

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

API 47-33-05769 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 4H
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 4340238.944 Easting 554643.743
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**
NAME: Sam Ward
DATE: 8/19/2017

Date permit issued 9/20/2013 Date drilling commenced 6/7/2015 Date drilling ceased 6/17/2015
Date completion activities began 9/23/2015 Date completion activities ceased 11/27/2015
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

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API 47- 33 - 05769

Farm name Domineck Paletta Estate C/O Tony Paletta, G. Diane Sullivan Well number 4H

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"	630'	New	54.5	N/A	Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,620'	New	40	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	12,441.0	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	541/184	14.50/15.70	1.55/1.29	1075.91	Surface	8
Intermediate 2							
Intermediate 3							
Production	Type 1 4% Gel/Type 1 2% Gel	731/1138	13.80/15.00	1.64/1.32	3,807.76	2450	8
Tubing							

Drillers TD (ft) 12,441' Loggers TD (ft) 12,441'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure None

Kick off depth (ft) 6,832' MD

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 23 stages utilizing 920 .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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Well number 4H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10/18/2015	12353	12192	40	Marcellus
2	11/09/2015	12154	11992	40	Marcellus
3	11/09/2015	11954	11792	40	Marcellus
4	11/10/2015	11754	11592	40	Marcellus
5	11/10/2015	11554	11392	40	Marcellus
6	11/10/2015	11354	11192	40	Marcellus
7	11/10/2015	11154	10992	40	Marcellus
8	11/11/2015	10954	10792	40	Marcellus
9	11/11/2015	10754	10592	40	Marcellus
10	11/11/2015	10554	10392	40	Marcellus
11	11/11/2015	10354	10192	40	Marcellus
12	11/12/2015	10154	9992	40	Marcellus
13	11/12/2015	9954	9792	40	Marcellus
14	11/12/2015	9754	9592	40	Marcellus
15	11/13/2015	9554	9392	40	Marcellus
16	11/13/2015	9354	9192	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 (bbls)	Amount of Nitrogen/other (units)
1	11/9/15	82	7455	8968	4445	504642	9159	0
2	11/9/15	83	7767	6598	4506	502102	11220	0
3	11/10/15	80	7548	6280	4932	503702	9225	0
4	11/10/15	80	7508	6223	5308	500700	9178	0
5	11/10/15	71	8149	6434	5311	506740	10785	0
6	11/10/15	80	7377	5872	5554	503050	8664	0
7	11/11/15	80	7468	6605	4985	505581	10046	0
8	11/11/15	80	7448	6571	5414	503880	9410	0
9	11/11/15	80	7527	6124	5636	500780	9312	0
10	11/11/15	80	7298	6191	5060	507522	8975	0
11	11/12/15	80	7504	6591	4810	501880	9444	0
12	11/12/15	81	7588	6570	5744	500280	9998	0
13	11/12/15	80	7418	5990	5357	501202	8790	0
14	11/13/15	80	7270	6037	6174	491382	8496	0
15	11/13/15	81	7324	5922	5018	504200	9203	0
16	11/13/15	81	7370	6655	5869	504180	9000	0

Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	11/13/2015	9154	8992	40	Marcellus
18	11/13/2015	8954	8792	40	Marcellus
19	11/14/2015	8754	8592	40	Marcellus
20	11/14/2015	8554	8392	40	Marcellus
21	11/14/2015	8354	8192	40	Marcellus
22	11/14/2015	8154	7992	40	Marcellus
23	11/14/2015	7954	7792	40	Marcellus

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)
17	11/13/15	83	7361	6684	5829	502282	8862	0
18	11/13/15	85	7378	6516	5679	500200	8439	0
19	11/14/15	79	7199	6727	5475	502560	8299	0
20	11/14/15	84	7202	6870	5872	501660	8646	0
21	11/14/15	84	7382	6362	5940	502842	8595	0
22	11/14/15	86	7128	7203	5282	503362	8552	0
23	11/15/15	86	7327	6187	5629	518142	8885	0

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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 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	6873	6886	7155	7181	Shale
Tully	6886	6938	7181	7248	Limestone
Mahantango	6938	7112	7248	7500	Shale- Gas show at 7410' MD
Marcellus	7112	7191	7500	12441	Shale-Gas shows through lateral
Purcell	7163	7166	7714	7720	Limestone
Onondaga	7191	7210			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 _____ Telephone _____
Signature _____ Title _____ Date JUN 30 2017

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/8/2015
Job End Date:	11/15/2015
State:	West Virginia
County:	Harrison
API Number:	47-033-05769-00-00
Operator Name:	Mountaineer Keystone, LLC
Well Name and Number:	Paletta 4H
Longitude:	-80.22196000
Latitude:	39.12351800
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,234
Total Base Water Volume (gal):	8,963,268
Total Base Non Water Volume:	0



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Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Mountaineer Keystone	Base Fluid					
			Water	7732-18-5	100.00000	86.05649	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	13.32186	
HCL Acid (3% to 7.5%)	U.S. Well Services	Bulk Acid					
			Water	7732-18-5	97.00000	0.44658	
			Hydrogen Chloride	7647-01-0	7.50000	0.04009	
WFRA-1000	U.S. Well Services	Friction Reducer					
			Water	7732-18-5	60.00000	0.03239	
			2-Propenoic acid, polymer with 2-propanamide	9003-06-9	30.00000	0.01620	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01328	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.03525	
			Hydrogen Chloride	7647-01-0	18.00000	0.00842	
SI-1100	U.S. Well Services	Scale Inhibitor					
			Water	7732-18-5	80.00000	0.00983	
			Ethylene Glycol	107-21-1	25.00000	0.00347	

			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00145
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00124
			Hexamethylene triamine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00080
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00080
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00032
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent				
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00426
			Deionized Water	7732-18-5	28.00000	0.00244
HCL Acid (28%)	U.S. Well Services	Bulk Acid				
			Water	7732-18-5	72.00000	0.00290
			Hydrogen Chloride	7647-01-0	28.00000	0.00131
AI-302	U.S. Well Services	Acid Corrosion Inhibitors				
			Water	7732-18-5	95.00000	0.00053
			2-Propyn-1-olcompound with methyloxirane	38172-91-7	15.00000	0.00008
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.						

* 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)

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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: 4,340,232.28
EASTING: 554,647.45

LANDING POINT LOCATION (LPL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,340,459.74
EASTING: 554,996.87

BOTTOM HOLE LOCATION (BHL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,341,750.51
EASTING: 554,537.05

PROPOSED COORDINATES:

SURFACE HOLE LOCATION (SHL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,340,232.28
EASTING: 554,647.45

LANDING POINT LOCATION (LPL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,340,641.12
EASTING: 554,933.14

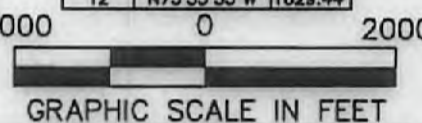
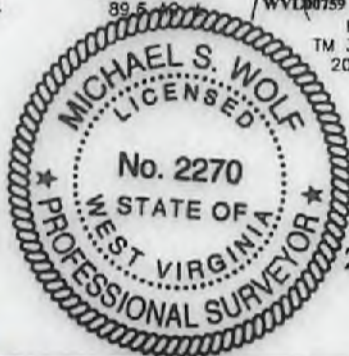
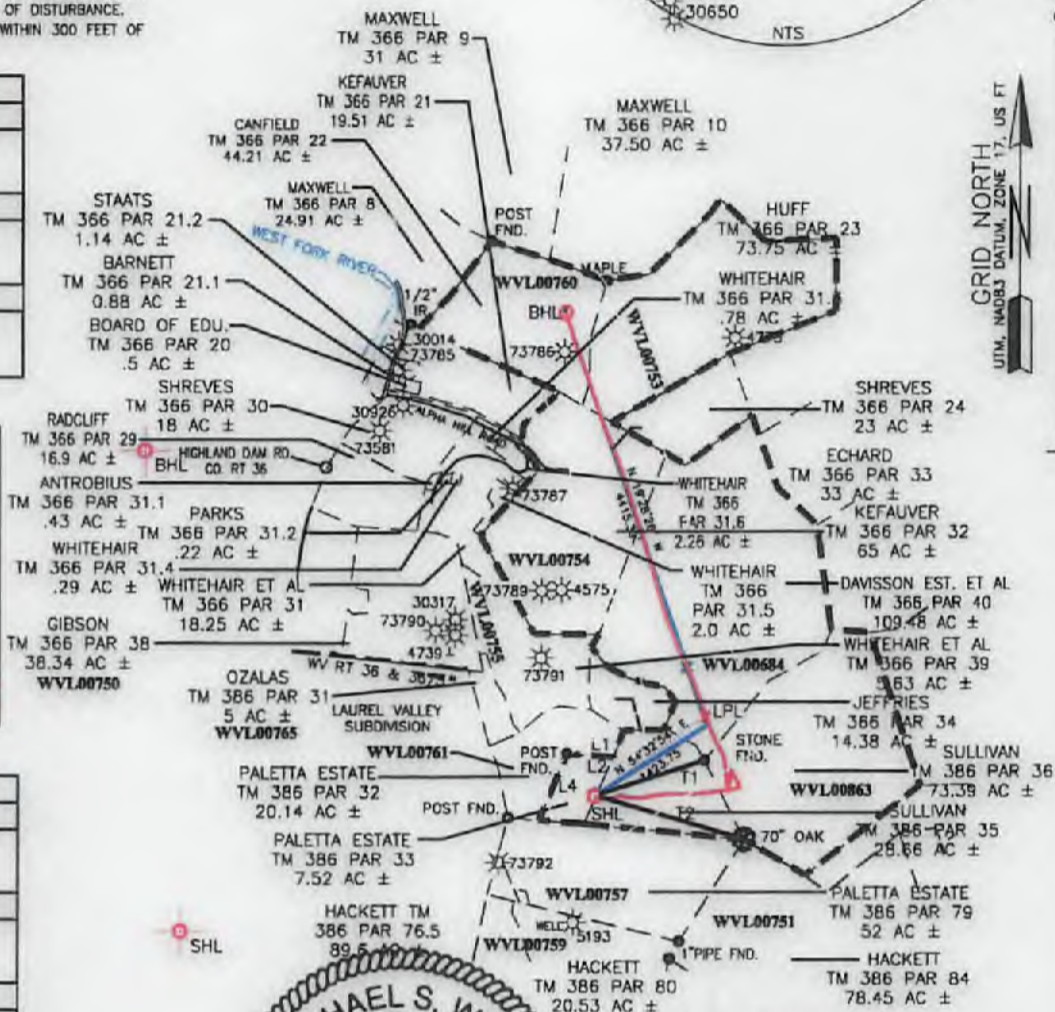
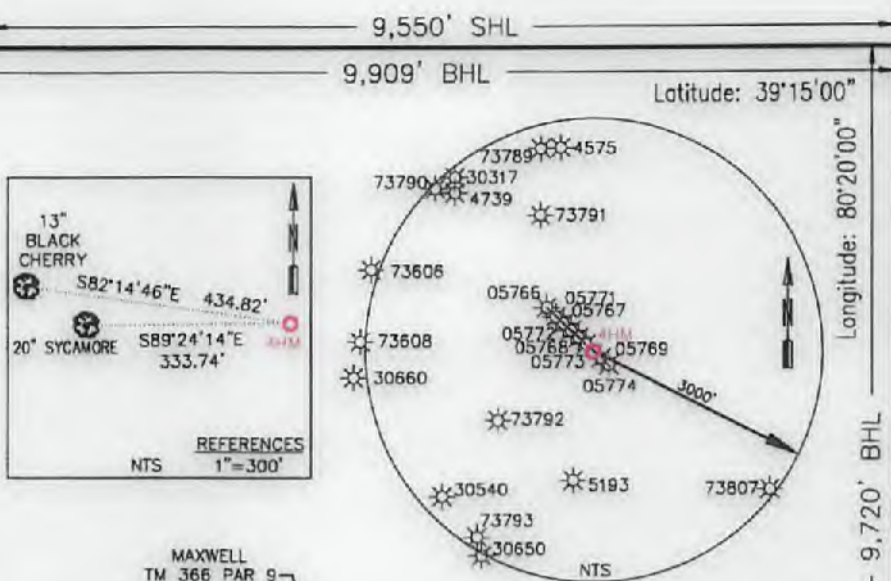
BOTTOM HOLE LOCATION (BHL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,341,765.23
EASTING: 554,520.18

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. Wolf 6/23/17



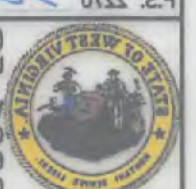
<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	<p>MINIMUM DEGREE OF ACCURACY: 1/200</p> <p>PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)</p>	<p>OPERATOR'S WELL #: 4HM</p> <p>API WELL #: 47 033 05769</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 (SPECIFY) AS-DRILLED</p> <p>TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,234' TO 12,441' TMD</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> <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>	<p>09/15/2017</p>

LEGEND:
 ○ PROPOSED SURFACE HOLE \ BOTTOM HOLE
 * EXISTING \ PRODUCING WELLHEAD
 --- LEASE BOUNDARY
 --- 500' DRP BUFFER
 --- AS-DRILLED PATH
 --- PROPOSED PATH
REVISIONS:
 DATE: 08-22-2017
 DRAWN BY: R. DOERR
 SCALE: 1" = 2000'
 DRAWING NO: 030-3243
 WELL LOCATION PLAN

CITY: WEXFORD STATE: WV ZIP CODE: 15080
 ADDRESS: 8031 WALLACE ROAD EXTENSION #300 CITY: BRIDGEPORT STATE: WV ZIP CODE: 28330
 WELL OPERATOR: ARSENAL RESOURCES
 DESIGNATED AGENT: WILLIAM VEGL
 ESTIMATED DEPTH: 7.5M (VAD 12.447' TMD)
 TARGET FORMATION: MARCELLUS

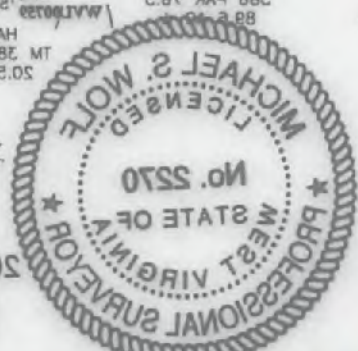
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY AS-DRILLED)
 DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION
 OIL & GAS ROYALTY OWNER: DOMINECK PALETTA ESTATE
 SURFACE OWNER: DOMINECK PALETTA ESTATE COUNTY: HARRISON
 WATERSHED: WEST FORK RIVER
 WELL TYPE: OIL WASTE DISPOSAL
 PRODUCTION CAS LIQUID INJECTION STORAGE SHALLOW
 ELEVATION: 1161.40'

WV DEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25034
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 ACCURACY: 1/200
 DEGREE OF MINIMUM
 OPERATOR'S WELL #: 4HM
 PALETTA PAD



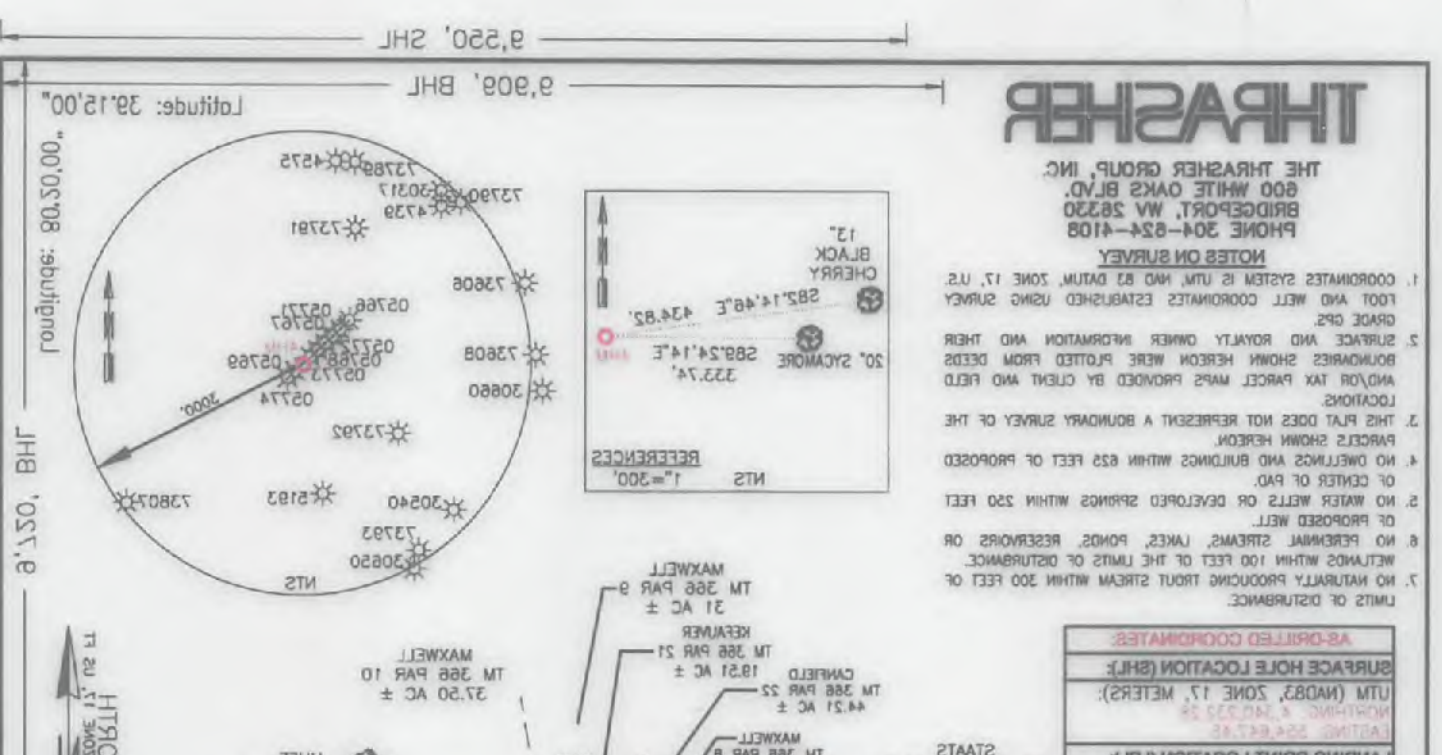
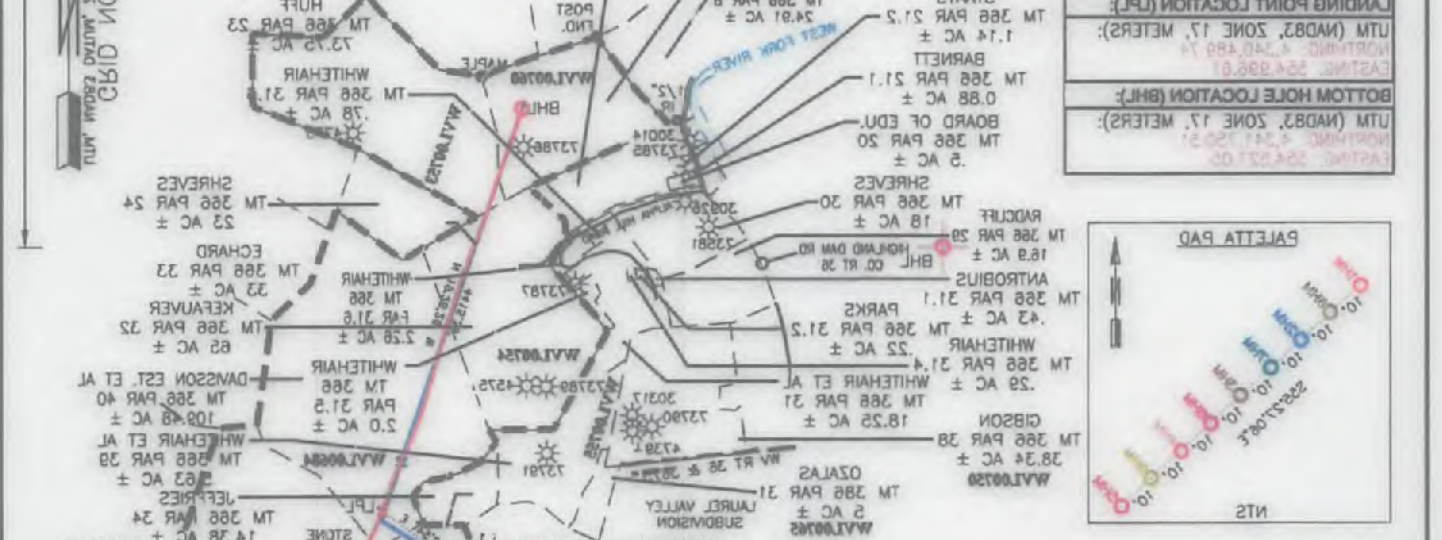
GRAPHIC SCALE IN FEET

LINE	BEARING	DISTANCE
L1	S86.10°42'E	487.87'
L2	S23.27°40'W	758.81'
L3	N82.48°29'W	478.81'
L4	N23.04°17'E	720.92'
L5	S72.18°42'W	1202.84'
L6	N72.52°22'W	1828.44'



P.2. 2270
 I, THE UNDERSIGNED HEREBY CERTIFY THAT THIS PLAN 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.

AS-DRILLED COORDINATES:	PROPOSED COORDINATES:
SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,240,232.28 EASTING: 254,647.42	SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,240,232.28 EASTING: 254,647.42
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,240,641.12 EASTING: 254,233.14	LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,240,641.12 EASTING: 254,233.14
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,241,786.52 EASTING: 254,250.18	BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,241,786.52 EASTING: 254,250.18



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 PHONE 304-824-4108

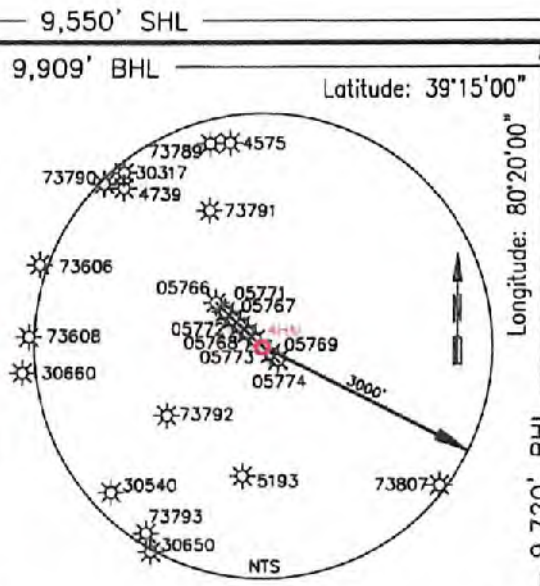
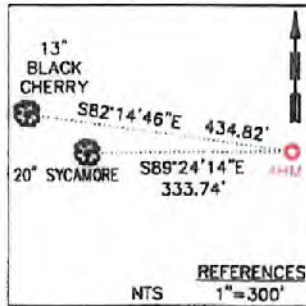
- NOTES ON SURVEY**
- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
 - SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
 - THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 - NO DWELLINGS AND BUILDINGS WITHIN 825 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 200 FEET OF LIMITS OF DISTURBANCE.

THRASHER

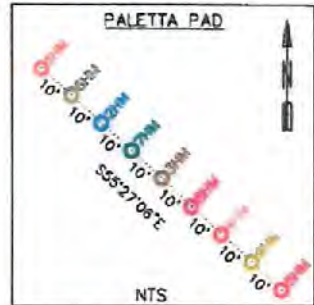
THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108

NOTES ON SURVEY

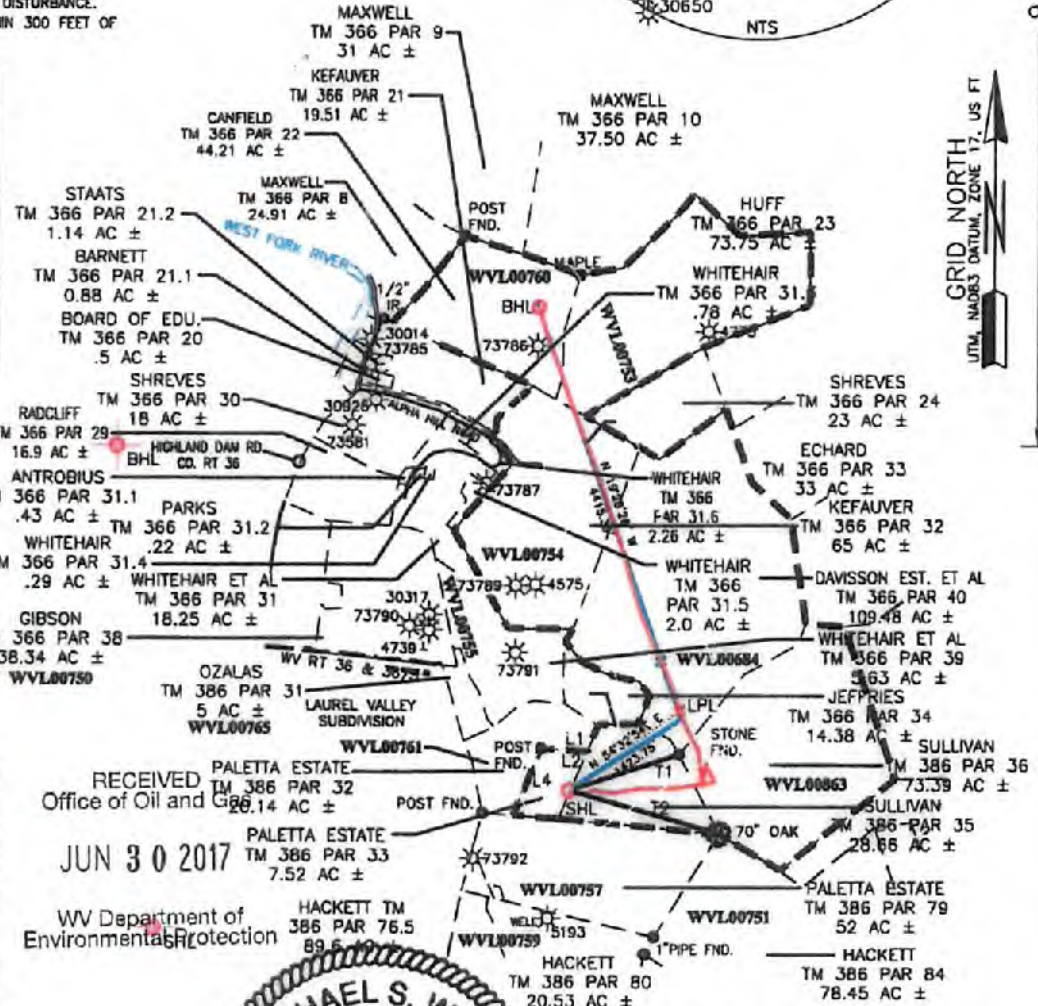
- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT 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.



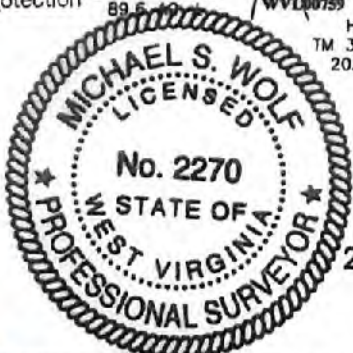
AS-DRILLED COORDINATES:	
SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,232.28	
EASTING: 554,647.45	
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,489.74	
EASTING: 554,996.81	
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,341,756.51	
EASTING: 554,537.05	



PROPOSED COORDINATES:	
SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,232.28	
EASTING: 554,647.45	
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,340,641.12	
EASTING: 554,933.14	
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4,341,765.23	
EASTING: 554,520.18	



JUN 30 2017



LINE	BEARING	DISTANCE
L1	S86°10'43"E	487.67'
L2	S23°37'40"W	786.81'
L3	N85°48'28"W	478.81'
L4	N23°04'17"E	750.93'
T1	S72°16'43"W	1205.84'
T2	N73°55'33"W	1629.44'



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 *MSW 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 #: 4HM</p> <p>API WELL #: 47 033 05769</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: 2,234 TO 12,447 FTD</p>	<p>DESIGNATED AGENT: WILLIAM VEIGEL</p> <p>ADDRESS: 65 PROFESSIONAL PLACE, SUITE 200</p> <p>CITY: BRIDGEPORT STATE: WV ZIP CODE: 26330</p>