

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

API 47 - 33 - 05773 County Harrison District Union
Quad Mount Clare Pad Name Paletta Field/Pool Name _____
Farm name Domineck Paletta Estate C/O Tony Paletta, G. Diane Sullivan Well Number 8H
Operator (as registered with the OOG) PDC Mountaineer, LLC
Address 6031 Wallace Road Extension, 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 4340241.455 Easting 554639.924
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 1,161.4 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) Synthetic Oil-based Mud

APPROVED

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JUN 30 2017

NAME: Sam Ward
DATE: 8/19/2017

WV Department of
Environmental Protection

Date permit issued 9/20/2013 Date drilling commenced 6/17/2015 Date drilling ceased 6/26/2015
Date completion activities began 9/23/2015 Date completion activities ceased 8/30/2016
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 200' 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

Reviewed by:

BL
09/15/2017

API 47- 33 - 05773 Farm name Domineck Paletta Estate C/O Tony Paletta, G. Diane Sullivan Well number 8H

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"	20"	90'	New	94	N/A	Y
Surface	17.5"	13 3/8"	583'	New	54.5	N/A	Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,645'	New	40	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	11,704.0'	New	20	N/A	N
Tubing							
Packer type and depth set							

Comment Details Top of cement for production string brought to 2,450' MD

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	Grout					Surface	8
Surface	Class A 2% CaCl ₂	616	15.6	1.2	739.2	Surface	8
Coal							
Intermediate 1	Class A	611/172	14.50/15.70	1.55/1.29	1168.93	Surface	8
Intermediate 2							
Intermediate 3							
Production	Type 1 4% Gel/Type 1 2% Gel	716/992	13.80/15.00	1.64/1.32	2483.68	2450	8
Tubing							

Drillers TD (ft) 11,720' Loggers TD (ft) 11,720'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure None

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Kick off depth (ft) 6,550' MD

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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 _____

13 3/8": 1 bow spring centralizer placed on every joint
 9 5/8": 1 bow spring centralizer placed on every third joint
 5 1/2": 1 rigid poly centralizer every joint in the lateral, 1 rigid poly centralizer every other joint through the curve, 1 rigid poly centralizer every third joint from kick off point to estimated TOC

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS The well was completed in 27 stages utilizing .45" entry hole 22.7 gram perforating charges

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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Farm name Domineck Paletta Estate C/O Tony Paletta, G. Diane Sullivan

Well number 8H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10/9/15	11618	11456	40	Marcellus
2	10/30/15	11428	11306	40	Marcellus
3	10/30/15	11278	11156	40	Marcellus
4	10/30/15	11128	11006	40	Marcellus
5	10/31/15	10978	10856	40	Marcellus
6	10/31/15	10828	10706	40	Marcellus
7	10/31/15	10678	10556	40	Marcellus
8	11/1/15	10528	10406	40	Marcellus
9	11/1/15	10378	10256	40	Marcellus
10	11/1/15	10228	10106	40	Marcellus
11	11/2/15	10078	9956	40	Marcellus
12	11/2/15	9928	9806	40	Marcellus
13	11/3/15	9778	9656	40	Marcellus
14	11/3/15	9628	9506	40	Marcellus
15	11/3/15	9478	9356	40	Marcellus
16	11/4/15	9328	9206	40	Marcellus

Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

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Complete a separate record for each stimulation stage.

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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 (bbbls)	Amount of Nitrogen/other (units)
1	10/30/15	78	7413	9027	4581	302601	7616	0
2	10/30/15	79	7898	6012	5600	300341	8278	0
3	10/30/15	81	7780	6269	4689	300101	6886	0
4	10/31/15	80	7879	6516	5254	302261	6635	0
5	10/31/15	80	7536	6123	4764	300101	6345	0
6	10/31/15	81	7800	6448	4871	300301	6572	0
7	10/31/15	75	7464	6233	4850	301401	6953	0
8	11/1/15	79	7655	6680	5411	300101	6130	0
9	11/1/15	80	7523	5869	5754	308981	6340	0
10	11/2/15	81	7681	6140	5570	300181	6457	0
11	11/2/15	80	7798	6430	5520	300681	6298	0
12	11/2/15	80	7915	6652	4778	300181	6596	0
13	11/3/15	78	7633	6455	5100	303721	6463	0
14	11/3/15	81	7533	6437	5271	304741	6374	0
15	11/4/15	82	7633	6083	5120	305321	6500	0
16	11/4/15	79	7664	6891	5643	302061	6974	0

Please insert additional pages as applicable.

09/15/2017

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	11/4/15	9178	9056	40	Marcellus
18	11/4/15	9028	8906	40	Marcellus
19	11/5/15	8878	8756	40	Marcellus
20	11/5/15	8728	8606	40	Marcellus
21	11/5/15	8578	8456	40	Marcellus
22	11/6/15	8428	8306	40	Marcellus
23	11/6/15	8278	8156	40	Marcellus
24	11/6/15	8128	8006	40	Marcellus
25	11/6/15	7978	7856	40	Marcellus
26	11/7/15	7828	7706	40	Marcellus
27	11/7/15	7678	7556	40	Marcellus

Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

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Complete a separate record for each stimulation stage.

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Amount of Nitrogen/other (units)

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)
17	11/4/15	80	7527	6998	5779	300321	5347	0
18	11/5/15	79	7214	6359	5425	304001	6073	0
19	11/5/15	80	7268	6297	5751	308411	5397	0
20	11/5/15	72	7346	6580	4799	304501	8084	0
21	11/6/15	79	7285	7020	5583	304921	5994	0
22	11/6/15	80	7596	6745	6087	301461	5187	0
23	11/6/15	81	7524	6487	4885	303441	5599	0
24	11/6/15	79	7131	6258	5486	300861	5881	0
25	11/7/15	82	7283	6663	5207	300801	5872	0
26	11/7/15	84	7372	6757	6133	304901	5544	0
27	11/7/15	82	7385	7346	5747	304501	6025	0
								0
								0
								0
								0

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD

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Please insert additional pages as applicable.

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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 ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
Sands, Silts, and Coals	0	1817	0	1820	Sand, Silt, and Coal
Big Lime	1817	1876	1820	1879	Sandstone
Balltown	3599	3641	3608	3650	Sandstone
Bradford	4332	4361	4341	4371	Sandstone
Benson	4906	4973	4915	4982	Sandstone
Elk	5190	5248	5199	5257	Siltstone
Burkett	6901	6925	7001	7028	Shale
Tully	6925	6978	7028	7092	Limestone
Mahantango	6978	7065	7092	7273	Shale
Marcellus	7065	7194	7273	11720	Shale-Gas shows through lateral
Purcell	7176	7179	7410	7415	Limestone
Onondaga	7194	7213			Limestone
					*Onondaga MD not listed-lateral drilled in Marcellus**Onondaga top estimated from 4703305741 thickness
					**Big Lime through Elk from 4703305741, Burkett to Purcell taken from mudlog.

Please insert additional pages as applicable.

Drilling Contractor Sidewinder Drilling
Address 952 Echo Land, Suite 460 City Houston State TX Zip 77024

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company Universal Well Services
Address _____ City Buckhannon State WV Zip 26201

Stimulating Company USWS
Address 770 South Post Oak Lane, Suite 405 City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by EDDIE LADDEN Telephone 724-940-1264
Signature [Signature] Title Permitting Manager Date 4/19/17

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/30/2015
Job End Date:	11/15/2015
State:	West Virginia
County:	Harrison
API Number:	47-033-05773-00-00
Operator Name:	Arsenal Resources
Well Name and Number:	Paletta 8HM
Latitude:	39.20966000
Longitude:	-80.36707000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,164
Total Base Water Volume (gal):	7,241,682
Total Base Non Water Volume:	



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
AI-302	U.S. Well Services, Inc.	Acid Corrosion Inhibitors					
				Listed Below			
WFRA-1000	U.S. Well Services, Inc.	Friction Reducer					
				Listed Below			

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HCL Acid (3%-7.5%)	U.S. Well Services, Inc.	Bulk Acid					
				Listed Below			
K-BAC 1020	U.S. Well Services, Inc.	Anti-Bacterial Agent					
				Listed Below			
HCL Acid (12.6%-18.0%)	U.S. Well Services, Inc.	Bulk Acid					
				Listed Below			
Sand	U.S. Well Services, Inc.	Proppant					
				Listed Below			
Water	Arsenal Resources	Base Fluid					
				Listed Below			
HCL Acid (28%)	U.S. Well Services, Inc.	Bulk Acid					
				Listed Below			
SI-1100	U.S. Well Services, Inc.	Scale Inhibitor					
				Listed Below			

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Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

		H2O	7732-18-5	100.00000	86.05649
		Crystalline Silica, Quartz	14808-60-7	100.00000	13.32186
		Water	7732-18-5	97.00000	0.44658
		Hydrogen Chloride	7647-01-0	7.50000	0.04009
		Water	7732-18-5	87.50000	0.03525

			Water	7732-18-5	60.00000	0.03239	
			2-Propenoic acid, polymer with propenamide	9003-06-9	30.00000	0.01620	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01328	
			Water	7732-18-5	80.00000	0.00983	
			Hydrogen Chloride	7647-01-0	18.00000	0.00842	
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00426	
			Ethylene Glycol	107-21-1	25.00000	0.00347	
			Water	7732-18-5	72.00000	0.00290	
			Deionized Water	7732-18-5	28.00000	0.00244	
			Copolymer of Maleic and Acrylic Acid	52255-49-9	10.00000	0.00145	
			Hydrogen Chloride	7647-01-0	28.00000	0.00131	
			Potassium Salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00124	
			Hexamethylene tramine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00080	
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00080	
			Water	7732-18-5	95.00000	0.00053	
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00032	
			2-Propyn-1-olcompound with methyloxirane	38172-91-7	15.00000	0.00008	

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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.

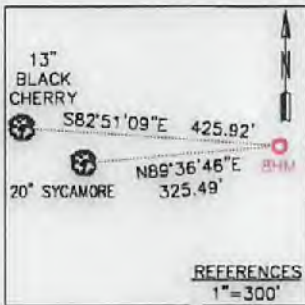
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108

NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.



REFERENCES
1"=300'

9,559' SHL

7,550' BHL

Latitude: 39°15'00"

Longitude: 80°20'00"

AS-DRILLED COORDINATES:	
SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,233.96	EASTING: 554,644.92
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,284.57	EASTING: 554,808.52
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,339,068.65	EASTING: 555,265.53



PROPOSED COORDINATES:	
SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,233.96	EASTING: 554,644.92
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,429.41	EASTING: 554,763.75
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,339,052.65	EASTING: 555,269.53

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



LINE	BEARING	DISTANCE
L1	S86°10'43"E	487.67'
L2	S23°37'40"W	756.81'
L3	N85°48'29"W	478.81'
L4	N23°04'17"E	750.93'
T1	S72°39'09"W	1211.99'
T2	N73°48'54"W	1638.93'

2000 0 2000

GRAPHIC SCALE IN FEET

P.S. 2270

M.S.W. 6/23/17

	(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS	MINIMUM DEGREE OF ACCURACY: 1/200	BHL	PALETTA PAD
	WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)		OPERATOR'S WELL #: 8HM
WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW	WATERSHED: WEST FORK RIVER	DISTRICT: UNION	COUNTY: HARRISON	ELEVATION: 1161.40'
SURFACE OWNER: DOMINECK PALETTA, ESTATE	OIL & GAS ROYALTY OWNER: DOMINECK PALETTA ESTATE C/O TONY PALETTA, DIANE G. SULLIVAN	DRILL	DRILL DEEPER	REDRILL
FRACTURE OR STIMULATE	PLUG OFF OLD FORMATION	PERFORATE NEW FORMATION	CONVERT	PLUG & ABANDON
CLEAN OUT & REPLUG	OTHER CHANGE	(SPECIFY) AS-DRILLED	TARGET FORMATION: MARCELLUS	ESTIMATED DEPTH: 7,164' TVD 11,720' TMD
WELL OPERATOR: ARSENAL RESOURCES	ADDRESS: 6031 WALLACE ROAD EXTENSION #300	CITY: WEXFORD	STATE: WV	ZIP CODE: 15090
DESIGNATED AGENT: WILLIAM VEIGEL	ADDRESS: 65 PROFESSIONAL PLACE, SUITE 200	CITY: BRIDGEPORT	STATE: WV	ZIP CODE: 26330
LEGEND:	PROPOSED SURFACE HOLE / BOTTOM HOLE	EXISTING / PRODUCING WELLHEAD	ABANDONED WELL	PLUGGED & ABANDONED WELL
CUT CONDUCTOR	LEASE BOUNDARY	500' DHP BUFFER	AS-DRILLED PATH	PROPOSED PATH
REVISIONS:	DATE: 06-22-2017	DRAWN BY: R. DOERR		
SCALE: 1" = 2000'			DRAWING NO: 030-3243	
WELL LOCATION PLAT				

▽ SURVEY MARKS	— PROPOSED BOUNDARY	MEET LOCATION BY UT
× UNRECORDED & UNRECORDED MET	- - - - - V2-DWIGHT BOUNDARY	BOUNDING NO: 030-2542
◇ UNRECORDED MET	— 200' DNR BUREAU	SCALE: 1" = 3000'
⊗ EXISTING \ PROPOSED MET HEAVY	- - - - - FEASE BOUNDARY	OWNER: B. DOEHR
○ PROPOSED SURFACE MARK \ BOTTOM MARK		DATE: 08-25-2013

CLIENT: MEXLEORD STATE: VA ZIP CODE: 12080 ADDRESS: 801 MUTTYS ROAD EXTENSION #200
 CLIENT: BRIDGEBOKI STATE: VA ZIP CODE: 28220 ADDRESS: 82 PROFESSIONAL BYUZE' STILE 500
 MET OBSERVATION: VISUAL REGISTRATION DESIGNATED POINT: MUTTYS ROAD

PROJECT INFORMATION: MURKETT'S
 SURVEY METHOD: SURVEY OF ADJACENT SPOTS OUT OF BOUNDARY OTHER CHANGE X (SPECIFY) V2-DWIGHT
 DATE: 08-25-2013
 CLIENT: BRIDGEBOKI STATE: VA ZIP CODE: 28220
 ADDRESS: 82 PROFESSIONAL BYUZE' STILE 500
 DESIGNATED POINT: MUTTYS ROAD

CHARGE: 033 02773
 ADDRESS: 801 MUTTYS ROAD EXTENSION #200
 OFFICE OF THE SURVEYOR OF THE COMMONWEALTH OF VIRGINIA
 (+) DENOTES LOCATION OF MET ON MAP

REGISTRATION: (INVADED BY 08' 02' FT)
 SOURCE OF GRADE OR SURFACE PROBLEM: 1/300
 ACCURACY: 1/300
 DEGREE OF MINIMUM: BNG

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 REGULATIONS ISSUED AND PRESCRIBED BY THE
 THE INFORMATION DESCRIBED BY LUM AND
 MA KNOWLEDGE AND BELIEF AND SHOWS THAT
 THIS MAP IS CORRECT TO THE BEST OF
 THE UNDERSIGNED HEREBY CERTIFY

GRAPHIC SCALE IN FEET
 5000 0 5000

LINE	BEARING	DISTANCE
L1	N13.48.24.11	1828.82
L2	S15.28.08.11	1511.88
L3	N52.04.13.11	180.82
L4	N88.48.38.11	438.81
L5	S52.23.40.11	1288.81
L6	S88.10.42.11	483.81

18' 235, BNG

1' 4' 03, 2HG

8' 228, 2HG

1' 220, BNG

09/15/2017

Scale: 1" = 300, REFERENCES
 30, 25.31, 12.85, 32.48, 188.38, 46.2, 452.85, 285.21, 08, 12, CHERYL BYUCK

PHONE 204-854-4108
 BRIDGEBOKI, VA 28220
 800 WHITE OAKS BLVD
 THE TRINADDER GROUP, INC

COORDINATES:

EASTING: 822,588.82	NORTHING: 4,238,023.82
PLM (NAD83) ZONE 13 METERS:	
BOTTOM HOGE POSITION (BHG):	
EASTING: 824,187.12	NORTHING: 4,240,458.41
PLM (NAD83) ZONE 13 METERS:	
GRID POINT POSITION (GPT):	
EASTING: 824,484.85	NORTHING: 4,240,052.22
PLM (NAD83) ZONE 13 METERS:	
SURFACE HOGE POSITION (SHG):	
PROPOSED COORDINATES:	



COORDINATES:

EASTING: 822,588.82	NORTHING: 4,238,023.82
PLM (NAD83) ZONE 13 METERS:	
BOTTOM HOGE POSITION (BHG):	
EASTING: 824,187.12	NORTHING: 4,240,458.41
PLM (NAD83) ZONE 13 METERS:	
GRID POINT POSITION (GPT):	
EASTING: 824,484.85	NORTHING: 4,240,052.22
PLM (NAD83) ZONE 13 METERS:	
SURFACE HOGE POSITION (SHG):	
V2-DWIGHT COORDINATES:	

NOTES ON SURVEY

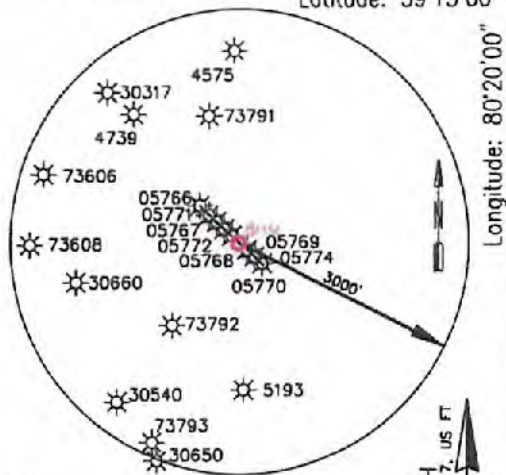
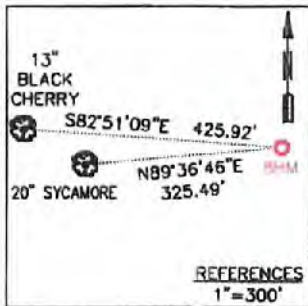
- NO MEASUREMENTS WERE TAKEN WITHIN 300 FEET OF THE CENTER OF ANY STRUCTURE WITHIN 100 FEET OF THE POINTS OF DISCONTINUITY
- NO SURVEYING INSTRUMENTS WERE USED OR USED IN CONJUNCTION WITH ANY INSTRUMENTS
- NO METERS WERE OR DELEGATED SURVEYING WITHIN 200 FEET OF CENTER OF BMD
- NO DWELLINGS AND BUILDINGS WITHIN 250 FEET OF PROPOSED BOUNDARY SHOWN HEREON
- THIS MAP DOES NOT REPRESENT A VALID SURVEY OF THE LOCATION
- WHICH MAY BE NECESSARY FOR OTHER AND FIELD SURVEYS SHOWN HEREON WERE OBTAINED FROM DEEDS
- SURFACE AND BOUNDARY OWNER INFORMATION AND THEIR GRADE OR
- 1.001 AND MET COORDINATES ESTABLISHED USING SURFACE
- COORDINATES SYSTEM IS PLM AND 82 DWTM, ZONE 13 U2'

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108

NOTES ON SURVEY

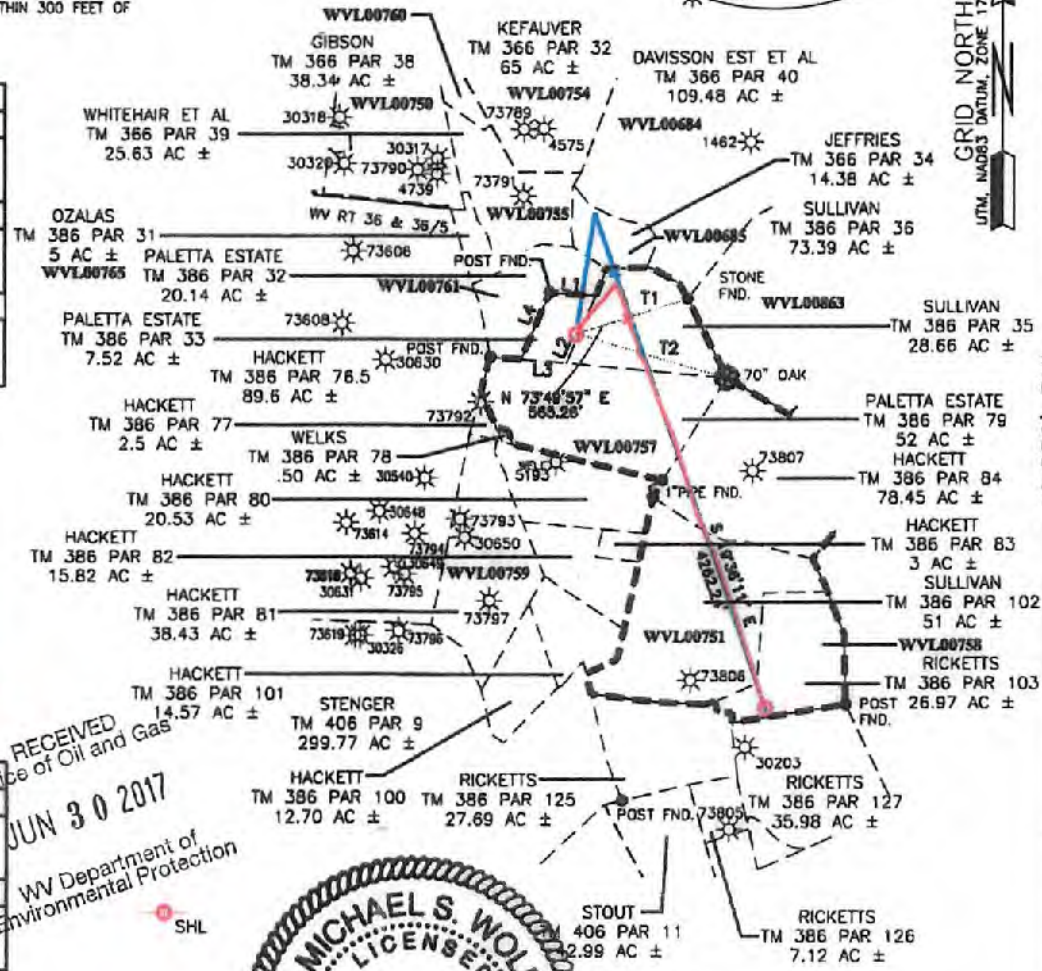
- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.



AS-DRILLED COORDINATES:	
SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,133.96	EASTING: 554,644.92
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,264.67	EASTING: 554,809.53
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,339,068.65	EASTING: 555,269.53



PROPOSED COORDINATES:	
SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,233.86	EASTING: 554,644.92
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,429.41	EASTING: 554,763.75
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,339,052.65	EASTING: 555,269.53



RECEIVED
Office of Oil and Gas
JUN 30 2017
WV Department of
Environmental Protection



LINE	BEARING	DISTANCE
L1	S86°10'43"E	487.67'
L2	S23°37'40"W	756.81'
L3	N85°48'29"W	478.81'
L4	N23°04'17"E	750.93'
T1	S72°39'09"W	1211.99'
T2	N73°48'54"W	1638.93'



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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2270 *M.S.W.* 6/23/17

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	<p>MINIMUM DEGREE OF ACCURACY: 1/200</p> <p>PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)</p>	<p>OPERATOR'S WELL #: 8HM</p> <p>API WELL #: 47 033 05773</p> <p>STATE COUNTY PERMIT</p>									
	<p>WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW</p> <p>WATERSHED: WEST FORK RIVER</p> <p>DISTRICT: UNION COUNTY: HARRISON</p> <p>SURFACE OWNER: DOMINECK PALETTA, ESTATE</p> <p>OIL & GAS ROYALTY OWNER: DOMINECK PALETTA ESTATE C/O TONY PALETTA, DIANE G. SULLIVAN</p> <p>DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION</p> <p>CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE X (SPECIFY) AS-DRILLED</p> <p>TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 1164' WD 11, 22' MD</p>	<p>DESIGNATED AGENT: WILLIAM VEIGEL</p> <p>ADDRESS: 65 PROFESSIONAL PLACE, SUITE 200</p> <p>CITY: BRIDGEPORT STATE: WV ZIP CODE: 26330</p>									
<p>LEGEND:</p> <ul style="list-style-type: none"> ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ⊙ EXISTING / PRODUCING WELLHEAD ⊗ ABANDONED WELL ⊗ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR --- LEASE BOUNDARY --- 500' DHP BUFFER --- AS-DRILLED PATH --- PROPOSED PATH 	<p>REVISIONS:</p> <table border="1"> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>										<p>DATE: 06-22-2017</p> <p>DRAWN BY: R. DOERR</p> <p>SCALE: 1" = 2000'</p> <p>DRAWING NO: 030-3243</p> <p>WELL LOCATION PLAT</p>