

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

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Office of Oil and Gas

FEB 12 2015

WV Department of
Environmental Protection

API 47-103-02838 County Wetzel District Green
Quad Porters Falls Pad Name Howell Field/Pool Name Mary
Farm name Howell, Charles and Ruth Well Number #5H
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 4,383,197 Easting 517,662
Landing Point of Curve Northing 4,382,502 Easting 517,431
Bottom Hole Northing 4,384,341 Easting 516,412

Elevation (ft) 1,302 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 10/31/2012 Date drilling commenced 2/8/2013 Date drilling ceased 9/29/2013
Date completion activities began 1/30/2014 Date completion activities ceased 8/6/2014
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 296 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1302 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 950 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:
A.L. 3/9/15
W.S. 6/11/15
06/12/2015

WV Department of

API 47- 103 - 02838

Farm name Howell, Charles and Ruth

Well number #5H

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	24"	20"	97'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,287' KB 1,272' GL	New	J55	120' & 200'	Y - CTS
Coal	17.5"	13.375"	1,287' KB 1,272' GL	New	J55	120' & 200'	Y - CTS
Intermediate 1	12.25"	9.625"	2,485'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,477'	New	P110		N - TOC @ 960'
Tubing	N/A	2.375"	7,303'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 32 bbls cement to surface on the 13-3/8". Circulated 46 bbls cement to surface on the 9.625". Cement top on the 5.5" production casing is at 960'.

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"	990	15.6	1.19	1,178	Surface	8.0
Coal	Class "A"	990	15.6	1.19	1,178	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-430 Tail-420	Lead-15.0 Tail-15.5	Lead-1.27 Tail-1.19	Lead-546 Tail-500	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-GasStop Tail-Class "A"	Lead-910 Tail-1,590	Lead-15.0 Tail-15.6	Lead-1.26 Tail-1.2	Lead-1,147 Tail-1,908	960'	8.0
Tubing							

Drillers TD (ft) 12,486 MD / 6,942 TVD

Loggers TD (ft) N/A

Deepest formation penetrated Marcellus Shale

Plug back to (ft) _____

Plug back procedure _____

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Kick off depth (ft) 6,146 MD / 6,115 TVD

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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 Surface/Coal casing had bow spring centralizers placed on joints #s 2, 4, 8, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, and 31. 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 and 54. One straight blade rigid centralizer was placed on joint #57. Production casing had left/right rigid spiral centralizers were placed beginning on joint #1 and then every fourth joint up to the top of curve at joint #192. From there bow spring centralizers were placed beginning on joint #200 and then every tenth joint up to joint #278. A total of 49 rigid left/right centralizers were used and 9 bow spring centralizers were used.
 The joint numbers begin at TD of each individual casing string and increase as you increase as you come up the hole.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

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API 47- 103 - 02838 Farm name Howell, Charles and Ruth Well number #5H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	2/9/14	12,101	12,230	72	Marcellus Shale
2	2/22/14	11,831	12,023	72	Marcellus Shale
3	2/25/14	11,553	11,751	72	Marcellus Shale
4	2/27/14	11,292	11,483	72	Marcellus Shale
5	3/2/14	11,030	11,216	72	Marcellus Shale
6	3/6/14	10,771	10,962	72	Marcellus Shale
7	3/7/14	10,511	10,702	72	Marcellus Shale
8	3/8/14	10,251	10,443	72	Marcellus Shale
9	3/9/14	9,988	10,183	72	Marcellus Shale
10	3/11/14	9,722	9,923	72	Marcellus Shale
11	3/12/14	9,463	9,650	72	Marcellus Shale
12	3/13/14	9,201	9,393	72	Marcellus Shale
13	3/14/14	8,941	9,133	72	Marcellus Shale
14	3/15/14	8,684	8,873	72	Marcellus Shale
15	3/17/14	8,421	8,613	72	Marcellus Shale
16	3/18/14	8,161	8,351	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 (bbbls)	Amount of Nitrogen/other (units)
1	2/22/14	81.4	7,888	6,595	5,350	360,005	344,881	
2	2/25/14	80.9	7,881	6,318	4,977	369,620	352,586	
3	2/27/14	85.2	8,032	6,450	4,575	405,640	345,320	
4	3/2/14	83.5	8,025	7,271	5,148	394,160	339,171	
5	3/5/14	84.5	8,196	7,297	4,775	345,880	426,337	
6	3/7/14	85.4	7,970	7,086	5,492	404,380	341,929	
7	3/8/14	80.3	7,561	6,205	5,177	405,380	343,751	
8	3/9/14	80.6	7,680	6,530	5,320	410,480	342,607	
9	3/10/14	78.8	7,725	6,325	5,807	411,900	358,670	
10	3/12/14	80.3	7,990	6,790	5,550	413,540	341,857	
11	3/13/14	77.9	7,949	6,374	5,006	410,770	344,465	
12	3/14/14	78.4	7,526	6,354	4,920	407,820	342,441	
13	3/15/14	78.3	7,439	6,903	4,890	410,780	338,454	
14	3/17/14	80.6	7,354	6,500	4,690	408,677	342,161	
15	3/18/14	80.4	6,907	6,015	4,805	401,622	338,148	
16	3/19/14	80.5	7,142	6,630	5,551	411,845	336,695	

Please insert additional pages as applicable.

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HOWELL #5H
 API 47-103-02838
 Stone Energy Corporation

	Horizontal			Bottom (ft TVD)	Bottom (ft MD)
	Top (ft TVD)	Top (ft MD)			
Sandstone & Shale	Surface		*	950	FW @ 296
Coal	950		*	953	
Sandstone & Shale	953		*	2,146	SW @ 1,302
Little Lime	2,146		*	2,200	
Big Lime	2,200		*	2,253	
Big Injun	2,253		*	2,296	
Sandstone & Shale	2,296		*	2,851	
Berea Sandstone	2,851		*	2,881	
Shale	2,881		*	3,045	
Gordon	3,045		*	3,095	
Undiff Devonian Shale	3,095		*	5,942	5,973
Rhinestreet	5,942	5,973	~	6,654	6,705
Cashaqua	6,654	6,705	~	6,776	6,860
Middlesex	6,776	6,860	~	6,811	6,909
West River	6,811	6,909	~	6,891	7,038
Geneseo	6,891	7,038	~	6,908	7,071
Tully Limestone	6,908	7,071	~	6,939	7,132
Hamilton Shale	6,939	7,132	~	6,985	7,250
Marcellus	6,985	7,250	~	6,942	12,486
TD				6,942	12,486

* 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:	3/25/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	
Operator Name:	Stone Energy
Well Name and Number:	Howell 5H
Longitude:	
Latitude:	
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	6596661

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	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, AntiFoam Agent, Surfactant, Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Accelerator, Fluid Loss Additive, Propping	Water (Including Mix Water Supplied by Client)*	NA		87.68013%	
			Crystalline silica	14808-60-7	98.24383%	12.10352%	
			Hydrochloric acid	7647-01-0	0.81677%	0.10063%	
			Carbohydrate polymer	Proprietary	0.51532%	0.06349%	
			Ammonium sulfate	Proprietary	0.17964%	0.02213%	
			Calcium chloride	10043-52-4	0.16057%	0.01978%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06593%	0.00812%	
			Glutaraldehyde	111-30-8	0.05374%	0.00662%	
			Diammonium peroxodisulfate	7727-54-0	0.02365%	0.00291%	
			Amine derivative	Proprietary	0.00845%	0.00104%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00507%	0.00062%	
			Ethane-1,2-diol	107-21-1	0.00381%	0.00047%	
			Trisodium ortho phosphate	7601-54-9	0.00381%	0.00047%	
			Methanol	67-56-1	0.00349%	0.00043%	
			Sodium erythorbate	6381-77-7	0.00284%	0.00035%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00262%	0.00032%	
			Aliphatic acids	Proprietary	0.00262%	0.00032%	
			Prop-2-yn-1-ol	107-19-7	0.00087%	0.00011%	
			Polypropylene glycol	25322-69-4	0.00052%	0.00006%	

* 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-25891 (Generated on 3/31/2014 10:56 AM)

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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HOWELL #5H (47-103-02838) AS-DRILLED

HOWELL #5H BOTTOM HOLE

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 406458	39.80858	METERS
(E) 1631206	80.80900	4384341
		516412

HOWELL PAD
Next To Scale
AZI-354'-20" SPACING

7H (2794)	9H (2796)
5H (2838)	10H (2797)
3H (2799)	
1H (2796)	6H (2860)
2H (2859)	4H (2858)
8H-R (2920)	

HOWELL #5H SURFACE HOLE

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 401743	39.59580	METERS
(E) 1635232	80.79447	4382926
		517662

HOWELL #5H LANDING POINT

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 402647	39.59826	METERS
(E) 1634490	80.79715	4383197
		517431

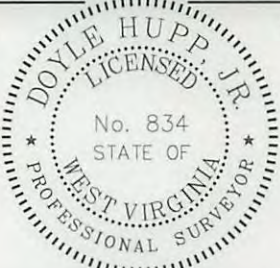


- NOTES ON SURVEY**
1. NO DWELLINGS WITHIN 625' WERE FOUND.
 2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
 3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
 4. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
 5. SURFACE OWNER AND ADJONER INFORMATION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

LINE LEGEND

LEASE BOUNDARY	--- --
SURFACE BOUNDARY	--- --
CREEK/STREAM	— — — —
ROADS	— — — —
PROPOSED LATERAL	— — — —
AS-DRILLED LATERAL	— — — —

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 OCTOBER 22, 20 14
 OPERATORS WELL NO. HOWELL #5H
 API WELL NO. 47-103-02838
 STATE COUNTY PERMIT

P.S. 834

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. W2208 (BK 64-54)
 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 LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
 ELEVATION 1304' WATERSHED FISHING CREEK
 DISTRICT GREEN COUNTY WETZEL QUADRANGLE PORTERS FALLS 7.5'

SURFACE OWNER CHARLES & RUTH HOWELL ACREAGE 51±
 ROYALTY OWNER CHARLES & RUTH HOWELL, et al LEASE ACREAGE 404.02± **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 TVD 6,942' MD 12,486'

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