

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

API 47-103-02796 County Wetzel District Green  
Quad Porters Falls Pad Name Howell Field/Pool Name Mary  
Farm name Howell, Charles and Ruth Well Number #9H  
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 4,382,932 Easting 517,667  
Landing Point of Curve Northing 4,383,563 Easting 517,737  
Bottom Hole Northing 4,384,714 Easting 516,721

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 9/26/2012 Date drilling commenced 2/27/2013 Date drilling ceased 12/9/2013  
Date completion activities began 2/5/2014 Date completion activities ceased 8/8/2014  
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 90 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1,302 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 1,084 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

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Reviewed by:  
A.L. S/9/15  
W.S. 6/10/15  
**06/12/2015**

API 47-103 - 02796 Farm name Howell, Charles and Ruth Well number #9H

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"	80'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,308' KB 1,293' GL	New	J55	100'	Y - CTS
Coal	17.5"	13.375"	1,308' KB 1,293' GL	New	J55	100'	Y - CTS
Intermediate 1	12.25"	9.625"	2,478'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	13,079'	New	P110		N - TOC @ 1,300'
Tubing	N/A	2.375"	7,763'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 43 bbls cement to surface on the 13.375". Circulated 60 bbls cement to surface on the 9.625". Cement top on the 5.5" production casing is at 1,300'.

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"	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-428 Tail-420	Lead-15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-539 Tail-500	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-GasStop Tail-HalCem	Lead-910 Tail-1,760	Lead-15.3 Tail-15.6	Lead-1.26 Tail-1.20	Lead-1,147 Tail-2,112	1,300'	8.0
Tubing							

Drillers TD (ft) 13,080 MD / 6,942 TVD Loggers TD (ft) N/A  
 Deepest formation penetrated Marcellus Shale Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) 6,108 MD / 6,021 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 2, 5, 8, 11, 14, 17, 20, 23, 26 and 29. Intermediate casing had bow spring centralizers placed on joints #s 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53, 56 and 59. 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 #244. From there bow spring centralizers were placed beginning on joint #256 and then every eighth joint up to joint #296. A total of 61 rigid left/right centralizers were used and 7 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.

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WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS Office of Oil and Gas

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS FEB 12 2015

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED WV Department of Environmental Protection

API 47- 103 - 02796

Farm name Howell, Charles and Ruth

Well number #9H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	2/16/14	12,791	12,961	72	Marcellus Shale
2	2/21/14	12,520	12,713	72	Marcellus Shale
3	2/22/14	12,252	12,441	72	Marcellus Shale
4	2/23/14	11,980	12,178	72	Marcellus Shale
5	2/26/14	11,708	11,900	72	Marcellus Shale
6	3/1/14	11,436	11,633	72	Marcellus Shale
7	3/5/14	11,176	11,373	72	Marcellus Shale
8	3/6/14	10,924	11,113	72	Marcellus Shale
9	3/7/14	10,661	10,853	72	Marcellus Shale
10	3/8/14	10,401	10,593	72	Marcellus Shale
11	3/10/14	10,150	10,331	72	Marcellus Shale
12	3/11/14	9,897	10,083	72	Marcellus Shale
13	3/13/14	9,641	9,833	72	Marcellus Shale
14	3/16/14	9,379	9,573	72	Marcellus Shale
15	3/17/14	9,131	9,313	72	Marcellus Shale
16	3/18/14	8,869	9,060	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	2/21/14	82.0	8,203	6,638	4,775	355,400	333,626	
2	2/22/14	83.2	8,272	6,441	5,464	404,829	351,205	
3	2/23/14	83.4	7,889	6,808	5,522	410,380	351,145	
4	2/26/14	83.0	7,932	6,754	5,405	415,400	351,436	
5	3/1/14	85.7	7,750	6,797	4,603	389,040	344,382	
6	3/5/14	84.0	7,910	6,948	4,954	379,460	342,623	
7	3/6/14	80.4	7,505	6,030	4,976	415,540	349,635	
8	3/7/14	80.5	7,428	6,185	4,458	415,240	342,680	
9	3/8/14	80.5	7,508	6,610	5,291	414,480	341,031	
10	3/10/14	80.0	7,493	6,994	5,865	408,040	346,546	
11	3/11/14	80.2	7,602	7,276	4,918	418,740	354,025	
12	3/13/14	78.7	7,553	6,979	4,506	407,880	345,569	
13	3/15/14	79.9	7,351	6,359	4,231	411,620	348,558	
14	3/17/14	80.8	7,091	5,980	4,345	405,690	340,597	
15	3/18/14	80.4	7,211	6,461	4,373	410,100	344,553	
16	3/19/14	79.3	7,356	7,138	4,118	411,518	339,552	

Please insert additional pages as applicable.

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HOWELL #9H  
 API 47-103-02796  
 Stone Energy Corporation

	Horizontal			Bottom (ft TVD)	Bottom (ft MD)
	Top (ft TVD)	Top (ft MD)			
Sandstone & Shale	Surface		*	1,084	FW @ 90
Coal	1,084		*	1,087	
Sandstone & Shale	1,087		*	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		*	6,298	6,404
Rhinestreet	6,298	6,404	~	6,623	6,818
Cashaqua	6,623	6,818	~	6,819	7,155
Middlesex	6,819	7,155	~	6,832	7,183
West River	6,832	7,183	~	6,895	7,335
Geneseo	6,895	7,335	~	6,912	7,389
Tully Limestone	6,912	7,389	~	6,943	7,507
Hamilton Shale	6,943	7,507	~	6,993	7,742
Marcellus	6,993	7,742	~	6,942	13,080
TD				6,942	13,080

\* 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:	3/24/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	
Operator Name:	Stone Energy
Well Name and Number:	Howell 9H
Longitude:	
Latitude:	
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	6868476

## 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		87.55245%	
			Crystalline silica	14808-60-7	98.28706%	12.23433%	
			Hydrochloric acid	7647-01-0	0.81222%	0.10110%	
			Carbohydrate polymer	Proprietary	0.49477%	0.06159%	
			Ammonium sulfate	Proprietary	0.18685%	0.02326%	
			Calcium chloride	10043-52-4	0.13392%	0.01667%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06005%	0.00748%	
			Glutaraldehyde	111-30-8	0.05293%	0.00659%	
			Diammonium peroxydisulfate	7727-54-0	0.02263%	0.00282%	
			Amine derivative	Proprietary	0.01689%	0.00210%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00462%	0.00058%	
			Ethane-1,2-diol	107-21-1	0.00370%	0.00046%	
			Trisodium ortho phosphate	7601-54-9	0.00370%	0.00046%	
			Methanol	67-56-1	0.00335%	0.00042%	
			Sodium erythorbate	6381-77-7	0.00285%	0.00035%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00251%	0.00031%	
			Aliphatic acids	Proprietary	0.00251%	0.00031%	
			Prop-2-yn-1-ol	107-19-7	0.00084%	0.00010%	
			Polypropylene glycol	25322-69-4	0.00028%	0.00004%	

\* 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%

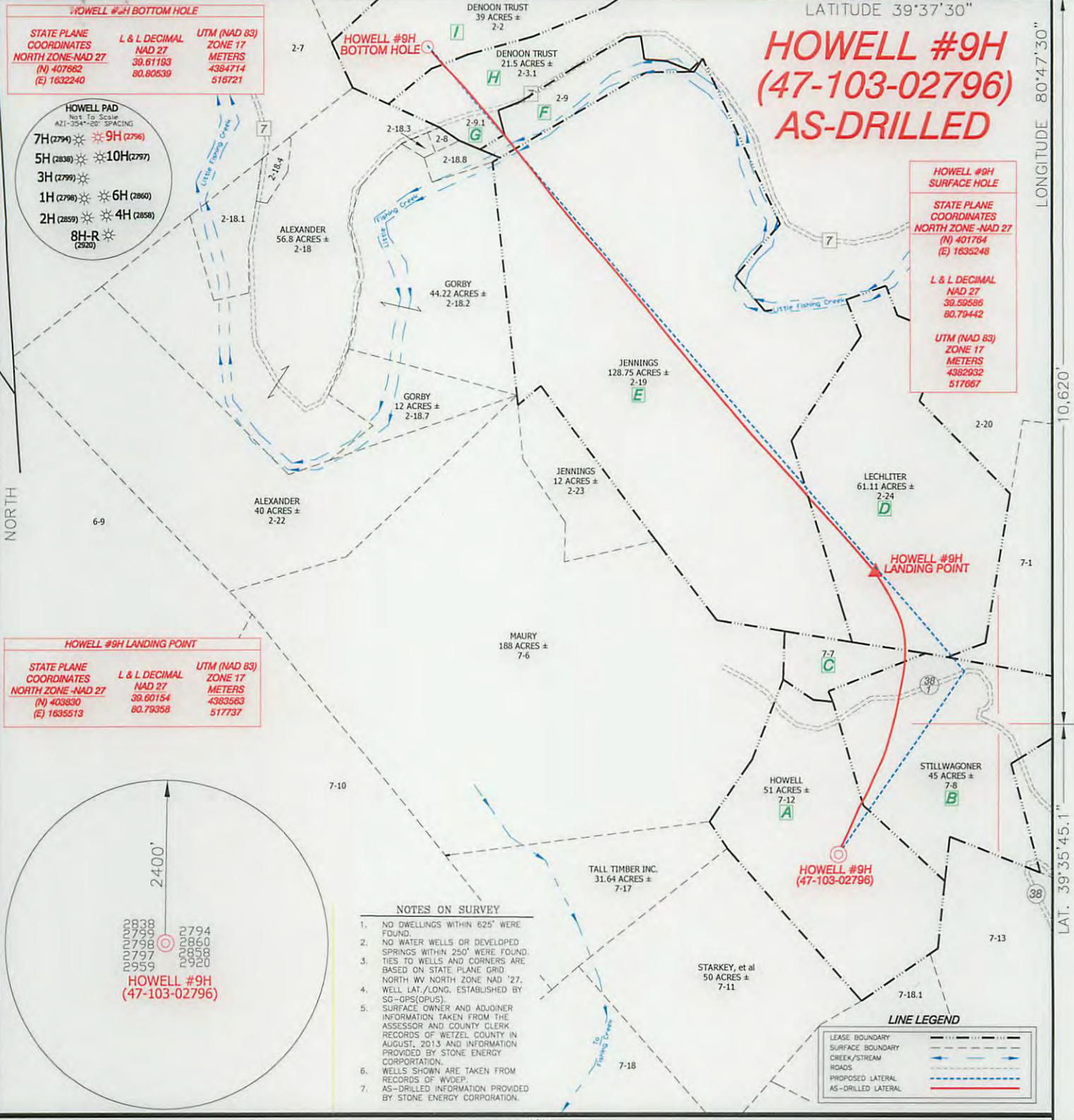
Report ID: RPT-25897 (Generated on 3/31/2014 11:00 AM)

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 #9H BOTTOM HOLE**

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 407862	39.61193	METERS
(E) 1632240	80.80639	4384714
		516721

**HOWELL PAD**  
Next To Scale  
AZI-354-000 SPACING

7H (2794)	9H (2796)
5H (2838)	10H (2797)
3H (2799)	
1H (2798)	6H (2860)
2H (2859)	4H (2858)
8H-R (2920)	

**HOWELL #9H**  
**(47-103-02796)**  
**AS-DRILLED**

**HOWELL #9H SURFACE HOLE**

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 401704	39.59586	METERS
(E) 1633248	80.79442	4382932
		517667

**HOWELL #9H LANDING POINT**

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 403830	39.60154	METERS
(E) 1635513	80.79358	4383583
		517737



- 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-OPUS.
  5. 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.
  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 #9H  
 API WELL NO. 47-103-02796  
 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 360.84± **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 13,080'

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