

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

API 47-017-06893 County Doddridge District West Union  
Quad Smithburg 7.5' Pad Name George Scott Pad Field/Pool Name -----  
Farm name George S. Wyckoff Well Number Lakota Unit 2H  
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 4350951m Easting 522996m  
Landing Point of Curve Northing 3450770.94m Easting 523245.72m  
Bottom Hole Northing 4346906m Easting 524558m

Elevation (ft) 1283' 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

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Date permit issued 6/25/2019 Date drilling commenced 10/3/2019 Date drilling ceased 12/4/2019  
Date completion activities began 2/9/2020 Date completion activities ceased 3/30/2020  
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 128', 433' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 596', 1750' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 450' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:  
SDW

API 47-017 - 06893 Farm name George S. Wyckoff Well number Lakota Unit 2H

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"	105'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	567'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2611'	New	36#, H-40	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	21406'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7134'		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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	204 sx	15.6	1.18	244	0'	8 Hrs.
Surface	Class A	490 sx	15.6	1.19	402	0'	8 Hrs.
Coal							
Intermediate 1	Class A	877 sx	15.6	1.18	1047	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	796 sx (Lead) 3318 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)	2819	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 21426' MD, 6936' TVD (BHL), 6937' (Deepest Point Drilled) Loggers TD (ft) 21426' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6835'

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Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic  
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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 - 06893 Farm name George S. Wyckoff Well number Lakota Unit 2H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6951' (TOP)	TVD	7171' (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 8524 mcfpd Oil 40 bpd NGL --- bpd Water 123 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> 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 Frontier Drilling LLC  
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Nine Energy Services  
Address 125 Museum Road City Washington State PA Zip 15301

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 7/21/20

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

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API 47-017-06893 Farm Name George S. Wyckoff Well Number Lakota Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/19/2020	21300.3	21256.9	60	Marcellus
2	2/19/2020	21219.28	21054.18	60	Marcellus
3	2/19/2020	21018.76	20853.66	60	Marcellus
4	2/19/2020	20818.24	20653.14	60	Marcellus
5	2/19/2020	20617.72	20452.62	60	Marcellus
6	2/20/2020	20417.2	20252.1	60	Marcellus
7	2/20/2020	20216.68	20051.58	60	Marcellus
8	2/20/2020	20016.16	19851.06	60	Marcellus
9	2/20/2020	19815.64	19650.54	60	Marcellus
10	2/21/2020	19615.12	19450.02	60	Marcellus
11	2/21/2020	19414.6	19249.5	60	Marcellus
12	2/21/2020	19214.08	19048.98	60	Marcellus
13	2/21/2020	19013.56	18848.46	60	Marcellus
14	2/22/2020	18813.04	18647.94	60	Marcellus
15	2/22/2020	18612.52	18447.42	60	Marcellus
16	2/22/2020	18412	18246.9	60	Marcellus
17	2/22/2020	18211.48	18046.38	60	Marcellus
18	2/22/2020	18010.96	17845.86	60	Marcellus
19	2/23/2020	17810.44	17645.34	60	Marcellus
20	2/23/2020	17609.92	17444.82	60	Marcellus
21	2/23/2020	17409.4	17244.3	60	Marcellus
22	2/23/2020	17208.88	17043.78	60	Marcellus
23	2/24/2020	17008.36	16843.26	60	Marcellus
24	2/24/2020	16807.84	16642.74	60	Marcellus
25	2/24/2020	16607.32	16442.22	60	Marcellus
26	2/24/2020	16406.8	16241.7	60	Marcellus
27	2/25/2020	16206.28	16041.18	60	Marcellus
28	2/25/2020	16005.76	15840.66	60	Marcellus
29	2/25/2020	15805.24	15640.14	60	Marcellus
30	2/25/2020	15604.72	15439.62	60	Marcellus
31	2/26/2020	15404.2	15239.1	60	Marcellus
32	2/26/2020	15203.68	15038.58	60	Marcellus
33	2/26/2020	15003.16	14838.06	60	Marcellus
34	2/26/2020	14802.64	14637.54	60	Marcellus
35	2/27/2020	14602.12	14437.02	60	Marcellus
36	2/27/2020	14401.6	14236.5	60	Marcellus
37	2/27/2020	14201.08	14035.98	60	Marcellus
38	2/27/2020	14000.56	13835.46	60	Marcellus
39	2/27/2020	13800.04	13634.94	60	Marcellus
40	2/28/2020	13599.52	13434.42	60	Marcellus
41	2/28/2020	13399	13233.9	60	Marcellus
42	2/28/2020	13198.48	13033.38	60	Marcellus
43	2/28/2020	12997.96	12832.86	60	Marcellus
44	2/29/2020	12797.44	12632.34	60	Marcellus
45	2/29/2020	12596.92	12431.82	60	Marcellus
46	2/29/2020	12396.4	12231.3	60	Marcellus
47	2/29/2020	12195.88	12030.78	60	Marcellus
48	2/29/2020	11995.36	11830.26	60	Marcellus
49	3/1/2020	11794.84	11629.74	60	Marcellus
50	3/1/2020	11594.32	11429.22	60	Marcellus
51	3/1/2020	11393.8	11228.7	60	Marcellus
52	3/1/2020	11193.28	11028.18	60	Marcellus
53	3/1/2020	10992.76	10827.66	60	Marcellus
54	3/2/2020	10792.24	10627.14	60	Marcellus
55	3/2/2020	10591.72	10426.62	60	Marcellus
56	3/2/2020	10391.2	10226.1	60	Marcellus
57	3/2/2020	10190.68	10025.58	60	Marcellus
58	3/2/2020	9990.16	9825.06	60	Marcellus
59	3/3/2020	9789.64	9624.54	60	Marcellus
60	3/3/2020	9589.12	9424.02	60	Marcellus
61	3/3/2020	9388.6	9223.5	60	Marcellus
62	3/3/2020	9188.08	9022.98	60	Marcellus
63	3/4/2020	8987.56	8822.46	60	Marcellus
64	3/4/2020	8787.04	8621.94	60	Marcellus
65	3/4/2020	8586.52	8421.42	60	Marcellus
66	3/4/2020	8386	8220.9	60	Marcellus
67	3/5/2020	8185.48	8020.38	60	Marcellus
68	3/5/2020	7984.96	7819.86	60	Marcellus
69	3/5/2020	7784.44	7619.34	60	Marcellus
70	3/5/2020	7583.92	7418.82	60	Marcellus
71	3/5/2020	7383.4	7218.3	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	2/19/2020	84.72	8016	6433	4448	172155	5198.024	N/A
2	2/19/2020	85.25	8272	5523	4428	405560	7680.929	N/A
3	2/19/2020	84.81	8314	5655	4479	407280	7486.643	N/A
4	2/19/2020	85.11	8370	5662	4601	402840	7385.905	N/A
5	2/19/2020	85.85	8363	5465	4560	403200	7464.095	N/A
6	2/20/2020	85.88	8338	5150	4690	407640	7491.5	N/A
7	2/20/2020	85.32	8420	5446	4778	402140	7299.595	N/A
8	2/20/2020	85.03	8040	4600	4955	402660	7205.238	N/A
9	2/20/2020	84.55	8401	5341	4773	404740	7233.048	N/A
10	2/21/2020	85.4	8310	5114	4833	402960	7216.619	N/A
11	2/21/2020	84.92	8362	5287	4068.6	405200	7280.024	N/A
12	2/21/2020	85.35	8191	5685	4567	401180	7242.976	N/A
13	2/21/2020	85.92	8307	4803	4561	410110	7301.048	N/A
14	2/22/2020	85.93	8355	3496	4510	406560	7207.238	N/A
15	2/22/2020	85.21	8371	5067	4544	408460	7158.81	N/A
16	2/22/2020	85.33	8317	5569	4307	400700	7084.548	N/A
17	2/22/2020	85.6	8505	5270	3937	410790	7137.405	N/A
18	2/22/2020	83.55	8263	5363	4617	403820	7184.952	N/A
19	2/23/2020	85.85	8355	5505	4633	404680	7275.381	N/A
20	2/23/2020	85.28	8286	5451	4593	405580	7185.143	N/A
21	2/23/2020	85.75	8305	5200	4453	411510	7234.357	N/A
22	2/23/2020	85.53	8311	4117	4439	404220	7112.333	N/A
23	2/24/2020	85.81	8395	5279	4510	410700	7244.714	N/A
24	2/24/2020	85.58	8469	5482	4396	404720	7058.976	N/A
25	2/24/2020	85	8573	5551	4492	408440	7023.952	N/A
26	2/24/2020	85.9	8355	5258	4646	403080	7134.524	N/A
27	2/25/2020	85.8	8311	5074	4403	408000	6910.643	N/A
28	2/25/2020	85.35	8162	5126	4010	400560	6923.214	N/A
29	2/25/2020	85.2	8318	5261	4419	406280	7127.357	N/A
30	2/25/2020	83.88	8456	5281	3999	402640	6952.286	N/A
31	2/26/2020	86.91	8327	5313	3694	402900	7118.524	N/A
32	2/26/2020	83.92	8096	4231	4012	404360	6852.833	N/A
33	2/26/2020	85.23	8409	5158	4353	403580	6992.214	N/A
34	2/26/2020	84.97	8426	5124	3722	401520	6937.833	N/A
35	2/27/2020	85.53	8163	5458	4736	407380	7038.643	N/A
36	2/27/2020	85.43	8372	5485	3999	409900	7012.738	N/A
37	2/27/2020	85.52	7955	4536	4383	402340	6891.548	N/A
38	2/27/2020	84.59	8285	5540	4074	401900	7070.476	N/A
39	2/27/2020	85.77	8047	5730	4241	404920	7058	N/A
40	2/28/2020	85.9	8238	5664	4425	405680	7049.214	N/A
41	2/28/2020	85.44	7866	5274	4179	405660	7017.738	N/A
42	2/28/2020	85.39	8106	5561	4360	409640	6946.857	N/A
43	2/28/2020	95.3	8472	5408	4691	401520	6984.357	N/A
44	2/29/2020	94.21	8553	5147	4743	402320	7013.952	N/A
45	2/29/2020	94.08	8270	4975	3983	403700	7109.024	N/A
46	2/29/2020	94.04	8660	5270	4013	400180	6830.214	N/A
47	2/29/2020	94.7	8403	5522	4402	398040	6954.857	N/A
48	2/29/2020	94.36	8553	5441	4569	403100	6968.095	N/A
49	3/1/2020	93.41	8457	5117	4463	406180	6988.31	N/A
50	3/1/2020	95.9	8550	5317	4395	406540	6981.619	N/A
51	3/1/2020	95.05	8584	5377	4171	403580	6835.714	N/A
52	3/1/2020	95.25	8461	5247	3721	402620	6906.024	N/A
53	3/1/2020	95.22	8552	5452	3978	403900	6916.476	N/A
54	3/2/2020	95.19	8400	5052	4526	399080	6941.119	N/A
55	3/2/2020	95.22	8503	5062	4713	405060	6938.952	N/A
56	3/2/2020	95.54	8367	5215	4140	408580	6869.31	N/A
57	3/2/2020	94.39	8311	5770	4125	410880	6921.762	N/A
58	3/2/2020	95.33	8349	4160	4274	409240	6982.5	N/A
59	3/3/2020	95.69	8178	5179	4522	399700	6787.262	N/A
60	3/3/2020	95.53	8117	5444	4844	406440	6744.238	N/A
61	3/3/2020	85.7	7394	5450	4846	398240	6638.619	N/A
62	3/3/2020	95.18	7879	5416	3886	406140	6874.405	N/A
63	3/4/2020	90.32	7781	5639	4661	350205	7878.429	N/A
64	3/4/2020	95.99	7520	6290	4199	405880	6743.167	N/A
65	3/4/2020	95.97	7676	5835	5067	404560	6769.905	N/A
66	3/4/2020	94.09	7937	6256	4633	403180	6806.714	N/A
67	3/5/2020	94.48	7411	5501	3697	403520	6785.31	N/A
68	3/5/2020	94.76	7706	5762	3973	406920	6777.976	N/A
69	3/5/2020	95.9	7634	5175	3912	407540	6741.5	N/A
70	3/5/2020	95.99	7550	5777	3911	412880	6758.524	N/A
71	3/5/2020	95.77	7312	5674	4007	402080	6749.476	N/A
	AVG=	84.9	8,293	5,245	4,402	16,378,645	291,481	TOTAL

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**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandstone	100	300	100	300
Siltstone	300	580	300	580
Limestone	580	600	580	600
Shaly Siltstone	600	720	600	720
Shaly Limestone	720	800	720	800
Siltstone w/ trace coal	800	870	800	870
Shale	870	980	870	980
Silty Sandstone	980	1,040	980	1,040
Limestone w/ trace coal	1,040	1,080	1,040	1,080
Shaly Sandstone	1,080	1,350	1,080	1,350
Sandstone w/ interbedded co	1,350	1,820	1,350	1,820
Shale	1,820	2,020	1,820	2,020
Limestone	2,020	2,120	2,020	2,120
Sandy Shale	2,120	2,129	2,120	2,134
Big Lime	2,129	2,744	2,109	2,750
Fifty Foot Sandstone	2,744	2,827	2,725	2,832
Gordon	2,827	3,113	2,807	3,120
Fifth Sandstone	3,113	3,316	3,095	3,326
Bayard	3,316	3,945	3,301	3,966
Speechley	3,945	4,237	3,941	4,263
Balltown	4,237	4,655	4,238	4,691
Bradford	4,655	5,157	4,666	5,200
Benson	5,157	5,461	5,175	5,508
Alexander	5,461	6,737	5,483	6,832
Sycamore	6,483	6,712	6,554	6,807
Middlesex	6,712	6,856	6,807	6,998
Burkett	6,856	6,885	6,998	7,044
Tully	6,885	6,951	7,044	7,171
Marcellus	6,951	NA	7,171	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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## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/18/2020
Job End Date:	3/5/2020
State:	West Virginia
County:	Doddrige
API Number:	47-017-06893-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Lakota 2H
Latitude:	39.30756000
Longitude:	-80.73345000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,023
Total Base Water Volume (gal):	22,042,185
Total Base Non Water Volume:	0

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### 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
Produced Mixture	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.64795	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.15649	



Legend LD-2990	MultiChem	Friction Reducer					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
Legend LD-2555	MultiChem	Additive					
				Listed Below			
LD-2950	MultiChem	Friction Reducer					
				Listed Below			
Enviro Energy Solutions EES 2800	EnviroEnergy Solutions	Additive					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			

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OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				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	13.16198	
			Hydrochloric acid	7647-01-0	30.00000	0.03824	
			Complex Amine Compound	Proprietary	60.00000	0.01146	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.00924	
			Complex Amine Compound	Proprietary	60.00000	0.00701	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.00547	
			Guar gum	9000-30-0	100.00000	0.00274	
			Glutaraldehyde	111-30-8	30.00000	0.00246	
			Ethoxylated alcohols	Proprietary	5.00000	0.00096	
			Alcohols, C11-14-iso, C- 13-rich, ethoxylated	78330-21-9	5.00000	0.00091	
			Polyethoxylated fatty amine salt	61791-26-2	30.00000	0.00071	
			Sobitan, mono-9- octadecenoate, (Z)	1338-43-8	5.00000	0.00058	
			Surfactant	Proprietary	5.00000	0.00058	
			Quaternary ammonium compounds, benzyl-C12- 16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00041	
			Methanol	67-56-1	100.00000	0.00032	
			Adipic acid	124-04-9	1.00000	0.00019	

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			Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega- hydroxy-, branched	69011-36-5	1.00000	0.00019
			Ethoxylated alcohols	Proprietary	1.00000	0.00012
			Organic chloride compound	Proprietary	1.00000	0.00012
			Alkoxylated polyhydric alcohol	Proprietary	1.00000	0.00012
			Ethanol	64-17-5	1.00000	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
			Ammonium persulfate	7727-54-0	100.00000	0.00006
			Oxylated phenolic resin	Proprietary	30.00000	0.00002
			Ethoxylated alcohols	Proprietary	5.00000	0.00001
			Propargyl alcohol	107-19-7	5.00000	0.00001
			Hexadecene	629-73-2	5.00000	0.00001
			Acrylamide	79-06-1	0.10000	0.00001
			Organic salt #1	Proprietary	0.10000	0.00001
			Phosphoric acid	7664-38-2	0.10000	0.00001
			Formaldehyde	50-00-0	0.01000	0.00000
			Organic salt #2	Proprietary	0.01000	0.00000
			Organic salt #3	Proprietary	0.01000	0.00000
			Nitrated acetate salt	Proprietary	0.01000	0.00000
			Sodium glycollate	2836-32-0	0.01000	0.00000
			Sodium hydroxide	1310-73-2	0.01000	0.00000
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000
			Ethylene oxide	75-21-8	0.01000	0.00000

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\* 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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# ANTERO RESOURCES CORPORATION

Location: Doddridge Co., WV  
 Field: Doddridge  
 Facility: George Scott Pad

Slot: Slot #05  
 Well: Lakota Unit 2H  
 Wellbore: Lakota Unit 2H PWB

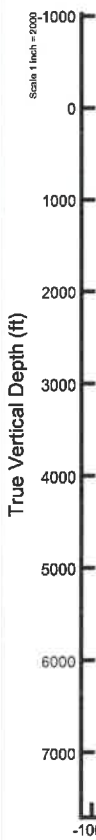


Plot reference wellpath is Lakota Unit 2H PWP Rev-B.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to H&P 317 (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to H&P 317 (RKB)	Scale: True distance
H&P 317 (RKB) to Mean Sea Level: 1306.5 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: Slot #05): -1283 feet	Depth are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: dalest on 2019-12-05; Database: WA MPL EasternUS Data

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
George Scott Pad	1715804.693	14274033.228	39°18'27.2500"N	80°44'0.5480"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #05	-2.71	0.60	1715814.290	14274030.520
H&P 317 (RKB) to Ground level (At Slot: Slot #05)			25.5ft	
Mean Sea Level to Ground level (At Slot: Slot #05)			-1283ft	
H&P 317 (RKB) to Mean Sea Level			1306.5ft	

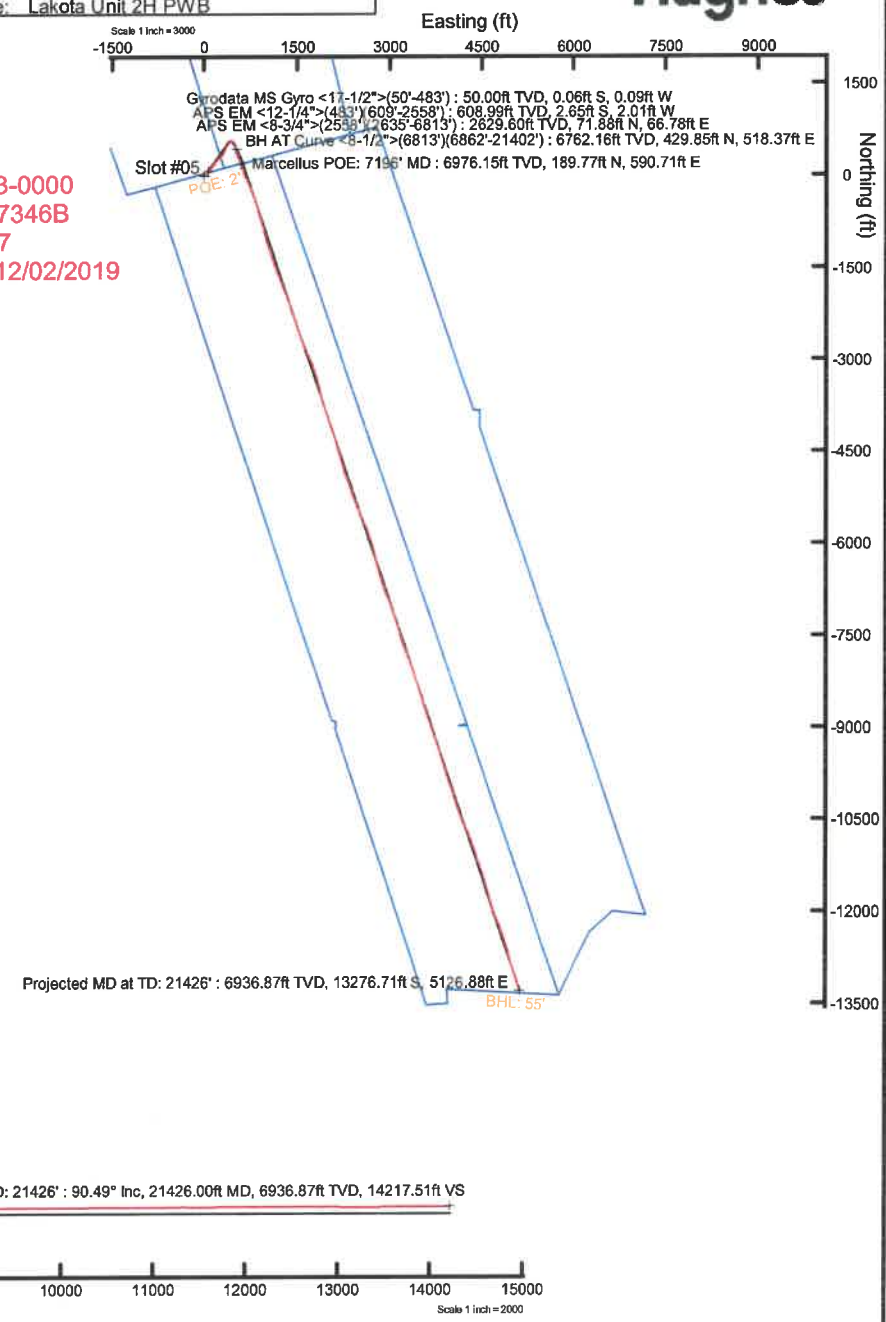
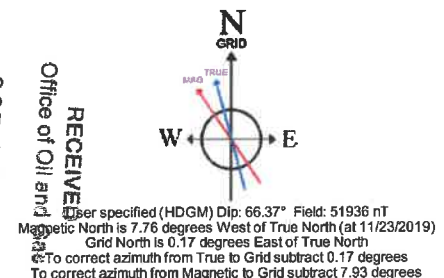
API: 47-017-06893-0000  
 BHI Job #: 110067346B  
 Rig: H&P 317  
 Duration: 10/04/2019-12/02/2019

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	2558.00	0.730	204.770	2552.61	72.68	67.05	0.30	-47.84
Proj. To Bottom	2630.00	0.730	204.770	2624.60	71.85	66.66	0.00	-46.97
Drill Out Casing	2730.00	0.730	204.770	2724.59	70.69	66.13	0.00	-46.04
Hold Tangent	3298.60	10.613	35.156	3288.16	110.21	94.75	2.00	-74.42
Curve KOP	6288.34	10.613	35.156	6228.72	580.71	412.03	0.00	-400.90
POE	7236.47	69.353	161.493	6974.00	149.54	838.96	8.00	60.42
Landing Pt.	7484.58	90.000	161.493	7020.00	-89.94	717.12	8.00	312.95
BHL	21405.78	90.000	161.493	7020.00	-13261.78	5132.74	0.00	14224.18



Gyrodata MS Gyro <17-1/2">(50'-483') : 0.52° Inc, 50.00ft MD, 50.00ft TVD, 0.03ft VS  
 APS EM <12-1/4">(483')(609'-2558') : 0.37° Inc, 609.00ft MD, 608.99ft TVD, 1.87ft VS  
 APS EM <8-3/4">(2558')(2635'-6813') : 0.55° Inc, 2635.00ft MD, 2629.60ft TVD, -46.96ft VS  
 BH AT Curve <8-1/2">(6813')(6862'-21402') : 34.95° Inc, 6862.00ft MD, 6762.16ft TVD, -243.04ft VS  
 Marcellus POE: 7196° MD : 65.56° Inc, 7196.00ft MD, 6976.15ft TVD, 7.58ft VS

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #05	Lakota Unit 2H	Lakota Unit 2H AWB	Lakota Unit 2H AWP Proj: 21426'
Slot #05	Lakota Unit 2H	Lakota Unit 2H PWB	Lakota Unit 2H PWP Rev-B.0



Projected MD at TD: 21426' : 6936.87ft TVD, 13276.71ft S, 5126.88ft E  
 BHL: 55'

Vertical Section (ft)  
 Azimuth 161.49° with reference 0.00 N, 0.00 E

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LATITUDE 39°20'00"

7,108'

LATITUDE 39°17'30"

2,023' TO BOTTOM HOLE

Antero Resources Corporation Well No. Lakota Unit 2H

AS DRILLED DATA: WELL 2H TOP HOLE INFORMATION: N: 296,526ft E: 1,650,986ft LAT: 39°18'27.22" LON: 80°44'00.41" BOTTOM HOLE INFORMATION: N: 283,166ft E: 1,655,890ft LAT: 39°16'15.84" LON: 80°42'55.72" 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 2H TOP HOLE INFORMATION: N: 4,350,951m E: 522,996m BOTTOM HOLE INFORMATION: N: 4,346,906m E: 524,558m

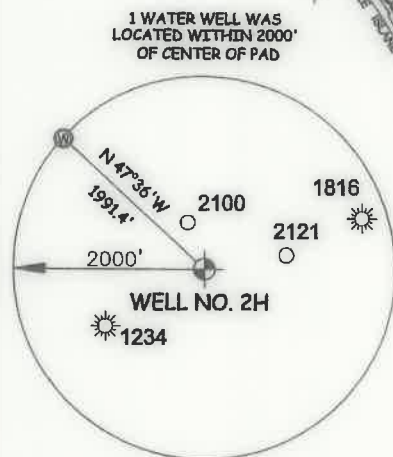
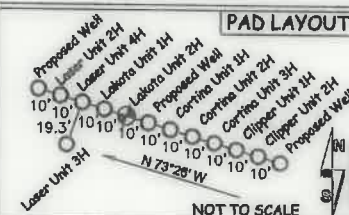


Table listing leaseholders and well numbers in the West Union District - Doddridge County, including Paul Smith, George Wyckoff, Robert Holland, John Smith, Steven Plamp, etc.

Table listing leaseholders and well numbers in the West Union District - Doddridge County, including Jimmie Nicholson, Michael Kappinger, Archold Cemetery, etc.

Table listing leaseholders and well numbers in the West Union District - Doddridge County, including Lucien Sammons, David Mitchell, Blk "D" Entery, LLC, etc.

WV NORTH ZONE GRID NORTH

7,503' TO BOTTOM HOLE

9,387'

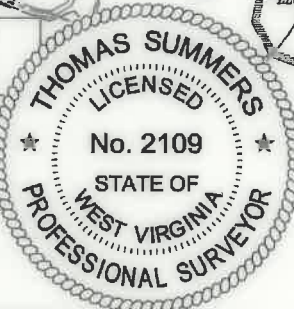
LONGITUDE 80°42'30"

LONGITUDE 80°42'30"

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



JOB # 18-034WA DRAWING # LAKOTA2HAD SCALE 1" = 2000' MINIMUM DEGREE OF ACCURACY SUBMETER PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

THOMAS SUMMERS P.S. 2109 DATE 06/18/20 OPERATOR'S WELL# LAKOTA UNIT #2H

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.

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 017 06893 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT LOCATION: ELEVATION 1,283' - AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK QUADRANGLE SMITHBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE SURFACE OWNER GEORGE S. WYCKOFF ACREAGE 70.58 ACRES +/- OIL & GAS ROYALTY OWNERS V.B. CHAPMAN ET UX; JOHNSON B. SMITH ET UX; FANNIE A. COULEHAN; HELEN INGRID HALL; LEASE ACREAGE 158 AC +/- 180 AC +/- 234.94 AC +/- 33 AC +/- E.C. JONES ET AL; DOROTHY E. O'HANLON; LEWIS MAXWELL OIL & GAS LLC; WYDNR; THOMAS JOSEPH MCCONNELL; 300 AC +/- 69.88 AC +/- 54.94 AC +/- 8.9 AC +/- 24.45 AC +/- WYSRA; A.E. FITZWILLIAMS ET AL; HUGH SPENCER ET UX; SPENCER ENTERPRISES, LLC 301.19 AC +/- 138.5 AC +/- 132 AC +/- 43 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 6,936' TVD 21,426' 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

COUNTY NAME PERMIT

LATITUDE 39°20'00"

7,108'

LATITUDE 39°17'30"

2,023' TO BOTTOM HOLE

7,503' TO BOTTOM HOLE

9,387'

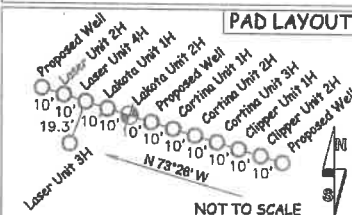
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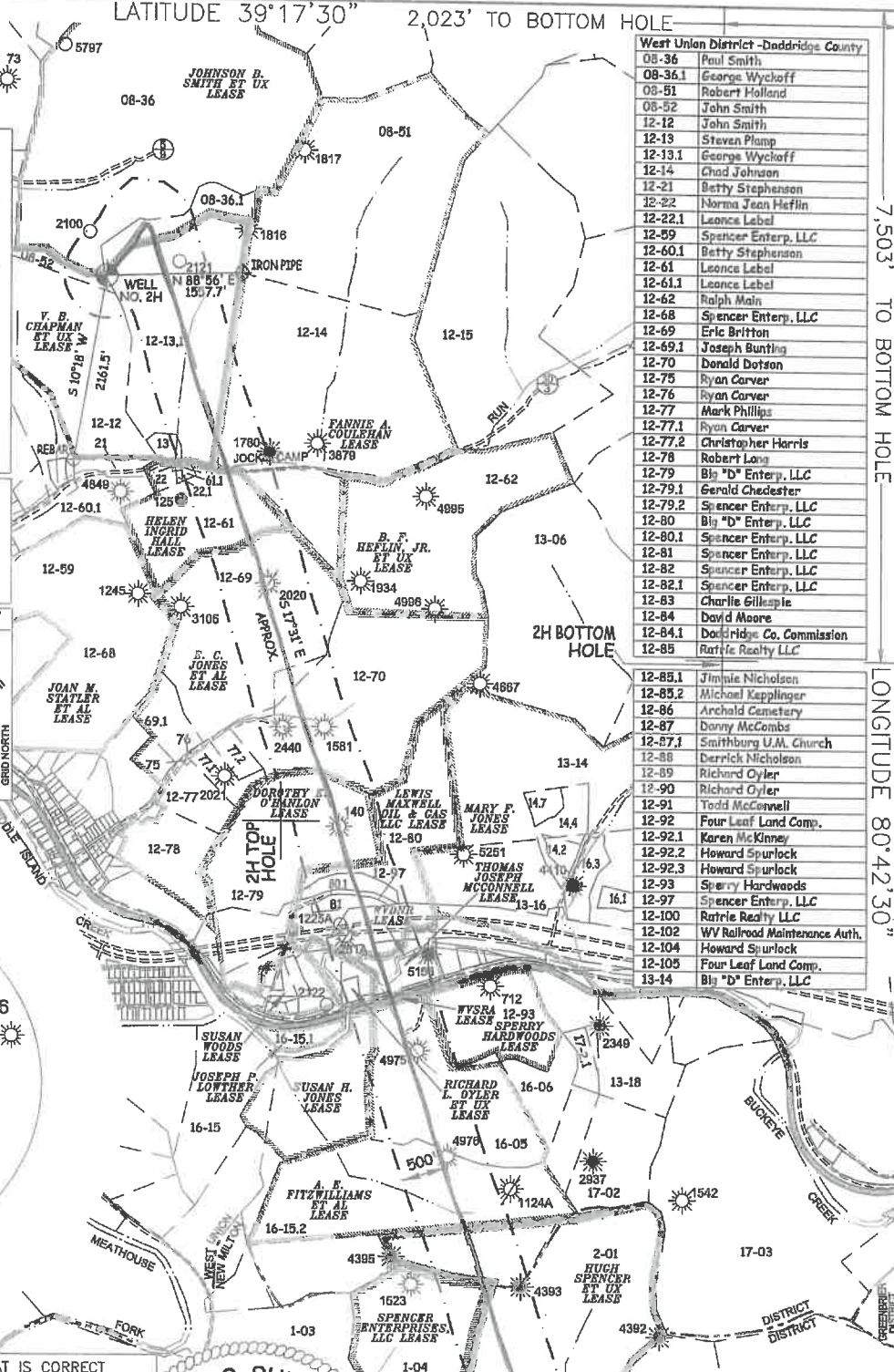
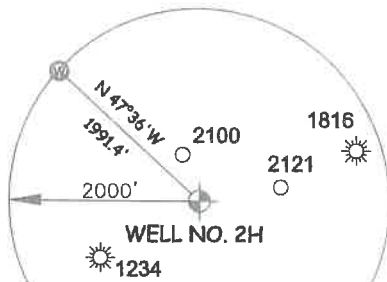
### Antero Resources Corporation Well No. Lakota Unit 2H

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 N: 4,350,951m E: 522,996m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,346,906m E: 524,558m



1 WATER WELL WAS LOCATED WITHIN 2000' OF CENTER OF PAD



West Union District - Doddridge County	
08-36	Paul Smith
08-36.1	George Wyckoff
08-51	Robert Holland
08-52	John Smith
12-12	John Smith
12-13	Steven Plamp
12-13.1	George Wyckoff
12-14	Chad Johnson
12-21	Betty Stephenson
12-22	Norma Jean Heflin
12-22.1	Leonce Label
12-59	Spencer Enterp. LLC
12-60.1	Betty Stephenson
12-61	Leonce Label
12-61.1	Leonce Label
12-62	Ralph Main
12-68	Spencer Enterp. LLC
12-69	Eric Britton
12-69.1	Joseph Bunting
12-70	Donald Dotson
12-75	Ryan Carver
12-76	Ryan Carver
12-77	Mark Phillips
12-77.1	Ryan Carver
12-77.2	Christopher Harris
12-78	Robert Law
12-79	Big "D" Enterp. LLC
12-79.1	Gerald Chedester
12-79.2	Spencer Enterp. LLC
12-80	Big "D" Enterp. LLC
12-80.1	Spencer Enterp. LLC
12-81	Spencer Enterp. LLC
12-82	Spencer Enterp. LLC
12-82.1	Spencer Enterp. LLC
12-83	Charlie Gillespie
12-84	David Moore
12-84.1	Doddridge Co. Commission
12-85	Raffle Realty LLC
12-85.1	Jimmie Nicholson
12-85.2	Michael Kapplinger
12-86	Archald Cemetery
12-87	Donny McCombs
12-87.1	Smithburg U.M. Church
12-88	Derrick Nicholson
12-89	Richard Oyler
12-90	Richard Oyler
12-91	Todd McConnell
12-92	Four Leaf Land Comp.
12-92.1	Karen McKinney
12-92.2	Howard Spurlock
12-92.3	Howard Spurlock
12-93	Sperry Hardwoods
12-97	Spencer Enterp. LLC
12-100	Raffle Realty LLC
12-102	WV Railroad Maintenance Auth.
12-104	Howard Spurlock
12-105	Four Leaf Land Comp.
13-14	Big "D" Enterp. LLC

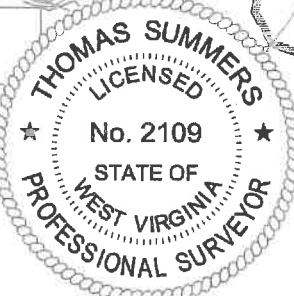
West Union District - Doddridge County	
13-14.2	Lucien Sammons
13-14.4	Lucien Sammons
13-14.7	David Mitchell
13-16	Big "D" Enterp. LLC
13-16.1	John Strickling
13-16.3	Hall Drilling LLC
13-18	Frank Race
16-05	Ruby Ballenger
16-06	Ruby Ballenger
16-15	Markest Liberty Midstream & Res. LLC
16-15.1	Lawrence Gaskins
16-15.2	Markest Liberty Midstream & Res. LLC
17-02	Ruby Ballenger
17-2.1	Ruby Ballenger
17-03	Helen Jones
New Milton District - Doddridge County	
1-03	Elwood Rill
1-04	Elwood Rill
1-08	Ralph Lacy
1-10	Donald Barnes
2-01	Ronald Law
2-02	Robert Bland

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



THOMAS SUMMERS P.S. 2109

DATE 06/18/20

OPERATOR'S WELL # LAKOTA UNIT #2H

JOB # 18-034WA  
 DRAWING # LAKOTA2HAD  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

**LEGEND**

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

**NOTE**

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WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  47 - 017 - 06893

(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1,283' - AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK STATE COUNTY PERMIT

QUADRANGLE SMITHBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE

SURFACE OWNER GEORGE S. WYCKOFF ACREAGE 70.58 ACRES +/-

OIL & GAS ROYALTY OWNERS V. B. CHAPMAN ET UX; JOHNSON B. SMITH ET UX; FANNIE A. COULEHAN; HELEN INGRID HALL; LEASE ACREAGE 156 AC +/-; 180 AC +/-; 234.94 AC +/-; 33 AC +/-; E. C. JONES ET AL; DOROTHY E. OHANLON; LEWIS MAXWELL OIL & GAS LLC; WYDNR; THOMAS JOSEPH MCCONNELL; 300 AC +/-; 69.86 AC +/-; 54.94 AC +/-; 8.9 AC +/-; 24.45 AC +/-; WYSRA; A. E. FITZWILLIAMS ET AL; HUGH SPENCER ET UX; SPENCER ENTERPRISES, LLC; 301.19 AC +/-; 138.5 AC +/-; 132 AC +/-; 43 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 6,936' TVD 21,426' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD

FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT