

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

API 47-095-02547 Farm Name Stephen Grimm Well Number Lindsey Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	7/14/2019	16481.96	16648	60	Marcellus
2	7/14/2019	16285.112	16451.152	60	Marcellus
3	7/15/2019	16088.264	16254.304	60	Marcellus
4	7/15/2019	15891.416	16057.456	60	Marcellus
5	7/16/2019	15694.568	15860.608	60	Marcellus
6	7/16/2019	15497.72	15663.76	60	Marcellus
7	7/16/2019	15300.872	15466.912	60	Marcellus
8	7/17/2019	15104.024	15270.064	60	Marcellus
9	7/17/2019	14907.176	15073.216	60	Marcellus
10	7/17/2019	14710.328	14876.368	60	Marcellus
11	7/18/2019	14513.48	14679.52	60	Marcellus
12	7/18/2019	14316.632	14482.672	60	Marcellus
13	7/18/2019	14119.784	14285.824	60	Marcellus
14	7/19/2019	13922.936	14088.976	60	Marcellus
15	7/19/2019	13726.088	13892.128	60	Marcellus
16	7/19/2019	13529.24	13695.28	60	Marcellus
17	7/19/2019	13332.392	13498.432	60	Marcellus
18	7/20/2019	13135.544	13301.584	60	Marcellus
19	7/20/2019	12938.696	13104.736	60	Marcellus
20	7/20/2019	12741.848	12907.888	60	Marcellus
21	7/20/2019	12545	12711.04	60	Marcellus
22	7/21/2019	12348.152	12514.192	60	Marcellus
23	7/21/2019	12151.304	12317.344	60	Marcellus
24	7/21/2019	11954.456	12120.496	60	Marcellus
25	7/21/2019	11757.608	11923.648	60	Marcellus
26	7/22/2019	11560.76	11726.8	60	Marcellus
27	7/22/2019	11363.912	11529.952	60	Marcellus
28	7/22/2019	11167.064	11333.104	60	Marcellus
29	7/23/2019	10970.216	11136.256	60	Marcellus
30	7/23/2019	10773.368	10939.408	60	Marcellus
31	7/23/2019	10576.52	10742.56	60	Marcellus
32	7/23/2019	10379.672	10545.712	60	Marcellus
33	7/24/2019	10182.824	10348.864	60	Marcellus
34	7/24/2019	9985.976	10152.016	60	Marcellus
35	7/24/2019	9789.128	9955.168	60	Marcellus
36	7/24/2019	9592.28	9758.32	60	Marcellus
37	7/25/2019	9395.432	9561.472	60	Marcellus
38	7/25/2019	9198.584	9364.624	60	Marcellus
39	7/25/2019	9001.736	9167.776	60	Marcellus
40	7/25/2019	8804.888	8970.928	60	Marcellus
41	7/26/2019	8608.04	8774.08	60	Marcellus
42	7/26/2019	8411.192	8577.232	60	Marcellus
43	7/26/2019	8214.344	8380.384	60	Marcellus
44	7/27/2019	8017.496	8183.536	60	Marcellus
45	7/27/2019	7820.648	7986.688	60	Marcellus
46	7/27/2019	7623.8	7789.84	60	Marcellus
47	7/27/2019	7426.952	7592.992	60	Marcellus

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API 47-095-02547 Farm Name Stephen Grimm Well Number Lindsey 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	7/14/2019	59.58114	7503.161	5686	4322	174400	4704.656	N/A
2	7/14/2019	72.517	8070.284	5666	4404	401150	8796.696	N/A
3	7/15/2019	75.70492	8196.583	5904	4559	400550	8963.36	N/A
4	7/15/2019	79.38669	8188.84	5737	4652	400500	8661.6	N/A
5	7/16/2019	77.48471	8148.06	5588	4325	400950	8689.023	N/A
6	7/16/2019	73.42873	7812.032	5390	4977	400550	8653.633	N/A
7	7/16/2019	72.82356	7976.686	6463	4631	400300	8708.455	N/A
8	7/17/2019	68.84664	8034.192	7796	4674	401000	10501.63	N/A
9	7/17/2019	73.64905	7954.122	5376	4665	400100	8683.295	N/A
10	7/17/2019	74.5202	7895.72	5654	4476	400500	8664.675	N/A
11	7/18/2019	75.84262	8147.458	5647	4796	401000	11203.1	N/A
12	7/18/2019	72.18174	8029.678	5792	4569	400800	8609.855	N/A
13	7/18/2019	73.49546	7812.752	5573	4445	400200	8458.965	N/A
14	7/19/2019	68.64136	7899.001	5671	4721	400700	12828.29	N/A
15	7/19/2019	72.54093	7882.561	5473	4994	401400	10076.25	N/A
16	7/19/2019	77.98398	7973.397	5904	4478	401300	8627.885	N/A
17	7/19/2019	75.98481	7842.162	5522	4363	400500	8607.335	N/A
18	7/20/2019	74.83364	7876.479	5477	4590	400650	8565.395	N/A
19	7/20/2019	74.57601	7857.957	5382	4404	400300	8668.515	N/A
20	7/20/2019	74.20883	7790.572	5708	4610	400750	8741.215	N/A
21	7/20/2019	75.49742	8025.079	5699	4733	400750	8540.565	N/A
22	7/21/2019	77.16671	7936.034	5602	4692	400450	8580.485	N/A
23	7/21/2019	78.34491	7902.14	5741	4970	400950	8620.035	N/A
24	7/21/2019	74.89259	7942.093	5916	4530	400600	8580.125	N/A
25	7/21/2019	77.03388	7972.781	5519	4756	400500	8477.765	N/A
26	7/22/2019	79.62223	7884.715	5421	4785	400900	8716.415	N/A
27	7/22/2019	76.15714	7659.327	5397	4574	400600	8591.175	N/A
28	7/22/2019	78.58795	7797.264	5694	5047	400650	8557.835	N/A
29	7/23/2019	79.50738	7888.542	5473	4857	400950	8438.865	N/A
30	7/23/2019	77.69859	7874.91	5787	4982	400750	8457.495	N/A
31	7/23/2019	77.56056	7854.349	5654	4909	400100	8553.315	N/A
32	7/23/2019	81.47487	7980.128	5559	5146	401050	8401.875	N/A
33	7/24/2019	80.03967	7972.102	5694	5171	400650	8397.395	N/A
34	7/24/2019	72.43434	8214.906	5906	4598	402000	8524.595	N/A
35	7/24/2019	77.3934	7463.664	5567	4832	400400	8436.375	N/A
36	7/24/2019	82.87571	7696.314	5657	4742	400500	8434.715	N/A
37	7/25/2019	82.39421	7692.068	5620	4673	400890	8320.985	N/A
38	7/25/2019	85.53197	7526.416	5593	4642	400950	8336.175	N/A
39	7/25/2019	81.76691	7328.503	7026	4622	401150	8356.915	N/A
40	7/25/2019	82.63	7436.618	5768	4617	400800	8355.705	N/A
41	7/26/2019	84.01245	7563.743	5734	4627	400300	8330.055	N/A
42	7/26/2019	83.58281	7317.937	5783	4460	403200	8481.795	N/A
43	7/26/2019	84.2303	7377.883	5574	4839	400800	8389.385	N/A
44	7/27/2019	85.69095	7431.528	5671	4645	400250	8257.805	N/A
45	7/27/2019	85.1579	7448.276	5655	4643	400850	8411.965	N/A
46	7/27/2019	81.22066	7102.807	5753	4403	400950	8317.565	N/A
47	7/27/2019	82.84071	7126.549	6231	4511	400350	8314.325	N/A
AVG		77.1	7,824	5,736	4,683	17,808,590	390,964	TOTAL

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shaly Sandstone	0	155	0	155
Sandy Shale	155	215	155	215
Shaly Sandstone	215	255	215	255
Sandstone	255	395	255	395
Shaly Sandstone	395	505	395	505
Sandstone	505	575	505	575
Carbonaceous shale	575	615	575	615
Sandstone	615	765	615	765
Shaly sandstone tr coal	765	1,025	765	1,025
Shaly Siltstone	1,025	1,305	1,025	1,305
Sandstone	1,305	1,455	1,305	1,455
Sandy siltstone	1,455	1,685	1,455	1,685
Sandstone	1,685	1,733	1,685	1,771
Big Lime	1,758	2,643	1,771	2,740
Fifty Foot Sandstone	2,643	2,721	2,715	2,824
Gordon	2,721	3,038	2,799	3,184
Fifth Sandstone	3,038	3,106	3,159	3,261
Bayard	3,106	3,611	3,236	3,823
Speechley	3,611	3,914	3,798	4,162
Balltown	3,914	4,449	4,137	4,758
Bradford	4,449	4,886	4,733	5,245
Benson	4,886	5,142	5,220	5,529
Alexander	5,142	6,368	5,504	7,005
Sycamore	6,165	6,338	6,744	6,975
Middlesex	6,338	6,468	6,980	7,184
Burkett	6,468	6,496	7,189	7,243
Tully	6,496	6,548	7,248	7,377
Marcellus	6,548	NA	7,377	NA

*Please note Antero determines 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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LATITUDE 39°25'00"

10,867'

LATITUDE 39°27'30" 4,636' TO BOTTOM HOLE

LONGITUDE 80°45'00"

8,165'

14,220' TO BOTTOM HOLE

LONGITUDE 80°42'30"

Antero Resources Corporation Well No. Lindsey Unit 1H

Table with 4 columns: TM-Par, Surface Owner, Book/Pg, Acreage. Lists various land parcels and owners.

AS DRILLED DATA: WELL 1H TOP HOLE INFORMATION: N: 328,148ft E: 1,647,651ft... BOTTOM HOLE INFORMATION: N: 337,347ft E: 1,642,233ft...

(NAD) 83 (UTM) ZONE 17 COORDS: WELL 1H TOP HOLE INFORMATION: N: 4,360,568m E: 521,819m... BOTTOM HOLE INFORMATION: N: 4,363,343m E: 520,122m

WV NORTH ZONE GRID NORTH

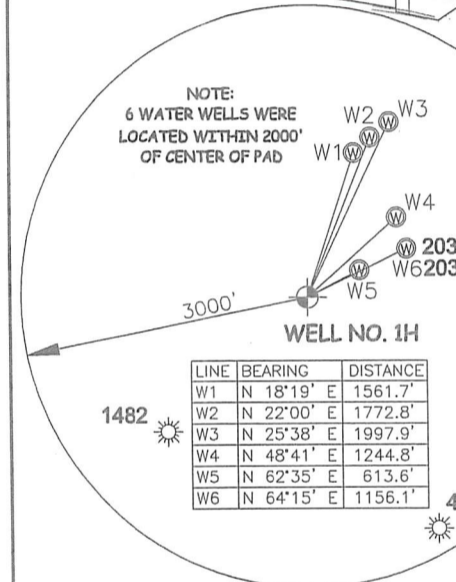
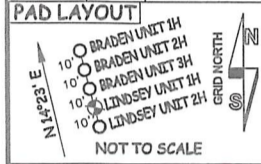
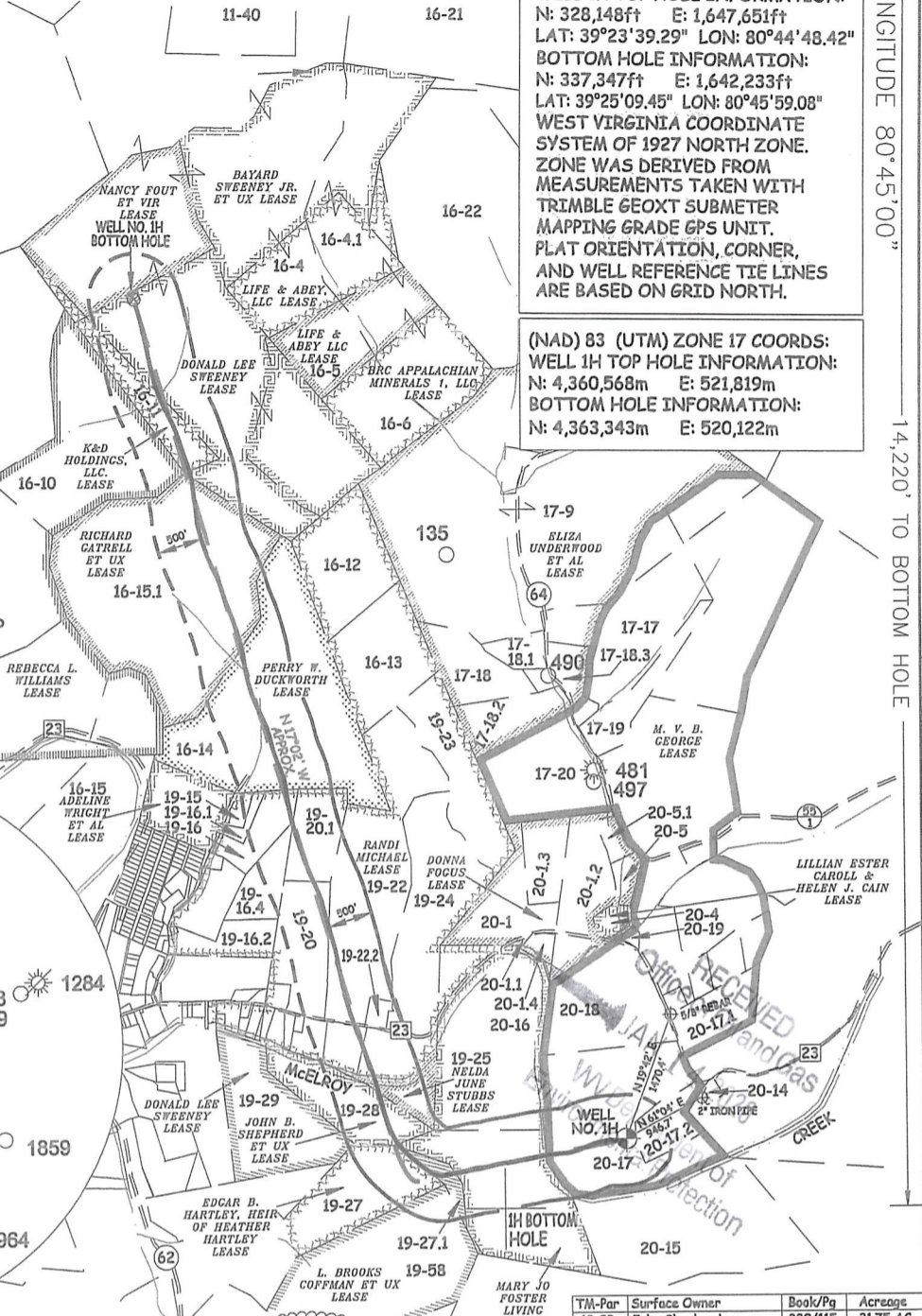


Table with 3 columns: LINE, BEARING, DISTANCE. Lists well location data for W1-W6.



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS. WILLLOW LAND SURVEYING PLLC, 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

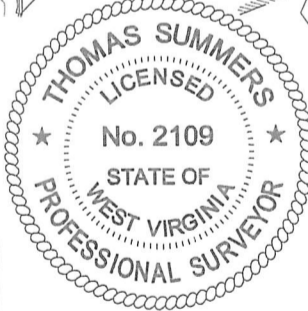


Table with 4 columns: TM-Par, Surface Owner, Book/Pg, Acreage. Lists additional land parcels and owners.

JOB # 18-017WA, DRAWING # LINDSEY1HAD, SCALE 1" = 2000', MINIMUM DEGREE OF ACCURACY SUBMETER, PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS, STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND: Surface Owner Boundary Lines +/-, Interior Surface Tracts +/-, Proposed Well Path, As Drilled Well Path. Includes signature of Thomas Summers and date 11/19/19.

NOTE: 1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER... 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY... 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... 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 095 02547. LOCATION: ELEVATION 827' AS BUILT WATERSHED McELROY CREEK QUADRANGLE TH - CENTERPOINT 7.5' BH - SHIRLEY 7.5'. SURFACE OWNER STEPHEN GRIMM ACREAGE 44.38 ACRES +/-.

COUNTY TYLER

PERMIT

WR-35 'As-Drilled'

COMMUNICATIONS
SECTION
MAY 1 1964
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C.

[Handwritten signature]

Mr. A. J. Diller

LATITUDE 39°25'00"

10,867'

LATITUDE 39°27'30" 4,636' TO BOTTOM HOLE

LONGITUDE 80°45'00"

8,165'

14,220' TO BOTTOM HOLE

LONGITUDE 80°42'30"

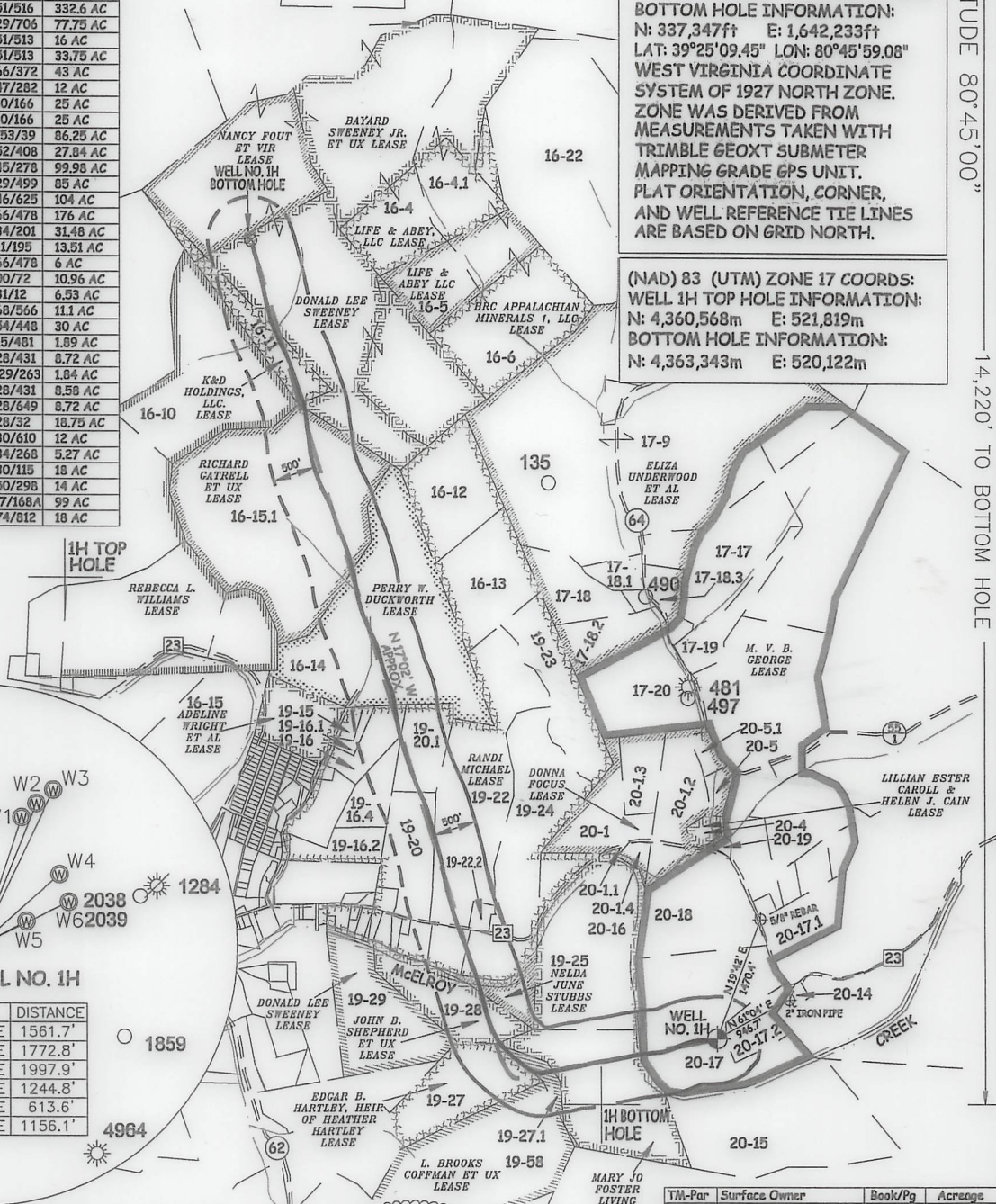
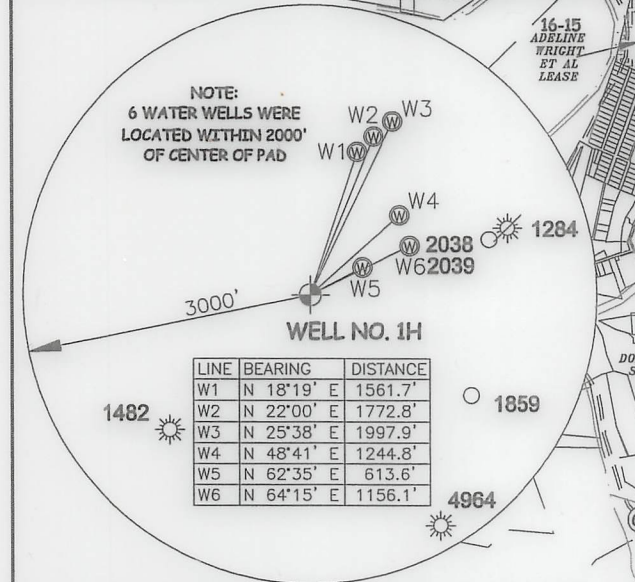
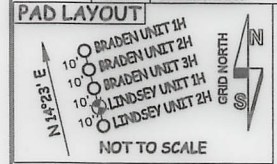
Antero Resources Corporation Well No. Lindsey Unit 1H

TM-Par	Surface Owner	Book/Pg	Acres
11-40	Hunter Real Estate LLC	378/506	106.87 AC
16-4	KES Investments 4 LLC	351/516	332.6 AC
16-4.1	Howard Pratt	329/706	77.75 AC
16-5	KES Investments 4 LLC	351/513	16 AC
16-6	KES Investments 4 LLC	351/513	33.75 AC
16-10	Mike Ross Inc.	366/372	43 AC
16-11	Charles Straight	347/282	12 AC
16-12	Boyd Nichols Est.	180/166	25 AC
16-13	Boyd Nichols Est.	180/166	25 AC
16-14	John Merritt	W53/39	86.25 AC
16-15	Ken Der Jr.	352/408	27.84 AC
16-15.1	Ken Der Jr.	345/278	99.98 AC
16-21	Maxine Volgyi	329/499	85 AC
16-22	Albert Ricci Jr.	346/625	104 AC
17-9	Myra Parker	366/478	176 AC
17-17	Anthony Clark	334/201	31.48 AC
17-18	Gary Milley	311/195	13.51 AC
17-18.1	Myra Parker	366/478	6 AC
17-18.2	Gary Milley	300/772	10.96 AC
17-18.3	Gary Milley	331/12	6.93 AC
17-19	Clifton Weekley	268/566	11.1 AC
17-20	Brandy Greenwald	354/448	30 AC
19-15	Sharon George	315/481	1.89 AC
19-16	Teresa Weekley	328/431	8.72 AC
19-16.1	Teresa Weekley	W29/263	1.84 AC
19-16.2	Clifton Weekley	328/431	8.58 AC
19-16.4	Perry Weekley	328/649	8.72 AC
19-20	Howard Stubbs	228/32	18.75 AC
19-20.1	Howard Stubbs	330/610	12 AC
19-22	Douglas Emetz	334/268	5.27 AC
19-23	John Shepherd	330/115	18 AC
19-25	Jonathan Vost	350/298	14 AC
19-27	Sandra Hopper	337/168A	9.9 AC
19-28	William Forbes	474/812	18 AC

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 328,148ft E: 1,647,651ft
 LAT: 39°23'39.29" LON: 80°44'48.42"
BOTTOM HOLE INFORMATION:
 N: 337,347ft E: 1,642,233ft
 LAT: 39°25'09.45" LON: 80°45'59.08"
 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: 4,360,568m E: 521,819m
BOTTOM HOLE INFORMATION:
 N: 4,363,343m E: 520,122m

WV NORTH ZONE
GRID NORTH

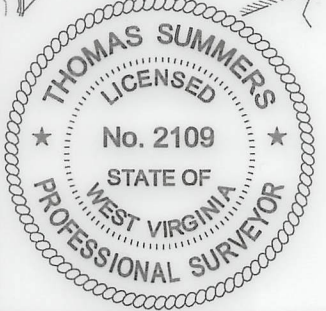


I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION
 OF ENVIRONMENTAL PROTECTION,
 OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO
 WEST VIRGINIA 26415



TM-Par	Surface Owner	Book/Pg	Acres
19-29	John Shepherd	330/115	31.75 AC
19-58	Robert Gille	317/545	86.13 AC
20-1	Eloise Bailey	320/567	24.73 AC
20-1.1	Judy Weekley	247/238	0.37 AC
20-1.2	Charles Baird	345/468	18.54 AC
20-1.3	Charles Baird	345/468	9.07 AC
20-1.4	Mark Harris	371/286	2.147 AC
20-4	Lillian Carroll	351/131	1.13 AC
20-5	Lloyd Pitts	320/426	3.00 AC
20-5.1	Jeffrey Renshaw	335/779	2.636 AC
20-14	Forest Moore Jr.	253/83	0.81 AC
20-15	Gary Hamilton	363/209	50 AC
20-16	Larry Frazee	344/777	94 AC
20-17	Stephen Grimm	363/331	44.38 AC
20-17.1	Ralph Sweeney	301/2	12.466 AC
20-17.2	Mary Lemasters	WB34/23	8.919 AC
20-18	Mary Lemasters	WB34/23	26.75 AC
20-19	Hiram Underwood Jr.	254/110	0.7 AC

JOB # 18-017WA
 DRAWING # LINDSEY1HAD
 SCALE 1" = 2000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
 STATE OF WEST VIRGINIA
 DEPARTMENT OF ENERGY
 DIVISION OF OIL AND GAS

LEGEND
 --- Surface Owner Boundary Lines +/-
 - - - Interior Surface Tracts +/-
 ○ Proposed Well Path
 ⊗ As Drilled Well Path

Thomas Summers
 THOMAS SUMMERS P.S. 2109

DATE 11/19/19
 OPERATOR'S WELL# LINDSEY UNIT #1H

- NOTE**
- 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.
 - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY
 - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - 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.
 - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

WR-35 'As-Drilled'

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02547
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW STATE COUNTY PERMIT
 LOCATION: ELEVATION 827' AS BUILT WATERSHED McELROY CREEK
 QUADRANGLE TH-CENTERPOINT 7.5' BH-SHIRLEY 7.5' DISTRICT McELROY COUNTY TYLER
 SURFACE OWNER STEPHEN GRIMM ACREAGE 44.38 ACRES +/-
 OIL & GAS ROYALTY OWNER M. V. B. GEORGE; MARY JO FOSTER LIVING TRUST; L. BROOKS COFFMAN ET UX; LEASE ACREAGE 300 AC±; 94 AC±; 88.13 AC±;
EDGAR B. HARTLEY, HEIR OF HEATHER HARTLEY; JOHN B. SHEPHERD ET UX; NELDA JUNE STUBBS; 29 AC±; 18 AC±; 14 AC±;
RANDI MICHAEL; PERRY W. DUCKWORTH; RICHARD GATRELL ET UX; DONALD LEE SWEENEY; K&D HOLDINGS, LLC. 320.94 AC±; 86.25 AC±; 100 AC±; 100 AC±; 12 AC±

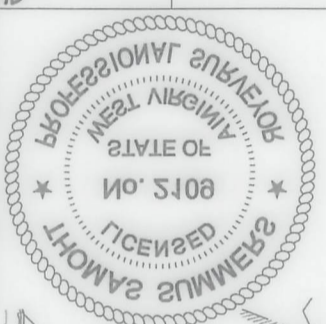
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL
 (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,566' TVD 16,853' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

EOKM MM-9 DEWLEB' CO 80503 CHARGESTON' WA 22313
 ADDRESS 1412 MANKOOF ST. ADDRESS 2400 D BIG TREE ROAD
 MEGG OBEKATOB VILERO BEZOPHCEB COB' DESIGNAED AGENT DMINA STAMPEB - CI COBPOBATION CATEP
 TAPCEI EOBAMTION MABCEITTEB ESTIMATEE DEBTH
 (2BECIA) V2 DBITTEB BTNE & ABVIDON CFEAN OIT & BEBTE
 BTNE OEE OGD EOBAMTION BEPEOBATE IEM EOBAMTION OTHEB PHTSICAF CHANCE IN MEGG
 PPOBODEE MOBK: DBITG COIILEBT DBITG DEEBEB BEBTEG PFACTURE OB STIMMULATE
 BVAID MICHAET: BEBBA M' DUCKMOBTH: RICHARD CAVLETT EL NX: DOWTD TEE SWEEMEX: KED HOEDINGE' TTC 350'04 AC'F: 88'52 AC'F: 100 AC'F: 100 AC'F: 15 AC'F
 EDQVZ B' HVBLETA' HEIB OEE HEATHEB HVBLETA: TONI B' ZHEBHEB ED NX: MEGDA TPIE STUBBES: 58 AC'F: 18 AC'F: 14 AC'F:
 OIG & CAZ BOATTA OMIEB M' A' B' GEORGE: MVBZ TO EOSTEBE PLINE TPLZ: G BROOKS COEFMVI EL NX: FEVZE ACBEVGE 300 AC'F: 84 AC'F: 88'13 AC'F:
 SUBFACE OMIEB STEPHEN SKIMM ACBEVGE 44'38 ACRES +/-
 OUBAIVANCE IH - CEITEBPOBMT 1'2, BH - ZHEBTE 1'2, DISTRICT MCEBTOY COUNTY TAGEB
 GOCATION: EGEATION 821, V2 BUIGT WATERBHEE MCEBTOY CREEK STATE COUNTY BEBMIT
 (IE „CAZ,“) PPODUTION X STOBACE DEEB ZHVTOM X
 MEGG TAPCE: OIG CAZ X FICUID INJECTION WASTE DISPOZAG

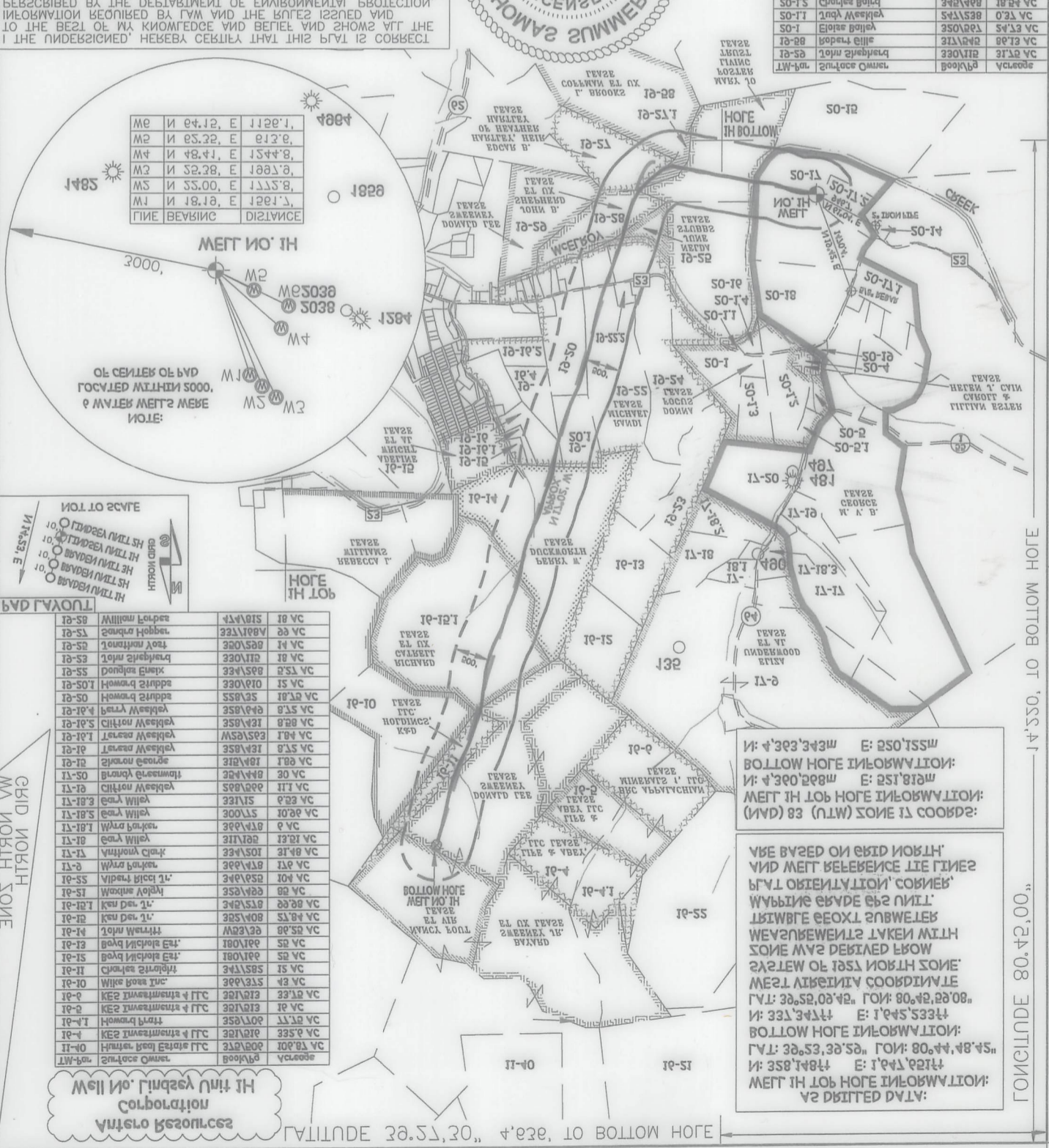
DIVISION OF OIG AND CAZ DEPARTMENT OF ENERGY STATE OF WEST VIRGINIA
 SUBMETER MAPPING SCALE CBE PBOLEI ZOINCE OF EGEA ACCURACY SUBMETER
 MINIMUM DEEBEE OE SCAGE 1/4 = 3000.
 DRAWING # MINDSEIHW
 JOB # 18-012MV

MB-32, A2-D-1119
 WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED, THE STATE OF WEST VIRGINIA MAKES NO WARRANTY FOR ANY ERRORS OR INACCURACIES PROVIDED TO THE FEES VOLUNTARILY.
 NOTES 2 AND 3 OMTA THE RELATIONSHIP TO THE DATA AND INFORMATION.
 1. THE STATE IS NOT WARRANTING THE DATA AND INFORMATION PROVIDED LISTED IN 2. AS DIMITED DATA WAS PROVIDED BY VILERO BEZOPHCEB CORPORATION.
 3. THE STATE DOES NOT WARRANT THE DATA SHOWN HEREON WAS PROVIDED BY (E22) FEET OF THE CENTER OF THE WELL BUD OR HORIZONTAL HORIZONTALS ARE LOCATED WITHIN THE HORIZONTAL TWENTY-FIVE (2500) SQUARE FEET OF LINES USED TO HOUSE OF SHETTER DATA CATTLE. IT IS UNLAWFUL DIMITTING OF BUIDINGE TWO THOUSAND FIVE HUNDRED FEET.

WEST VIRGINIA STATE
 SSO WAZONIC VAE' BEIIBZBOKO
 MITTOM LAND SUBLEVATE BTTC
 OFFICE OF OIG AND CAZ
 OF ENVIRONMENTAL PROTECTION
 STATE OF WEST VIRGINIA, DIVISION



50-18	Hilmon Underwood	58'110	0'1 AC
50-18	Wally Fawcett	108'453	58'10 AC
50-13	Wally Fawcett	108'453	8'810 AC
50-17	Wally Fawcett	301'5	15'480 AC
50-14	Stephan Skimm	382'321	44'38 AC
50-18	Paula Fawcett	34'1111	84 AC
50-18	Paula Fawcett	382'321	80 AC
50-14	Robert Moore Jr.	52'182	0'81 AC
50-1	Robert Moore Jr.	382'321	5'820 AC
50-2	Robert Moore Jr.	250'452	2'00 AC
50-1	Hilmon Underwood	382'131	1'12 AC
50-14	Wally Fawcett	312'388	5'14 AC
50-18	Charles Barr	342'488	8'01 AC
50-18	Charles Barr	88'488	18'4 AC
50-17	Paula Fawcett	54'1538	0'31 AC
50-1	Robert Moore Jr.	350'452	5'43 AC
18-28	Robert Moore Jr.	382'488	8'12 AC
18-28	John Fawcett	230'112	3'10 AC
18-14	Surface Owner	Book 18	Acres



BUD GALOPL

18-58	William Forster	114'015	18 AC
18-52	Samuel Hobbes	321'188	88 AC
18-52	Jonathan Post	380'458	14 AC
18-52	John Fawcett	330'112	18 AC
18-55	Robert Skimm	334'588	8'51 AC
18-50	Howard Skimm	330'810	15 AC
18-50	Howard Skimm	558'325	18'10 AC
18-14	Paula Fawcett	358'488	8'15 AC
18-14	Clifton Weckley	358'431	8'88 AC
18-14	Terena Weckley	152'523	1'84 AC
18-18	Terena Weckley	358'431	8'15 AC
18-18	Clifton Weckley	318'481	1'88 AC
11-50	Clifton Weckley	384'448	30 AC
11-18	Clifton Weckley	588'888	11'1 AC
11-18	Paula Fawcett	331'115	8'83 AC
11-18	Paula Fawcett	300'115	10'88 AC
11-18	Wally Fawcett	388'438	8 AC
11-18	Paula Fawcett	311'188	13'81 AC
11-18	Wally Fawcett	324'501	31'48 AC
11-8	Wally Fawcett	388'438	18 AC
18-55	Wally Fawcett	348'452	10'4 AC
18-51	Wally Fawcett	358'488	88 AC
18-18	Ken Des Jr.	348'452	88'88 AC
18-18	Ken Des Jr.	385'408	31'84 AC
18-14	John Fawcett	108'388	88'52 AC
18-18	Robert Skimm	180'188	58 AC
18-18	Robert Skimm	180'188	58 AC
18-11	Charles Barr	341'585	15 AC
18-10	Wally Fawcett	388'315	43 AC
18-8	KEE Investments & LLC	381'013	32'10 AC
18-8	KEE Investments & LLC	381'013	18 AC
18-4	Howard Skimm	358'488	11'12 AC
18-4	KEE Investments & LLC	381'018	33'8 AC
11-40	Hunter Road Estate LLC	318'888	108'84 AC
18-14	Surface Owner	Book 18	Acres

THE BASED ON ERID NOBTH' AND MEGT BEPEBICE TIE TINES PVA OBIENTATION' COBIEB' MYBTE EYDE E22 NITL' BTBWBTE EEOXT SUBWELER WEVABEWENTS TAKEN WITH SOME MVE DEPTED FLOW STATEM OE T821 NOBTH ZONE: MEGT VIRGINIA COORDINATE GAL: 38.52.00'00, GOI: 80.42.88'08, N: 331'3111 E: 1'84'52'3311
 BOTTOM HOGE INFOBMTATION: GAL: 38.53.38'58, GOI: 80.44'48'45, N: 358'1484 E: 1'84'42'211
 MEGT TH TOP HOGE INFOBMTATION: AS DBITTEE DATA:

Well No. MINDSEIHW
 Corporation
 VILERO BEZOPHCEB

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/14/2019
Job End Date:	7/27/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02547-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Lindsey Unit 1H
Latitude:	39.39424720
Longitude:	-80.74678330
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,567
Total Base Water Volume (gal):	17,724,135
Total Base Non Water Volume:	0



JAN 14 2020

WV Department of Environmental Protection

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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	88.55332	
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			

CalGel 4000	CWS	Gel Slurry					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
SaniFrac 8844	CWS	Biocide					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					

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				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica (Quartz)	14808-60-7	100.00000	11.14328	
			Illite	12173-60-3	1.00000	0.11142	
			Hydrochloric acid	7647-01-0	37.00000	0.05563	
			Polymer	26100-47-0	45.00000	0.02062	
			Guar gum	9000-30-0	60.00000	0.01711	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.01711	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01375	
			Ilmenite	98072-94-7	0.10000	0.01114	
			Goethite	1310-14-1	0.10000	0.01114	
			Biotite	1302-27-8	0.10000	0.01114	
			Apatite	64476-38-6	0.10000	0.01114	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00687	
			Ammonium chloride	12125-02-9	11.00000	0.00504	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00252	
			Sorbitan monooleate	1338-43-8	4.00000	0.00183	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00143	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00137	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00092	
			Citric acid	77-92-9	60.00000	0.00050	
			Sodium bromide	7647-15-6	4.00000	0.00050	
			Ammonium Persulfate	7727-54-0	100.00000	0.00049	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00046	

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			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00043	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00038	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00023	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00010	
			Acrylamide	79-06-1	0.10000	0.00005	
			Ethylene Glycol	107-21-1	40.00000	0.00003	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	
			Formic acid	64-18-6	10.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride- quatenized	72480-70-7	10.00000	0.00001	
			Ethoxylated Alcohols	68131-39-5	10.00000	0.00001	
			Isopropyl alcohol	67-63-0	5.00000	0.00001	
			Organic Acid Salts	9003-04-7			Proprietary Additive Concentration
			Glycol	57-55-6			Proprietary Additive Concentration

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

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

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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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