

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

API 47 - 033 - 05885 County Harrison District Clark
Quad Mt. Clare Pad Name Goff 5-55 Field/Pool Name _____
Farm name Dimaria, Sharon E. Well Number 211
Operator (as registered with the OOG) Arsenal Resources
Address 6031 Wallace Rd. Ext 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 4345663.2 Easting 553447.2
Landing Point of Curve Northing 4345665.5 Easting 552645.4
Bottom Hole Northing 4347924.4 Easting 551795.5

Elevation (ft) 1154.80 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

Date permit issued 02/28/2017 Date drilling commenced 07/15/2017 Date drilling ceased 07/27/2017
Date completion activities began 10/23/2017 Date completion activities ceased 11/08/2017
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft 640' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1030' Void(s) encountered (Y/N) depths N
Coal depth(s) ft Pittsburgh - 30.5' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed

4/11/2018

Reviewed by: 240

API 47-033 - 05885 Farm name Dimaria, Sharon E. Well number 211

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	24"	80'	New	94.0	NA	Y
Surface	17.5"	13 3/8"	713'	New	54.50	120'	Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2504	New	40.00	NA	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	15,819'	New	20.00	NA	N
Tubing							
Packer type and depth set							

Comment Details Cement to surface on Conductor, Surface, and Intermediate. Top of Cement at 2,400 ft.

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	A	255	15.60	1.20	306	Surface	8+
Surface	A	665	15.60	1.20	798	Surface	8+
Coal							
Intermediate 1	A	145/650	15.20/15.70	1.26/1.28	182.7/832	Surface	8+
Intermediate 2							
Intermediate 3							
Production	A	920/1800	13.80/15.00	1.34/1.29	1233/2322	2350'	8+
Tubing							

Drillers TD (ft) 15,848 ft Loggers TD (ft) N/A

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

Plug back procedure N/A

Kick off depth (ft) KOP of Curve at 6,899 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 20" - 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 to surface 5 1/2" - one semi rigid centralizer on every joint from TD of casing to end of curve. Then every other joint to KOP. Every third joint from KOP to 2,400'; there will be no centralizers from 2,400' to surface.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS Well completed in 40 stages. 1,600 perforations.

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

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API 47- 033 - 05885 Farm name Dimaria, Sharon E. Well number 211

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
		See Attached			

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)
			See Attached					

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Please insert additional pages as applicable.

Perforation Record

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations (s)
40	11/8/2017 7:59	7,853.00	8,015.00	40	Marcellus Shale
39	11/8/2017 0:08	8,053.00	8,215.00	40	Marcellus Shale
38	11/7/2017 14:48	8,253.00	8,415.00	40	Marcellus Shale
37	11/7/2017 7:03	8,453.00	8,615.00	40	Marcellus Shale
36	11/7/2017 23:22	8,653.00	8,815.00	40	Marcellus Shale
35	11/6/2017 15:37	8,853.00	9,015.00	40	Marcellus Shale
34	11/6/2017 6:47	9,054.00	9,215.00	40	Marcellus Shale
33	11/5/2017 22:34	9,253.00	9,415.00	40	Marcellus Shale
32	11/5/2017 14:41	9,453.00	9,615.00	40	Marcellus Shale
31	11/5/2017 6:57	9,653.00	9,815.00	40	Marcellus Shale
30	11/5/2017 0:22	9,853.00	10,015.00	40	Marcellus Shale
29	11/4/2017 16:11	10,053.00	10,215.00	40	Marcellus Shale
28	11/4/2017 5:55	10,253.00	10,415.00	40	Marcellus Shale
27	11/4/2017 19:41	10,565.00	10,721.00	40	Marcellus Shale
26	11/3/2017 10:52	10,759.00	10,913.00	40	Marcellus Shale
25	11/3/2017 3:16	10,949.00	11,103.00	40	Marcellus Shale
24	11/2/2017 19:18	11,139.00	11,293.00	40	Marcellus Shale
23	11/2/2017 5:29	11,329.00	11,483.00	40	Marcellus Shale
22	11/2/2017 22:48	11,519.00	11,673.00	40	Marcellus Shale
21	11/1/2017 2:47	11,709.00	11,863.00	40	Marcellus Shale
20	10/31/2017 19:01	11,899.00	12,053.00	40	Marcellus Shale
19	10/31/2017 6:31	12,089.00	12,243.00	40	Marcellus Shale
18	10/30/2017 20:44	12,279.00	12,433.00	40	Marcellus Shale
17	10/30/2017 8:53	12,469.00	12,623.00	40	Marcellus Shale
16	10/29/2017 23:25	12,659.00	12,813.00	40	Marcellus Shale
15	10/29/2017 13:50	12,849.00	13,003.00	40	Marcellus Shale
14	10/29/2017 2:48	13,039.00	13,193.00	40	Marcellus Shale
13	10/28/2017 15:53	13,229.00	13,383.00	40	Marcellus Shale
12	10/28/2017 4:48	13,419.00	13,573.00	40	Marcellus Shale
11	10/27/2017 16:02	13,609.00	13,763.00	40	Marcellus Shale
10	10/27/2017 5:25	13,799.00	13,961.00	40	Marcellus Shale
9	10/26/2017 19:39	13,999.00	14,161.00	40	Marcellus Shale
8	10/26/2017 8:11	14,199.00	14,361.00	40	Marcellus Shale
7	10/25/2017 22:34	14,399.00	14,561.00	40	Marcellus Shale
6	10/25/2017 12:43	14,599.00	14,761.00	40	Marcellus Shale
5	10/24/2017 23:46	14,799.00	14,961.00	40	Marcellus Shale
4	10/24/2017 14:31	14,999.00	15,161.00	40	Marcellus Shale
3	10/24/2017 3:54	15,199.00	15,361.00	40	Marcellus Shale
2	10/23/2017 17:19	15,399.00	15,561.00	40	Marcellus Shale
1	10/1/2017 9:30	15,599.00	15,759.00	40	Marcellus Shale

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus Shale	7027	TVD	7740 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 ₂ S, ETC)
Sand/silt	0	6710	0	7180	Sand/silt
Burkett	6710	6745	7180	7238	Shale
Tully	6745	6817	7238	7326	Limestone
Mahantango	6817	6964	7326	7652	Shale
Marcellus	6964	7027	7652	7740	Shale
Purcell	7027	7030	7740	7758	Limestone
Lower Marcellus	7030	6980	7758	15848	Shale

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 _____

Cementing Company C&J Energy Services, Inc
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

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 304-629-6309
Signature [Signature] Title PERMITTING MANAGER Date 2/6/18

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Office of Oil and Gas

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

FEB 13 2018

WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	10/23/2017
Job End Date:	11/8/2017
State:	West Virginia
County:	Harrison
API Number:	47-033-05885-00-00
Operator Name:	Arsenal Resources
Well Name and Number:	Goff 5-55 211
Latitude:	39.24356500
Longitude:	-80.39480200
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,055
Total Base Water Volume (gal):	28,530,516
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	88.36957	None
Sand (Proppant)	Keane	Proppant					
			Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	11.22576	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor					
			Water	7732-18-5	92.50000	0.25006	None
			Hydrochloric Acid	7647-01-0	7.50000	0.02027	None
KFR-16FW	Keane	Friction Reducer					
			Water	7732-18-5	60.00000	0.06563	None
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.02188	None
			oleic acid diethanolamide	93-83-4	1.50000	0.00164	None
			ammonium chloride	12125-02-9	1.50000	0.00164	None
			alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00109	None
MBC-516	Keane	Biocide					
			Water	7732-18-5	56.70000	0.00577	None
			Glutaral	111-30-8	26.70000	0.00272	None

			didecyl dimethyl ammonium chloride	7173-51-5	8.00000	0.00081	None
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00054	None
			ethonal	64-17-5	2.80000	0.00028	None
KLSI-21	Keane	Scale Inhibitor					
			polyphosphoric acids, esters with triethanolamine, sodium salts	68131-72-6	30.00000	0.00407	None
KAI-12	Keane	Acid Inhibitor					
			Ethylene glycol	107-21-1	40.00000	0.00049	None
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00025	None
			Ethoxylated alcohol	68131-39-5	10.00000	0.00012	None
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00012	None
			Cinnamaldehyde	104-55-2	10.00000	0.00012	None
			formic acid	64-18-6	10.00000	0.00012	None
			isopropyl alcohol	67-63-0	5.00000	0.00006	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	0.25006	
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.02188	
			Glutaral	111-30-8	26.70000	0.00272	
			ammonium chloride	12125-02-9	1.50000	0.00164	
			oleic acid diethanolamide	93-83-4	1.50000	0.00164	
			alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00109	
			didecyl dimethyl ammonium chloride	7173-51-5	8.00000	0.00081	
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00054	
			ethonal	64-17-5	2.80000	0.00028	
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00025	
			formic acid	64-18-6	10.00000	0.00012	
			Ethoxylated alcohol	68131-39-5	10.00000	0.00012	
			Cinnamaldehyde	104-55-2	10.00000	0.00012	
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00012	
			isopropyl alcohol	67-63-0	5.00000	0.00006	
			Water	7732-18-5	85.00000	0.00000	

* 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%

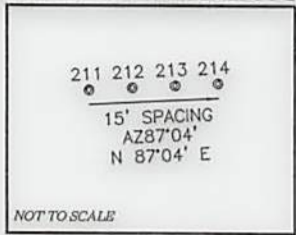
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
 Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- LEASE INFORMATION PROVIDED BY MOUNTAINEER KEYSTONE.
211 WELL TIES

LINE	BEARING	DISTANCE
L1	S 89°33' E	819.34'
L2	S 62°52' E	936.59'
L3	S 79°30' W	2491.80'
L4	N 19°41' W	537.11'
L5	N 19°40' W	7920.90'

GOFF 5-55 WELL LAYOUT



NOT TO SCALE

LEGEND

LEASE LINE	---
SURFACE LINE	----
WELL LATERAL	-----
OFFSET LINE	- - - - -
TIE LINE	=====
CREEK	~~~~~
ROAD	=====
FENCE LINE	-----
COUNTY ROUTE	-----
STATE ROUTE	-----
PROPOSED WELL	○
EXISTING WELL	⊙
PERMITTED WELL	⊙

MOUNTAINEER KEYSTONE
GOFF 5-55 PAD
WELL 211

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT) N. 277,544.4 E. 1,719,181.0
 NAD'83 GEO. LAT-(N) 39.258654 LONG-(W) 80.380508
 NAD'83 UTM (M) N. 4,345,663.2 E. 553,447.2

LANDING POINT

NAD'83 S.P.C.(FT) N. 277,595.9 E. 1,716,550.0
 NAD'83 GEO. LAT-(N) 39.258724 LONG-(W) 80.389801
 NAD'83 UTM (M) N. 4,345,665.5 E. 552,645.4

BOTTOM HOLE

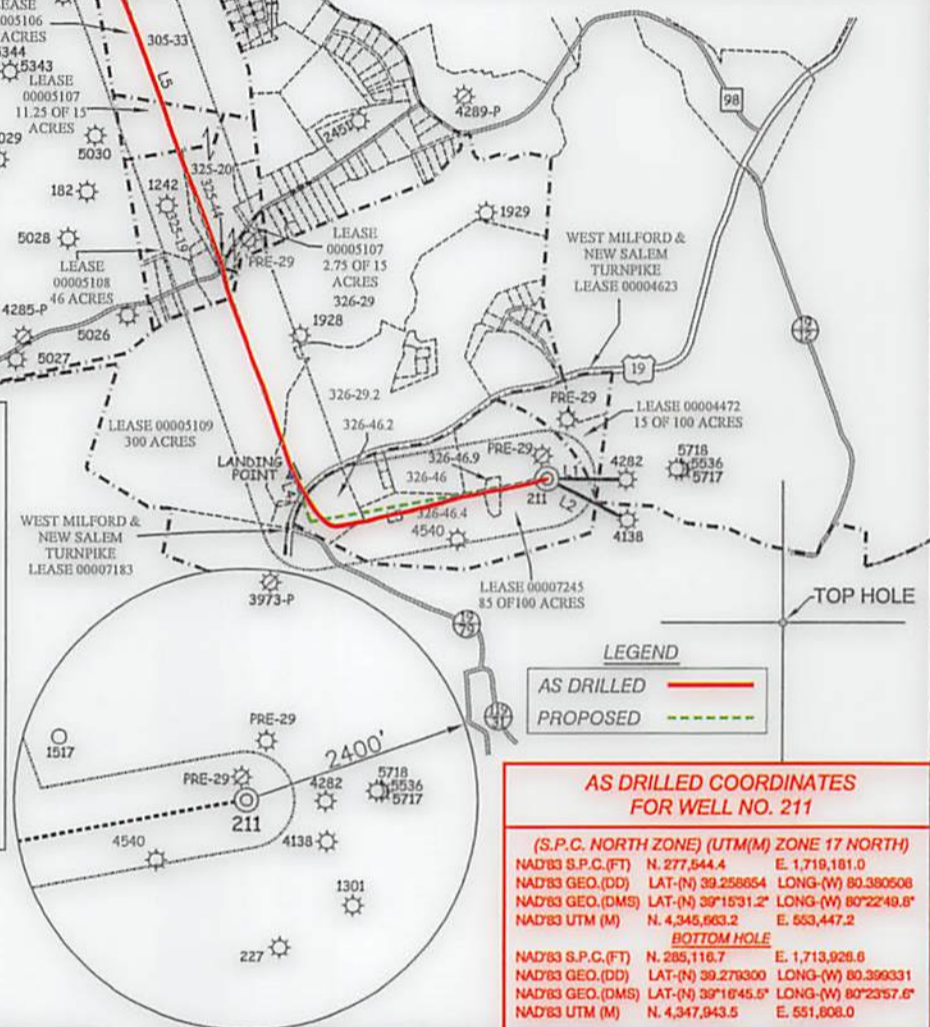
NAD'83 S.P.C.(FT) N. 285,054.8 E. 1,713,884.4
 NAD'83 GEO. LAT-(N) 39.279129 LONG-(W) 80.399478
 NAD'83 UTM (M) N. 4,347,924.4 E. 551,795.5



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www.slsurveys.com

LATITUDE(NAD'83) 39°17'30"

TRACT #	SURFACE OWNER	SURFACE ACREAGE	OIL & GAS LEASE #
326-46.4	SHARON DIMARIA	69.31±	00004472 & 00007245
326-46.9	COUNTY COMMISSION OF HARRISON COUNTY	1.27±	00007245
326-46	HARRISON COUNTY BUILDING COMMISSION	9±	00007245
326-46.2	COUNTRY CLUB CHRYSLER PLYMOUTH	7.46±	00007245
U.S. ROUTE 19	STATE OF W.V. (WEST MILFORD & NEW SALEM TURNPIKE)		00007183
326-29.2	DOLAN HEIRS	77.09±	00005109
326-29	DOLAN HEIRS	152.60±	00005109
325-20	OLIVE SHEETS	31.86±	00005107 & 00005108
325-44	ALLEN HILL ETAL	.5±	00005108
325-19	OLIVE SHEETS	13.51±	00005108
305-33	OLIVE SHEETS	53.52±	00005106
305-33.1	PAUL SHEETS ETAL	0.98±	00005106
305-32	LAURA GOFF DAVIS	233.50±	00003556
305-32.1	HARRISON CO. BOE	39.16±	00003556
305-32.3	HARRISON CO. BOE	2.71±	00003556
306-63	H. DOTSON CATHER TRUSTEE	208.72±	00003556



LEGEND

AS DRILLED	---
PROPOSED	---

AS DRILLED COORDINATES FOR WELL NO. 211

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT) N. 277,544.4 E. 1,719,181.0
 NAD'83 GEO.(DD) LAT-(N) 39.258654 LONG-(W) 80.380508
 NAD'83 GEO.(DMS) LAT-(N) 39°15'31.2" LONG-(W) 80°22'49.8"
 NAD'83 UTM (M) N. 4,345,663.2 E. 553,447.2

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 285,116.7 E. 1,713,928.6
 NAD'83 GEO.(DD) LAT-(N) 39.279300 LONG-(W) 80.399331
 NAD'83 GEO.(DMS) LAT-(N) 39°16'45.5" LONG-(W) 80°23'57.6"
 NAD'83 UTM (M) N. 4,347,943.5 E. 551,808.0

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. Gregory A. Smith
677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 30, 20 16
 REVISED 09-07-16 & 9-18-17
 OPERATORS WELL NO. 211
 API WELL NO. 47 - 033 - 05885
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8312P211AD.dwg
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION:
 ELEVATION EXISTING: 1,154.80' / PROPOSED: 1,155.20' WATERSHED WEST FORK RIVER
 DISTRICT CLARK COUNTY HARRISON QUADRANGLE WOLF SUMMIT
 SURFACE OWNER SHARON DIMARIA ACREAGE 69.31±
 ROYALTY OWNER COUNTY COMMISSION OF HARRISON COUNTY ACREAGE 85 OF 100±
 PROPOSED WORK:
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
 PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH 15,865' TMD / 7,045' TVD

WELL OPERATOR MOUNTAINEER KEYSTONE, LLC DESIGNATED AGENT NATHAN SKEEN
 ADDRESS 6031 WALLACE RD. EXT. SUITE 300 ADDRESS 65 PROFESSIONAL PLACE
WEXFORD, PA 15090 BRIDGEPORT, WV 26330

NAD'83 GRID NORTH

LONGITUDE (NAD'83) 80°22'30"

AS-DRILLED BOTTOM HOLE

TOP HOLE

COUNTY NAME

PERMIT

MEXFORD' BY 12080 ADDRESS 0031 WATFACE RD' EXT. SUITE 300
 BRIDGEPORT' WV 26330 ADDRESS 82 PROFESSIONAL BLVD
 MEGT OPERATOR MOUNTAINEER KEYSTONE' LLC DESIGNATED AGENT NATHAN SKEEN

ESTIMATED DEPTH 12'882, TMD \ 1'042, TMD
 PHYSICAL CHANGE IN MEGT (SPECIFY) TARGET FORMATION MARCELLUS
 FORMATION BEFOVATE IEM FORMATION BUNE AND AVOIDON CSEAN OUT AND BEBUNE OTHER
 DRIFT SOILS DRIFT DEEBER BEDRIFT FRACTURE OR STIMULATE BUNE OFF OLD
 PROPOSED WORK: GEASE NO. 00003342
 COUNTY OWNER COUNTY COMMISSION OF HARRISON COUNTY ACBEAGE 82 OF 100F
 SURFACE OWNER SHAWON DIMARVA ACBEAGE 88.81F
 DISTRICT CLARK COUNTY HARRISON QUADRANGLE MOFF SUMMIT
 ELEVATION EXISTING: 1'141'80, \ PROPOSED: 1'122'50, WATERSHED WEST FORK RIVER
 LOCATION: LABE: OIG GAS INJECTION DISPOSAL GAS PRODUCTION STORAGE DEEB SHALLOW
 MEGT

CONTROL DETERMINED BY HORIZONTAL & VERTICAL DEGS (SUBLEY GRADE TIE TO CORS NETWORK)
 OF ACCURACY 1 \ 5200 SCALE 1" = 5000'
 MINIMUM DEGREE FIGE NO. 8215B511AD'pwb

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



BY THE DIVISION OF ENVIRONMENTAL PROTECTION THE REGULATIONS ISSUED AND PRESCRIBED THE INFORMATION DESCRIBED BY GYM AND KNOWLEDGE AND BELIEF AND SHOWS ALL THIS PLAN IS CORRECT TO THE BEST OF MY THE UNDERSIGNED HEREBY CERTIFY THAT

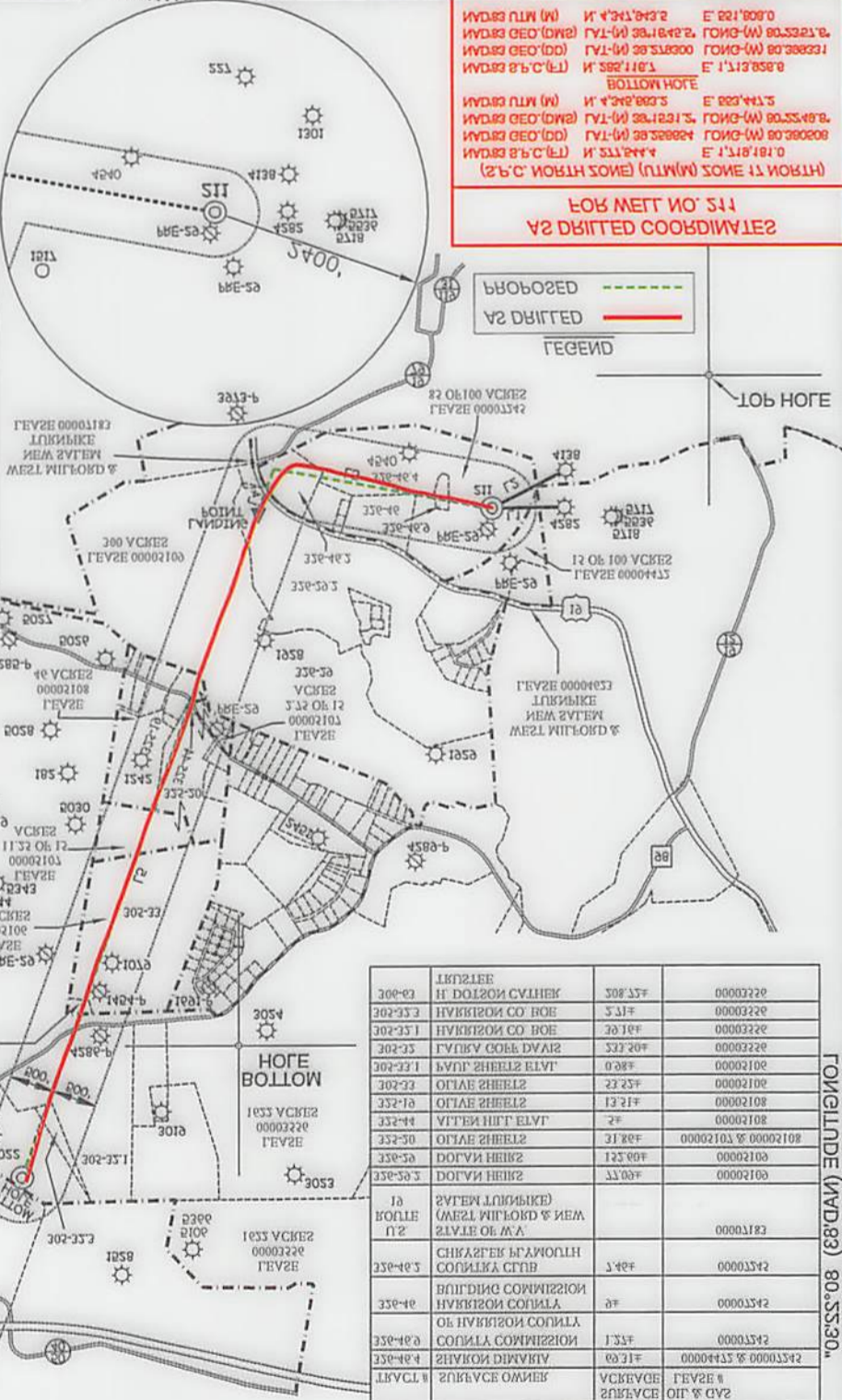


STATE COUNTY PERMIT NO. MEGT 17-033-02882
 OPERATORS MEGT NO. 511
 REVISED 08-15-10-18-10-18
 DATE JULIE 30 '10
 STATES TOPOGRAPHIC MAPS (+) DENOTES LOCATION OF MEGT ON UNITED

Land & Energy Development

MEGT 511
 CORP 2-22 PAD
 MOUNTAINEER KEYSTONE

INVD.83 UTM (N)	N 4°34'1.8544	E 221°302.2
INVD.83 GEO	UTM (N) 38°52'18.158	POINT (M) 80°38841.8
INVD.83 2°5' C (E)	N 582°024.8	E 1°143°884.4
BOTTOM HOLE		
INVD.83 UTM (N)	N 4°34'2.8822	E 223°842.4
INVD.83 GEO	UTM (N) 38°52'18.154	POINT (M) 80°38880.1
INVD.83 2°5' C (E)	N 511°282.8	E 1°141°8220.0
FOUNDING POINT		
INVD.83 UTM (N)	N 4°34'2.8823	E 223°441.5
INVD.83 GEO	UTM (N) 38°52'18.154	POINT (M) 80°38820.8
INVD.83 2°5' C (E)	N 511°244.4	E 1°141°811.0



FOR MEGT NO. 511
 AS DRILLED COORDINATES

INVD.83 UTM (N)	N 4°34'1.8544	E 221°808.0
INVD.83 GEO (DOWN)	UTM (N) 38°52'18.158	POINT (M) 80°38812.8
INVD.83 GEO (UP)	UTM (N) 38°52'18.158	POINT (M) 80°38832.1
INVD.83 2°5' C (E)	N 582°118.1	E 1°141°858.8
BOTTOM HOLE		
INVD.83 UTM (N)	N 4°34'2.8823	E 223°441.5
INVD.83 GEO (DOWN)	UTM (N) 38°52'18.154	POINT (M) 80°38848.8
INVD.83 GEO (UP)	UTM (N) 38°52'18.154	POINT (M) 80°38828.8
INVD.83 2°5' C (E)	N 511°244.4	E 1°141°811.0

LEGEND

PERMITTED MEGT	○
EXISTING MEGT	⊙
PROPOSED MEGT	⊛
STATE ROUTE	—
COUNTY ROUTE	—
LEASE LINE	—
ROAD	—
CREEK	—
DE LINE	—
OFFSET LINE	—
MEGT FUTURE	—
SURFACE LINE	—
GEVSE LINE	—

LEGEND

IN 82.04, E
 4582.04,
 12, 283108
 511 515 512 514

CORP 2-22 MEGT GALOUL

Г2	N 18.40 W	1850'80.
Г4	N 18.41 W	831'11.
Г3	2 18.30 W	5481'80.
Г5	2 05.25 E	838'28.
Г1	2 88.33 E	818'34.
LINE	BEARING	DISTANCE

511 MEGT LIES MOUNTAINEER KEYSTONE. GEVSE INFORMATION PROVIDED BY 822, OF THE CENTER OF PROPOSED MEGT PAD. > 5200 20' 1" OF DIMENSIONS WERE LOPED WITHIN PROPOSED GAS MEGT NO. 511. NO UNDESIGNED WERE LOPED WITHIN 520, OF