

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

API 47 - 103 - 02758 County Wetzel District Green  
Quad Pine Grove Pad Name Mills-Wetzel Field/Pool Name Heather  
Farm name WV Conservation Commission Well Number #17H  
Operator (as registered with the OOG) Stone Energy Corporation  
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,373,435 Easting 528,119  
Landing Point of Curve Northing 4,373,896 Easting 528,204  
Bottom Hole Northing 4,375,167 Easting 527,306

Elevation (ft) 1,293 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)  
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 6/13/2012 Date drilling commenced 11/27/2012 Date drilling ceased 7/6/2013  
Date completion activities began 9/12/2013 Date completion activities ceased 7/16/2014  
Verbal plugging (Y/N) 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 75 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1,700 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 1,030 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

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Reviewed by:  
A.L. 5/19/15  
W.S. 06/12/2015

API 47-103 - 02758 Farm name WV Conservation Commission Well number #17H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	73'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,189'	New	J55	122' & 247'	Y - CTS
Coal	17.5"	13.375"	1,189'	New	J55		Y - CTS
Intermediate 1	12.25"	9.625"	2,646'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	13,036'	New	P110		N - TOC @ 1,082'
Tubing	N/A	2.375"	7,707'	New	N80		N/A
Packer type and depth set							

Comment Details 13.375" casing string circulated 45 bbls cement to surface, 9.625" casing string circulated 52 bbls cement to surface. TOC from the CBL on 5.5" casing is @ 310'.

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	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	996	15.6	1.19	1,185	Surface	8.0
Coal	Class "A"	996	15.6	1.19	1,185	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-536 Tail-420	Lead-15.0 Tail-15.5	Lead-1.26 Tail-1.19	Lead-675 Tail-500	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-GasStop Tail-HalCem	Lead-942 Tail-1,662	Lead-15.3 Tail-15.6	Lead-1.26 Tail-1.20	Lead-1,187 Tail-1,994	310'	7.0
Tubing							

Drillers TD (ft) 13,070 MD / 7,239 TVD Loggers TD (ft) N/A  
 Deepest formation penetrated Marcellus Shale Plug back to (ft) N/A  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) 6,445 MD / 6,396 TVD

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 Surface/Coal casing had bow spring centralizers placed on joints #'s 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25 and 27. Intermediate casing had bow spring centralizers placed on joints #'s 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60 and 63. The production casing has rigid spiral alternating left/right centralizers placed beginning on joint #4 and then every fourth joint up to the top of curve at joint #144. From there bow spring centralizers were placed beginning on joint #149 and then every eighth joint calculated top of cement at joint #294. A total of 36 rigid left/right centralizers were used and 18 bow spring centralizers were used. The joint numbers begin at TD of each individual casing string and increase as you climb towards the surface.

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

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

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

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	1/20/14	12,720	12,926	72	Marcellus Shale
2	4/1/14	12,450	12,637	72	Marcellus Shale
3	4/3/14	12,194	12,370	72	Marcellus Shale
4	4/6/14	11,926	12,116	72	Marcellus Shale
5	4/7/14	11,657	11,847	72	Marcellus Shale
6	4/9/14	11,394	11,578	72	Marcellus Shale
7	4/12/14	11,132	11,327	72	Marcellus Shale
8	4/14/14	10,866	11,064	72	Marcellus Shale
9	4/15/14	10,609	10,791	72	Marcellus Shale
10	4/16/14	10,354	10,543	72	Marcellus Shale
11	4/18/14	10,099	10,273	72	Marcellus Shale
12	4/20/14	9,844	10,030	72	Marcellus Shale
13	4/22/14	9,594	9,775	72	Marcellus Shale
14	4/23/14	9,340	9,523	72	Marcellus Shale
15	4/24/14	9,090	9,273	72	Marcellus Shale
16	4/27/14	8,837	9,019	72	Marcellus Shale

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)
1	4/1/14	84.1	8,150	6,566	4,757	347,980	8,979	
2	4/3/14	82.2	8,039	6,577	4,541	420,160	9,042	
3	4/6/14	85.0	8,103	6,977	4,598	421,540	8,856	
4	4/7/14	80.5	8,363	7,325	4,902	415,800	10,982	
5	4/9/14	79.0	8,161	6,520	4,049	373,020	8,534	
6	4/12/14	85.1	7,820	6,863	4,170	421,600	8,957	
7	4/14/14	82.7	8,020	7,312	4,782	430,721	9,088	
8	4/15/14	76.6	7,687	7,226	4,782	422,344	9,104	
9	4/16/14	76.9	7,495	7,022	5,392	415,580	10,640	
10	4/18/14	80.2	7,579	6,317	4,595	297,720	7,897	
11	4/20/14	84.0	8,026	6,986	4,887	213,086	10,147	
12	4/22/14	79.4	8,068	6,857	4,782	420,400	9,084	
13	4/23/14	81.7	7,654	6,303	4,629	414,700	8,912	
14	4/24/14	85.0	7,258	7,349	4,293	419,020	8,787	
15	4/27/14	85.0	7,049	7,134	4,720	419,980	8,719	
16	4/29/14	83.5	7,356	7,617	4,720	419,700	8,983	

Please insert additional pages as applicable.

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MILL-WETZEL #17H  
 API 47-103-02758  
 Stone Energy Corporation

	Horizontal		Bottom (ft TVD)	Bottom (ft MD)
	Top (ft TVD)	Top (ft MD)		
Sandstone & Shale	Surface	*	1,030	FW @ 75'
Coal	1,030	*	1,035	
Sandstone & Shale	1,035	*	2,190	SW @ 1,700'
Little Lime	2,190	*	2,220	
Big Lime	2,220	*	2,365	
Big Injun	2,365	*	2,422	
Sandstone & Shale	2,422	*	2,851	
Berea Sandstone	2,851	*	2,881	
Shale	2,881	*	3,055	
Gordon	3,055	*	3,105	
Undiff Devonian Shale	3,105	*	5,358	
Riley Shale	5,358	*	5,465	
Benson Siltstone	5,465	*	5,713	
Pipe Creek Shale	5,713	*	5,722	
Undiff Devonian Shale	5,722	~	6,540	6,595
Rhinestreet	6,540	6,595	~ 6,705	6,772
Undiff Devonian Shale	6,705	6,772	~ 6,741	6,819
Cashaqua	6,741	6,819	~ 6,896	7,022
Middlesex	6,896	7,022	~ 7,035	7,231
West River	7,035	7,231	~ 7,155	7,448
Geneseo	7,155	7,448	~ 7,178	7,498
Tully Limestone	7,178	7,498	~ 7,202	7,553
Hamilton Shale	7,202	7,553	~ 7,269	7,754
Marcellus	7,269	7,754	~ 7,239	13,070
TD			7,239	13,070

\* From Pilot Hole Log and Driller's Log  
 ~ From MWD Gamma Log

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## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	5/4/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	4710302758H000
Operator Name:	Stone Energy
Well Name and Number:	Mills Wetzel #17H
Longitude:	528,119
Latitude:	4,373,435
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7481309

### 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
Proppant Transport	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant, Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Propping Agent, Fluid Loss	Water (Including Mix Water Supplied by Client)*	NA		89.82180%	
			Crystalline silica	14808-60-7	98.48962%	10.02447%	
			Hydrochloric acid	7647-01-0	0.83414%	0.08490%	
			Carbohydrate polymer	Proprietary	0.60817%	0.06190%	
			Ammonium sulfate	7783-20-2	0.20595%	0.02096%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06856%	0.00698%	
			Glutaraldehyde	111-30-8	0.04949%	0.00504%	
			Urea	57-13-6	0.03433%	0.00349%	
			Diammonium peroxodisulfate	7727-54-0	0.01437%	0.00146%	
			Calcium chloride	10043-52-4	0.01140%	0.00116%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00527%	0.00054%	
			Trisodium ortho phosphate	7601-54-9	0.00456%	0.00046%	
			Ethane-1,2-diol	107-21-1	0.00456%	0.00046%	
			Sodium erythorbate	6381-77-7	0.00362%	0.00037%	
			Methanol	67-56-1	0.00311%	0.00032%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00234%	0.00024%	
			Aliphatic acids	Proprietary	0.00234%	0.00024%	
			Prop-2-yn-1-ol	107-19-7	0.00078%	0.00008%	

\* 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%

Report ID: RPT-27144 (Generated on 5/14/2014 4:48 PM)

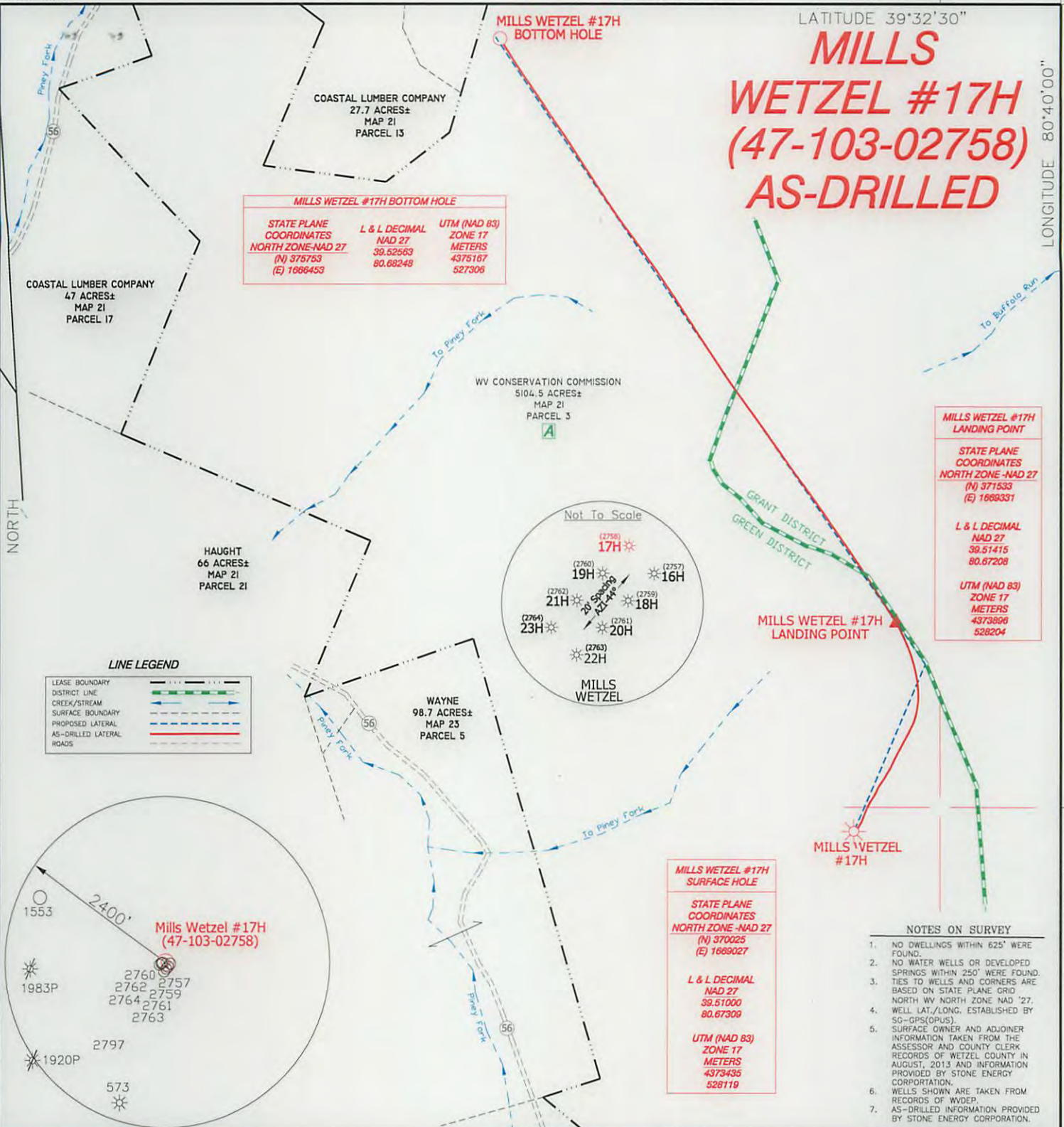
All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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# MILLS WETZEL #17H (47-103-02758) AS-DRILLED



**MILLS WETZEL #17H BOTTOM HOLE**

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE-NAD 27	NAD 27	ZONE 17
(N) 375753	39.52563	METERS
(E) 1666453	80.68248	4375167
		527306

**MILLS WETZEL #17H LANDING POINT**

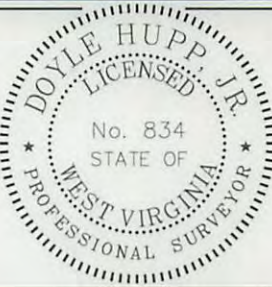
STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE-NAD 27	NAD 27	ZONE 17
(N) 371533	39.51415	METERS
(E) 1669331	80.67208	4373896
		528204

**MILLS WETZEL #17H SURFACE HOLE**

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE-NAD 27	NAD 27	ZONE 17
(N) 370025	39.51000	METERS
(E) 1669027	80.67309	4373435
		528119

- NOTES ON SURVEY**
- NO DWELLINGS WITHIN 625' WERE FOUND.
  - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
  - TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
  - WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
  - SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN AUGUST, 2013 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
  - WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.
  - AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

DATE DECEMBER 15, 2014

OPERATORS WELL NO. MILLS WETZEL #17H

API WELL NO. 47-103-02758

STATE COUNTY PERMIT

P.S. 834

*Doyle Hupp, Jr.*

**HUPP Surveying & Mapping**  
P.O. Box 647 Grantsville, WV 26147  
(304) 354-7035 EMAIL: hupp@frontiernet.net

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W1719 (BK75-3)

PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 1000'

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

WELL TYPE : OIL \_\_\_ GAS X INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ IF "GAS" PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X

LOCATION :  
ELEVATION 1293' WATERSHED TRIBUTARY OF PINEY FORK

DISTRICT GREEN COUNTY WETZEL QUADRANGLE PINE GROVE 7.5'

SURFACE OWNER WEST VIRGINIA CONSERVATION COMMISSION ACREAGE 5104.5 ±

ROYALTY OWNER MILLS WETZEL LAND Inc. LEASE ACREAGE 5104.5± **06/12/2015**

PROPOSED WORK : LEASE NO. \_\_\_\_\_

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 7,240' TVD 13,070' MD

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR

ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508