

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

API 47-103-02757 County Wetzel District Green
Quad Pine Grove Pad Name Mills-Wetzel Field/Pool Name Heather
Farm name WV Conservation Commission Well Number #16H
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 4,373,429 Easting 528,123
Landing Point of Curve Northing 4,373,258 Easting 528,504
Bottom Hole Northing 4,371,345 Easting 529,702

Elevation (ft) 1,291 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 10/05/2012 Date drilling ceased 5/11/2013
Date completion activities began 9/3/2013 Date completion activities ceased 5/28/2014
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 70 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,629 Void(s) encountered (Y/N) depths Received
Coal depth(s) ft 1,035 Cavern(s) encountered (Y/N) depths Office of Oil & Gas
Is coal being mined in area (Y/N) N

FEB 26 2015
Reviewed by:
A.L. 5/19/15
W.S. 6/12/15
06/12/2015

API 47-103 - 02757 Farm name WV Conservation Commission Well number #16H

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"	65'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,273'	New	J55	131' & 219'	Y - CTS
Coal	17.5"	13.375"	1,273'	New	J55	131' & 219'	Y - CTS
Intermediate 1	12.25"	9.625"	2,773'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	14,798'	New	P110		N - TOC @ 382'
Tubing	N/A	2.375"	7,771'	New	N80		N/A
Packer type and depth set							

Comment Details The cement on the 13-3/8" surface/coal string did not circulate but the annulus was grouted from surface.

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	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	1,038	15.6	1.19	1,235	Surface	8.0
Coal	Class "A"	1,038	15.6	1.19	1,235	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-552 Tail-406	Lead-15.0 Tail-15.5	Lead-1.26 Tail-1.19	Lead-696 Tail-483	Surface	10.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-874 Tail-2,095	Lead-15.0 Tail-15.4	Lead-1.25 Tail-1.22	Lead-1,093 Tail-2,556'	219'	7.0
Tubing							

Drillers TD (ft) 14,810 MD / 7,390 TVD Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Shale Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 5,907 MD/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, 20, 22, 24 and 26. Intermediate casing had bow spring centralizers placed on joints #'s 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 40, 43, 46, 49, 52, 55, 58 and 62. Production casing had left/right rigid spiral centralizers placed beginning on joint #1 and then every fourth joint up to the top of curve at joint #209. From there bow spring centralizers were placed beginning on joint #213 and then every fourth joint to the calculated top of cement at joint #313. A total of 53 rigid left/right centralizers were used and 26 bow spring centralizers were used. The joint numbers begin at the 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	9/9/13	14,508	14,699	72	Marcellus Shale
2	11/20/13	14,238	14,431	72	Marcellus Shale
3	11/21/13	13,965	14,156	72	Marcellus Shale
4	11/22/13	13,695	13,892	72	Marcellus Shale
5	11/23/13	13,427	13,621	72	Marcellus Shale
6	11/27/13	13,160	13,351	72	Marcellus Shale
7	11/28/13	12,895	13,092	72	Marcellus Shale
8	11/29/13	12,630	12,827	72	Marcellus Shale
9	11/30/13	12,365	12,562	72	Marcellus Shale
10	12/1/13	12,100	12,296	72	Marcellus Shale
11	12/2/13	11,836	12,026	72	Marcellus Shale
12	12/3/13	11,570	11,766	72	Marcellus Shale
13	12/4/13	11,305	11,507	72	Marcellus Shale
14	12/5/13	11,041	11,237	72	Marcellus Shale
15	12/6/13	10,780	10,970	72	Marcellus Shale
16	12/7/13	10,500	10,707	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	11/20/13	85.2	8,261	6,105	4,205	212,240	7,507	
2	11/21/13	85.7	8,269	6,509	4,562	404,900	8,913	
3	11/22/13	85.7	8,031	6,420	4,112	413,880	9,130	
4	11/23/13	85.4	8,179	6,532	4,300	410,100	8,580	
5	11/27/13	82.2	8,326	7,082	5,017	363,540	8,354	
6	11/28/13	83.2	8,431	7,892	4,753	416,080	9,833	
7	11/29/13	80.7	8,439	6,269	4,641	407,460	9,946	
8	11/30/13	84.7	8,403	6,489	4,641	250,240	7,228	
9	12/1/13	84.8	8,109	6,706	4,185	409,960	8,544	
10	12/2/13	80.2	8,271	6,724	4,450	409,780	8,528	
11	12/3/13	80.2	7,720	6,899	4,752	405,920	8,516	
12	12/4/13	81.1	7,612	6,458	4,741	416,580	8,515	
13	12/5/13	77.5	7,862	7,469	4,488	295,780	7,560	
14	12/6/13	80.4	7,515	6,640	4,150	420,290	8,522	
15	12/7/13	80.0	7,509	7,390	4,602	416,180	8,513	
16	12/7/13	78.6	7,806	6,564	4,564	408,300	8,617	

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	12/7/13	10,235	10,431	72	Marcellus Shale
18	12/8/13	9,925	10,185	72	Marcellus Shale
19	12/9/13	9,715	9,906	72	Marcellus Shale
20	12/10/13	9,450	9,646	72	Marcellus Shale
21	12/10/13	9,188	9,381	72	Marcellus Shale
22	12/13/13	8,919	9,116	72	Marcellus Shale
23	12/13/13	8,655	8,851	72	Marcellus Shale
24	12/14/13	8,391	8,591	72	Marcellus Shale
25	12/14/13	8,111	8,316	72	Marcellus Shale
26	12/15/13	7,834	8,042	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)
17	12/8/13	79.8	7,832	6,674	5,397	410,960	8,466	
18	12/9/13	80.0	7,697	6,375	6,038	301,980	7,661	
19	12/10/13	79.2	7,612	6,612	3,923	408,600	8,433	
20	12/10/13	78.9	7,601	6,806	4,150	408,600	8,527	
21	12/11/13	69.8	8,161	6,766	Screened	90,147	8,630	
22	12/13/13	79.9	7,552	6,551	4,261	281,820	8,164	
23	12/14/13	80.4	7,272	6,259	4,488	412,199	8,397	
24	12/14/13	80.2	7,256	5,923	4,676	409,360	8,313	
25	12/15/13	78.5	7,941	6,680	4,941	409,300	4,309	
26	12/16/13	79.3	7,455	6,188	4,223	411,800	8,251	

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Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus Shale</u>	<u>7,303' to 7,388'</u> TVD	<u>7,834 to 14,699'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 2,258 psi Bottom Hole 4,516 calculated psi DURATION OF TEST 170 hrs
 OPEN FLOW Gas 4,438 mcfpd Oil _____ bpd NGL 19.0 bpd Water 298 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	
	<u>0</u>		<u>0</u>		
See Attached Sheet	<u>Page 6 of 14</u>				

Please insert additional pages as applicable.

Drilling Contractor Nomac Drilling (top-hole) & Saxon Drilling (horizontal)
 Address 171 Locust Ave. Ext. / 9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 15349 / 77381
 Logging Company Scientific Drilling and Schlumberger
 Address 116 Vista Dr. / 1178 US HWY 33 East City Charleroi / Weston State PA / WV Zip 15022 / 26452
 Cementing Company Schlumberger
 Address 1178 US HWY 33 East City Weston State WV Zip 26452
 Stimulating Company Schlumberger
 Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

Completed by W. Lee Hornsby Telephone 304-225-1600
 Signature *W. Lee Hornsby* Title Drilling Engineer Date 2/24/2015
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MILL-WETZEL #16H
 API 47-103-02757
 Stone Energy Corporation

	Horizontal		Bottom (ft TVD)	Bottom (ft MD)
	Top (ft TVD)	Top (ft MD)		
Sandstone & Shale	Surface	*	1,035	FW @ 70'
Coal	1,035	*	1,040	
Sandstone & Shale	1,040	*	2,190	SW @ 1,629'
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	~	6,235	6,285
Rhinestreet	6,235	6,285	~ 6,534	6,565
Undiff Devonian Shale	6,534	6,565	~ 6,797	6,877
Cashaqua	6,797	6,877	~ 6,903	7,010
Middlesex	6,903	7,010	~ 7,074	7,243
West River	7,074	7,243	~ 7,174	7,419
Geneseo	7,174	7,419	~ 7,192	7,456
Tully Limestone	7,192	7,456	~ 7,221	7,512
Hamilton Shale	7,221	7,512	~ 7,280	7,706
Marcellus	7,280	7,706	~ 7,390	14,810
TD			7,390	14,810

* 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:	12/16/2013
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02757
Operator Name:	Stone Energy
Well Name and Number:	Mills Wetzel #16H
Longitude:	528,123
Latitude:	4,373,429
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	9069368

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
H015%, Slickwater, WF115, Sapphire VF105	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, AntiFoam Agent, Surfactant, Acid, Breaker, Gelling Agent, Friction Reducer, Rheology Modifier, Iron Control Agent, Clay Control Agent, Accelerator, Fluid Loss Additive, Propping	Water (Including Mix Water Supplied by Client)*	NA		88.51275%	
			Crystalline silica	14808-60-7	98.25484%	11.28678%	
			Hydrochloric acid	7647-01-0	0.86826%	0.09974%	
			Carbohydrate polymer	Proprietary	0.42800%	0.04917%	
			Ammonium sulfate	Proprietary	0.21420%	0.02461%	
			Fatty acid amidoalkyl betaine	Proprietary	0.12133%	0.01394%	
			Propan-2-ol	67-63-0	0.09136%	0.01049%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.07413%	0.00852%	
			Calcium chloride	10043-52-4	0.06084%	0.00699%	
			Glutaraldehyde	111-30-8	0.05726%	0.00658%	
			Diammonium peroxidisulphate	7727-54-0	0.01917%	0.00220%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00570%	0.00066%	
			Polypropylene glycol	25322-69-4	0.00395%	0.00045%	
			Ethane-1,2-diol	107-21-1	0.00362%	0.00042%	
			Trisodium ortho phosphate	7601-54-9	0.00362%	0.00042%	
			Methanol	67-56-1	0.00341%	0.00039%	
			Sodium erythorbate	6381-77-7	0.00275%	0.00032%	
			Aliphatic acids	Proprietary	0.00256%	0.00029%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00256%	0.00029%	
			Sulfonated polystyrene	Proprietary	0.00242%	0.00028%	
			Prop-2-yn-1-ol	107-19-7	0.00085%	0.00010%	

* 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-23501 (Generated on 1/23/2014 4:16 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 #16H (47-103-02757) AS-DRILLED

**MILLS WETZEL #16H
SURFACE HOLE**

STATE PLANE
COORDINATES
NORTH ZONE -NAD 27
(N) 370011
(E) 166041

L & L DECIMAL
NAD 27
39.50997
80.67304

UTM (NAD 83)
ZONE 17
METERS
4373431
528123

LINE LEGEND

LEASE BOUNDARY	---
DISTRICT LINE	---
CREEK/STREAM	---
ROADS	---
PROPOSED LATERAL	---
AS-DRILLED LATERAL	---

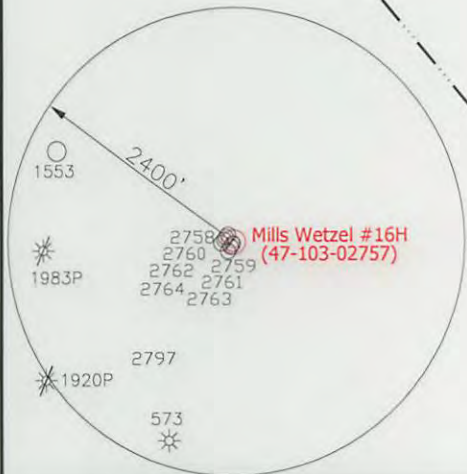
WV CONSERVATION COMMISSION
5104.5 ACRES±
MAP 21
PARCEL 3

**MILLS WETZEL #16H
LANDING POINT**

STATE PLANE
COORDINATES
NORTH ZONE -NAD 27
(N) 369430
(E) 1670282

L & L DECIMAL
NAD 27
39.50841
80.66861

UTM (NAD 83)
ZONE 17
METERS
4373260
528504



- 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 WDEP.
 - AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

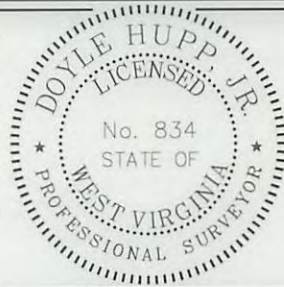
MILLS WETZEL #16H BOTTOM HOLE

STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 363720 (E) 1674117	L & L DECIMAL NAD 27 39.49290 80.65476	UTM (NAD 83) ZONE 17 METERS 4371543 529702
------------------------------------------------------------------------------	-------------------------------------------------	--------------------------------------------------------

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.

P.S. 834

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



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

DATE DECEMBER 15, 20 14

OPERATORS WELL NO. MILLS WETZEL #16H

API WELL NO. 47-103-02757
STATE COUNTY PERMIT

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 LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

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 7,390' TVD 14810' 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

COUNTY NAME
PERMIT