



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

March 20, 2020

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> 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 **Weekley Trust Pad**:

- Cinqmars Unit 1H-2H
- Goliad Unit 1H-2H
- Ray Unit 1H-3H
- Swartzmiller Unit 1H-2H

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 "Megan Griffith", with a long horizontal flourish extending to the right.

Megan Griffith  
Permitting Agent  
Antero Resources Corporation

Enclosures

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

API 47- \_\_\_\_\_ - \_\_\_\_\_ County \_\_\_\_\_ District \_\_\_\_\_  
Quad \_\_\_\_\_ Pad Name \_\_\_\_\_ Field/Pool Name \_\_\_\_\_  
Farm name \_\_\_\_\_ Well Number \_\_\_\_\_  
Operator (as registered with the OOG) \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

Elevation (ft) \_\_\_\_\_ 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)  
\_\_\_\_\_  
\_\_\_\_\_

Date permit issued \_\_\_\_\_ Date drilling commenced \_\_\_\_\_ Date drilling ceased \_\_\_\_\_  
Date completion activities began \_\_\_\_\_ Date completion activities ceased \_\_\_\_\_  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft \_\_\_\_\_ Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft \_\_\_\_\_ Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) \_\_\_\_\_

Reviewed by:  
\_\_\_\_\_

API 47- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) \_\_\_\_\_ Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated \_\_\_\_\_ Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) \_\_\_\_\_

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 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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 \_\_\_\_\_

API 47- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

**PERFORATION RECORD**

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
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**\*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)
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**\*PLEASE SEE ATTACHED EXHIBIT 2**


Please insert additional pages as applicable.

API 47- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

PRODUCING FORMATION(S)

DEPTHS

_____	_____ TVD	_____ MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

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

OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ 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 <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 \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cementing Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Stimulating Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please insert additional pages as applicable.

Completed by \_\_\_\_\_ Telephone \_\_\_\_\_  
Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

API 47-085-10350 Farm Name David L. Weekley Revocable Trust Well Number Swartzmiller Unit 2H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	6/29/2019	14172.7	14227.3	60	Marcellus
2	7/6/2019	13970.8	14141.05	60	Marcellus
3	7/6/2019	13768.9	13939.15	60	Marcellus
4	7/6/2019	13567	13737.25	60	Marcellus
5	7/7/2019	13365.1	13535.35	60	Marcellus
6	7/8/2019	13163.2	13333.45	60	Marcellus
7	7/9/2019	12961.3	13131.55	60	Marcellus
8	7/9/2019	12759.4	12929.65	60	Marcellus
9	7/9/2019	12557.5	12727.75	60	Marcellus
10	7/10/2019	12355.6	12525.85	60	Marcellus
11	7/10/2019	12153.7	12323.95	60	Marcellus
12	7/10/2019	11951.8	12122.05	60	Marcellus
13	7/11/2019	11749.9	11920.15	60	Marcellus
14	7/11/2019	11548	11718.25	60	Marcellus
15	7/12/2019	11346.1	11516.35	60	Marcellus
16	7/12/2019	11144.2	11314.45	60	Marcellus
17	7/12/2019	10942.3	11112.55	60	Marcellus
18	7/12/2019	10740.4	10910.65	60	Marcellus
19	7/13/2019	10538.5	10708.75	60	Marcellus
20	7/13/2019	10336.6	10506.85	60	Marcellus
21	7/13/2019	10134.7	10304.95	60	Marcellus
22	7/13/2019	9932.8	10103.05	60	Marcellus
23	7/14/2019	9730.9	9901.15	60	Marcellus
24	7/15/2019	9529	9699.25	60	Marcellus
25	7/15/2019	9327.1	9497.35	60	Marcellus
26	7/15/2019	9125.2	9295.45	60	Marcellus
27	7/15/2019	8923.3	9093.55	60	Marcellus
28	7/16/2019	8721.4	8891.65	60	Marcellus
29	7/16/2019	8519.5	8689.75	60	Marcellus
30	7/16/2019	8317.6	8487.85	60	Marcellus
31	7/16/2019	8115.7	8285.95	60	Marcellus
32	7/17/2019	7913.8	8084.05	60	Marcellus
33	7/17/2019	7711.9	7882.15	60	Marcellus
34	7/17/2019	7510	7680.25	60	Marcellus
35	7/17/2019	7308.1	7478.35	60	Marcellus
36	7/18/2019	7106.2	7276.45	60	Marcellus
37	7/18/2019	6904.3	7074.55	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	6/29/2019	53.67	7764	7241	8870	49760	3864	N/A
2	7/6/2019	77.18	7538	6045	3359	409300	8920	N/A
3	7/6/2019	76.2	7381	6031	3431	398860	8607	N/A
4	7/6/2019	80.53	7629	5695	3540	404940	9095	N/A
5	7/7/2019	79.06	7486	6264	3768	405380	8891	N/A
6	7/8/2019	79.45	7468	5381	3998	406940	8800	N/A
7	7/9/2019	80.06	7796	5164	3802	403120	8791	N/A
8	7/9/2019	78.33	7599	5682	3562	412060	8915	N/A
9	7/9/2019	77.34	7306	5167	3568	405980	9004	N/A
10	7/10/2019	77.96	7408	5569	3704	404860	8641	N/A
11	7/10/2019	77.51	7624	5251	3786	412440	8789	N/A
12	7/10/2019	75.87	7523	5742	3686	411080	8924	N/A
13	7/11/2019	76.62	7286	5226	3794	405880	8915	N/A
14	7/11/2019	76.3	7258	5741	3894	412160	8872	N/A
15	7/12/2019	77.1	7398	5534	4084	408640	8767	N/A
16	7/12/2019	75.93	7200	5671	4053	408040	8734	N/A
17	7/12/2019	76.34	7259	5162	3670	407380	8684	N/A
18	7/12/2019	79.8	7317	5641	3729	411840	8684	N/A
19	7/13/2019	81.5	7541	5433	3761	415840	8739	N/A
20	7/13/2019	77.54	7032	5755	3709	407460	8779	N/A
21	7/13/2019	78.4	7068	5558	3626	406420	8630	N/A
22	7/13/2019	80.98	7074	5399	3660	409640	8653	N/A
23	7/14/2019	80.58	7142	5621	3907	403600	8598	N/A
24	7/15/2019	81.01	7137	5573	3705	403270	8570	N/A
25	7/15/2019	78.8	6997	5554	3719	408540	8865	N/A
26	7/15/2019	78.39	6795	5056	3671	406660	8766	N/A
27	7/15/2019	80.84	6942	5314	3711	400700	8505	N/A
28	7/16/2019	80.14	6963	6092	3722	402720	8467	N/A
29	7/16/2019	78.55	6818	6244	3675	414870	8686	N/A
30	7/16/2019	77.05	6786	5634	3603	412260	8675	N/A
31	7/16/2019	79.89	6784	5830	3695	413200	8561	N/A
32	7/17/2019	80.91	6772	5731	3705	409920	8534	N/A
33	7/17/2019	79.72	6987	5416	3681	411440	8637	N/A
34	7/17/2019	79.6	6900	5680	3604	410660	8509	N/A
35	7/17/2019	81.13	6675	5257	3567	408520	8508	N/A
36	7/18/2019	80.88	6958	5600	3522	408520	8508	N/A
37	7/18/2019	80.29	6629	6119	3648	408380	8568.7	N/A
	<b>AVG</b>	<b>77.9</b>	<b>7,235</b>	<b>5,650</b>	<b>3,866</b>	<b>13,515,860</b>	<b>292,071</b>	<b>TOTAL</b>

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty sandstone	0	225	0	225
Silty sandstone w/ coal	225	265	225	265
Sandy Siltstone	265	325	265	325
Silty sandstone	325	405	325	405
Sandy sahle	405	425	405	425
Sandy, limy siltstone	425	485	425	485
Sandstone	485	585	485	585
Siltstone	585	685	585	685
Sandstone w lime stingers	685	1,275	685	1,275
Silty sandstone	1,275	1,685	1,275	1,685
Limy shale	1,685	1,905	1,685	1,905
Sandstone	1,905	2,045	1,905	2,045
Siltstone	2,045	2,045	2,045	2,062
Big Lime	2,060	2,834	2,038	2,836
Fifty Foot Sandstone	2,834	3,024	2,812	3,026
Gordon	3,024	3,121	3,002	3,125
Fifth Sandstone	3,121	3,517	3,101	3,532
Bayard	3,517	4,118	3,508	4,149
Speechley	4,118	4,358	4,125	4,398
Balltown	4,358	4,970	4,374	5,030
Bradford	4,970	5,382	5,006	5,456
Benson	5,382	5,591	5,432	5,671
Alexander	5,591	6,414	5,647	6,574
Sycamore	6,278	6,390	6,403	6,550
Middlesex	6,390	6,489	6,550	6,723
Burkett	6,489	6,518	6,723	6,793
Tully	6,518	6,539	6,793	6,860
Marcellus	6,539	NA	6,860	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.



## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/29/2019
Job End Date:	7/18/2019
State:	West Virginia
County:	Ritchie
API Number:	47-085-10350-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Swartzmiller 2H
Latitude:	39.37156940
Longitude:	-80.92399720
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,605
Total Base Water Volume (gal):	13,581,730
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	88.16134	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.33563	

WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
SCALECHEK LP-70	Halliburton	Scale Inhibitor					
				Listed Below			
Excelerate EC-8	Halliburton	Friction Reducer					
				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			
CalBreak 5501	Calfrac Well Services Corp.	Breaker					
				Listed Below			
SP BREAKER	Halliburton	Breaker					

				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	11.47030	
			Hydrochloric acid	7647-01-0	15.00000	0.04308	
			Inorganic salt	Proprietary	30.00000	0.01534	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01534	
			Acrylamide acrylate polymer	Proprietary	30.00000	0.01534	
			Ethylene glycol	107-21-1	60.00000	0.00845	
			Guar gum	9000-30-0	100.00000	0.00633	
			Glutaraldehyde	111-30-8	30.00000	0.00279	
			Telomer	Proprietary	10.00000	0.00141	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00047	
			Methanol	67-56-1	100.00000	0.00030	
			Sodium polyacrylate	9003-04-7	1.00000	0.00014	
			Ammonium Persulfate	7727-54-0	100.00000	0.00010	
			Ethanol	64-17-5	1.00000	0.00009	
			Modified thiourea polymer	Proprietary	30.00000	0.00006	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00006	
			2 Propenoic acid, methylester, polymer with 1,1-dichloroethene	25038-72-6	20.00000	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	
			Sodium persulfate	7775-27-1	100.00000	0.00001	

			Acrylic acid	79-10-7	0.01000	0.00000	
			Sodium sulfate	7757-82-6	0.10000	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: 47-085-10350 County: Ritchie  
District: Clay Well No: Swartzmiller Unit 2H  
Farm Name: David Weekley L. Revocable Trust  
Discharge Date/s From:(MMDDYY) 09/26/19 To: (MMDDYY) 10/26/19  
Discharge Times. From: 0:00 To: 24:00  
Total Volume to be Disposed from this facility (gallons): 906,634

Disposal Option(s) Utilized (write volumes in gallons):  
(1) Land Application: \_\_\_\_\_ (Include a topographical map of the Area.)  
(2) UIC: 104,033 Permit No. 3400923821, 3400923823, 3400923824, 3416729731, 3416729543, 3416729464, 3416729445, 3410523619, 3410523652  
(3) Offsite Disposal: \_\_\_\_\_ Site Location: \_\_\_\_\_  
(4) Reuse: 802,601 Alternate Permit Number: \_\_\_\_\_  
(5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_  
(6) Other method: \_\_\_\_\_ (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: Senior Environmental and Regulatory Manager  
Date Completed: 3/16/20

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.

  
\_\_\_\_\_  
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/Bt
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: \_\_\_\_\_



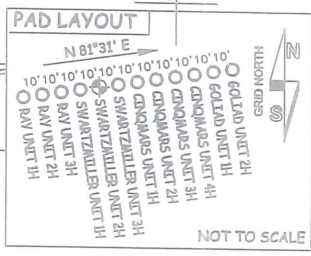
LATITUDE 39°22'30" 2,072'

LATITUDE 39°25'00"

LONGITUDE 80°55'00" 9,076' TO BOTTOM HOLE

LONGITUDE 80°55'00"

Antero Resources Corporation  
Well No. Swartzmiller Unit 2H  
47-085-10350



NOTES:  
WELL 2H TOP HOLE INFORMATION:  
N: 320,634ft E: 1,597,442ft  
LAT: 39°22'17.65" LON: 80°55'26.39"  
BOTTOM HOLE INFORMATION:  
N: 328,005ft E: 1,596,114ft  
LAT: 39°23'30.30" LON: 80°55'44.78"  
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: 4,358,023m E: 506,561m  
BOTTOM HOLE INFORMATION:  
N: 4,360,262m E: 506,119m

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.

WV NORTH ZONE GRID NORTH

JOE-DOM INC. LEASE

KEVIN GRIM D.B. 268 PG. 66 T.M. 1 PAR. 02 83.5 AC. ±

ROBERT A. DAVIS ET UX LEASE  
GARY A. BARNARD ET AL  
D.B. 247 PG. 586 T.M. 11 PAR. 13 284.33 AC. ±

CLIFF WM. PERKINS ET UX LEASE

KEVIN GRIM D.B. 268 PG. 66 T.M. 1 PAR. 04 81.5 AC. ±

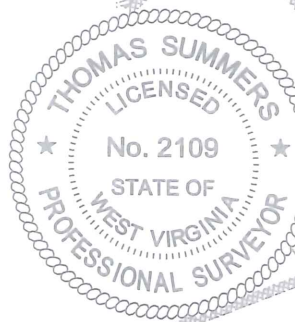
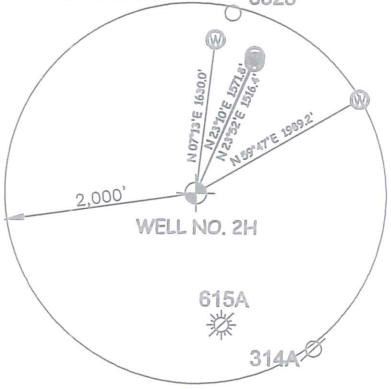
CLIFF PERKINS ET AL D.B. 289 PG. 1020 T.M. 1 PAR. 05 75.08 AC. ±

IRENE NUTTER HAYMOND TRUST LEASE

JESSICA HAYMOND D.B. 334 PG. 347 T.M. 3 PAR. 07 168 AC. ±

Clay District - Ritchie County		
PAR.	SURFACE OWNER	OIL & GAS ROYALTY OWNER
1-08	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-09	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-11	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-12	CLIFF PERKINS ET AL	LAURA ULAM
1-13	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-14	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-15	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-16	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-17	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-18	CLIFF PERKINS ET AL	CLIFF WM. PERKINS ET UX
1-19	MICHAEL DER	GARY MICHAEL DER ET UX
1-20	TONY PERKINS ET AL	TONY ADRIAN PERKINS
3-03	BRIAN JONES	BRIAN KEITH JONES
3-04	BRIAN JONES	BRIAN KEITH JONES
3-05	DENNY COWGER	DENNY COWGER ET UX
3-06	CLIFF PERKINS ET AL	TONY ADRIAN PERKINS

NOTE:  
4 WATER WELLS WERE LOCATED WITHIN 2000' OF CENTER OF PAD



NORMAN FLEMING ET UX LEASE

DAVID L. WEEKLEY REVOCABLE TRUST D.B. 265 PG. 204 T.M. 3 PAR. 10 203.38 AC. ±

DAVID L. WEEKLEY REVOCABLE TRUST LEASE

JOB # 17-044WA  
DRAWING # SWARTMILLER2HAD  
SCALE 1" = 1000'  
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

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

LEGEND  
----- Surface Owner Boundary Lines +/-  
----- Interior Surface Tracts +/-  
○----- Proposed Well Path  
○----- As Drilled Well Path  
THOMAS SUMMERS P.S. 2109  
*Thomas Summers*  
DATE 02/10/20  
OPERATOR'S WELL # SWARTZMILLER UNIT #2H

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
LOCATION: ELEVATION 1,235' AS BUILT WATERSHED NORTH FORK HUGHES RIVER  
QUADRANGLE PENNSBORO 7.5' - TH MIDDLEBOURNE 7.5' - BH DISTRICT CLAY COUNTY RICHTIE  
SURFACE OWNER DAVID L. WEEKLEY REVOCABLE TRUST ACREAGE 203.38 ACRES +/-  
OIL & GAS ROYALTY OWNER DAVID L. WEEKLEY REVOCABLE TRUST; TONY ADRIAN PERKINS; LEASE ACREAGE 229 AC.±; 26.11 AC.±;  
TONY ADRIAN PERKINS; CLIFF WM. PERKINS ET UX; CLIFF WM. PERKINS ET UX; CLIFF WM. PERKINS ET UX; 2 AC.±; 16.35 AC.±; 17 AC.±; 18.5 AC.±;  
IRENE NUTTER HAYMOND TRUST; CLIFF WM. PERKINS ET UX; ROBERT A. DAVIS ET UX 375 AC.±; 75.08 AC.±; 284.33 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  
TARGET FORMATION MARCELLUS PLUG & ABANDON \_\_\_ CLEAN OUT & REPLUG \_\_\_  
WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH 6,597' TVD 14,341' MD  
ADDRESS 1615 WYNKOOP ST. DENVER, CO 80202 DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
FORM WW-6 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT