

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

API 47 - 033 - 05870 County Harrison District Grant  
Quad Mount Clare Pad Name Tony's Bridge Field/Pool Name \_\_\_\_\_  
Farm name Lynch Farms, LLC Well Number 212  
Operator (as registered with the OOG) Mountaineer Keystone, LLC  
Address 6031 Wallace Rd Ext., Suite 300 City Wexford State PA Zip 15090

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4342412.86 Easting 555519.44  
Landing Point of Curve Northing 4342039.41 Easting 555382.38  
Bottom Hole Northing 4344453.96 Easting 554502.97

Elevation (ft) 1139.7 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  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Synthetic Oil-based Mud

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Date permit issued 12/5/2016 Date drilling commenced 2/04/2017 Date drilling ceased 02/16/2017  
Date completion activities began 04/03/2017 Date completion activities ceased \_\_\_\_\_  
Verbal plugging (Y/N) NA Date permission granted NA Granted by NA

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 \_\_\_\_\_ N  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths \_\_\_\_\_ N  
Coal depth(s) ft \_\_\_\_\_ Cavern(s) encountered (Y/N) depths \_\_\_\_\_ N

Is coal being mined in area (Y/N) N

**APPROVED**

NAME: Sam Ward  
DATE: 8/24/17

Reviewed by: [Signature]  
**09/15/2017**

API 47- 033 - 05870 Farm name Lynch Farms, LLC Well number 212

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	30"	24"	80'	New	94.00	NA	Y
Surface	17.5"	13 3/8"	345.8'	New	54.50	120'	Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,370.6'	New	40.00	NA	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	16,277'	New	20.00	NA	Y
Tubing							
Packer type and depth set							

Comment Details Cement to surface on Conductor, Surface, and Intermediate. Top of Cement at 1,724ft

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	A	230	15.60	1.20	276	Surface	8+
Surface	A	395	15.6	1.2	474	Surface	8+
Coal							
Intermediate 1	A	489/172	14.4/15.7	1.55/1.29	758/222	Surface	8
Intermediate 2							
Intermediate 3							
Production	A	2,930	13.8	1.27	3721	1724	8+
Tubing							

Drillers TD (ft) 16,290 Loggers TD (ft) NA  
 Deepest formation penetrated Marcellus Plug back to (ft) NA  
 Plug back procedure NA

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Kick off depth (ft) KOP of Curve at 6,861 ft, No Plug

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  
24" - No centralizers 13 3/8" - one bow spring centralizer on every other joint 9 5/8" - one bow spring centralizer every third joint from TD of casing to end of curve. Then every other joint to KOP. Every third joint from KOP to 2,500'; then

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS Well completed in 42 Stages, 1,680 perforations

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_



Stage No.	Perforation Date	Perforated from MD Ft.	Perforated to MD Ft.	Number of Perforations	Formation(s)
1	5/10/2017 22:20	7828	7990	40	Marcellus Shale
2	5/10/2017 16:33	8028	8190	40	Marcellus Shale
3	5/10/2017 9:45	8228	8390	40	Marcellus Shale
4	5/10/2017 0:19	8428	8590	40	Marcellus Shale
5	5/9/2017 18:33	8628	8790	40	Marcellus Shale
6	5/9/2017 15:11	8828	8990	40	Marcellus Shale
7	5/9/2017 8:18	9028	9190	40	Marcellus Shale
8	5/9/2017 1:28	9228	9390	40	Marcellus Shale
9	5/8/2017 19:13	9428	9590	40	Marcellus Shale
10	5/8/2017 11:46	9628	9790	40	Marcellus Shale
11	5/8/2017 6:20	9828	9990	40	Marcellus Shale
12	5/8/2017 1:42	10028	10190	40	Marcellus Shale
13	5/7/2017 19:45	10228	10390	40	Marcellus Shale
14	5/7/2017 15:06	10428	10590	40	Marcellus Shale
15	5/7/2017 7:54	10628	10790	40	Marcellus Shale
16	5/7/2017 3:40	10828	10990	40	Marcellus Shale
17	5/6/2017 20:32	11028	11190	40	Marcellus Shale
18	5/6/2017 13:19	11228	11390	40	Marcellus Shale
19	5/6/2017 9:46	11428	11590	40	Marcellus Shale
20	5/5/2017 23:47	11628	11790	40	Marcellus Shale
21	5/5/2017 17:25	11828	11990	40	Marcellus Shale
22	5/5/2017 10:54	12028	12190	40	Marcellus Shale
23	5/4/2017 22:11	12228	12388	40	Marcellus Shale
24	5/4/2017 14:25	12428	12582	40	Marcellus Shale
25	5/4/2017 5:10	12618	12772	40	Marcellus Shale
26	5/3/2017 22:17	12808	12962	40	Marcellus Shale
27	5/2/2017 7:59	12998	13152	40	Marcellus Shale
28	5/2/2017 0:50	13188	13342	40	Marcellus Shale
29	5/1/2017 18:35	13378	13532	40	Marcellus Shale
30	4/30/2017 22:32	13568	13722	40	Marcellus Shale
31	4/30/2017 15:30	13758	13912	40	Marcellus Shale
32	4/30/2017 8:25	13948	14102	40	Marcellus Shale
33	4/29/2017 23:59	14350	14500	40	Marcellus Shale
34	4/29/2017 16:27	14535	14685	40	Marcellus Shale
35	4/29/2017 8:14	14720	14870	40	Marcellus Shale
36	4/28/2017 22:35	14905	15055	40	Marcellus Shale
37	4/28/2017 17:25	15090	15240	40	Marcellus Shale
38	4/28/2017 9:10	15275	15425	40	Marcellus Shale
39	4/28/2017 2:44	15460	15612	40	Marcellus Shale
40	4/27/2017 18:36	15648	15802	40	Marcellus Shale
41	4/27/2017 10:53	15838	15992	40	Marcellus Shale
42	4/8/2017 11:15	16028	16034	40	Marcellus Shale
43	4/8/2017 11:15	16080	16086	40	Marcellus Shale
44	4/8/2017 11:15	16132	16138	40	Marcellus Shale
45	4/8/2017 11:15	16185	16191	40	Marcellus Shale

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Stage	Stimulation	Average	Average	Breakdown	ISIP	Sand	Water
Number	Date	Rate	Pressure	Pressure		Volume	Volume
		(bpm)	(psi)	(psi)	(psi)	lbs	Bbls
1	4/27/2017	81	7740	5554	4768	501940	10159
2	4/27/2017	80	7939	6025	5174	494300	10030
3	4/27/2017	79	8280	6889	4974	501280	11105
4	4/28/2017	80	8034	6500	5180	502820	12227
5	4/28/2017	81	8193	6523	5933	493180	11620
6	4/28/2017	80	7613	6133	5572	504300	10611
7	4/29/2017	79	7617	6384	5156	414300	10878
8	4/29/2017	81	7794	6222	4909	501280	11535
9	4/29/2017	80	7754	6186	4911	501500	10991
10	4/30/2017	80	7979	6152	4997	502520	14495
11	4/30/2017	81	8050	6190	5416	509040	11291
12	4/30/2017	80	8040	6413	5277	500440	11868
13	5/1/2017	81	8124	6355	5670	482280	11796
14	5/1/2017	79	7905	6193	5842	501060	12358
15	5/2/2017	80	7941	6323	5052	500800	10760
16	5/3/2017	80	7636	6509	5352	504180	10998
17	5/4/2017	81	7932	6138	5721	501740	10673
18	5/4/2017	80	7643	6164	5340	504000	11340
19	5/4/2017	80	7804	6157	5037	506780	12397
20	5/5/2017	79	7642	6214	5114	500040	13305
21	5/5/2017	81	7463	6135	5469	504720	10196
22	5/5/2017	81	7427	6043	5009	507800	10506
23	5/6/2017	80	7526	6070	5038	500380	10810
24	5/6/2017	78	7597	5499	4763	501920	10734
25	5/6/2017	76	7949	6292	5223	501160	12406
26	5/6/2017	75	7698	6670	4795	500180	11830
27	5/7/2017	77	7275	6224	5480	500960	9654
28	5/7/2017	81	7322	6646	5365	500340	9925
29	5/7/2017	79	7561	6112	4914	506600	11582
30	5/7/2017	78	7493	6614	5193	476380	9480
31	5/8/2017	78	7504	6640	5790	500720	9923
32	5/8/2017	81	7101	6427	5512	503580	8977
33	5/8/2017	75	7749	6677	5447	413940	11799
34	5/8/2017	80	7233	6336	5048	502600	9365
35	5/9/2017	78	7548	6570	5531	504760	11213
36	5/9/2017	77	7470	6392	5041	504520	12035
37	5/9/2017	76	7324	6740	4949	508220	10010
38	5/9/2017	79	7681	6477	5394	500520	10845
39	5/10/2017	80	7374	6197	5605	503640	9208
40	5/10/2017	75	7777	6327	4512	510720	10965
41	5/10/2017	80	7430	5919	5450	511820	9055
42	5/10/2017	81	7523	6674	4940	510720	9137

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API 47- 033 - 05870 Farm name Lynch Farms, LLC Well number 212

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Marcellus Shale	7,194	7,590
	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 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 <sub>2</sub> S, ETC)
Sand/silt	0	1080	0	1080	Sand/silt
Pittsburgh Coal	1080	1110	1080	1110	Coal
Big Lime	1560	1620	1560	1620	Limestone
Thirty Foot Sand	2130	2160	2130	2160	Sandstone, gas
Balltown	3320	4020	3320	4020	Sandstone
Bradford	4020	4590	4020	4590	Sandstone
Benson	4590	4830	4590	4830	Sandstone
Elk	4830	6931	4830	6931	Siltstone
Burkett	6898	6928	7316	7350	Shale
Tully	6928	6982	7350	7417	Limestone
Mahantango	6982	7104	7417	7590	Shale
Marcellus	7104	7211	7590	7930	Shale, gas
Purcell	7211	7213	7930	8020	Limestone
Lower Marcellus	7213	16290	8020	7198	Shale, gas

Please insert additional pages as applicable.

Drilling Contractor H&P  
Address 1437 South Boulder Ave. City Tulsa State OK Zip 74119

Logging Company NA  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
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Cementing Company Universal Well Services  
Address 18360 Technology Dr Box 4 City Meadville State PA Zip 16335  
WV Department of Environmental Protection

Stimulating Company Keane Group  
Address 2121 Sage Road City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Arsenal Resources Telephone \_\_\_\_\_  
Signature [Signature] Title PERMITTING MANAGER Date 8-10-17

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

09/15/2017

# Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	4/27/2017
Job End Date:	5/11/2017
State:	West Virginia
County:	Harrison
API Number:	47-033-05870-00-00
Operator Name:	Arsenal Resources
Well Name and Number:	Tonys Bridge 212H
Latitude:	39.22924000
Longitude:	-80.35676000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,214
Total Base Water Volume (gal):	19,757,346
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
Water	Ascent	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.27768	None
Sand (Proppant)	Keane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	11.19244	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor	Water	7732-18-5	92.50000	0.37687	None
			Hydrochloric Acid	7647-01-0	7.50000	0.03056	None
KFR-16FW	Keane	Friction Reducer	Water	7732-18-5	60.00000	0.05925	None
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.01975	None
			oleic acid diethanolamide	93-83-4	1.50000	0.00148	None
			ammonium chloride	12125-02-9	1.50000	0.00148	None
			alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00099	None
ABC-16	Keane	Biocide	Water	7732-18-5	56.70000	0.00531	None
			Glutaral	111-30-8	26.70000	0.00250	None

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			didecyl dimethyl ammonium chloride	7173-51-5	8.00000	0.00075	None
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00050	None
			ethonal	64-17-5	2.80000	0.00026	None
KLSI-21	Keane	Scale Inhibitor					
			polyphosphoric acids, esters with triethanolamine, sodium salts	68131-72-6	30.00000	0.00374	None
KAI-12	Keane	Acid Inhibitor					
			Ethylene glycol	107-21-1	40.00000	0.00074	None
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00037	None
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00019	None
			formic acid	64-18-6	10.00000	0.00019	None
			Ethoxylated alcohol	68131-39-5	10.00000	0.00019	None
			Cinnamaldehyde	104-55-2	10.00000	0.00019	None
			isopropyl alcohol	67-63-0	5.00000	0.00009	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	92.50000	0.37687	
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.01975	
			Glutaral	111-30-8	26.70000	0.00250	
			oleic acid diethanolamide	93-83-4	1.50000	0.00148	
			ammonium chloride	12125-02-9	1.50000	0.00148	
			alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00099	
			didecyl dimethyl ammonium chloride	7173-51-5	8.00000	0.00075	
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00050	
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00037	
			ethonal	64-17-5	2.80000	0.00026	
			Cinnamaldehyde	104-55-2	10.00000	0.00019	
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00019	
			formic acid	64-18-6	10.00000	0.00019	
			Ethoxylated alcohol	68131-39-5	10.00000	0.00019	
			isopropyl alcohol	67-63-0	5.00000	0.00009	
			Water	7732-18-5	85.00000	0.00001	

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

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

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)

AUG 16 2017

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**MOUNTAINEER KEYSTONE, LLC**  
**WELL NO. 212 - TONY'S BRIDGE**  
**47-033-05870**

LATITUDE: 39°15'00"

AS-DRILLED  
 BOTTOM HOLE  
 WELL NO. 212

NOTES ON SURVEY

- NO OCCUPIED DWELLINGS OR BUILDINGS 2500 SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY WITHIN 625 FEET OF THE CENTER OF THE WELL PAD WERE OBSERVED.
- NO WATER WELLS OR DEVELOPED SPRINGS USED FOR HUMAN OR DOMESTIC ANIMAL CONSUMPTION WERE FOUND WITHIN 250 FEET OF THE WELL PAD.
- NO RAILROADS ARE CROSSED BY THE PROPOSED TONY'S BRIDGE 212 LATERAL.
- SURFACE OWNERSHIP TAKEN FROM THE HARRISON COUNTY TAX ASSESSOR AND COUNTY CLERK OFFICES IN FEBRUARY, 2015.
- WELL LATITUDE AND LONGITUDE FROM SURVEY GRADE OPUS SOLUTION DERIVED ON FEBRUARY 20, 2015.
- TIES TO CORNERS AND REFERENCES BASED ON WV STATE PLANE COORDINATE SYSTEM NAD '83 NORTH ZONE UNLESS OTHERWISE NOTED.
- LEASE INFORMATION PROVIDED BY MOUNTAINEER KEYSTONE, LLC.

MOUNTAINEER KEYSTONE, LLC		
WELL NO. 212		
LEASE NO.	LESSOR	LEASE AC.
WVLD03130.001-002	ALMETA L. DAWSON, ET AL	100
WVUB128.000	FRANK J. MAXWELL	748
WVLD03140.001-004	MONTANI, INC. ET AL	132

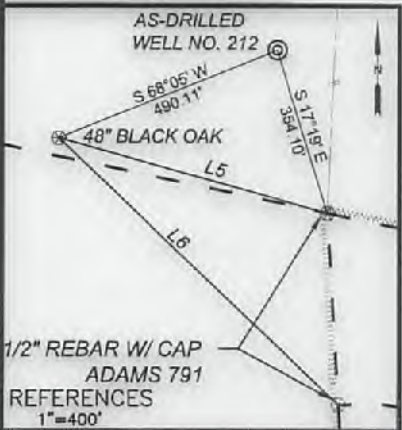
ID	BEARING	DISTANCE
L1	N 34°23' W	1511.16'
L2	N 67°44' W	1702.09'
L3	S 06°12' W	1838.49'
L4	N 19°04' W	8432.62'
L5	S 74°21' E	581.08'
L6	S 46°35' E	803.05'

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

**TONY'S BRIDGE PAD LAYOUT**



NOT TO SCALE



1/2" REBAR W/ CAP  
 ADAMS 791  
 REFERENCES  
 1"=400'

600 Marketplace Ave. Suite 200  
 Bridgeport, WV 26330  
 Toll Free 855-488-9539  
 Fax 304-933-3327



**Civil & Environmental Consultants, Inc.**

DATE JULY 11, 2017

SCALE 1" = 2,000' ACCURACY 1:200

OPERATORS WELL No. 212 AS-DRILLED

47 - 033 - 05870

API No.

TYPE OF WELL:

GAS:  
 Production  Storage  \*Deep  \*Shallow

PROPOSED WORK ON LOCATION:

Drill  Drill Deeper  Redrill  Convert   
 Fracture/ Stimulate  \*Plug off to Formation   
 Perforate New Formation  Plug and Abandon   
 Clean/ Replug  Other Than Above   
 If "Other" Please see Details below -  
 DETAILS OF PROPOSED WORK AS-DRILLED

\*TARGET FORMATION MARCELLUS  
 ESTIMATED DEPTH TVD: ~7,198', TMD: ~16,290'

WELL OPERATOR MOUNTAINEER KEYSTONE, LLC  
 ADDRESS 6031 WALLACE RD. EXT. SUITE 300  
WEXFORD, PA 15090



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Division of Environmental Protection.

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



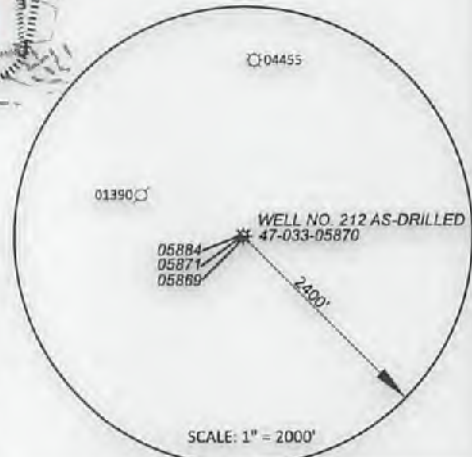
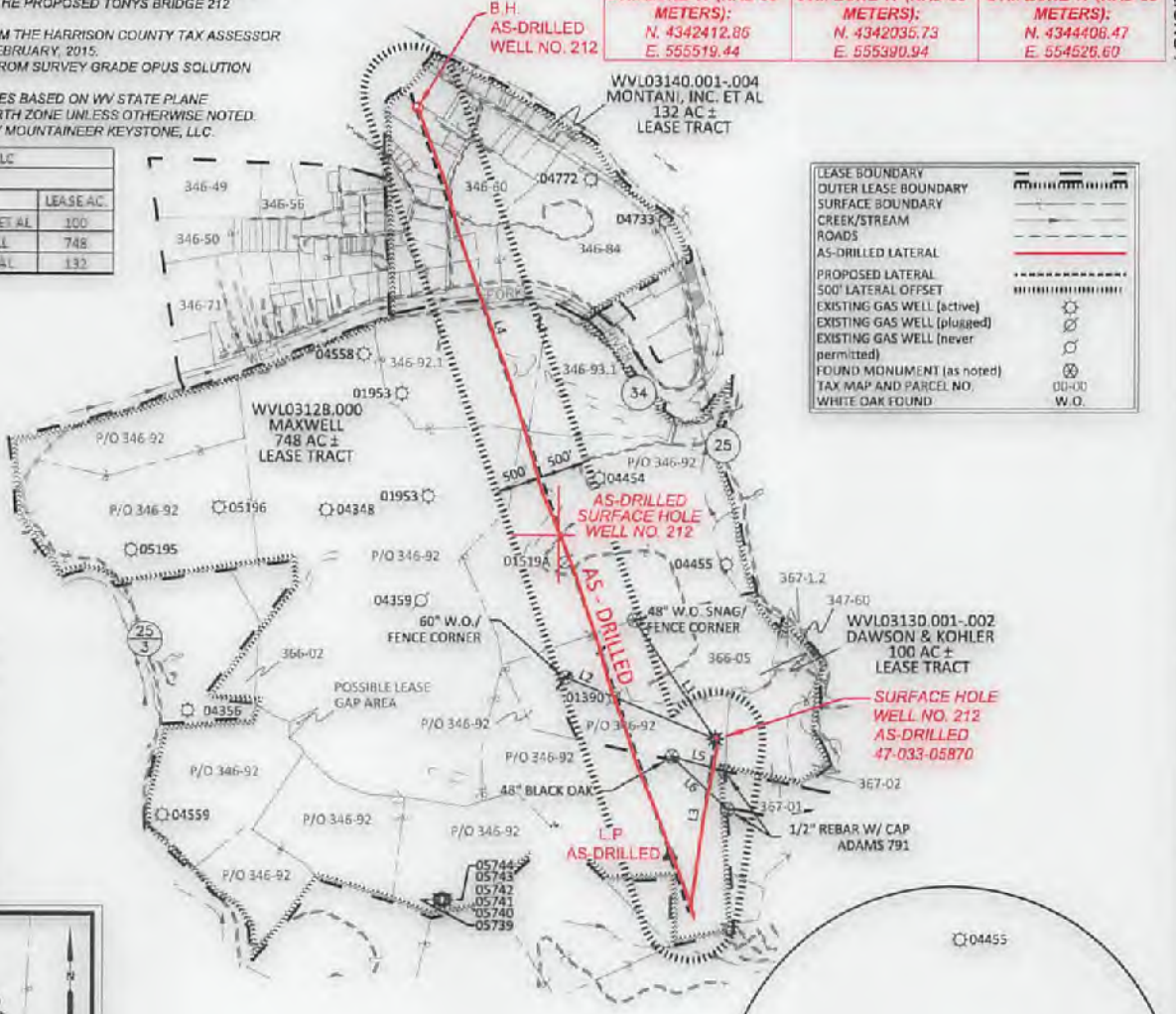
WELL AREA & LOCATION INFORMATION:

ELEVATION SOURCE DGPS (OPUS)  
 ELEVATION 1139.7' (GROUND), 1140.5' (PROPOSED)  
 WATERSHED BROWN'S CREEK OF WEST FORK RIVER DISTRICT GRANT  
 COUNTY HARRISON TOPO QUAD MOUNT CLARE  
 SURFACE OWNER LYNCH FARM, LLC  
 ACREAGE P/O 662.80 AC±  
 ROYALTY OWNER ALMETA L. DAWSON & PATRICIA ANN VORE KOHLER  
 LEASE ACREAGE 748, 132, 100 ±

DESIGNATED AGENT NATHAN SKEEN  
 ADDRESS 45 PROFESSIONAL PLACE  
BRIDGEPORT, WV 26330

**MOUNTAINEER KEYSTONE, LLC**  
**WELL NO. 212 (AS-DRILLED 47-033-05870)**

TOP HOLE (T.H.)	LANDING POINT (L.P.)	BOTTOM HOLE (B.H.)
LAT. / LON. (WGS 84): LAT. 39°13'45.25" LON. -80°21'24.33" UTM ZONE 17 (NAD 83) METERS): N. 4342412.86 E. 555519.44	LAT. / LON. (WGS 84): LAT. 39°13'33.05" LON. -80°21'29.80" UTM ZONE 17 (NAD 83) METERS): N. 4342035.73 E. 555390.94	LAT. / LON. (WGS 84): LAT. 39°14'50.21" LON. -80°22'05.15" UTM ZONE 17 (NAD 83) METERS): N. 4344406.47 E. 554526.60



SCALE: 1" = 2000'

LONGITUDE: 80°21'24.33" 9,845' 6,635'  
 BOTTOM HOLE SURVEYED LATITUDE 39°14'50.21" 7,563'  
 SURFACE HOLE SURVEYED LATITUDE 39°13'45.25"

MEXEORP, VA 12030

ADDRESS 8021 MOUNTAIN RD. EXT. SUITE 300

METT OPERATOR MOUNTAINEER KEYSTONE, LLC

BRIDGEPORT, WV 26330

ADDRESS #2 PROFESSIONAL PLACE

DESIGNATED AGENT MATTHEW SKENI

ESTIMATED DEPTH LWD: ~1,188', BMD: ~1,250'  
\*TARGET FORMATION MARSELLUS

DETAILS OF PROPOSED WORK A2-DRILLED  
If "Other," please see details below—  
Clean/Rebind—Other than Above X  
Refracture New Formation—Bind and Abandon—  
Fracture/Stimulate—\*Bind off to Formation—  
Drill—Drill Deepen—Re-drill—Convert—

LEASE ACRES 148, 123, 100 ±  
ROYALTY OWNER AGMELA L. DAWSON & PATRICIA ANN LOVE KONIGER  
ACRES 670 882.80 ACT  
SURFACE OWNER GRANCH FARM, LLC  
COUNTY HARRISON TOPO QUAD MOUNT CLARE  
WATERSHED BRONKS CREEK OF WEST FORK RIVER DISTRICT CRANT  
ELEVATION 1128.1, (GROUND), 1140.2, (PROPOSED)  
ELEVATION SOURCE DEFS (DEFS)

PROPOSED WORK ON LOCATION:

METT AREA & LOCATION INFORMATION:

Production X Storage \*Deep \*Shallow  
CAS:

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



TYPE OF METT:

API NO.

41 - 033 - 02810

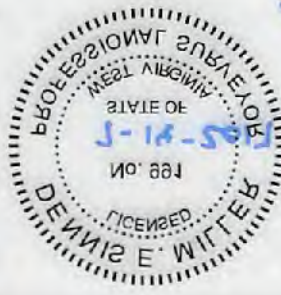
METT NO. OPERATORS 515 A2-DRILLED

SCALE 1" = 3,000', ACCURACY 1:300

DATE JULY 11, 2017

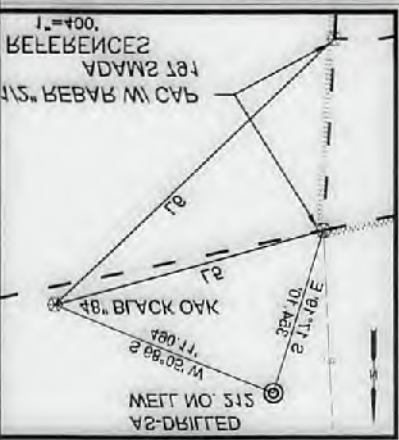
Civil & Environmental Consultants, Inc.

Fax 304-833-3351  
Toll Free 822-488-8238  
Bridgeport, WV 26330  
800 Marketplace Ave. Suite 300



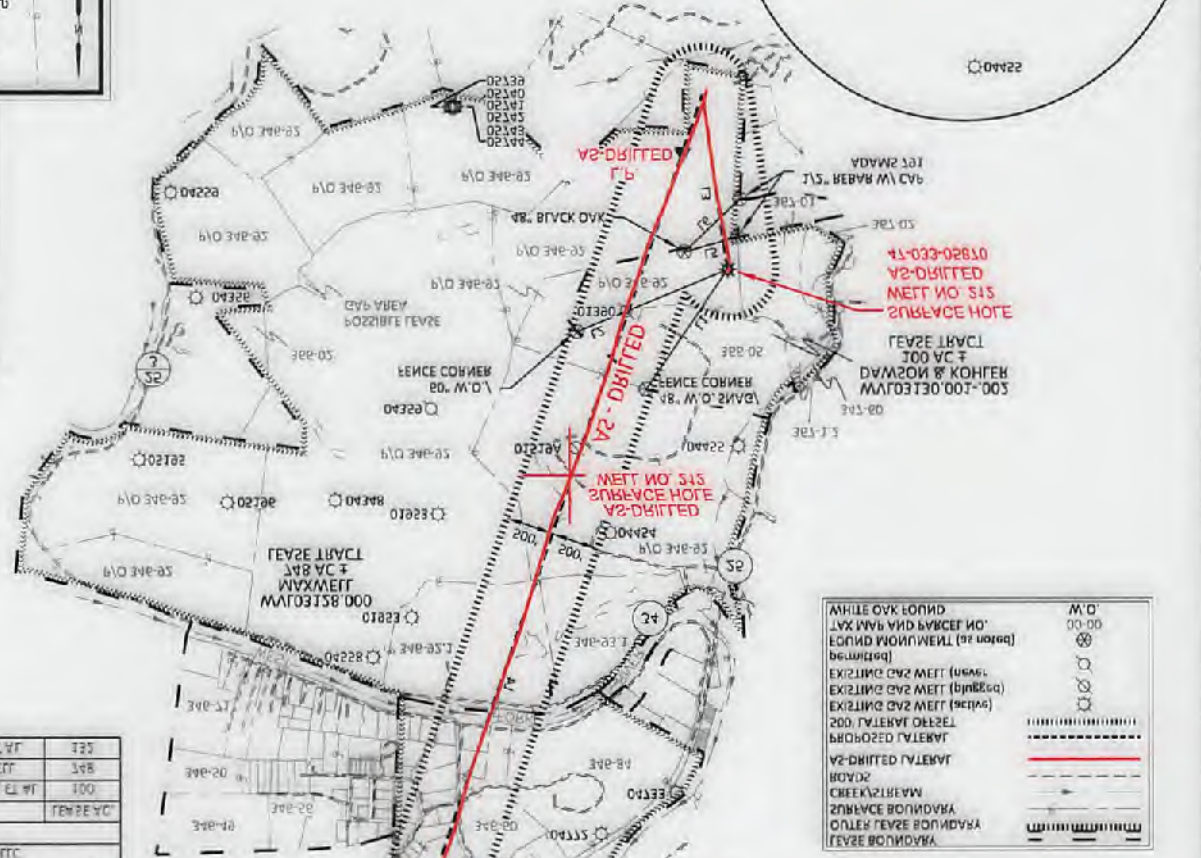
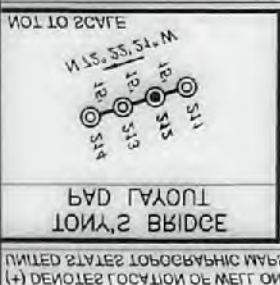
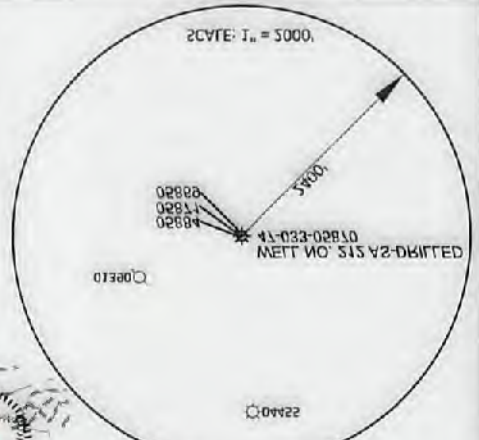
*[Handwritten signature]*

Environmental Protection  
and prescribed by the Division of  
and defined by law and the rules issued  
and better and shows all the information  
this is correct to the best of my knowledge  
and the undersigned certifies that this



E 222218.44 N 434545.88 METERS: UTM ZONE 11 (NAD 83) GOM - 80.515433, LAT 38.134252, LAT/LON (WGS 84):	E 222385.38 N 434503.11 METERS: UTM ZONE 11 (NAD 83) GOM - 80.515433, LAT 38.133311, LAT/LON (WGS 84):	E 224205.81 N 434423.88 METERS: UTM ZONE 11 (NAD 83) GOM - 80.550613, LAT 38.142188, LAT/LON (WGS 84):
TOP HOGE (T.H.)	LANDING POINT (L.P.)	BOTTOM HOGE (B.H.)

METT NO. 515 A2-DRILLED  
MOUNTAINEER KEYSTONE, LLC



T1	246.32 E	805.00
T2	714.37 E	287.08
T3	136.04 W	693.05
T4	205.75 W	183.48
T5	134.44 W	130.03
T6	134.53 W	121.76
T7	BEARING	DISTANCE

WALDORF 000-000-000	INDIAN INC 1747	727
WALDORF 000-000-000	FRANK MAMMETT	348
WALDORF 000-000-000	ALMENA L. DAWSON & PATRICIA ANN LOVE KONIGER	100
LEASE ID	LESSOR	LESSEE/C
METT NO. 515		
MOUNTAINEER KEYSTONE, LLC		

WHITE OAK FORD	W.O.
LAKE AND PAVCEVIC NO. 1	00-00
ELGIN MOUNTAIN (at base)	(at base)
ELGIN MOUNTAIN (top)	(top)
EXISTING GAS METT (near)	(near)
EXISTING GAS METT (bridge)	(bridge)
EXISTING GAS METT (near)	(near)
200' BUFFER METT	
PROPOSED SURFACE	
PROPOSED A2-DRILLED	
ROAD	
CREEK/STREAM	
SURFACE BOUNDARY	
OWNER LEASE BOUNDARY	
ADJACENT BOUNDARY	

- LEASE INFORMATION PROVIDED BY MOUNTAINEER KEYSTONE, LLC COORDINATE SYSTEM AND 83 NORTH SOME FIGURES OTHERWISE NOTED THIS TO CORNERS AND REFERENCES BY 200 ON WV STATE PLANS DERIVED ON FEBRUARY 30, 2012.
- METT LATITUDE AND LONGITUDE FROM SURVEY GRADE BY 200 SOLUTION AND COUNTY STAKE OFFICES IN FEBRUARY 2012.
- SURFACE OWNERSHIP TAKEN FROM THE HARRISON COUNTY TAX ASSESSOR'S PLANS.
- NO HIGHWAYS ARE CROSSED BY THE PROPOSED TOYS BRIDGE 515 ANYWAY CONSTRUCTION WERE FOUND WITHIN 200 FEET OF THE METT PAD.
- NO WATER METTS OR DEVELOPED SYSTEMS USED FOR HUMAN OR DOMESTIC USE WITHIN 200 FEET OF THE CENTER OF THE METT PAD WERE OBSERVED.
- USED TO HOUSE OR SHELTER DAIRY CATTLE OR BOUTLEY HUSBANDRY.
- NO OCCUPIED DWELLINGS OR BUILDINGS 200 SURFACE FEET OR LARGER.

NOTES ON SURVEY  
41-033-02810  
METT NO. 515 - TOYS BRIDGE  
MOUNTAINEER KEYSTONE, LLC

METT NO. 515  
BOTTOM HOGE  
A2-DRILLED

E 222218.44 N 434545.88 METERS: UTM ZONE 11 (NAD 83) GOM - 80.515433, LAT 38.134252, LAT/LON (WGS 84):	E 222385.38 N 434503.11 METERS: UTM ZONE 11 (NAD 83) GOM - 80.515433, LAT 38.133311, LAT/LON (WGS 84):	E 224205.81 N 434423.88 METERS: UTM ZONE 11 (NAD 83) GOM - 80.550613, LAT 38.142188, LAT/LON (WGS 84):
TOP HOGE (T.H.)	LANDING POINT (L.P.)	BOTTOM HOGE (B.H.)

METT NO. 515 A2-DRILLED  
MOUNTAINEER KEYSTONE, LLC

BOTTOM HOGE SURVEYED LONGITUDE 80.515433, SURFACE HOGE SURVEYED LONGITUDE 80.515433, TOWNSHIP: 38.134252, LONGITUDE: 80.550613, 1:203

**State of West Virginia  
Department of Environmental Protection  
Office of Oil and Gas**

**Well Operator's Report of  
Initial Gas-Oil Ratio**

Well Operator Arsenal Resources LLC  
Address 6031 Wallace Road Ext. Suite 300  
Wexford, PA 15090

Designated Agent William Veigel  
Address 65 Professional Place, Suite 200  
Bridgeport, WV 26330

Geological Target Formation: Marcellus Depth 7750 MD feet  
Perforation Interval 7828-16191 MD feet

**Guidelines for testing:**

1. A minimum of gas vented or flared.
2. A 24 hour pre-flow into pipelines or tanks.
3. Uniform producing rate during the 24 hour test per test period.
4. Measurement standards as for Form WR-39, "Report of Annual Production" (see 35CSR4-15)
5. Separate Form WR-36 for each producing formation in a multiple completion.

**TEST DATA**

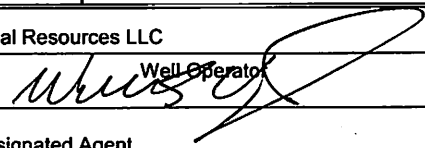
Start of Test Date <b>6/22/17</b>	Time <b>21:00</b>	End of Test Date <b>6/23/17</b>	Time <b>20:00</b>	Duration of Test <b>24 hrs</b>
Tubing Pressure <b>NA</b>	Casing Pressure <b>1471</b>	Separator Pressure <b>577</b>	Separator Temperature <b>73</b>	
Oil Production During Test <b>0</b> BBLs	Gas Production During Test <b>11728</b> MCF	Water Production During Test <b>558</b> BBLs <b>80,520</b> -Salinity		
Oil Gravity <b>NA</b> API	Producing Method (flowing, pumping, gas lift etc.) <b>Flowing</b>			

**GAS PRODUCTION**

Measurement Method Flange Tap <input checked="" type="checkbox"/> Pipe Tap <input type="checkbox"/> L-10 <input type="checkbox"/>		Positive Choke <input type="checkbox"/>
		Positive flow prover <input checked="" type="checkbox"/>
Orifice diameter	Pipe Diameter (inside)	Nominal Choke Size inches <b>48/64"</b>
Differential Pressure range	Max. Static pressure range	Prover and Orifice diameter - inches <b>4" run with 2.75" orifice</b>
Differential <b>86" H2O</b>		Static
Gas Gravity (Air = 1.0) Measured <b>.5762</b> Estimated	Flowing Temperature <b>73</b>	Gas Temperature <b>60</b>
24 Hour Coefficient	24 Hour coefficient pressure PSIA	

**TEST RESULTS**

Daily Oil <b>0</b>	Daily Water <b>558 BBL</b>	Daily Gas <b>11728 MCF</b>	Gas-Oil Ratio <b>NA</b>
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Arsenal Resources LLC  
Well Operator  
BY:   
ITS: Designated Agent