

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

WV Department of
Environmental Protection

API 47-103-02799 County Wetzel District Green
Quad Porters Falls Pad Name Howell Field/Pool Name Mary
Farm name Howell, Charles and Ruth Well Number #3H
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 4,382,919 Easting 517,663
Landing Point of Curve Northing 4,383,011 Easting 517,251
Bottom Hole Northing 4,388,242 Easting 516,137

Elevation (ft) 1,300 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 1/28/2013 Date drilling ceased 9/20/2013
Date completion activities began 1/30/2014 Date completion activities ceased 3/25/2014
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 100 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,301 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,068 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
A.H. 5/19/15
W.S. 6/11/15
06/12/2015

API 47-103 - 02799 Farm name Howell, Charles and Ruth Well number #3H

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"	79'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,302' KB 1,287' GL	New	J55	132' & 263'	Y - CTS
Coal	17.5"	13.375"	1,302' KB 1,287' GL	New	J55	132' & 263'	Y - CTS
Intermediate 1	12.25"	9.625"	2,449'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	13,029'	New	P110		N - TOC @ 672'
Tubing	N/A	2.375"	7,902'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 46 bbls cement to surface on the 13-3/8". Circulated 42 bbls cement to surface on the 9.625". Cement top on the 5.5" production casing is at 984'.

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-456 Tail-420	Lead-15.0 Tail-15.5	Lead-1.27 Tail-1.19	Lead-579 Tail-500	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-GasStop Tail-HalCem	Lead-880 Tail-1,760	Lead-15.3 Tail-15.6	Lead-1.26 Tail-1.20	Lead-1,108 Tail-2,112	672'	8.0
Tubing							

Drillers TD (ft) 13,032 MD / 6,967 TVD Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Shale Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 5,973 MD / 5,939 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, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 and 24. Intermediate casing had bow spring centralizers placed on joints #s 3, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53 and 56. One straight blade rigid centralizer was placed on joint #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 #164. From there bow spring centralizers were placed beginning on joint #170 and then every tenth joint with a left/right rigid spiral centralizers placed in between to joint #290. A total of 49 rigid left/right centralizers were used and 13 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 **RECEIVED**
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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 - 02799 Farm name Howell, Charles and Ruth Well number #3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	2/8/14	12,738	12,930	72	Marcellus Shale
2	2/21/14	12,470	12,662	72	Marcellus Shale
3	2/22/14	12,200	12,389	72	Marcellus Shale
4	2/24/14	11,934	12,123	72	Marcellus Shale
5	2/25/14	11,672	11,863	72	Marcellus Shale
6	2/28/14	11,407	11,600	72	Marcellus Shale
7	3/2/14	11,144	11,333	72	Marcellus Shale
8	3/4/14	10,874	11,073	72	Marcellus Shale
9	3/5/14	10,611	10,803	72	Marcellus Shale
10	3/8/14	10,344	10,543	72	Marcellus Shale
11	3/9/14	10,081	10,267	72	Marcellus Shale
12	3/11/14	9,821	10,005	72	Marcellus Shale
13	3/12/14	9,556	9,748	72	Marcellus Shale
14	3/13/14	9,304	9,493	72	Marcellus Shale
15	3/15/14	9,051	9,243	72	Marcellus Shale
16	3/16/14	8,791	8,983	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	85.0	7,842	6,105	4,545	368,840	350,570	
2	2/22/14	80.6	7,826	6,339	4,432	406,493	349,854	
3	2/24/14	82.1	7,901	6,312	5,090	404,740	348,506	
4	2/25/14	82.9	7,458	5,492	4,517	414,180	350,639	
5	2/27/14	81.0	7,787	5,585	4,659	409,480	412,590	
6	3/2/14	85.3	7,849	6,688	5,119	410,160	348,977	
7	3/4/14	82.7	7,855	5,783	5,061	404,840	344,699	
8	3/5/14	80.6	7,450	5,921	4,889	415,600	349,138	
9	3/8/14	80.5	7,654	5,713	5,376	413,700	350,565	
10	3/9/14	80.7	7,476	6,115	5,865	406,480	352,126	
11	3/10/14	80.4	7,211	5,881	5,894	406,400	346,290	
12	3/12/14	80.4	7,493	6,056	5,405	415,700	353,661	
13	3/13/14	79.5	7,176	6,044	5,636	407,200	346,116	
14	3/15/14	79.6	7,103	6,193	5,177	409,354	342,292	
15	3/16/14	79.3	7,162	5,939	5,178	410,137	338,233	
16	3/17/14	80.7	7,086	6,209	5,435	407,602	340,857	

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Please insert additional pages as applicable.

FEB 12 2015

HOWELL #3H
API 47-103-02799
Stone Energy Corporation

	Top (ft TVD)	Horizontal Top (ft MD)	Bottom (ft TVD)	Bottom (ft MD)
Sandstone & Shale	Surface	*	1,068	FW @ 100'
Coal	1,068	*	851	
Sandstone & Shale	851	*	2,146	SW @ 1,301'
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	*	6,275	6,481
Rhinestreet	6,275	6,481 ~	6,371	6,595
Cashaqua	6,371	6,595 ~	6,446	6,685
Undiff Devonian Shale	6,446	6,685 ~	6,485	6,732
Middlesex	6,485	6,732 ~	6,555	6,815
West River	6,555	6,815 ~	6,881	7,275
Geneseo	6,881	7,275 ~	6,899	7,310
Tully Limestone	6,899	7,310 ~	6,930	7,375
Hamilton Shale	6,930	7,375 ~	6,975	7,503
Marcellus	6,975	7,503 ~	6,978	13,391
TD			6,978	13,391

* From Pilot Hole Log and Driller's Log

~ From MWD Gamma Log

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Environmental Protection

06/12/2015

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 3H
Longitude:	
Latitude:	
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7294321

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, Propping Agent, Fluid Loss	Water (Including Mix Water Supplied by Client)*	NA		87.56094%	
			Crystalline silica	14808-60-7	98.42635%	12.24331%	
			Hydrochloric acid	7647-01-0	0.80554%	0.10020%	
			Carbohydrate polymer	Proprietary	0.46906%	0.05835%	
			Ammonium sulfate	Proprietary	0.17742%	0.02207%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06020%	0.00749%	
			Glutaraldehyde	111-30-8	0.05131%	0.00638%	
			Calcium chloride	10043-52-4	0.03491%	0.00434%	
			Diammonium peroxodisulfate	7727-54-0	0.02230%	0.00277%	
			Amine derivative	Proprietary	0.01624%	0.00202%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00463%	0.00058%	
			Ethane-1,2-diol	107-21-1	0.00387%	0.00048%	
			Trisodium ortho phosphate	7601-54-9	0.00387%	0.00048%	
			Methanol	67-56-1	0.00341%	0.00042%	
			Sodium erythorbate	6381-77-7	0.00280%	0.00035%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00256%	0.00032%	
			Aliphatic acids	Proprietary	0.00256%	0.00032%	
			Prop-2-yn-1-ol	107-19-7	0.00085%	0.00011%	
			Polypropylene glycol	25322-69-4	0.00015%	0.00002%	

* 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-25889 (Generated on 3/31/2014 10:55 AM)

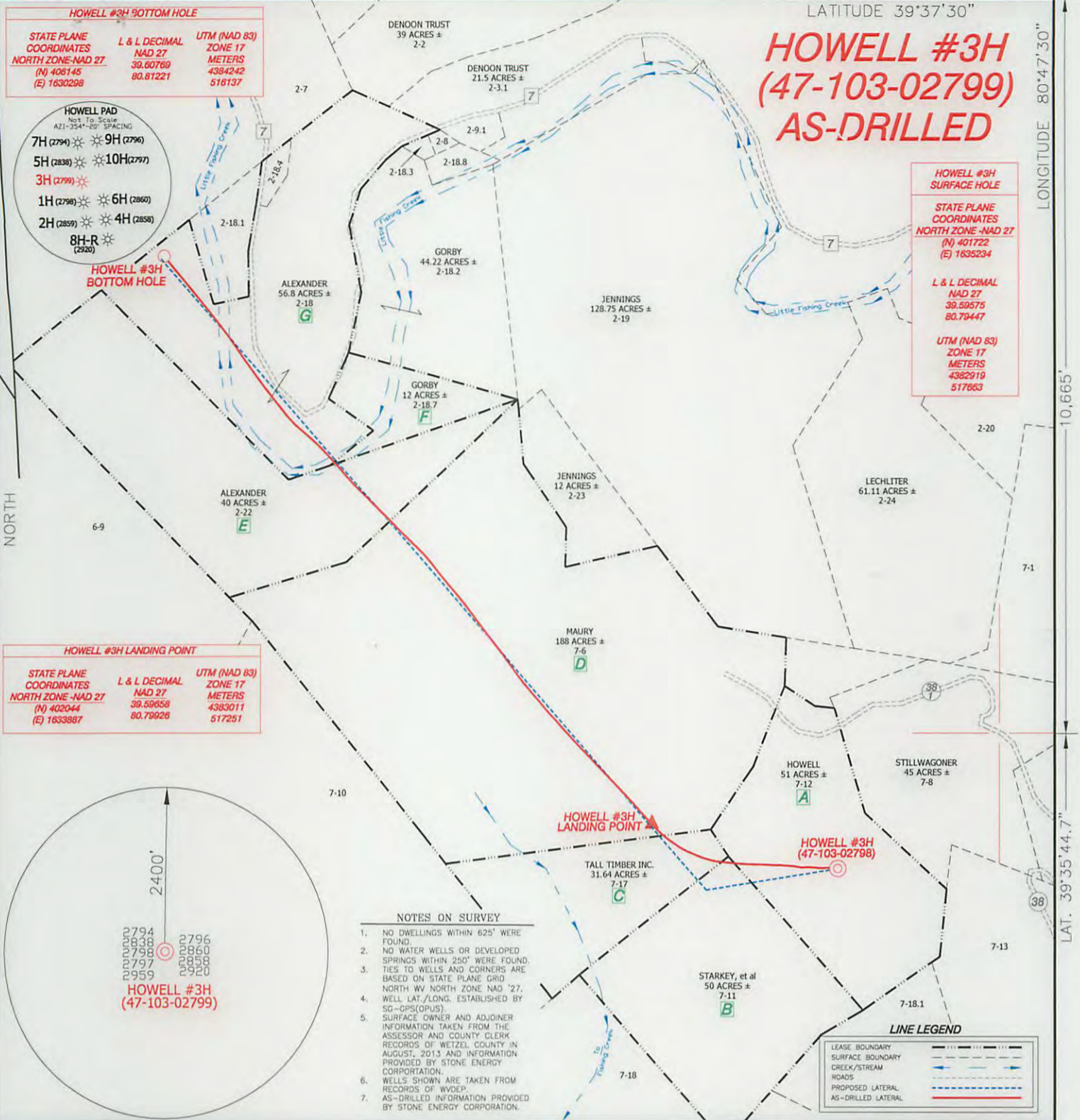
All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational 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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06/12/2015



HOWELL #3H BOTTOM HOLE

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 406145	39.60769	METERS
(E) 1630298	80.81221	4384242
		516137

HOWELL #3H (47-103-02799) AS-DRILLED

HOWELL #3H SURFACE HOLE

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 401722	39.59575	METERS
(E) 1635234	80.79447	4382919
		517663

HOWELL PAD
Not To Scale
AZI-354*-25' SPACING

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

HOWELL #3H LANDING POINT

STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83)
NORTH ZONE -NAD 27	NAD 27	ZONE 17
(N) 402044	39.59658	METERS
(E) 1633887	80.79928	4383011
		517251



- 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.

P.S. 834

DOYLE HUPP, JR.
 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 OCTOBER 21, 20 14
 OPERATORS WELL NO. HOWELL #3H
 API WELL NO. 47-103-02799
 STATE COUNTY PERMIT

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

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 429.44± **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 6,967' MD 13,032'

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