



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

May 07, 2014

STONE ENERGY CORPORATION
6000 HAMPTON CENTER, SUITE B
MORGANTOWN, WV 26505

Re: Permit Modification Approval for API Number 10302793, Well #: SMITH 2H

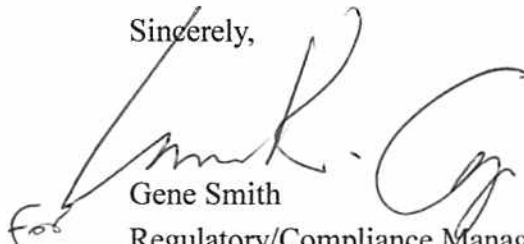
Extended Lateral

Oil and Gas Operator:

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,


Gene Smith
Regulatory/Compliance Manager
Office of Oil and Gas



6000 Hampton Center, Suite B
Morgantown, WV 26505-1748
Telephone: (304) 225-1600

January 17, 2014

Laura Cooper
West Virginia Department of Environmental Protection
Office of Oil & Gas
601 57th Street SE
Charleston, West Virginia 25304

RE: Proposed Smith 2H and 4H Modifications
Well work permit application's API #'s are as follows:
2H- 103-02793
4H- 103-02792

Dear Laura:

Please find enclosed modifications for two of our currently permitted Smith permit applications. They are the 2H and 4H.

We are able to extend these laterals through additional leasing/acquisition efforts. The additional interest is reflected on the WW-6A1 form and shown on the plats under the new rules.

There are no changes to the top holes.

If you should have any questions or concerns, please contact us.

Your assistance is greatly appreciated.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tim McGregor".

Tim McGregor
Land Coordinator/Appalachia Basin
Stone Energy Corporation
(304) 225-1788
mgregortp@stoneenergy.com

Received

JAN 21 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

05/09/2014

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Stone Energy Corporation 494490923 Wetzel Magnolia New Martinsville
Operator ID County District Quadrangle

2) Operator's Well Number: Smith #2H Well Pad Name: Smith

3) Farm Name/Surface Owner: Smith, Sonny & Charlotte Public Road Access: Wetzel County Route 22

4) Elevation, current ground: 1,335' Elevation, proposed post-construction: 1,321'

5) Well Type (a) Gas Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

*DNH
5-6-14*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target formation is the Marcellus Shale @ 6,799' TVD (-5,460 SL), thickness is 50', with rock pressure between 3,800 & 4,400 psig

8) Proposed Total Vertical Depth: 6,880' TVD @ TD (Down-Dip Well) and 6,830' TVD @ LP

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 13,100' MD @ TVD

11) Proposed Horizontal Leg Length: 5,620' from LP and 6,989' from KOP

12) Approximate Fresh Water Strata Depths: 80' Shallowest and 1,120' Deepest

13) Method to Determine Fresh Water Depths: Depth of bit when water shows in the flowline or when drilling soap is injected

14) Approximate Saltwater Depths: 1,740'

15) Approximate Coal Seam Depths: 1,115'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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JAN 21 2014

WW-6B
(9/13)

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill-up (Cu. Ft.)</u>
Conductor	20"	New	LS	94.0	80'	80'	77 - CTS
Fresh Water	13.375"	New	J55	54.5	1,300'	1,300'	1,188 - CTS
Coal	13.375"	New	J55	54.5	1,300'	1,300'	1,188 - CTS
Intermediate	9.625"	New	J55	36.0	2,600'	2,600'	640 Lead - 393 Tail CTS
Production	5.5"	New	P110	20.0		13,100'	973 Lead - 2,225 Tail TOC @ 1,600'
Tubing	2.375"	New	J55	4.7		6,100'	N/A
Liners	N/A						

Note: Fresh Water/Coal casing is set just above elevation. At no time will it ever be set below elevation. This setting depth is due to sloughing formation below the Pittsburgh Coal seam.

*Dm H
5-6-14*

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	24"	0.375"	N/A	Type 1	1.18
Fresh Water	13.375"	17.5"	0.380"	2,730 psi	Class A	1.19
Coal	13.375"	17.5"	0.380"	2,730 psi	Class A	1.19
Intermediate	9.625"	12.25"	0.352"	3,520 psi	Class A	1.28 Lead - 1.19 Tail
Production	5.5"	8.75"	0.361	12,360 psi	Class A	1.28 Lead - 1.19 Tail
Tubing	2.375"	N/A	0.190"	7,700 psi	N/A	N/A
Liners						

PACKERS

Kind:	N/A			
Sizes:				
Depths Set:				

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JAN 21 2014

WW-6B
(9/13)

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

MIRU conductor rig and set 20" conductor into solid rock cementing back to surface. Typically the setting depth is 80'. RDMO conductor rig and MIRU top-hole rig. Drill and set 13.375" fresh water/coal casing cementing back to surface. Drill and set 9.625" intermediate casing cementing back to surface. Drill 8-3/4" production hole to just above KOP. This section will be drilled using a slant in order to maintain and reduce anti-collision concerns. Run gyro and displace with KCl fluid back to surface. RDMO top-hole rig and MIRU horizontal rig. Displace KCl fluid out of well bore with salt saturated drilling fluid. Drill to KOP and then drill curve to landing point. Continue drilling horizontal section of well bore to TD. Condition well bore at TD, TOOH, and run 5.5" production casing to TD. Cement production casing to 1000' inside of the 9.625" casing string. RDMO horizontal rig after installing night cap on top of well head.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

MIRU coil tubing unit or service rig and clean out well bore to PBTD. Run CBL to approximately 30-60 degrees in curve back to surface. Toe prep horizontal for fracturing. RDMO coil tubing unit or service rig. MIRU stimulation equipment. Begin stimulation on first stage. Anticipated maximum treating pressure is 9000 psi. Anticipated maximum pump rate is between 85 and 90 bmp of slick-water with sand. Frac plugs will be pumped down during night-time operations. The number of stages to be pumped will be determined once the well is drilled and log information is reviewed. All other stages will be pumped as described above. Once well is fraced the coil tubing unit or service rig (with snubbing unit) will be moved back on site and the frac plugs will be drilled out and the well bore will be cleaned up. Flow back time for the well will be dependent upon fluid return and gas production. All gas will be flared until the well is capable of production.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 14.22

22) Area to be disturbed for well pad only, less access road (acres): 10.30

23) Describe centralizer placement for each casing string:

Fresh Water/Coal string will use bow spring centralizers w/ one just above guide shoe and then every 2nd jt. to surface. Intermediate string will use bow spring centralizers w/ one just above the guide shoe, one just above the float collar and then on every 3rd jt. to surface. One straight vane rigid centralizer will be placed as close as practical to the surface. Production string will use alternating left/right rigid centralizers on every 4th jt. from TD to 500' above KOP and on every 3rd jt. from 500' above KOP to top of slant. Bow spring centralizers every 3rd jt. will be used from this point to top of cement.

24) Describe all cement additives associated with each cement type:

Fresh Water/Coal cement is typically Class A w/ 0.25 pps Cello-Flake and 1.0% to 3.0% CaCl₂. Intermediate cement is a lead/tail blend with the lead being Class A w/ 10% Salt and 0.25 pps Cello-Flake. Tail is Class A w/ 0.25 pps Cello-flake + 1.0% to 3.0% CaCl₂ + .02% Anti-Foam. Production cement is a lead/tail blend with the lead being Class "A" w/ 10% Salt blend w/ 0.02% Anti-foam and tail being HES's HALCEM blend w/ 0.65% Retarder and 0.1% Dispersant or SLB with lead/tail with the lead being Class A w/ 10% Salt or Class A w/ FlexSeal and the tail being Class A w/ 0.2% Dispersant, 0.4% Fluid Loss, 0.2% Anti-Foam, 0.15% Retarder, and 0.2% Anti-Settling Agent.

25) Proposed borehole conditioning procedures:

Fresh Water/Coal section will be done by circulating air through the drill string at TD between 30 and 90 minutes or until the well bore clears of cuttings.
Intermediate section will be done by circulating air and/or stiff foam through the drill string at TD between 30 and 120 minutes or until the well bore clears of cuttings.
Production section will be done by circulating drilling fluid through the drill string at TD between 120 to 1720 minutes (a minimum of 3 bottoms up) until the shakers are clear of cuttings.

Received

*Note: Attach additional sheets as needed.

DNA
5-6-14

103-02793 MOD

Well: Smith #2H
 State: West Virginia
 County: Wetzel
 District: Magnolia
 Prospect: Mary
 Location: Surface: North = 4,388,536 East = 516,226 (UTM NAD 83)
 PBHL: North = 4,386,781 East = 516,894 (UTM NAD 83)
 PTD: 13100' MD / 6880' TVD

STONE ENERGY - PROPOSED HORIZONTAL - Modification

Revision: 12-Nov-13

Permit Number: 47-103-02793
 Permit Issued: 10/12/2012
 As Built Ground Elevation: 1321'
 Kelly Bushing: 18'
 Rig:
 Spud Date:
 TD Date:
 Rig Release Date:

HOLE SIZE	PILOT HOLE FORMATION TOPS	WELLBORE DIAGRAM	CASING & CEMENTING DATA DIRECTIONAL DATA	MW & FLUID TYPE	HOLE DEV.	
24" Hole then Driven	98' KB (80' BGL) Shallowest FW 80' TVD Pittsburgh Coal 1115' TVD Deepest FW 1114' TVD		CONDUCTOR PIPE 20" x 3/8" wall L/S PE @ 98' (set in bedrock & grouted to surface)		Vertical	
17-1/2" Hole	1300' TVD		SURFACE CASING 13-3/8" 54.5# J-55 STC @ 1300' MD/TVD Set through fresh water zones Set through coal zones Cemented to surface	Air / Mist	Vertical	
12-1/4" Hole	Salt Water 1740' TVD Little Lime 2166' TVD Big Lime 2196' TVD Big Injun Sandstone 2296' TVD Base of Big Injun 2396' TVD 2600' TVD		INTERMEDIATE CASING 9-5/8" 36.0# J-55 LTC @ 2600' MD/TVD Set through potential salt water zones Set below base of Big Injun Cemented to surface	Stiff Foam	Vertical	
8-3/4" Hole	Berea Sandstone 2765' TVD Gordon Sandstone 2986' TVD					
8-3/4" Hole			KOP @ 6111' TVD		Air / Dust	
8-3/4" Hole	Rhinestreet Shale 6338' TVD Middlesex Shale 6495' TVD West River Shale 6512' TVD Geneseo Shale 6709' TVD Tully Limestone 6739' TVD Hamilton Shale 6764' TVD				WBM in Curve	
8-3/4" Hole in Lateral	Marcellus Shale 6799' TVD				WBM in Lateral	~89.5°
	Onondaga Limestone 6849' TVD					
			Landing Point (LP) @ 7480' MD / 6830' TVD ~89.5° angle ~151° azimuth			
				TD @ 13100' MD / 6880' TVD PRODUCTION CASING 5-1/2" 20.0# P-110 CDC @ 13100' MD Top of Cement @ 1600' (~1000' inside 9-5/8")		

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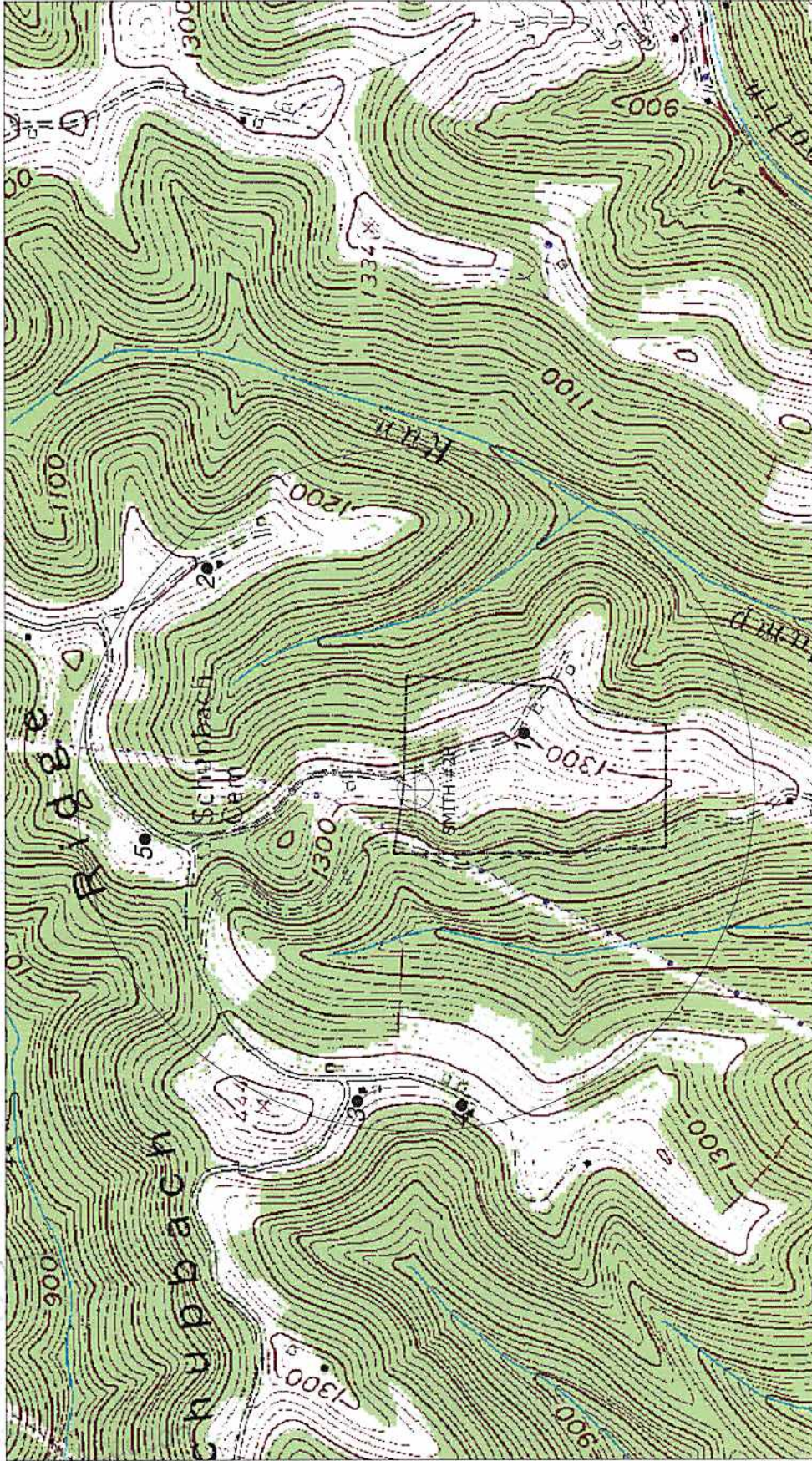
JAN 21 2014

Office of Oil and Gas
 WV Dept. of Environmental Protection

DML
 5-6-14

Stone Energy Corp. Smith #2H Water

103-2793



Dm H
5-22-12

SCALE: 1-INCH = 1000-FEET



HUPP Surveying & Mapping

P.O. BOX 647 GRANTSVILLE, WV 26147
PH: (304)354-7035 E-MAIL: hupp@frontiernet.net

1" = 1000'
New Martinsville Quad

Stone Energy Corporation
PO Box 52807
Lafayette, LA 70508

Existing Access Road
1000' Water Sampling Radius
Possible Water Sources

●

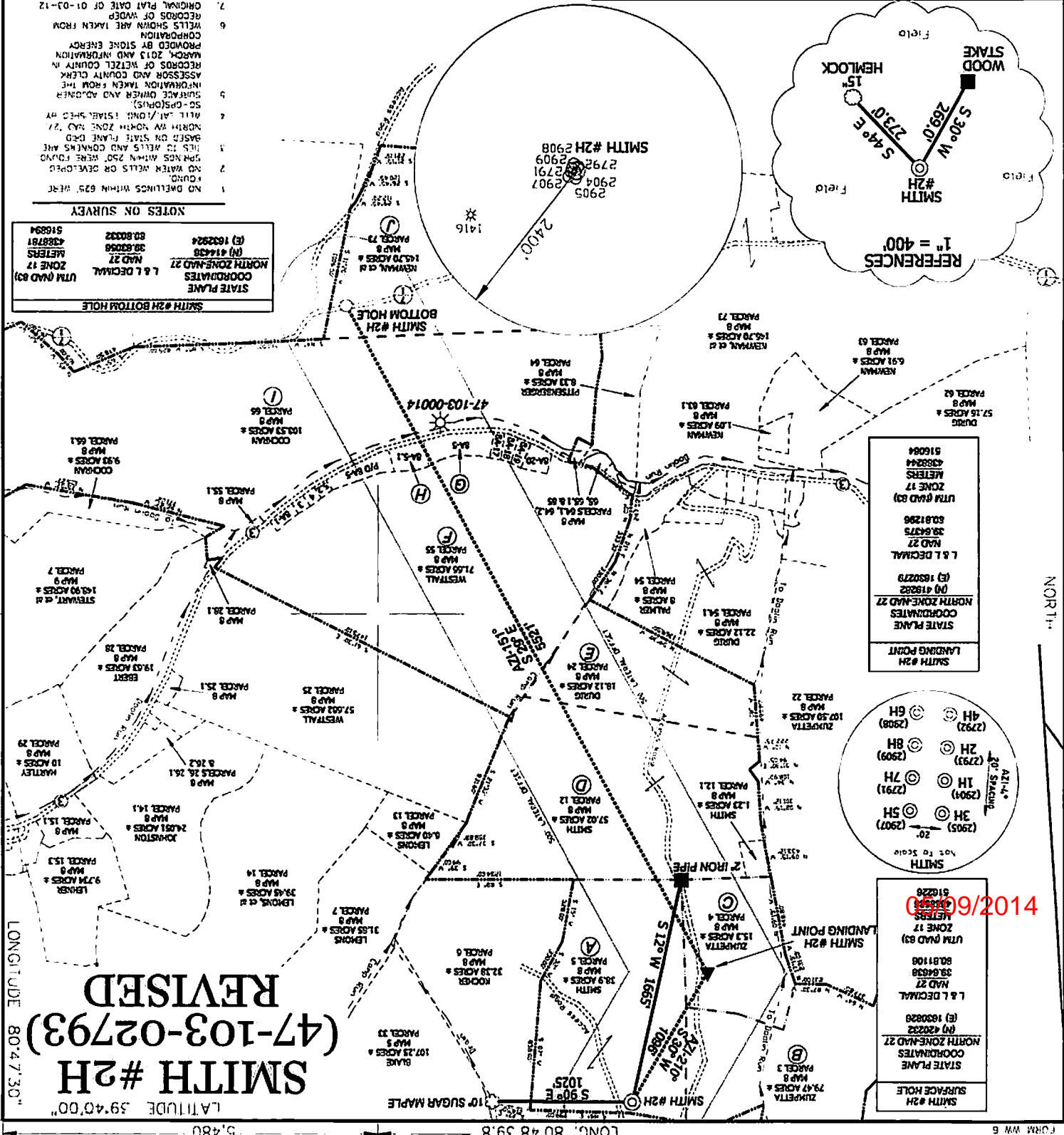
WELL OPERATOR: STONE ENERGY CORPORATION
 DESIGNATED AGENT: TIM MCGREGOR
 ADDRESS: P.O. BOX 52807 LAFAYETTE, LA 70508
 ADDRESS: 6000 HAMPTON CENTER SUITE 8 MORGANTOWN WV 26505

WELL TYPE: OIL GAS INJECTION DISPOSAL WASTE LIQUID IF "GAS" PRODUCTION X STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1,335' WATERSHED: TRIBUTARY OF DOOLIN RUN COUNTY: WETZEL QUADRANGLE: NEW MARTINSVILLE 7.5' SURFACE OWNER: SONNY & CHARLOTTE SMITH DISTRICT: MAGNOLIA COUNTY: WETZEL ACREAGE: 38.9# LEASE ACREAGE: 535.70# PROPOSED WORK: DRILLING ON EXISTING WELL OR REPAIRING EXISTING WELL OR CLEANING UP AND PLUGGING OTHER FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND RE-PLUG OTHER PHYSICAL CHANGE IN WELL (SPECIFY): MARCELLUS TARGET FORMATION ESTIMATED DEPTH: TVD 6,880' MD 13,100'

MINIMUM DEGREE: 1/2500 FILE NO. W2032 (BK 49-6) SCALE: 1" = 1000'
 PROVEN SOURCE: 50-GPS(OPUS) OF ELEVATION: STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS
 HUPP Surveying & Mapping P.O. Box 647 Grantsville, WV 26147
 (304) 354-7035 EMAIL: hupp@frontiernet.net
 PROFESSIONAL SURVEYOR STATE OF WEST VIRGINIA NO. 854
 DOYLE HUPP JR. LICENSED PROFESSIONAL SURVEYOR
 DATE: NOVEMBER 18, 2013
 OPERATORS WELL NO. SMITH #2H
 COUNTY: PERMIT MOD 027936A



WW-6A1 (Attachment)

Operator's Well Number: Smith #2H

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	Map/Parcel	Code
Sonny Smith	Stone Energy Corporation	1/8	111A/982	8-8-5	A
Charles L. McGowen, Jr., et ux	Stone Energy Corporation	1/8	88A/305	8-8-3	B
Lawrence E. Zumpetta, et ux	Stone Energy Corporation	1/8	88A/309	8-8-3	B
John C. Bober, III, et ux	Stone Energy Corporation	1/8	88A/313	8-8-3	B
David T. Griffith	Stone Energy Corporation	1/8	88A/317	8-8-3	B
Jay H. Renner	Stone Energy Corporation	1/8	89A/93	8-8-3	B
B&R Construction	Stone Energy Corporation	1/8	112A/416	8-8-3	B
Lynn Ann McCray	Stone Energy Corporation	1/8	129A/620	8-8-3	B
Charles L. McGowen, Jr., et ux	Stone Energy Corporation	1/8	88A/305	8-8-4	C
Lawrence E. Zumpetta, et ux	Stone Energy Corporation	1/8	88A/309	8-8-4	C
John C. Bober, III, et ux	Stone Energy Corporation	1/8	88A/313	8-8-4	C
David T. Griffith	Stone Energy Corporation	1/8	88A/317	8-8-4	C
Jay H. Renner	Stone Energy Corporation	1/8	89A/93	8-8-4	C
B&R Construction	Stone Energy Corporation	1/8	112A/416	8-8-4	C
Lynn Ann McCray	Stone Energy Corporation	1/8	129A/620	8-8-4	C
Mary Lou Thomas, et al	Stone Energy Corporation	1/8	112A/96	8-8-12	D
Barry Sisler	Stone Energy Corporation	1/8	134A/133	8-8-12	D
Robert D. Schupbach	Stone Energy Corporation	1/8	134A/135	8-8-12	D
Nina Winters	Stone Energy Corporation	1/8	134A/163	8-8-12	D
Joel A. Potts, Jr	Stone Energy Corporation	1/8	134A/161	8-8-12	D
Carol Facci	Stone Energy Corporation	1/8	134A/159	8-8-12	D
Linda Wren	Stone Energy Corporation	1/8	134A/145	8-8-12	D
Jay Renner	Stone Energy Corporation	1/8	89A/93	8-8-24	E
Gary Durig	Stone Energy Corporation	1/8	111A/231	8-8-24	E
Lynn McCray	Stone Energy Corporation	1/8	129A/620	8-8-24	E
B&R Construction	Stone Energy Corporation	1/8	112A/416	8-8-24	E
Elizabeth M. Mullett	Stone Energy Corporation	1/8	108A/902	8-8-55	F
Elizabeth Mullett	Stone Energy Corporation	1/8	139A/588	8-8A-5	G
Donald Brookover	Stone Energy Corporation	1/8	137A/326	8-8A-5.1	H
Mark I. Cochran	Stone Energy Corporation	1/8	119A/487	8-8-66	I
Chesapeake	Stone Energy Corporation	1/8	406/459	8-8-66	I
B&R Construction	Stone Energy Corporation	1/8	408/338	8-8-66	I

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Well Operator Stone Energy Corporation

By 
 Title Land Coordinator

Received

JAN 21 2014

WW-6A1 (Attachment)

Operator's Well Number: Smith #2H

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Chapter 22, Article 6, Section 8(d)
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Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	Map/Parcel	Code
Mary Lou Thomas	Stone Energy Corporation	1/8	125A/269	8-8-73	J
Sonny L. Smith	Stone Energy Corporation	1/8	125A/271	8-8-73	J
David L. Smith	Stone Energy Corporation	1/8	125A/273	8-8-73	J
Milton O. Smith	Stone Energy Corporation	1/8	125A/275	8-8-73	J
Ralph O. Smith	Stone Energy Corporation	1/8	125A/277	8-8-73	J
Jeanette D. Kocher	Stone Energy Corporation	1/8	125A/279	8-8-73	J
Sarah M. Kocher	Stone Energy Corporation	1/8	125A/404	8-8-73	J
Bessie Stillwagoner	Stone Energy Corporation	1/8	125A/406	8-8-73	J
Murray D. Shackelford	Stone Energy Corporation	1/8	125A/408	8-8-73	J
Sarah M. Carpenter	Stone Energy Corporation	1/8	125A/410	8-8-73	J
Shelva Jean Whimpkey	Stone Energy Corporation	1/8	125A/412	8-8-73	J
Freda Eastmam	Stone Energy Corporation	1/8	125A/414	8-8-73	J
Nilla J. Montgomery	Stone Energy Corporation	1/8	125A/416	8-8-73	J
Linda Sue Irwin	Stone Energy Corporation	1/8	125A/418	8-8-73	J
Mary L. Hartley	Stone Energy Corporation	1/8	125A/420	8-8-73	J
William Jean McElwain	Stone Energy Corporation	1/8	125A/281	8-8-73	J
Harold F. Lewis	Stone Energy Corporation	1/8	125A/283	8-8-73	J
Gregory R. Richard	Stone Energy Corporation	1/8	125A/285	8-8-73	J
Lloyd A. Lewis	Stone Energy Corporation	1/8	125A/287	8-8-73	J
Annette M. Hinkle	Stone Energy Corporation	1/8	125A/289	8-8-73	J
Sharon L. Clutter	Stone Energy Corporation	1/8	125A/291	8-8-73	J
Mary L. Wright	Stone Energy Corporation	1/8	125A/293	8-8-73	J
Kathy Kay Tedrow	Stone Energy Corporation	1/8	125A/295	8-8-73	J
Tina I. Williamson	Stone Energy Corporation	1/8	125A/297	8-8-73	J
Case E.F. Garvey	Stone Energy Corporation	1/8	125A/299	8-8-73	J
Donald E. Richard	Stone Energy Corporation	1/8	125A/301	8-8-73	J
Judy E. Courtwright	Stone Energy Corporation	1/8	125A/303	8-8-73	J
Nancy Doty	Stone Energy Corporation	1/8	125A/305	8-8-73	J
Carla Hall	Stone Energy Corporation	1/8	125A/307	8-8-73	J
Deborah J. Richard Taylor	Stone Energy Corporation	1/8	125A/309	8-8-73	J
Eric Scott Richard	Stone Energy Corporation	1/8	125A/311	8-8-73	J
Christina Parr	Stone Energy Corporation	1/8	139A/836	8-8-73	J
Steven M. Lewis	Stone Energy Corporation	1/8	125A/313	8-8-73	J

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