



Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

April 30, 2020

West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street
Charleston, WV 25304

To Whom It May Concern:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report), Discharge Monitoring Report Form WR-34 and corresponding logs for the following wells off of the **Oxford 97 Pad**:

- Oxford 97 AHS
- Oxford 97 BHS
- Oxford 97 CHS
- Oxford 97 DHS
- Oxford 97 EHS
- Oxford 97 FHS
- Oxford 97 GHS
- Oxford 97 HHS

If you have any questions, please feel free to contact me at (303)-357-7223.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Griffith", with a long horizontal flourish extending to the right.

Megan Griffith
Permitting Agent
Antero Resources Corporation

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Enclosures

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WV Department of
Environmental Protection

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

API 47-017-06831 County Doddridge District West Union
Quad Smithburg 7.5' Pad Name Deets Pad Field/Pool Name -----
Farm name Mary E. Deets and/or Paul A. Smith Well Number Telstar Unit 3H
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 4351717m Easting 523688m
Landing Point of Curve Northing 4351905.75m Easting 523916.81m
Bottom Hole Northing 4354828m Easting 522992m

Elevation (ft) 1376' 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

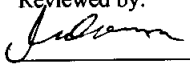
Mud Type(s) and Additive(s)
Air - Foam & 4% KCL

Mud - Polymer

Date permit issued 12/21/2018 Date drilling commenced 7/4/2019 Date drilling ceased 8/23/2019
Date completion activities began 12/2/2019 Date completion activities ceased 1/4/2020
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 196', 221' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1381', 1843', 1966' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 583', 891' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

6/15/2020

WR-35
Rev. 8/23/13

API 47- 017 - 06831 Farm name Mary E. Deets and/or Paul A. Smith Well number Telstar Unit 3H

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"	80'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	364'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2557'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17808'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7687'		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	204 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	460 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	905 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	730 sx (Lead) 2672 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.40 (Lead), 1.26 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17853' MD, 7203' TVD (BHL), 7205' (Deepest Point Drilled) Loggers TD (ft) 17853' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6600'

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 47-017 - 06831 Farm name Mary E. Deets and/or Paul A. Smith Well number Telstar Unit 3H

PERFORATION RECORD

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

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

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- 017 - 06831

Farm name Mary E. Deets and/or Paul A. Smith Well number Telstar Unit 3H

PRODUCING FORMATION(S)

DEPTHS

Marcellus 7073' (TOP) TVD 7432' (TOP) MD

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 12160 mcfpd Oil 68 bpd NGL --- bpd Water 1131 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**

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 Philippi 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 5-8-20

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

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	12/2/2019	17724.8	17679.9	60	Marcellus
2	12/2/2019	17642.388	17477.828	60	Marcellus
3	12/3/2019	17442.516	17277.956	60	Marcellus
4	12/3/2019	17242.644	17078.084	60	Marcellus
5	12/3/2019	17042.772	16878.212	60	Marcellus
6	12/3/2019	16842.9	16678.34	60	Marcellus
7	12/3/2019	16643.028	16478.468	60	Marcellus
8	12/4/2019	16443.156	16278.596	60	Marcellus
9	12/4/2019	16243.284	16078.724	60	Marcellus
10	12/4/2019	16043.412	15878.852	60	Marcellus
11	12/4/2019	15843.54	15678.98	60	Marcellus
12	12/4/2019	15643.668	15479.108	60	Marcellus
13	12/5/2019	15443.796	15279.236	60	Marcellus
14	12/5/2019	15243.924	15079.364	60	Marcellus
15	12/5/2019	15044.052	14879.492	60	Marcellus
16	12/5/2019	14844.18	14679.62	60	Marcellus
17	12/6/2019	14644.308	14479.748	60	Marcellus
18	12/6/2019	14444.436	14279.876	60	Marcellus
19	12/6/2019	14244.564	14080.004	60	Marcellus
20	12/6/2019	14044.692	13880.132	60	Marcellus
21	12/7/2019	13844.82	13680.26	60	Marcellus
22	12/7/2019	13644.948	13480.388	60	Marcellus
23	12/7/2019	13445.076	13280.516	60	Marcellus
24	12/7/2019	13245.204	13080.644	60	Marcellus
25	12/8/2019	13045.332	12880.772	60	Marcellus
26	12/8/2019	12845.46	12680.9	60	Marcellus
27	12/8/2019	12645.588	12481.028	60	Marcellus
28	12/8/2019	12445.716	12281.156	60	Marcellus
29	12/8/2019	12245.844	12081.284	60	Marcellus
30	12/9/2019	12045.972	11881.412	60	Marcellus
31	12/9/2019	11846.1	11681.54	60	Marcellus
32	12/9/2019	11646.228	11481.668	60	Marcellus
33	12/9/2019	11446.356	11281.796	60	Marcellus
34	12/10/2019	11246.484	11081.924	60	Marcellus
35	12/10/2019	11046.612	10882.052	60	Marcellus
36	12/10/2019	10846.74	10682.18	60	Marcellus
37	12/10/2019	10646.868	10482.308	60	Marcellus
38	12/10/2019	10446.996	10282.436	60	Marcellus
39	12/11/2019	10247.124	10082.564	60	Marcellus
40	12/11/2019	10047.252	9882.692	60	Marcellus
41	12/11/2019	9847.38	9682.82	60	Marcellus
42	12/11/2019	9647.508	9482.948	60	Marcellus
43	12/12/2019	9447.636	9283.076	60	Marcellus
44	12/12/2019	9247.764	9083.204	60	Marcellus
45	12/12/2019	9047.892	8883.332	60	Marcellus
46	12/12/2019	8848.02	8683.46	60	Marcellus
47	12/12/2019	8648.148	8483.588	60	Marcellus
48	12/13/2019	8448.276	8283.716	60	Marcellus
49	12/13/2019	8248.404	8083.844	60	Marcellus
50	12/13/2019	8048.532	7883.972	60	Marcellus
51	12/13/2019	7848.66	7684.1	60	Marcellus
52	12/13/2019	7648.788	7484.228	60	Marcellus

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	12/2/2019	66.49	8125	7087	3514	169355	5308.143	N/A
2	12/2/2019	77.25	8434	5572	4071	400440	7668.571	N/A
3	12/3/2019	77.98	8466	6170	3937	400380	7431.048	N/A
4	12/3/2019	75.53	8400	5694	3638	398840	7486.452	N/A
5	12/3/2019	74.89	8449	6036	3724	400060	7490.619	N/A
6	12/3/2019	76.03	8408	5799	3790	398700	7494.643	N/A
7	12/3/2019	73.01	8465	5718	3443	407415	7317.286	N/A
8	12/4/2019	76.11	8509	5843	3611	407555	7260.048	N/A
9	12/4/2019	79.9	8271	5485	3584	407290	7466.024	N/A
10	12/4/2019	80.9	8533	5852	3967	407540	7203.333	N/A
11	12/4/2019	85.7	8502	5824	3966	408215	7947.595	N/A
12	12/4/2019	85.34	8521	4807	3557	405495	7210.024	N/A
13	12/5/2019	85.53	8609	5790	3834	399340	7223.452	N/A
14	12/5/2019	85	8406	5101	3582	399380	7160.452	N/A
15	12/5/2019	85.3	8446	5751	3936	398480	7252.19	N/A
16	12/5/2019	85.4	8452	5690	3839	399240	7167.405	N/A
17	12/6/2019	85.65	8448	5634	3904	397720	7164.214	N/A
18	12/6/2019	86	8512	5945	3738	406845	7195.786	N/A
19	12/6/2019	84.3	8215	5725	3926	398540	7138.524	N/A
20	12/6/2019	87.2	8069	5469	4013	399300	7156.619	N/A
21	12/7/2019	85.2	7888	5103	3813	398580	7159.214	N/A
22	12/7/2019	83.4	7956	5505	3868	400540	7073.476	N/A
23	12/7/2019	77.4	7477	4854	4036	399600	9022.452	N/A
24	12/7/2019	85.4	8366	5757	3759	408840	7131.69	N/A
25	12/8/2019	85.4	8461	5714	3926	409500	7130.643	N/A
26	12/8/2019	85.2	8293	5087	3810	408000	7088.357	N/A
27	12/8/2019	85.4	8192	5236	3814	406180	7115	N/A
28	12/8/2019	85.3	8352	5455	3607	407260	7074.833	N/A
29	12/8/2019	85.4	8566	5429	4068	408320	7123.071	N/A
30	12/9/2019	85.5	8505	5689	3473	411880	7164.333	N/A
31	12/9/2019	85.3	8399	5863	3554	408960	7083.452	N/A
32	12/9/2019	85.9	8162	5453	3479	408660	7057.119	N/A
33	12/9/2019	85.2	8464	5518	3512	404520	7018.548	N/A
34	12/10/2019	85.5	8269	5596	3682	404540	7061.286	N/A
35	12/10/2019	85.39	7995	5586	3465	410280	7128.214	N/A
36	12/10/2019	85.81	8059	4983	3391	412200	6956.31	N/A
37	12/10/2019	85.68	7929	5266	3517	407920	6875.667	N/A
38	12/10/2019	85.68	7898	5785	3585	404440	6949.071	N/A
39	12/11/2019	85.16	7987	5621	3826	407440	6991.262	N/A
40	12/11/2019	85.31	7720	5307	4056	408460	6971.976	N/A
41	12/11/2019	85.49	7576	5448	3410	407620	6899.119	N/A
42	12/11/2019	85.07	7958	5504	3587	408380	7185.81	N/A
43	12/12/2019	85.7	7928	5774	3510	409480	7041.571	N/A
44	12/12/2019	84.68	7561	5606	3640	412980	6970.286	N/A
45	12/12/2019	85.99	7520	5475	3680	414040	7192.119	N/A
46	12/12/2019	85.21	7566	5427	3788	412220	7084.429	N/A
47	12/12/2019	85	7478	5168	3649	411720	7075.548	N/A
48	12/13/2019	85.67	7411	5825	3599	408280	6980.143	N/A
49	12/13/2019	85.42	7335	5573	3685	408760	6914.5	N/A
50	12/13/2019	85.57	7027	5805	3699	406220	6951.929	N/A
51	12/13/2019	85.03	6913	6008	3848	406660	6850.214	N/A
52	12/13/2019	85.23	7022	5794	3500	410320	6913.833	N/A
	AVG	82.9	8,262	5,591	3,737	16,353,870	294,818	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	75	135	75	135
Sandy Shale	135	195	135	195
Shaly Sandstone	195	275	195	275
Sandstone	275	315	275	315
Shaly Sandstone	315	455	315	455
Sandstone	455	535	455	535
Carbonaceous shale	535	655	535	655
Sandstone	655	875	655	875
Shaly sandstone tr coal	875	1,055	875	1,055
Shaly Siltstone	1,055	1,255	1,055	1,255
Sandstone	1,255	1,455	1,255	1,455
Sandy siltstone	1,455	1,535	1,455	1,535
Sandstone	1,535	2,140	1,535	N/A
Big Lime	2,165	2,878	2,143	2,883
Fifty Foot Sandstone	2,878	2,949	2,858	2,954
Gordon	2,949	3,233	2,929	3,245
Fifth Sandstone	3,233	3,536	3,220	3,556
Bayard	3,536	4,033	3,531	4,070
Speechley	4,033	4,418	4,045	4,465
Balltown	4,418	4,851	4,440	4,910
Bradford	4,851	5,362	4,885	5,438
Benson	5,362	5,556	5,413	5,640
Alexander	5,556	6,858	5,615	7,016
Sycamore	6,606	6,828	6,737	6,986
Middlesex	6,828	6,973	6,991	7,196
Burkett	6,973	7,004	7,201	7,253
Tully	7,004	7,073	7,258	7,432
Marcellus	7,073	NA	7,432	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.

ANTERO RESOURCES CORPORATION

Location: Doddrige Co., WV

Field: Doodridge

Facility: Deets Pad

Slot: Slot #07

Well: Telstar Unit 3H

Wellbore: Telstar Unit 3H PWB

Plot reference wellpath is Telstar Unit 3H PWP Rev-B.0	Grid System: NAD27 UTM Zone 17 North, US feet
True vertical depths are referenced to H&P 317 (RKB)	North Reference: Grid north
Measured depths are referenced to H&P 317 (RKB)	Scale: True distance
H&P 317 (RKB) to Mean Sea Level: 1401.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #07): -1376 feet	Created by: dslason on 2019-08-24
Coordinates are in feet referenced to Slot	Database: WA_MPL_EasementUS_Datn

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Deets Pad	1718062.640	14276561.990	39°18'52.18"N	80°43'31.460"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)	Grid East (US ft)
Slot #07	-19.51	4.34	1718066.980	14276542.490
H&P 317 (RKB) to Ground level (At Slot: Slot #07)	25.5ft			
Mean Sea Level to Ground level (At Slot: Slot #07)	-1376ft			
H&P 317 (RKB) to Mean Sea Level	1401.5ft			

Gyrodatta MS Gyro <17-1/2>(100-393): 0.43° Inc, 100.00ft MD, 100.00ft TVD, 0.00ft VS
 APS EM <12-1/4>(393)(427-2568): 0.71° Inc, 427.00ft MD, 426.99ft TVD, -0.54ft VS

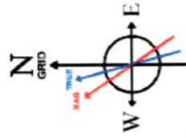
Well Profile Data

Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DI.S (°/100ft)	VS (ft)
The On	2568.00	4.010	115.530	2565.06	-28.09	63.24	0.30	-45.76
Start Nudge	2636.00	4.010	115.530	2632.89	-30.14	67.53	0.00	-49.00
Drill Out Clog	2736.00	4.010	115.530	2732.65	-33.15	73.84	0.00	-53.77
Held Tangent	3241.05	13.932	100.906	3230.95	-52.35	149.87	2.00	-94.82
Curve KOP	6397.39	13.932	100.936	6294.43	-106.52	895.82	0.00	-456.11
Avoid No-Go	6899.45	30.000	0.000	6770.49	-78.76	957.09	7.00	-362.14
POE	7436.85	71.128	342.545	7106.00	316.89	877.03	8.00	39.30
Landing Pt	7706.45	90.000	342.545	7150.00	560.45	797.62	7.00	304.05
BHL	17860.00	90.000	342.545	7150.00	10255.45	-2248.00	0.00	10457.60

APS EM <8-3/4>(2568)(2648-6541): 4.93° Inc, 2648.00ft MD, 2644.82ft TVD, -49.95ft VS

Well Data

Slot	Well	Wellbore	Wellpath
Slot #07	Telstar Unit 3H	Telstar Unit 3H AWB	Telstar Unit 3H AMP Proj 17853
Slot #07	Telstar Unit 3H	Telstar Unit 3H PWB	Telstar Unit 3H PWP Rev-B.0



User specified (HDGM) Dip: 66.41° Field: 51982.0T
 Magnetic North is 7.77 degrees West of True North (at 8/6/2019)
 Grid North is 0.17 degrees East of True North
 To correct azimuth from True to Grid subtract 0.17 degrees
 To correct azimuth from Magnetic to Grid subtract 7.94 degrees

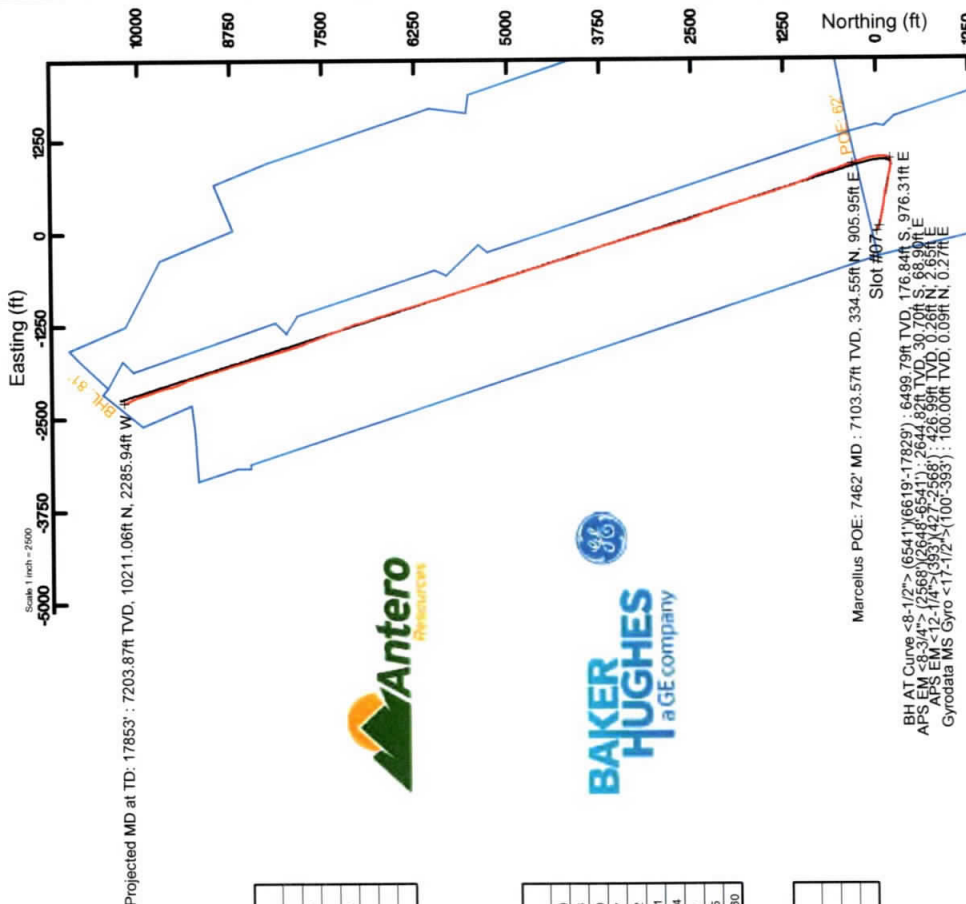
BH AT Curve <8-1/2>(6541)(6619-17829): 15.90° Inc, 6619.00ft MD, 6499.79ft TVD, -461.47ft VS

Marcellus POE: 7462° MD: 72.77° Inc, 7462.00ft MD, 7103.57ft TVD, 47.48ft VS

Projected MD at TD: 17853° : 87.85° Inc, 17853.00ft MD, 7203.87ft TVD, 10426.63ft VS

Vertical Section (ft)

Scale 1 inch = 1500



Slot #07
 Marcellus POE: 7462° MD: 7103.57ft TVD, 334.55ft N, 905.95ft E
 BH AT Curve <8-1/2>(6541)(6619-17829): 6499.79ft TVD, 176.84ft S, 976.31ft E
 APS EM <8-3/4>(2568)(2648-6541): 2644.82ft TVD, 30.70ft S, 98.90ft E
 APS EM <12-1/4>(393)(427-2568): 426.99ft TVD, 0.69ft N, 0.57ft E
 Gyrodatta MS Gyro <17-1/2>(100-393): 100.00ft TVD, 0.00ft N, 0.2ft E

API: 47-017-06831-0000
 BHI Job #: 109894689B
 Rig: H&P 317
 Duration: 07/05/2019-08/21/2019

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/2/2019
Job End Date:	12/13/2019
State:	West Virginia
County:	Doddridge
API Number:	47-017-06831-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Telstar 3H
Latitude:	39.31444200
Longitude:	-80.72538900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,199
Total Base Water Volume (gal):	16,168,479
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
Fresh Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	55.85200	Density = 8.34
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	30.65111	Density = 8.50

Ingredients	Listed Above	Listed Above	Listed Above						
				Water		7732-18-5	100.00000	0.16825	
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent				Listed Below			
LD-2950	MultiChem	Friction Reducer				Listed Below			
FORSA SCW4037W SCALE INHIBITOR	Baker Hughes	Scale Inhibitor				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker				Listed Below			
MC B-8614	Halliburton	Biocide				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant				Listed Below			
FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor				Listed Below			
						Listed Below			

WG-36 GELLING AGENT	Halliburton	Gelling Agent							
					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	13.29431			
			Hydrochloric acid	7647-01-0	30.00000	0.04069			
			Complex Amine Compound	Proprietary	60.00000	0.02431			
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01216			
			Alkanolamine phosphate	Trade Secret	30.00000	0.00444			
			Methanol	67-56-1	100.00000	0.00329			
			Guar gum	9000-30-0	100.00000	0.00302			
			Glutaraldehyde	111-30-8	30.00000	0.00250			
			Ethylene glycol	107-21-1	5.00000	0.00074			
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00042			
			Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00041			
			Adipic acid	124-04-9	1.00000	0.00041			
			Ethoxylated alcohols	Proprietary	1.00000	0.00041			
			Ethanol	64-17-5	1.00000	0.00008			
			Ammonium persulfate	7727-54-0	100.00000	0.00008			
			Modified thiourea polymer	Proprietary	30.00000	0.00007			
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007			
			Oxylated phenolic resin	Proprietary	30.00000	0.00002			
			Ethoxylated alcohols	Proprietary	5.00000	0.00001			
			Hexadecene	629-73-2	5.00000	0.00001			

		Propargyl alcohol	107-19-7	5.00000	0.00001
		Phosphoric acid	7664-38-2	0.10000	0.00001
		C.I. pigment Orange 5	3468-63-1	1.00000	0.00000

* 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)

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Discharge Monitoring Report
Oil and Gas General Permit

Company Name: Antero Resources Corporation
API No: 47-017-06831 County: Doddridge
District: West Union Well No: Telstar Unit 3H
Farm Name: Mary E. Deets and/or Paul A. Smith
Discharge Date/s From:(MMDDYY) 01/17/20 To: (MMDDYY) 02/16/20
Discharge Times. From: 0:00 To: 24:00
Total Volume to be Disposed from this facility (gallons): 1,332,243
Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: 0 (Include a topographical map of the Area.)
(2) UIC: 0 Permit No. _____
(3) Offsite Disposal: 0 Site Location: _____
(4) Reuse: 1,332,243 Alternate Permit Number: _____
(5) Centralized Facility: 0 Permit No. _____
(6) Other method: 0 (Include an explanation)

Follow Instructions below to determine your treatment category:

Optional Pretreatment test: N/A Cl- mg/l N/A DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?
(Y/N) N/A If yes, who? _____ and place a four (4) on line 7.
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) N/A If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) N/A If yes, go to line 4
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) N/A If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) N/A If yes, go to line 6
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) N/A If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. N/A is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: N/A No pit on-site.

Name of Principal Exec. Officer: Gretchen Kohler
Title of Officer: Sr. Environmental & Regulatory Manager
Date Completed: 05/05/2020

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Gretchen Kohler

Digitally signed by Gretchen Kohler
Date: 2020.05.05 16:41:18 -06'00'

Signature of a Principal Exec. Officer or Authorized agent.

Category 1
Sampling Results

API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

*** Al is only reported if the pH is above 9.0

Category 2
Sampling Results

API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

Date: _____

** Include a description of your aeration technique.

Aeration Code: _____

*** Al is only reported if the pH is above 9.0

Category 3
Sampling Results
API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

Date: _____

** Include a description of your aeration technique.

Aeration Code: _____

*** Al is only reported if the pH is above 9.0.

Category 4
Sampling Results
API No: _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Activated Carbon (0.175)		_____	N/A	N/A	lb/Bl
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

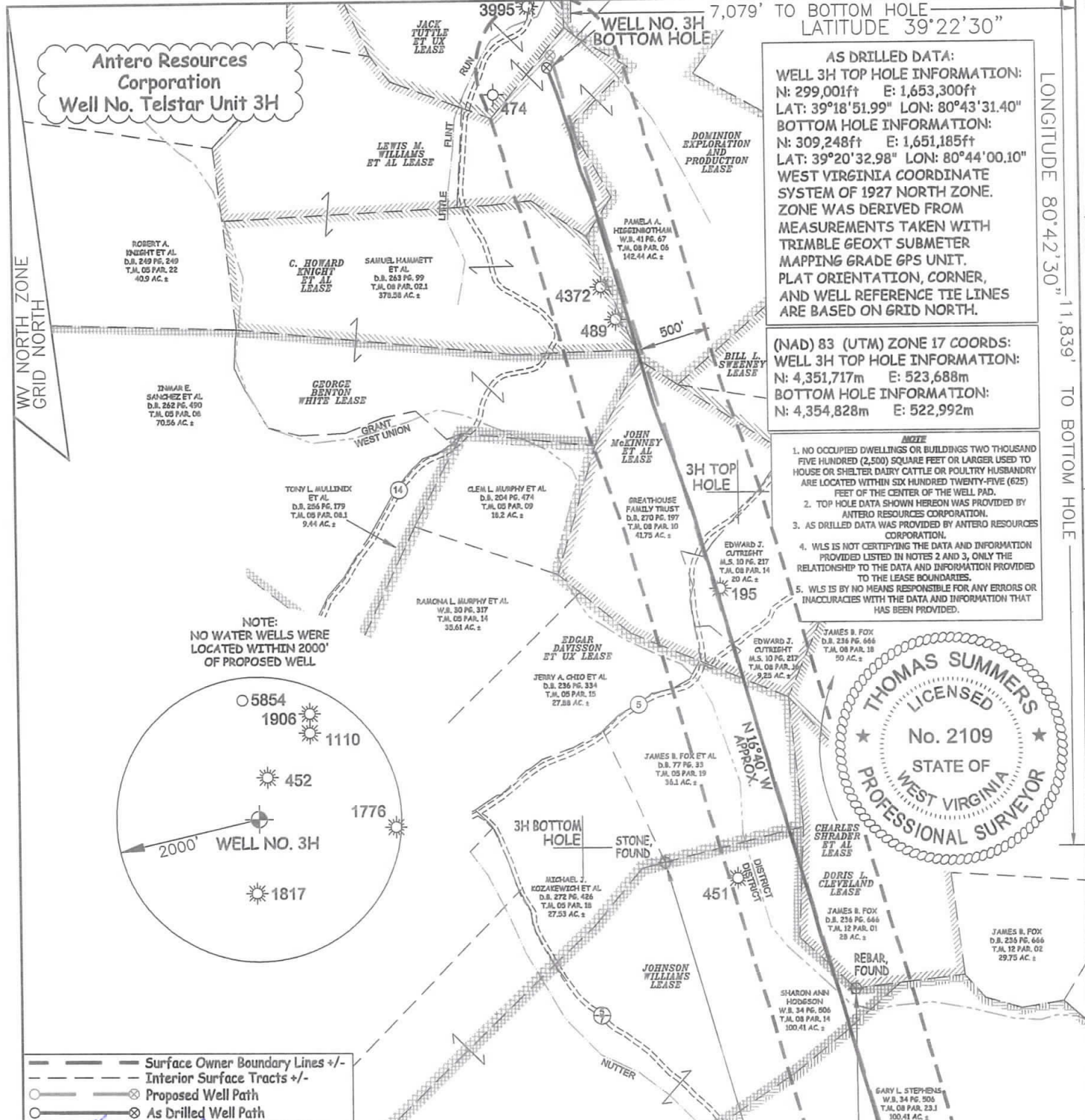
Date: _____

LATITUDE 39°20'00"

4,826'

LONGITUDE 80°42'30" TO BOTTOM HOLE

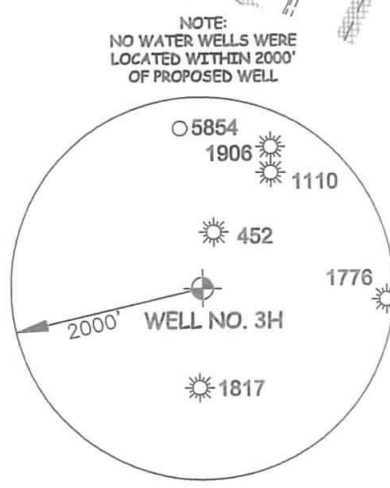
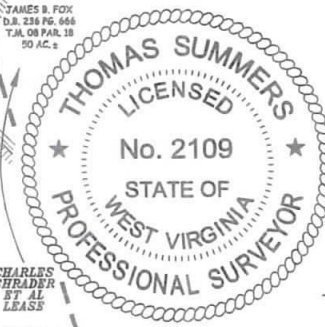
6,881' LONGITUDE 80°42'30" TO BOTTOM HOLE



AS DRILLED DATA:
WELL 3H TOP HOLE INFORMATION:
 N: 299,001ft E: 1,653,300ft
 LAT: 39°18'51.99" LON: 80°43'31.40"
BOTTOM HOLE INFORMATION:
 N: 309,248ft E: 1,651,185ft
 LAT: 39°20'32.98" LON: 80°44'00.10"
 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.

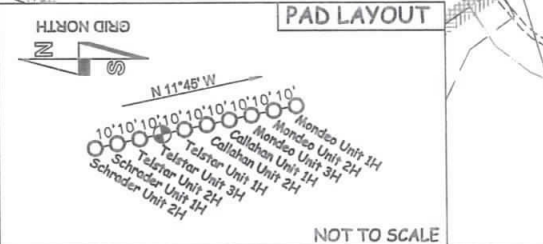
(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 3H TOP HOLE INFORMATION:
 N: 4,351,717m E: 523,688m
BOTTOM HOLE INFORMATION:
 N: 4,354,828m E: 522,992m

- 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 ANTERO RESOURCES CORPORATION.
 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.



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

THOMAS SUMMERS P.S. 2109
 DATE 04/16/20
 OPERATOR'S WELL# TELSTAR UNIT #3H
 API WELL # 47 - 017 - 06831
 STATE COUNTY PERMIT



JOB # 17-026WA
 DRAWING # TELSTAR3HAD
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

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 1,376' -AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK QUADRANGLE SMITHBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER MARY E. DEETS AND/OR PAUL A. SMITH ACREAGE 53.29 ACRES +/- AND/OR 175.78 ACRES +/-
 OIL & GAS ROYALTY OWNER T.G. BAKER ET AL; JOHNSON B. SMITH ET UX; P.B. McCLAIN ET UX; JOHNSON WILLIAMS; LEASE ACREAGE 54 ACRES±; 180 ACRES±; 200 ACRES±; 105.5 ACRES±; DORIS L. CLEVELAND; EDGAR DAVISSON ET UX; JOHN MCKINNEY ET AL; DOMINION EXPLORATION AND PRODUCTION; LEWIS M. WILLIAMS ET UX 27.29 ACRES±; 230 ACRES±; 73 ACRES±; 224 ACRES±; 70 ACRES±;
 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 7,203' TVD 17,853' 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