

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

API 47 - 095 - 02606 County Tyler District McElroy
Quad Shirley 7.5' Pad Name Colorado East Pad Field/Pool Name -----
Farm name Antero Resources Corporation Well Number Mammoth 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 4361513m Easting 518257m
Landing Point of Curve Northing 4361166.92m Easting 519214.53m
Bottom Hole Northing 4359111m Easting 519891m

Elevation (ft) 743' 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 4/30/2019 Date drilling commenced 10/28/2019 Date drilling ceased 12/8/2019
Date completion activities began 3/21/2020 Date completion activities ceased 6/10/2020
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A RECEIVED

Office of Oil and Gas

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug JAN 04 2020

Freshwater depth(s) ft 235', 241', 298' Open mine(s) (Y/N) depths No WV Department of
Salt water depth(s) ft 970' Void(s) encountered (Y/N) depths No Environmental Protection
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:
JCB
1/27/2021

API 47- 095 - 02606 Farm name Antero Resources Corporation Well number Mammoth 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"	429'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2755'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16571'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	7320'		4.7#, P-110		
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	284 sx	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	372 sx	15.6	1.20	635	0'	8 Hrs.
Coal							
Intermediate 1	Class A	920 sx	15.6	1.19	1082	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 2270 sx (Tail)	14.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.6 (Tail)	3003	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16590' MD, 6458' TVD (BHL), 6466' (Deepest Point Drilled) Loggers TD (ft) 16590' MD

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

Plug back procedure N/A

Kick off depth (ft) 6265'

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 - 02606 Farm name Antero Resources Corporation Well number Mammoth Unit 2H

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- 095 - 02606 Farm name Antero Resources Corporation Well number Mammoth Unit 2H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6406' (TOP) TVD	7359' (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 3032 mcfpd Oil 413 bpd NGL --- bpd Water 106 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
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***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Patterson UTI
Address 1660 Wynkoop Street City Denver State CO Zip 80202

Logging Company Nine Energy Services
Address 6500 West Fwy City Fort Worth State TX Zip 76116

Cementing Company Schlumberger Oilfield Services
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

Stimulating Company Halliburton
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Please insert additional pages as applicable.

Completed by Brandi Hankins Telephone 303-357-7223
Signature _____ Title Completions Technician Date _____

API 47-095-02606 Farm Name Antero Resources Corporation Well Number Mammoth Unit 2H

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	3/24/2020	16462.8	16417.8	60	Marcellus
2	3/25/2020	16380.43037	16215.5822	60	Marcellus
3	3/25/2020	16180.21259	16015.3644	60	Marcellus
4	3/26/2020	15979.99481	15815.1467	60	Marcellus
5	3/26/2020	15779.77704	15614.9289	60	Marcellus
6	3/27/2020	15579.55926	15414.7111	60	Marcellus
7	3/27/2020	15379.34148	15214.4933	60	Marcellus
8	3/27/2020	15179.1237	15014.2756	60	Marcellus
9	3/28/2020	14978.90593	14814.0578	60	Marcellus
10	3/28/2020	14778.68815	14613.84	60	Marcellus
11	3/29/2020	14578.47037	14413.6222	60	Marcellus
12	3/29/2020	14378.25259	14213.4044	60	Marcellus
13	3/30/2020	14178.03481	14013.1867	60	Marcellus
14	3/30/2020	13977.81704	13812.9689	60	Marcellus
15	3/30/2020	13777.59926	13612.7511	60	Marcellus
16	3/30/2020	13577.38148	13412.5333	60	Marcellus
17	3/31/2020	13377.1637	13212.3156	60	Marcellus
18	3/31/2020	13176.94593	13012.0978	60	Marcellus
19	3/31/2020	12976.72815	12811.88	60	Marcellus
20	4/1/2020	12776.51037	12611.6622	60	Marcellus
21	4/1/2020	12576.29259	12411.4444	60	Marcellus
22	4/1/2020	12376.07481	12211.2267	60	Marcellus
23	4/2/2020	12175.85704	12011.0089	60	Marcellus
24	4/2/2020	11975.63926	11810.7911	60	Marcellus
25	4/2/2020	11775.42148	11610.5733	60	Marcellus
26	4/2/2020	11575.2037	11410.3556	60	Marcellus
27	4/3/2020	11374.98593	11210.1378	60	Marcellus
28	4/3/2020	11174.76815	11009.92	60	Marcellus
29	4/3/2020	10974.55037	10809.7022	60	Marcellus
30	4/4/2020	10774.33259	10609.4844	60	Marcellus
31	4/4/2020	10574.11481	10409.2667	60	Marcellus
32	4/4/2020	10373.89704	10209.0489	60	Marcellus
33	4/4/2020	10173.67926	10008.8311	60	Marcellus
34	4/5/2020	9973.461481	9808.61333	60	Marcellus
35	4/5/2020	9773.243704	9608.39556	60	Marcellus
36	4/5/2020	9573.025926	9408.17778	60	Marcellus
37	4/6/2020	9372.808148	9207.96	60	Marcellus
38	4/6/2020	9172.59037	9007.74222	60	Marcellus
39	4/6/2020	8972.372593	8807.52444	60	Marcellus
40	4/6/2020	8772.154815	8607.30667	60	Marcellus
41	4/7/2020	8571.937037	8407.08889	60	Marcellus
42	4/7/2020	8371.719259	8206.87111	60	Marcellus
43	4/7/2020	8171.501481	8006.65333	60	Marcellus
44	4/7/2020	7971.283704	7806.43556	60	Marcellus
45	4/8/2020	7771.065926	7606.21778	60	Marcellus
46	4/8/2020	7570.848148	7406	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	3/24/2020	79.94	7615	7791	3933	161760	4624.714	N/A
2	3/25/2020	80.75	8071	6838	4739	404480	7275.048	N/A
3	3/25/2020	84.24	8309	6450	4797	402540	7240.786	N/A
4	3/26/2020	80.81	7987	6370	4498	402060	7346.69	N/A
5	3/26/2020	85.09	8042	6135	4600	405540	7279.214	N/A
6	3/27/2020	85.75	8306	6135	4281	406940	7246.929	N/A
7	3/27/2020	85.51	8445	6331	4292	398700	7111.595	N/A
8	3/27/2020	74.1	8521	6035	4347	407420	7161.738	N/A
9	3/28/2020	83.48	8288	5960	4022	398620	6962.119	N/A
10	3/28/2020	85.736	8297	5748	4192	407740	7113	N/A
11	3/29/2020	85	8379	5900	4236	403760	7092.905	N/A
12	3/29/2020	85.18	8394	6193	4056	405440	7113.024	N/A
13	3/30/2020	85.44	8392	6331	4149	408080	7075.548	N/A
14	3/30/2020	84.28	8322	6336	4139	404040	7009.69	N/A
15	3/30/2020	85.8	8214	6251	4177	403560	7061.476	N/A
16	3/30/2020	85.24	8171	5884	4249	402940	7003.857	N/A
17	3/31/2020	85.74	8327	5803	4316	404400	7005.214	N/A
18	3/31/2020	84.87	8291	5703	4476	406560	6863.905	N/A
19	3/31/2020	85.93	8262	5875	4307	404980	6915.762	N/A
20	4/1/2020	85.32	8327	5630	4349	405080	6954.905	N/A
21	4/1/2020	85.66	7987	6045	4069	407300	6925.5	N/A
22	4/1/2020	85.31	7913	5794	4019	403320	6902.714	N/A
23	4/2/2020	85.6	8207	5866	4018	404160	6905.976	N/A
24	4/2/2020	85.43	8152	6092	4090	403940	6860.048	N/A
25	4/2/2020	85.51	8136	5980	4044	404340	6867.071	N/A
26	4/2/2020	85.57	7935	5979	4165	407180	6879.619	N/A
27	4/3/2020	85.71	8040	5957	4089	405620	6881.762	N/A
28	4/3/2020	95.07	8363	6325	4293	403480	6830.476	N/A
29	4/3/2020	93.12	8098	5884	4257	408100	6923.81	N/A
30	4/4/2020	93.51	8187	6205	4316	405100	6959.119	N/A
31	4/4/2020	95.19	8294	6005	4255	407220	6872.881	N/A
32	4/4/2020	95.34	8271	6018	4197	404080	6842.286	N/A
33	4/4/2020	95.94	8321	5729	4363	408280	6889.119	N/A
34	4/5/2020	95.06	8098	5163	4307	405580	6857.048	N/A
35	4/5/2020	95.46	8245	6227	3968	404560	6818.167	N/A
36	4/5/2020	85.82	7572	6295	4158	409660	6882.976	N/A
37	4/6/2020	95.88	8052	5663	4348	408280	6917.857	N/A
38	4/6/2020	95.86	8159	6135	3940	408420	6826.262	N/A
39	4/6/2020	95.04	8097	5849	4014	408340	6811.667	N/A
40	4/6/2020	95.87	7851	5839	4070	407800	6823.571	N/A
41	4/7/2020	95.82	6133	6133	3924	409280	6878.381	N/A
42	4/7/2020	95.9	7778	6558	4068	406820	6878.786	N/A
43	4/7/2020	95.69	7842	6054	4075	405880	6903.524	N/A
44	4/7/2020	95.76	7751	6169	4221	407080	6844.119	N/A
45	4/8/2020	94.79	7945	5927	4475	403160	6842.571	N/A
46	4/8/2020	95.99	7798	6188	4222	407200	6914.071	N/A
	AVG=	89	8,091	6,082	4,220	18,408,820	318,198	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
Shale	0	310	0	310
Silty sandstone	310	460	310	460
Shale	460	700	460	700
Silty Shale	700	820	700	820
Shale with interbedded limestone	820	850	820	850
Shale	850	880	850	880
Shale w/ trace coal	880	910	880	910
Shaley Sandstone	910	1,180	910	1,180
Shale	1,180	1,240	1,180	1,240
Sandstone w/ interbedded coals	1,240	1,330	1,240	1,330
Sandstone w/ trace coal	1,330	1,480	1,330	1,480
Sandstone	1,480	1,510	1,480	1,510
Shale	1,510	1,622	1,510	1,631
Big Lime	1,622	2,350	1,631	2,445
Fifty Foot Sandstone	2,350	2,446	2,445	2,557
Gordon	2,446	2,736	2,557	2,886
Fifth Sandstone	2,736	2,775	2,886	2,929
Bayard	2,775	3,575	2,929	3,848
Speechley	3,575	3,770	3,848	4,073
Balltown	3,770	4,309	4,073	4,692
Bradford	4,309	4,753	4,692	5,202
Benson	4,753	5,011	5,202	5,500
Alexander	5,011	6,215	5,500	6,910
Sycamore	6,025	6,190	6,696	6,885
Middlesex	6,190	6,327	6,910	7,132
Burkett	6,327	6,355	7,157	7,202
Tully	6,355	6,406	7,227	7,359
Marcellus	6,406	NA	7,359	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: Tyler County, WV
 Field: Tyler
 Facility: Colorado East Pad

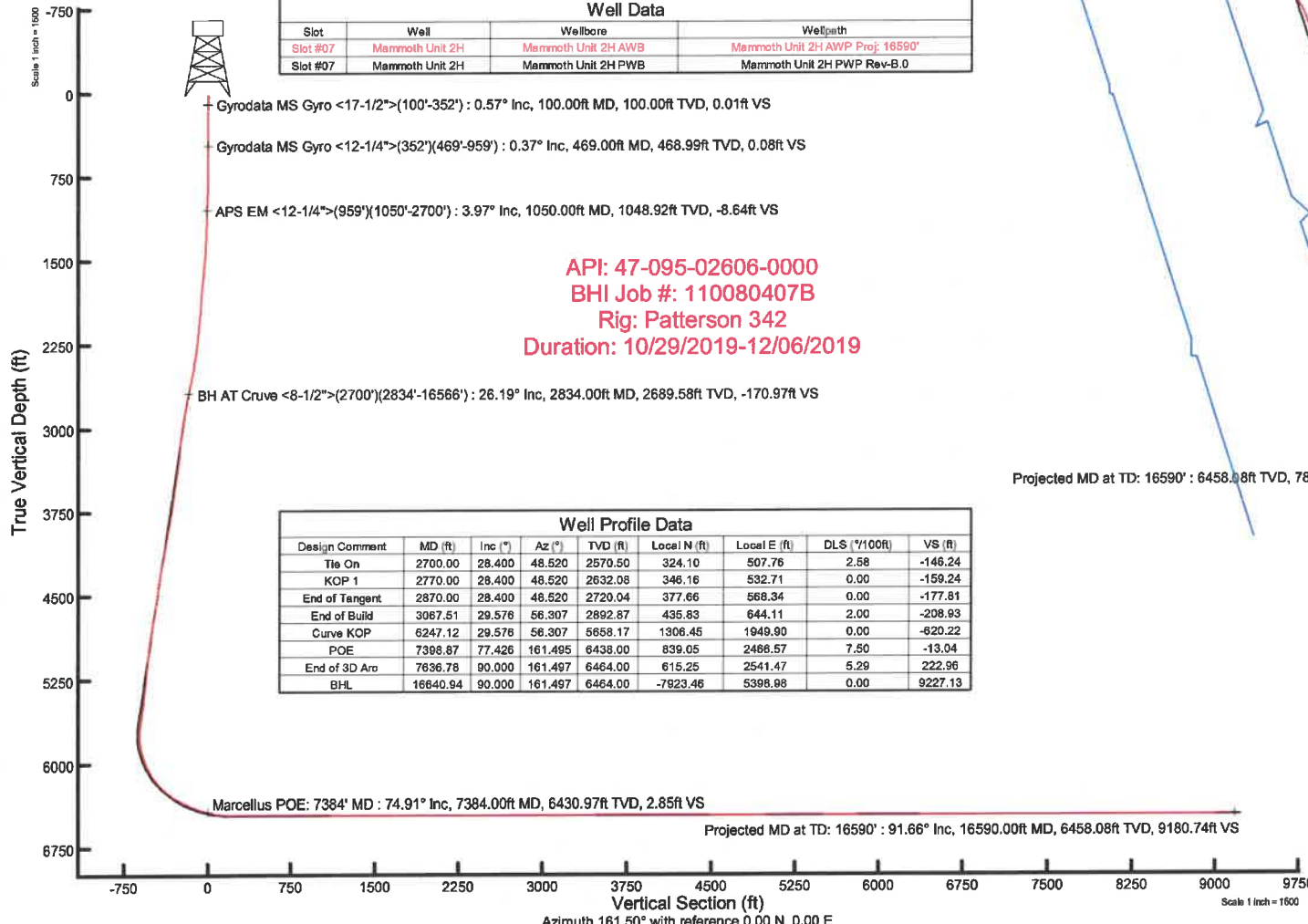
Slot: Slot #07
 Well: Mammoth Unit 2H
 Wellbore: Mammoth Unit 2H PWB



Pick reference wellpath is Mammoth Unit 2H PWP Rev-B.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Patterson 342 (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to Patterson 342 (RKB)	Scale: True distance
Patterson 342 (RKB) to Mean Sea Level: 766 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: Slot #07): -743 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: dclabert on 2019-12-10; Database: W井, MPL, EasternUS Defn

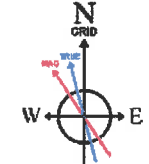
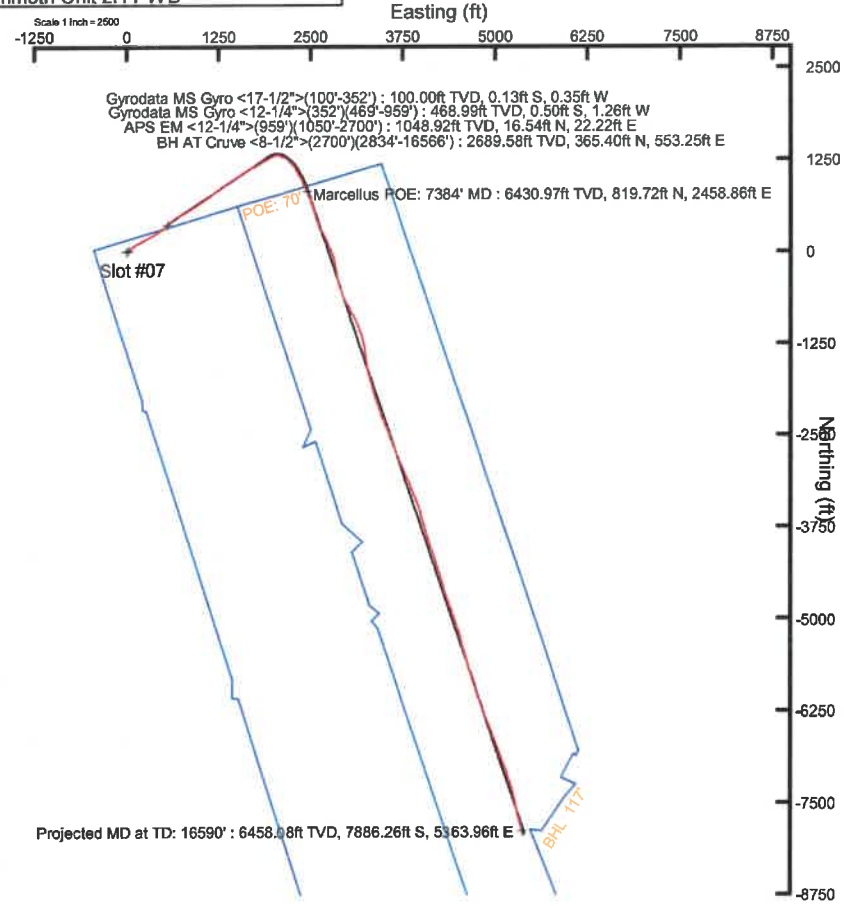
Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Colorado East Pad	1700256.680	14308700.560	39°24'10.4301"N	80°47'17.3894"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Longitude
Slot #07	-10.80	10.66	1700287.340	14308893.880	39°24'10.2830"N 80°47'17.2640"W
Patterson 342 (RKB) to Ground level (At Slot: Slot #07)	25ft				
Mean Sea Level to Ground level (At Slot: Slot #07)	-743ft				
Patterson 342 (RKB) to Mean Sea Level	768ft				

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #07	Mammoth Unit 2H	Mammoth Unit 2H AWP	Mammoth Unit 2H AWP Proj: 16590*
Slot #07	Mammoth Unit 2H	Mammoth Unit 2H PWB	Mammoth Unit 2H PWP Rev-B.0



API: 47-095-02606-0000
 BHI Job #: 110080407B
 Rig: Patterson 342
 Duration: 10/29/2019-12/06/2019

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (*/100ft)	VS (ft)
Tile On	2700.00	28.400	48.520	2570.50	324.10	507.76	2.58	-146.24
KOP 1	2770.00	28.400	48.520	2632.08	346.16	532.71	0.00	-159.24
End of Tangent	2870.00	28.400	48.520	2720.04	377.66	568.34	0.00	-177.81
End of Build	3067.51	29.578	56.307	2892.87	435.83	644.11	2.00	-208.93
Curve KOP	6247.12	29.578	56.307	6668.17	1306.45	1949.90	0.00	-620.22
POE	7398.87	77.426	161.495	6438.00	839.05	2488.57	7.50	-13.04
End of 3D Arc	7636.78	90.000	161.497	6464.00	615.25	2541.47	5.29	222.96
BHL	16640.94	90.000	161.497	6464.00	-7923.46	5398.98	0.00	9227.13



User specified (HDGM) Dip: 66.47° Field: 51911 nT
 Magnetic North is 7.64 degrees West of True North (at 11/28/2019)
 Grid North is 0.13 degrees East of True North
 To correct azimuth from True to Grid subtract 0.13 degrees
 To correct azimuth from Magnetic to Grid subtract 7.77 degrees

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/24/2020
Job End Date:	4/8/2020
State:	West Virginia
County:	Tyler
API Number:	47-095-02606-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Mammoth 2H
Latitude:	39.40285000
Longitude:	-80.78813000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,465
Total Base Water Volume (gal):	13,880,105
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
Produced Mixture	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.33725	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.16708	

HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
Legend LD-2555	MultiChem	Additive					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
LD-2950	MultiChem	Friction Reducer					
				Listed Below			

Legend LD-2990	MultiChem	Friction Reducer					
				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	13.47141	
			Hydrochloric acid	7647-01-0	30.00000	0.03908	
			Complex Amine Compound	Proprietary	60.00000	0.02473	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01389	
			Guar gum	9000-30-0	100.00000	0.00533	
			Complex Amine Compound	Proprietary	60.00000	0.00305	
			Glutaraldehyde	111-30-8	30.00000	0.00244	
			Ethoxylated alcohols	Proprietary	5.00000	0.00206	
			Adipic acid	124-04-9	1.00000	0.00041	
			Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00041	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00041	
			Methanol	67-56-1	100.00000	0.00033	
			Polyethoxylated fatty amine salt	61791-26-2	30.00000	0.00027	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00025	
			Surfactant	Proprietary	5.00000	0.00025	
			Ammonium persulfate	7727-54-0	100.00000	0.00018	
			Ethanol	64-17-5	1.00000	0.00008	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	
			Modified thiourea polymer	Proprietary	30.00000	0.00007	

			Oxylated phenolic resin	Proprietary	30.00000	0.00006	
			Organic chloridie compound	Proprietary	1.00000	0.00005	
			Ethoxylated alcohols	Proprietary	1.00000	0.00005	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00005	
			Hexadecene	629-73-2	5.00000	0.00001	
			Propargyl alcohol	107-19-7	5.00000	0.00001	
			Ethoxylated alcohols	Proprietary	5.00000	0.00001	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Organic salt #1	Proprietary	0.10000	0.00001	
			Acrylamide	79-06-1	0.10000	0.00001	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	
			Organic salt #2	Proprietary	0.01000	0.00000	
			Sodium hydroxide	1310-73-2	0.01000	0.00000	
			Sodium glycollate	2836-32-0	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Organic salt #3	Proprietary	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	
			Ethylene oxide	75-21-8	0.01000	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)

LATITUDE 39°25'00"

10,774'

LATITUDE 39°25'00" 5,432' TO BOTTOM HOLE

Antero Resources Corporation Well No. Mammoth Unit 2H

AS DRILLED DATA: WELL 2H TOP HOLE INFORMATION: N: 331,446ft E: 1,636,012ft ... BOTTOM HOLE INFORMATION: N: 323,471ft E: 1,641,244ft ... WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.

(NAD) 83 (UTM) ZONE 17 COORDS: WELL 2H TOP HOLE INFORMATION: N: 4,361,513m E: 518,257m ... BOTTOM HOLE INFORMATION: N: 4,359,111m E: 519,891m

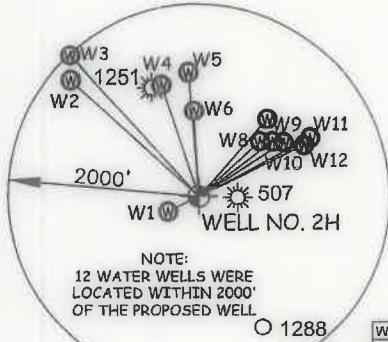
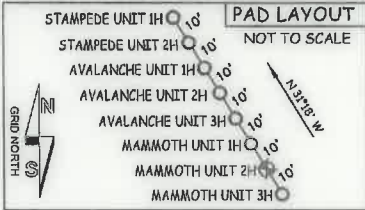
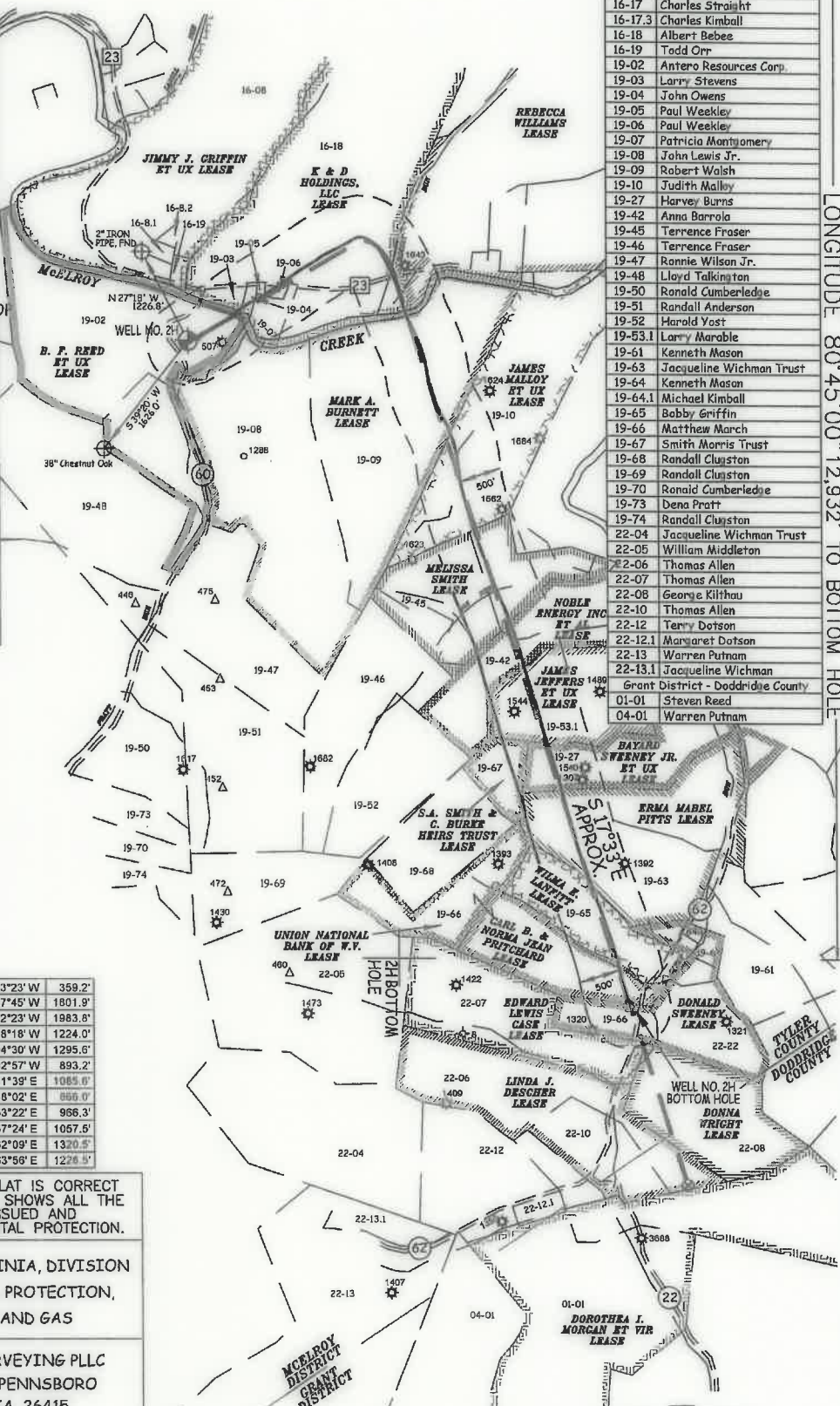


Table with 3 columns: Well ID, Coordinates (S, N, W, E), and Distance (ft). Lists wells W1 through W12.

McElroy District - Tyler County land ownership list. Columns include Well ID, Surface Owner, and Date. Lists numerous owners from 16-08 to 04-01.



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.

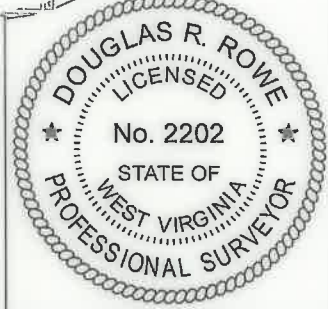


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS. WILLLOW LAND SURVEYING PLLC, 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 19-002WA DRAWING # MAMMOTH2HAD 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. Signature of Douglas R. Rowe P.S. 2202. DATE 09/03/20 OPERATOR'S WELL# MAMMOTH 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 - 095 - 02606 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT LOCATION: ELEVATION 743' - AS BUILT WATERSHED McELROY CREEK QUADRANGLE SHIRLEY 7.5' DISTRICT McELROY COUNTY TYLER SURFACE OWNER ANTERO RESOURCES CORPORATION ACREAGE 127.86 ACRES +/- OIL & GAS ROYALTY OWNER B.F. REED ET UX; K & D HOLDINGS, LLC; REBECCA WILLIAMS; MARK A. BURNETT; LEASE ACREAGE 130 AC.± 219.39 AC.± 210 AC.± 256 AC.± JAMES MALLOY ET UX; MELISSA SMITH; NOBLE ENERGY INC. ET AL; JAMES JEFFERS ET UX; BAYARD SWEENEY JR. ET UX; 90.1 AC.±; 57.63 AC.±; 55 AC.±; 83 AC.±; 55 AC.±; ERMA MABEL PITTS; WILMA E. LANFITT; CARL B. & NORMA JEAN PRITCHARD; DONALD SWEENEY 74 AC.±; 31.82 AC.±; 32.57 AC.±; 25.5 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 6,458' TVD 16,590' 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

5,032' LONGITUDE 80°45'00" 12,932' TO BOTTOM HOLE LONGITUDE 80°45'00"

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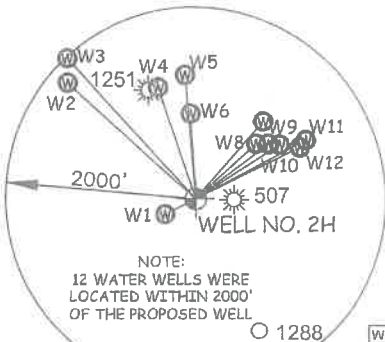
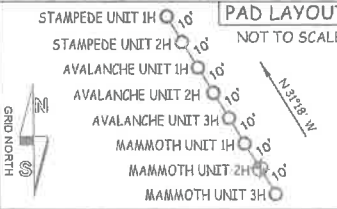
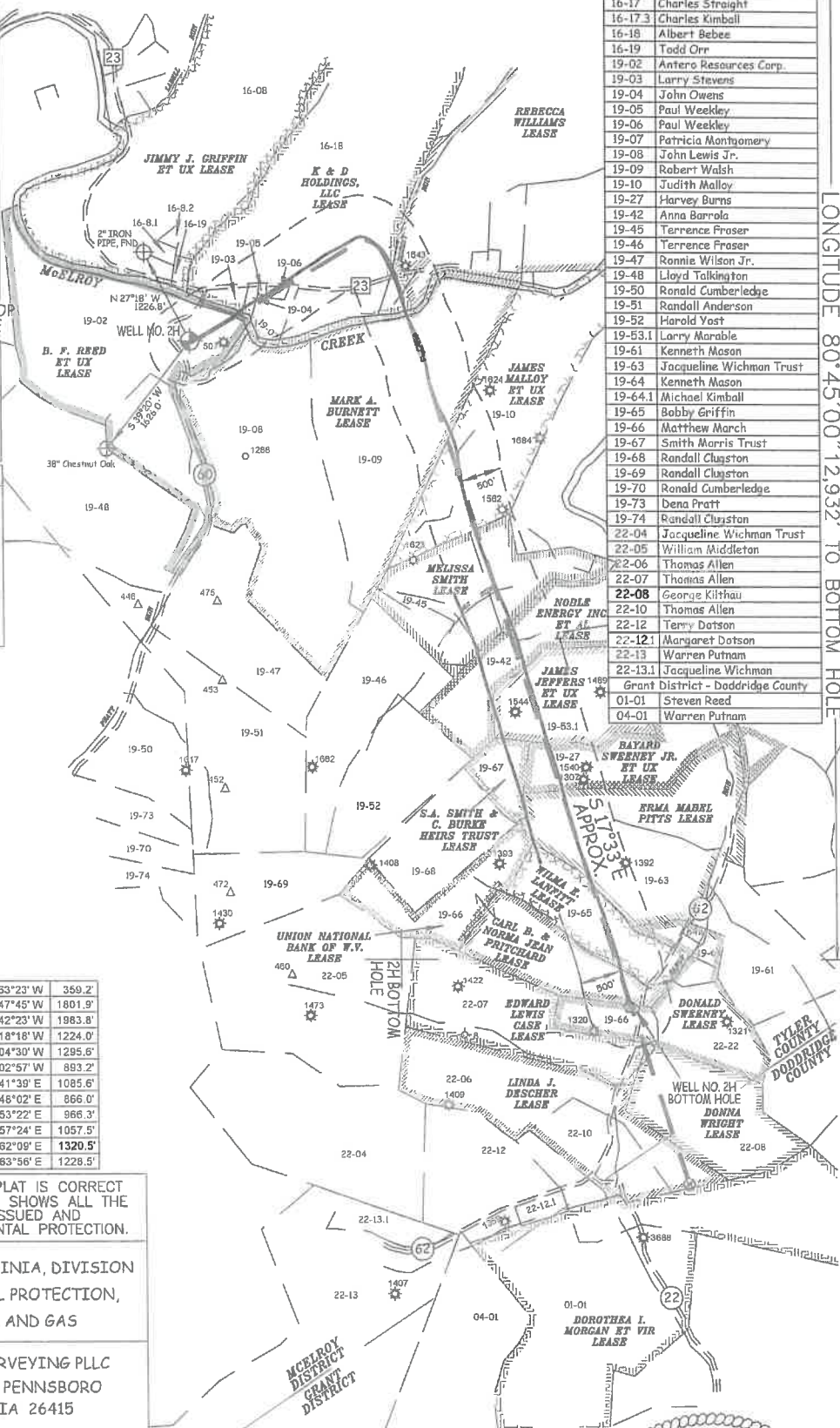


Table with 3 columns: Well ID, Bearing, Distance. Lists wells W1 through W12 with their respective bearings and distances.

McElroy District - Tyler County lease list. Columns: Lease ID, Surface Owner. Lists leases from 16-Par to 04-01.



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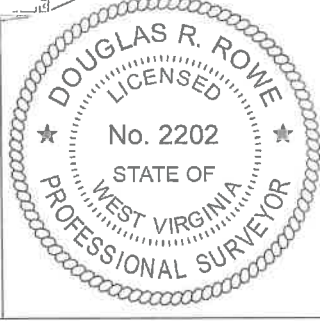


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LEGEND: Surface Owner Boundary Lines +/-, Interior Surface Tracts +/-, Proposed Well Path, As Drilled Well Path. Signature of Douglas R. Rowe P.S. 2202, DATE 09/03/20, OPERATOR'S WELL# MAMMOTH UNIT #2H

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WV NORTH ZONE GRID NORTH

5,032' LONGITUDE 80°45'00" 12,932' TO BOTTOM HOLE

COUNTY NAME PERMIT