

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 47-103-02797 County Wetzel District Green
Quad Porters Falls Pad Name Howell Field/Pool Name Env
Farm name Howell, Charles and Ruth Well Number #10H
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 4,382,926 Easting 517,668
Landing Point of Curve Northing 4,382,837 Easting 518,224
Bottom Hole Northing 4,381,538 Easting 519,107

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 2/18/2013 Date drilling ceased 11/7/2013
Date completion activities began 1/31/2014 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 55 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,065 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
A.L. 5/19/15
W.S. 6/10/15
06/12/2015

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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"	40'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,306' KB 1,291' GL	New	J55	167' & 294'	Y - CTS
Coal	17.5"	13.375"	1,306' KB 1,291' GL	New	J55	167' & 294'	Y - CTS
Intermediate 1	12.25"	9.625"	2,469'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	13,179'	New	P110		N - TOC @ 198'
Tubing	N/A	2.375"	7,693'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 32 bbls cement to surface on the 13.375". Circulated 35 bbls cement to surface on the 9.625". Cement top on the 5.5" production casing is at 198'.

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"	1,037	15.6	1.19	1,234	Surface	8.0
Coal	Class "A"	1,037	15.6	1.19	1,234	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-430 Tail-420	Lead-15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-542 Tail-500	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-GasStop Tail-HalCem	Lead-860 Tail-1,840	Lead-15.3 Tail-15.6	Lead-1.26 Tail-1.20	Lead-1,084 Tail-2,208	198'	8.0
Tubing							

Drillers TD (ft) 13,186 MD / 6,983 TVD

Loggers TD (ft) N/A

Deepest formation penetrated Marcellus Shale

Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 5,891 MD / 5,864 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. 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 #168. From there bow spring centralizers were placed beginning on joint #176 and then every fifth joint up to joint #290. A total of 45 rigid left/right centralizers were used and 25 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 _____

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	2/15/14	12,894	13,059	72	Marcellus Shale
2	4/1/14	12,618	12,823	72	Marcellus Shale
3	4/3/14	12,340	12,535	72	Marcellus Shale
4	4/4/14	12,080	12,275	72	Marcellus Shale
5	4/5/14	11,809	12,004	72	Marcellus Shale
6	4/7/14	11,555	11,740	72	Marcellus Shale
7	4/8/14	11,296	11,483	72	Marcellus Shale
8	4/10/14	11,031	11,223	72	Marcellus Shale
9	4/12/14	10,750	10,947	72	Marcellus Shale
10	4/13/14	10,500	10,623	72	Marcellus Shale
11	4/14/14	10,231	10,423	72	Marcellus Shale
12	4/16/14	9,968	10,163	72	Marcellus Shale
13	4/18/14	9,700	9,891	72	Marcellus Shale
14	4/19/14	9,417	9,615	72	Marcellus Shale
15	4/22/14	9,156	9,351	72	Marcellus Shale
16	4/23/14	8,890	9,078	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	83.8	7,491	6,239	4,689	365,380		
2	4/3/14	84.8	7,379	6,252	4,718	409,000		
3	4/4/14	85.0	7,222	6,079	4,831	410,620		
4	4/5/14	85.1	7,496	5,770	4,805	411,520		
5	4/7/14	84.9	7,364	5,435	4,861	411,800		
6	4/8/14	83.5	7,376	5,848	4,832	410,960		
7	4/10/14	85.6	7,139	5,487	5,032	410,474		
8	4/12/14	80.5	6,962	7,385	5,061	414,559		
9	4/13/14	80.6	6,244	5,576	5,492	411,777		
10	4/14/14	79.1	6,292	6,013	5,177	411,084		
11	4/16/14	80.7	6,309	5,943	5,061	413,382		
12	4/18/14	80.8	6,611	5,163	4,831	408,760		
13	4/19/14	80.4	6,415	5,778	5,061	411,980		
14	4/22/14	80.4	6,278	6,096	5,005	416,240		
15	4/23/14	80.3	6,363	6,597	5,032	413,820		
16	4/24/14	79.1	6,844	6,256	4,517	413,880		

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Please insert additional pages as applicable.

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HOWELL #10H
API 47-103-02797
Stone Energy Corporation

	Horizontal			Bottom (ft TVD)	Bottom (ft MD)
	Top (ft TVD)	Top (ft MD)			
Sandstone & Shale	Surface		*	1,065	FW @ 55
Coal	1,065		*	1,068	
Sandstone & Shale	1,068		*	2,146	No Sw Reported
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		*	6,296	6,357
Rhinstreet	6,296	6,357	~	6,626	6,848
Cashaqua	6,626	6,848	~	6,825	7,236
Middlesex	6,825	7,236	~	6,836	7,260
West River	6,836	7,260	~	6,903	7,426
Geneseo	6,903	7,426	~	6,918	7,468
Tully Limestone	6,918	7,468	~	6,951	7,559
Hamilton Shale	6,951	7,559	~	7,002	7,746
Marcellus	7,002	7,746	~	6,983	13,186
TD				6,983	13,186

* 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:	4/30/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	
Operator Name:	Stone Energy
Well Name and Number:	Howell 10H
Longitude:	
Latitude:	
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7094750

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), Friction Reducer, Scale Inhibitor, Surfactant, Acid, Breaker, Gelling Agent, Iron Control Agent, Clay Control Agent, Propping Agent, Fluid Loss	Water (Including Mix Water Supplied by Client)*	NA		87.70005%	
			Crystalline silica	14808-60-7	98.54335%	12.12079%	
			Hydrochloric acid	7647-01-0	0.81205%	0.09988%	
			Carbohydrate polymer	Proprietary	0.46480%	0.05717%	
			Ammonium sulfate	Proprietary	0.11536%	0.01419%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06935%	0.00853%	
			Distillates (petroleum), hydrotreated light	64742-47-8	0.06883%	0.00847%	
			Glutaraldehyde	111-30-8	0.05103%	0.00628%	
			Diammonium peroxodisulfate	7727-54-0	0.02239%	0.00275%	
			Ammonium chloride	12125-02-9	0.02237%	0.00275%	
			Urea	57-13-6	0.01709%	0.00210%	
			Calcium chloride	10043-52-4	0.01165%	0.00143%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00533%	0.00066%	
			Trisodium ortho phosphate	7601-54-9	0.00401%	0.00049%	
			Ethane-1,2-diol	107-21-1	0.00401%	0.00049%	
			Methanol	67-56-1	0.00314%	0.00039%	
			Sodium erythorbate	6381-77-7	0.00303%	0.00037%	
			Aliphatic acids	Proprietary	0.00235%	0.00029%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00235%	0.00029%	
			Prop-2-yn-1-ol	107-19-7	0.00078%	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-27089 (Generated on 5/13/2014 3:50 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.

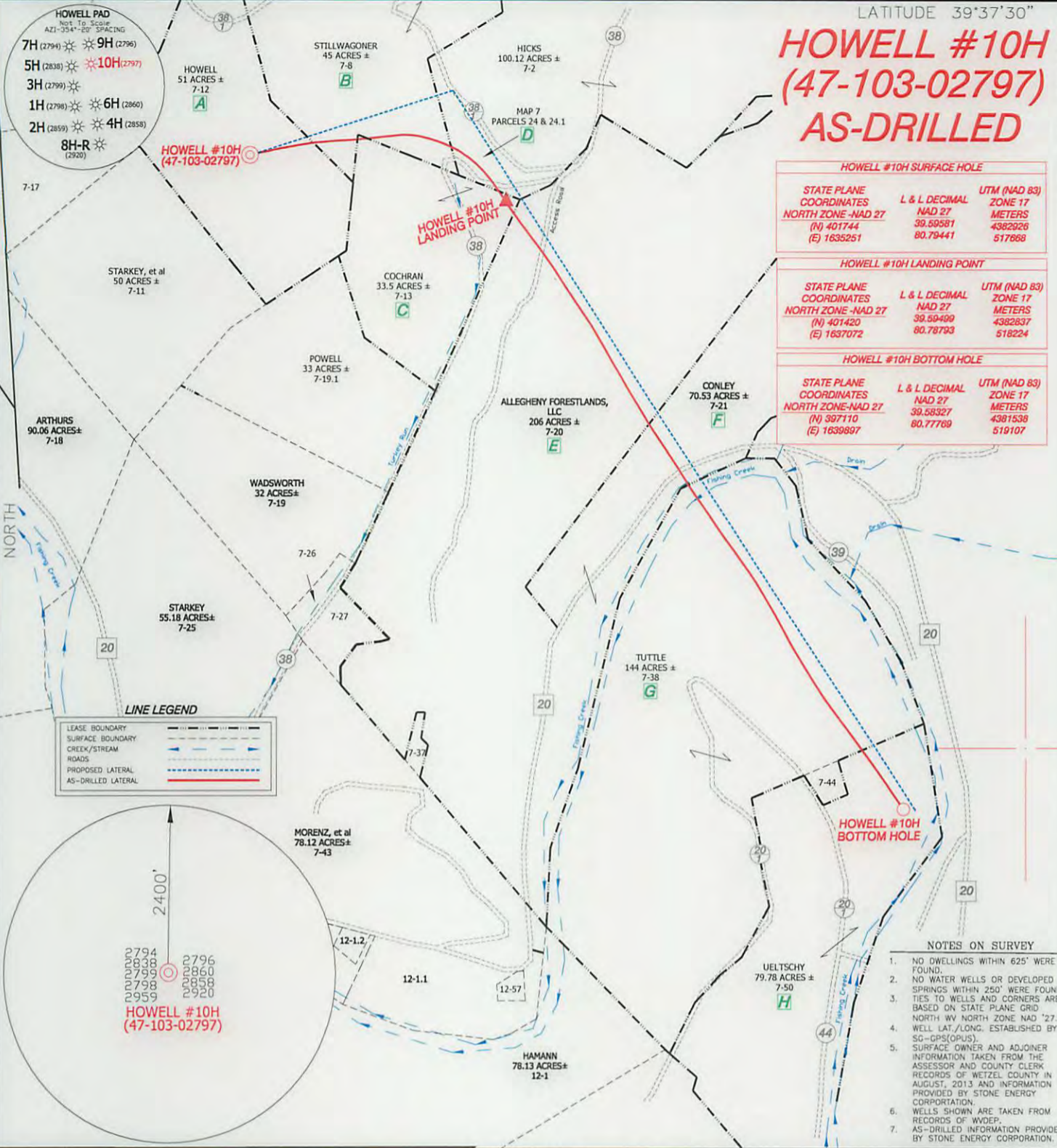
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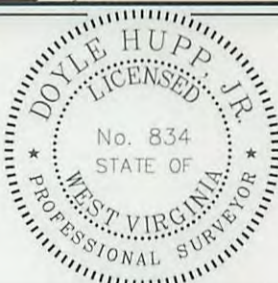
HOWELL #10H (47-103-02797) AS-DRILLED



HOWELL #10H SURFACE HOLE		
STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83) ZONE 17 METERS
NORTH ZONE -NAD 27 (N) 401744	NAD 27 39.59581	4382026
(E) 1635251	80.79441	517868
HOWELL #10H LANDING POINT		
STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83) ZONE 17 METERS
NORTH ZONE -NAD 27 (N) 401420	NAD 27 39.59499	4382837
(E) 1637072	80.78793	518224
HOWELL #10H BOTTOM HOLE		
STATE PLANE COORDINATES	L & L DECIMAL	UTM (NAD 83) ZONE 17 METERS
NORTH ZONE -NAD 27 (N) 397110	NAD 27 39.58327	4381538
(E) 1639897	80.77769	519107

- 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 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 WDEP.
 7. 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 OCTOBER 15, 20 14
 OPERATORS WELL NO. HOWELL #10H
 API WELL NO. 47-103-02797
 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 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 636.30± **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 6,983' MD 13,186'

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