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

September 23, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10302913, issued to STONE ENERGY CORPORATION, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: BLAKE 4H
Farm Name: LEMONS, GARY
API Well Number: 47-10302913
Permit Type: Horizontal 6A Well
Date Issued: 09/23/2013

09/27/2013

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations,* 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

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WW - 6B
(3/13)

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

103 04 509

1) Well Operator:	STONE ENERGY CORPORATION	494490923	Wetzel	Magnolia	New Martinsville
		Operator ID	County	District	Quadrangle

2) Operator's Well Number: BLAKE #4H Well Pad Name: BLAKE

3 Elevation, current ground: 1,302' Elevation, proposed post-construction: 1,293'

4) Well Type: (a) Gas ■ Oil _____ Underground Storage _____

Other _____

(b) If Gas: Shallow ■ Deep _____

Horizontal ■

DMH
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5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Proposed target formation is the Marcellus Shale @ 6,666' (-5,355' Sea Level), thickness is 56', and approximate rock pressure will range between 3,100 and 4,100 psig

7) Proposed Total Vertical Depth: 6,750'

8) Formation at Total Vertical Depth: Marcellus Shale

9) Proposed Total Measured Depth: 11,600'

10) Approximate Fresh Water Strata Depths: Shallowest @ 80' and Deepest @ 1,112'

11) Method to Determine Fresh Water Depth: Show at flowline or drilling soap is used

12) Approximate Saltwater Depths: 1,820'

13) Approximate Coal Seam Depths: 1,107'

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Construct well site according to designed construction plans. MIRU conductor rig and set conductor into bed rock which is grouted to surface. MIRU top hole rig. Drill and set surface and intermediate casing strings both of which are cemented to surface. Drill to KOP. MIRU horizontal rig and drill curve and lateral to total measured depth. Run and cement production casing. Cement casing to 1000' inside intermediate casing.

17) Describe fracturing/stimulating methods in detail:
MIRU completion equipment. Clean out well bore and run CBL from approximately 30 degrees in the curve to surface. Perforate 18 individual stages in the lateral section of the well bore and stimulate each individual set of perforations using slick water and sand. MIRU service rig and flow well back. Clean out well bore and run production tubing. Test well flow. See the attached frac chemical addendum for additives used during the stimulation.

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18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 15.95

19) Area to be disturbed for well pad only, less access road (acres): 9.39

Office of Oil and Gas
WV Dept. of Environmental Protection

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20) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	LS	94.0	40'	40'	20 - CTS
Fresh Water	13.375"	New	J55	54.5	1,240'	1,240'	1,178 - CTS
Coal	13.375"	New	J55	54.5	1,240'	1,240'	1,178 - CTS
Intermediate	9.625"	New	J55	36.0	2,570'	2,570'	393 Tail - 680 Lead CTS
Production	5.5"	New	P110	20.0		11,600'	1,571 Tail - 1,273 Lead TOC @ 1,370'
Tubing	2.375"	New	J55	4.7			
Liners							

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TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
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	1.25 Lead - 1.19 Tail
Production	5.5"	8.75"	0.361"	12,360 psi	Class A	1.26 Lead - 1.19 Tail
Tubing	2.375"	N/A	0.190"	7,700 psi	N/A	N/A
Liners	N/A					

PACKERS

Kind:	N/A			
Sizes:				
Depths Set:				

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21) Describe centralizer placement for each casing string. - Fresh Water/Coal string will incorporate bow spring centralizers with one (1) being placed above the guide shoe and then every second joint to surface for a total of 15 centralizers. -Intermediate string will incorporate bow spring centralizers with one (1) above the guide shoe, one (1) above the float collar, and one (1) every third joint to surface for a total of 22 centralizers. A straight vain of 22 centralizers. One (1) straight vain rigid centralizer will be placed at the surface. -Production string will incorporate alternating left-right spiral centralizers with one (1) every fourth joint to KOP, one (1) every third joint to top of nudge, and one (1) bow spring centralizers from to of nudge to TOC on the production string for a total of 60 rigid spiral centralizers and nine (9) bow spring centralizers.

22) Describe all cement additives associated with each cement type.
-Fresh Water/Coal string will use a slurry of Class A cement with 0.10 pps Cello Flake, 0.20% Anti-Foam, and 1.0% CaCl2.
-Intermediate string will use a Lead/Tail slurry. Lead slurry is Class A cement with 0.20 gps Accelerator, 0.07 gps Dispersant, 0.10% Anti-Foam, 4.0% Expanding Agent, and 0.50% Gas Control Agent. Tail slurry is Class A cement with 0.10 pps Cello Flake, 0.20% Anti-Foam, and 1.0% CaCl2.
- Production string will use a Lead/Tail slurry (see blend contents below).

23) Proposed borehole conditioning procedures.
-Fresh Water/Coal section will be conditioned by circulating air down the down the drill string at TD for 30 to 90 minutes or until the well bore clears of cuttings.
- Intermediate section will conditioned by circulating air and/or stiff foam through the drill string at TD for 30 to 120 minutes until well bore clears of cuttings.
-Production section will be conditioned by circulating drilling fluid through the drill string at TD for 120 to 720 minutes until cuttings shakers clear of cuttings.

*Note: Attach additional sheets as needed.

-Production string will use a Lead/Tail slurry. Lead slurry is Class A cement with 4.0% Expansion Additive, 0.5% Gas Migration Control, 0.2 gps Dispersant, 0.1 gps Anti-Foam, and 0.1 gps Retarder, Tail slurry is Class A cement with 0.4% Dispersant, 0.4% Fluid Loss control, 0.2% Anti-Foam, 0.15% Retarder, 0.2% Anti-Settling control, and 0.03% Viscosifier.

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WV Dept. of Environmental Protection

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API Number 47 - 103 - _____
Operator's Well No. BLAKE #4H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name STONE ENERGY CORPORATION OP Code 494490923

Watershed (HUC 10) Camp Run Quadrangle New Martinsville

Elevation 1,293' County Wetzel District Magnolia

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ✓ No _____

Will a pit be used for drill cuttings? Yes _____ No ✓

If so, please describe anticipated pit waste: N/A

Will a synthetic liner be used in the pit? Yes _____ No ✓ If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
■ Underground Injection (UIC Permit Number Hunter Disposal 2D0859721, 34-121-24037, 34-121-24086)
■ Reuse (at API Number Flow Back will be collected and used for other stimulations, wells not permitted yet)
_____ Off Site Disposal (Supply form WW-9 for disposal location)
_____ Other (Explain _____

Will closed loop system be used? Both the Top-Hole Rig and Horizontal Rig will incorporate the use of a closed loop system

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Top-Hole on air and/or drilling soap, Horizontal on Salt Brine

-If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used in drilling medium? See WW-9 Addendum

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All cuttings to be disposed of in an approved landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021/WV109185)

DMH
4-30-13

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Received
MAY 3 0 2013

Company Official Signature _____

Company Official (Typed Name) Timothy P. McGregor

Company Official Title Land Coordinator

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
DANIELLE L SNODERLY
RR2 Box 248A, Fairmont, WV 26554
My Commission Expires May 18, 2021

Subscribed and sworn before me this 29th day of April, 2013

Danielle L. Snoderly Notary Public

My commission expires 5/18/2021

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Form WW-9

Operator's Well No. BLAKE #4H

STONE ENERGY CORPORATION

Proposed Revegetation Treatment: Acres Disturbed 15.95 Prevegetation pH _____

Lime 2.0 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500-750 lbs/acre (500 lbs minimum)

Mulch 0.50 to 0.75 + Straw Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Marcellus Mix	100.0	Marcellus Mix	100.0
White or Ladino Clover	10.0	White or Ladino Clover	10.0
Orchard Grass	40.0	Orchard Grass	40.0
Winter Rye	50.0	Winter Rye	50.0

Attach:
Drawing(s) of road, location,pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments: _____

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Office of Oil and Gas
WV Dept. of Environmental Protection

Title: Oil + Gas Inspector Date: 4-30-13

Field Reviewed? (✓) Yes ( ) No

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STONE ENERGY CORPORTATION

Addendum for

Planned Additives to be Used in Fracturing or Stimulations

Listed below are the chemicals used in addition to water and sand (CAS-No 14808-60-7) and their respective quantities for slick water fracturing;

- 0.5 gal/thousand gallons of water – Friction Reducer (CAS-No 7783-20-2)
- 0.25 gal/thousand gallons of water – Bacteria Control (CAS-No 11-30-8)
- 0.25 gal/thousand gallons of water – Clay Stabilizer (CAS- No 75-57-0)
- 0.75 gal/thousand gallons of water – Surfactant (CAS-No Proprietary)
- 0.25 gal/thousand gallons of water – Scale Inhibitor (CAS-No 7601-54-9 & 107-21-1)
- 2000 gal of 15% HCl (CAS-No 7647-01-0) per stage with/ 2 gal/thousand gallons of acid Corrosion Inhibitor (CAS-No 67-56-1, 107-19-7, & Propretary) and 6 pints/thousand gallons of acid – Iron Stabilizer (CAS-No 6381-77-7)
- A 15 lb. Linear Gel and breaker is sometimes used during a stage but the exact amount is not known until the stimulation is in progress (CAS-No Proprietary & 7727-54-0)

Dmrt
4-30-13

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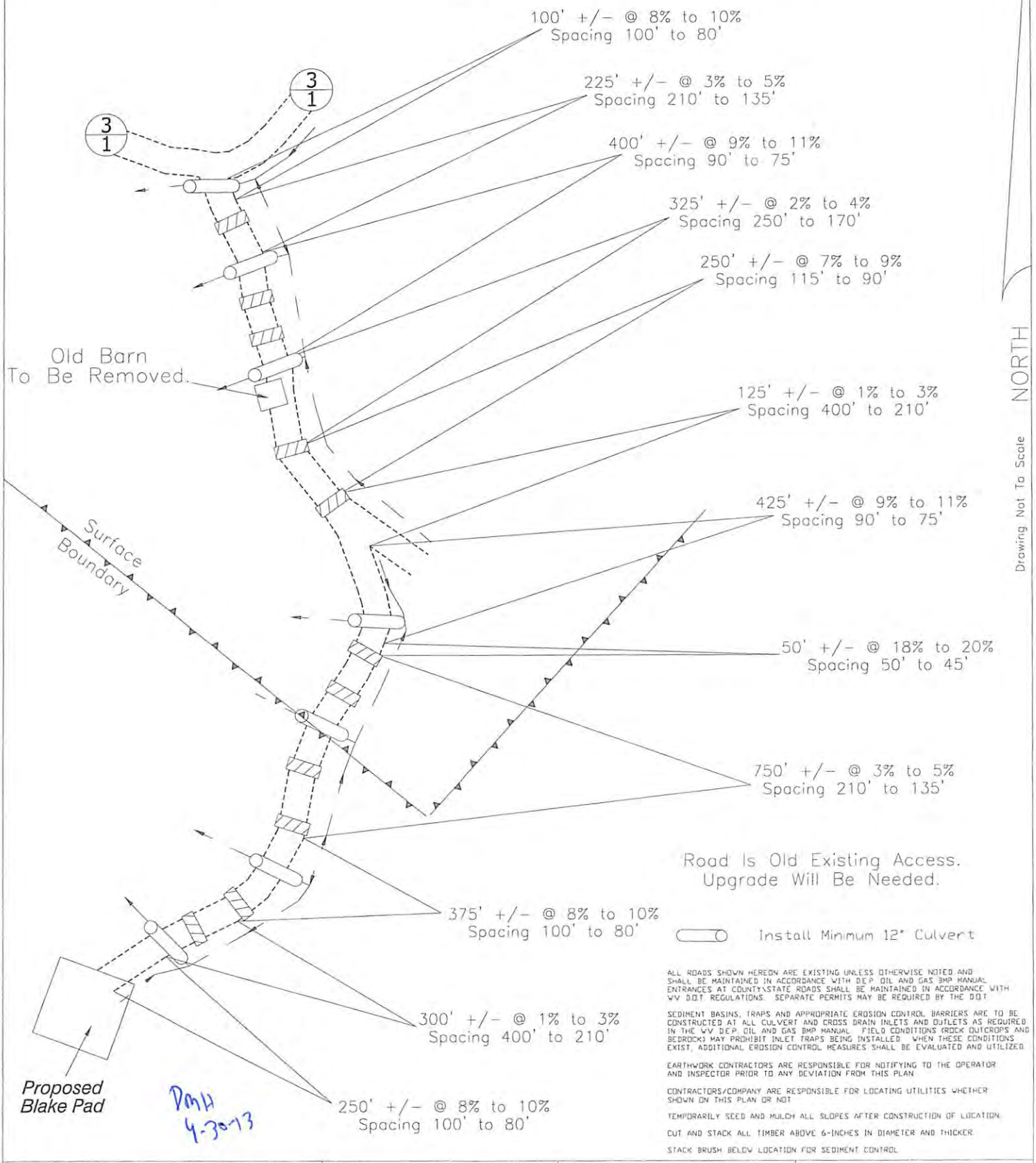
Form W-9

STONE ENERGY CORP.
BLAKE #4H



DMH
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ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH DEP OIL AND GAS BMP MANUAL. ENTRANCES AT COUNTY/STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH WV DOT REGULATIONS. SEPARATE PERMITS MAY BE REQUIRED BY THE DOT.

SEDIMENT BASINS, TRAPS AND APPROPRIATE EROSION CONTROL BARRIERS ARE TO BE CONSTRUCTED AT ALL CULVERT AND CROSS DRAIN INLETS AND OUTLETS AS REQUIRED IN THE WV DEP OIL AND GAS BMP MANUAL. FIELD CONDITIONS (ROCK OUTCROPS AND BEDROCK) MAY PROHIBIT INLET TRAPS BEING INSTALLED. WHEN THESE CONDITIONS EXIST, ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED.

EARTHWORK CONTRACTORS ARE RESPONSIBLE FOR NOTIFYING TO THE OPERATOR AND INSPECTOR PRIOR TO ANY DEVIATION FROM THIS PLAN.

CONTRACTORS/COMPANY ARE RESPONSIBLE FOR LOCATING UTILITIES WHETHER SHOWN ON THIS PLAN OR NOT.

TEMPORARILY SEED AND MULCH ALL SLOPES AFTER CONSTRUCTION OF LOCATION.

CUT AND STACK ALL TIMBER ABOVE 6-INCHES IN DIAMETER AND THICKER.

STACK BRUSH BELOW LOCATION FOR SEDIMENT CONTROL.

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

Drafted BY:	Date Drafted:	Job Number:
DB	02/02/12	[illegible]

09/27/2013

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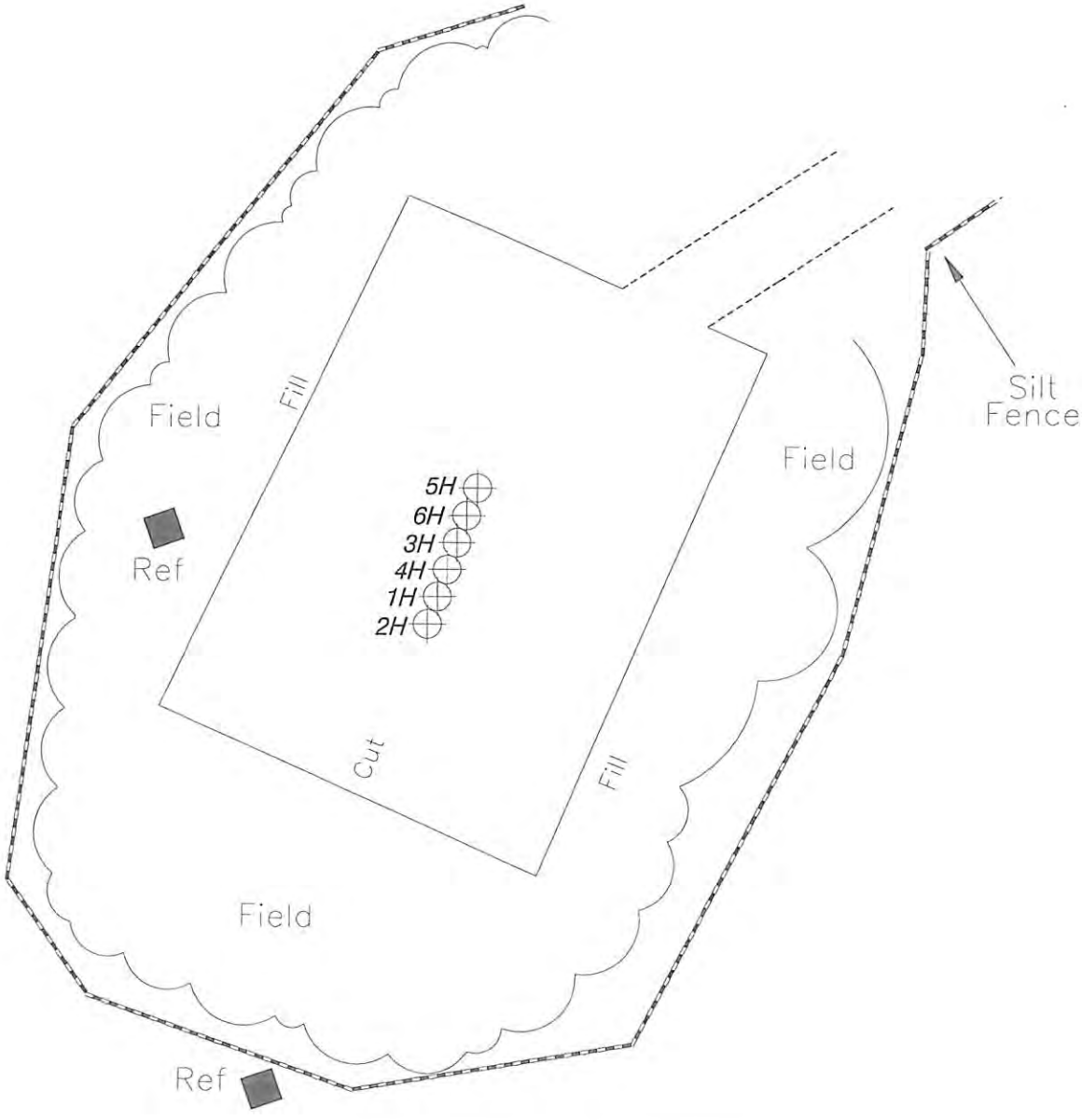
Form W-9

STONE ENERGY CORP.
BLAKE #4H



Install Minimum 12" Culvert

ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH D.E.P. OIL AND GAS BMP MANUAL. ENTRANCES AT COUNTY\STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. SEPARATE PERMITS MAY BE REQUIRED BY THE D.O.T.

SEDIMENT BASINS, TRAPS AND APPROPRIATE EROSION CONTROL BARRIERS ARE TO BE CONSTRUCTED AT ALL CULVERT AND CROSS DRAIN INLETS AND OUTLETS AS REQUIRED IN THE WV D.E.P. OIL AND GAS BMP MANUAL. FIELD CONDITIONS (ROCK OUTCROPS AND BEDROCK) MAY PROHIBIT INLET TRAPS BEING INSTALLED. WHEN THESE CONDITIONS EXIST, ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED.

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TEMPORARILY SEED AND MULCH ALL SLOPES AFTER CONSTRUCTION OF LOCATION.

CUT AND STACK ALL TIMBER ABOVE 6-INCHES IN DIAMETER AND THICKER.

STACK BRUSH BELOW LOCATION FOR SEDIMENT CONTROL.

DMH
4-30-13

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

Drafted BY:	Date Drafted:	Job Number:
DB	02/02/12	09/27/2013

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STONE ENERGY

WW-9 ADDENDUM

Drilling Medium Anticipated for This well

- Vertical section of well bore, down to KOP, will be drilled on air and/or a combination of air and drilling soap.
- From KOP through the curve section and horizontal section of well bore will be drilled on a brine-water based mud system.

Additives to be Used While Drilling

- Common additives when air drilling: KCl *(CAS No. 1302-78-9 & 14808-60-7)*, soda ash *(CAS No. 497-19-8)*, shale stabilizer *(CAS No 67-48-1 & 7732-1835)*, drilling soap *(CAS No. 111-76-2)*, air hammer/motor lubricant.
- Common water based additives for mud drilling: NaCl *(CAS No. 7647-14-5)*, KCl *(CAS No. 7447-40-7)*, barite *(CAS No. 13462-86-7 & 14808-60-7)*, starch *(CAS No. 9005-25-8)*, PAC *(CAS No. 9004-32-4)*, xanthum gum *(CAS No. 11138-66-2)*, PHPA *(CAS No. 64742-47-8)*, polysaccharide *(CAS No. 11138-66-2)*, sulfonated asphaltic material *(CAS No. 269-212-0 & 238-878-4)*, aluminum silicate *(CAS No. 37287-16-4)*, gilsonite *(CAS No. 12002-43-6)*, graphite *(CAS No.14808-60-7 & 7782-42-5)*, shale stabilizer *(CAS No. 67-48-1 & 7732-18-5)*, fluid loss control polymers *(CAS No. 9004-34-6)*, viscosity control polymers *(CAS No. 11138-66-2 & 107-22-2)*, soda ash *(CAS No. 497-19-8)*, sodium bicarbonate *(CAS No. 144-55-8)*, NaOH *(CAS No. 1310-73-2, 7647-14-5, & 7732-18-5)*, lime *(CAS No. 1305-62-0)*, gypsum *(CAS No.778-18-9)* , citric acid *(CAS No. 77-92-9)*, biocide *(CAS No. 52-51-7 or 7732-18-5 + 67-56-1 + 141-43-5)*, $CaCO_3$ *(CAS No. 471-34-1)* , cellulose fibers *(CAS No. 14808-60-7)*, nut plug *(CAS No. 9004-34-6 & 14808-60-7)*, cross-linking polymers *(CAS No. 107-22-2 & 11138-66-2)*, other LCMs, surfactants *(CAS No. 64-17-5)* , ROP enhancer/lubricant *(CAS No. 8002-13-9)*, beads, corrosion inhibitor *(CAS No. 7732-18-5)*, aluminum stearate *(CAS No. 300-92-5)*, defoamer *(CAS No. 246-771-9)*.

MSDS are available upon request.

DMH
4-30-13

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STONE ENERGY

WW-9 ADDENDUM

Drill Cuttings Disposal Method

- Closed loop drilling system will be incorporated. No waste pits will be constructed. All drill cuttings are put through a drier system and hauled to and disposed of at approved and permitted landfills.

Landfills or Offsite Names and Permit Numbers

Wetzel County Sanitary Landfill
Rt. 1, Box 156A
New Martinsville, WV 26155
SWF-1021 / WV01909185

Brooke County Sanitary Landfill
Colliers, WV 26035
SWF-1013 / WV0109029

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Well: Blake 4H
State: West Virginia
County: Wetzel
District: Magnolia
Prospect: Mary
Location: Surface: North = 4,388,564.76 East = 517,294.38 (UTM NAD 83)
PBHL: North = 4,387,210.10 East = 517,965.02 (UTM NAD 83)
PTD: 11600' MD / 6750' TVD

STONE ENERGY - PROPOSED HORIZONTAL

Revision: 22-Apr-13

Permit Number: 47-103-0
Permit Issued:
Post Construction Ground Elevation: 1293'
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	40' KB (22' BGL)		**CONDUCTOR PIPE** 20" x 3/8" wall L/S PE @ 40' (set in bedrock & grouted to surface)		Vertical
17-1/2" Hole	Shallowest FW 80' TVD Pittsburgh Coal 1106' TVD Deepest FW 1112' TVD **1240' TVD**			Air / Mist	
			SURFACE CASING 13-3/8" 54.5# J-55 STC @ 1240' MD/TVD Set through fresh water zones Set through coal zones Cemented to surface		Vertical
	1820' TVD				
12-1/4" Hole	Little Lime 2200' TVD Big Lime 2230' TVD Big Injun Sandstone 2330' TVD Base of Big Injun 2430' TVD **2570' TVD**			Stiff Foam	
			INTERMEDIATE CASING 9-5/8" 36.0# J-55 LTC @ 2570' MD/TVD Set through potential salt water zones Set below base of Big Injun Cemented to surface		Vertical
	Berea Sandstone 2800' TVD				
	Gordon Sandstone 3050' TVD				
8-3/4" Hole				Air / Dust	
			KOP @ 5986' TVD		
8-3/4" Hole	Rhinestreet Shale 6040' TVD Cashaqua Shale 6388' TVD Middlesex Shale 6502' TVD West River Shale 6518' TVD Geneseo Shale 6586' TVD Tully Limestone 6606' TVD Hamilton Shale 6640' TVD			WBM in Curve	
8-3/4" Hole in Lateral	Marcellus Shale 6666' TVD			WBM in Lateral	~89.5°
	Onondaga Limestone 6720' TVD		Landing Point (LP) @ 7205' MD / 6700' TVD ~89.5° angle ~151° azimuth		
			TD @ 11600' MD / 6750' TVD **PRODUCTION CASING** 5-1/2" 20.0# P-110 CDC @ 11600' MD Top of Cement @ 1370' (~1200' inside 9-5/8")		

DMH 4-30-13

Notes: Formation tops as per vertical pilot hole
Curve & lateral tops will vary due to structural changes
Directional plan based upon best estimate of structure

103-0293

Water Management Plan:
Primary Water Sources

WMP-01345	API/ID Number:	047-103-02913	Operator:	Stone Energy Corporation
		Blake #4H		

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED AUG 2 1 2013

09/27/2013

Source Summary

WMP- 01345	API Number:	047-103-02913	Operator:	Stone Energy Corporation
		Blake #4H		

Stream/River

- Source **Ohio River @ The Spielers Club** Wetzel Owner: **The Spielers Club**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/1/2014	9/1/2015	6,650,000		39.709677	-80.826384

☑ Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): **833** **Min. Gauge Reading (cfs):** **6,468.00** **Min. Passby (cfs)**

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml

09/27/2013

Source Detail

WMP-01345 | API/ID Number: 047-103-02913 | Operator: Stone Energy Corporation

Blake #4H

Source ID: 20558 | Source Name: Ohio River @ The Spielers Club / The Spielers Club

Source Latitude: 39.709677

Source Longitude: -80.826384

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 25000 | County: Wetzel

Anticipated withdrawal start date: 9/1/2014

Anticipated withdrawal end date: 9/1/2015

Total Volume from Source (gal): 6,650,000

Max. Pump rate (gpm): 833

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm) 0

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream? — Ohio River Min. Flow
- [x] Proximate PSD? — Grandview-Doolin PSD
- [x] Gauged Stream?

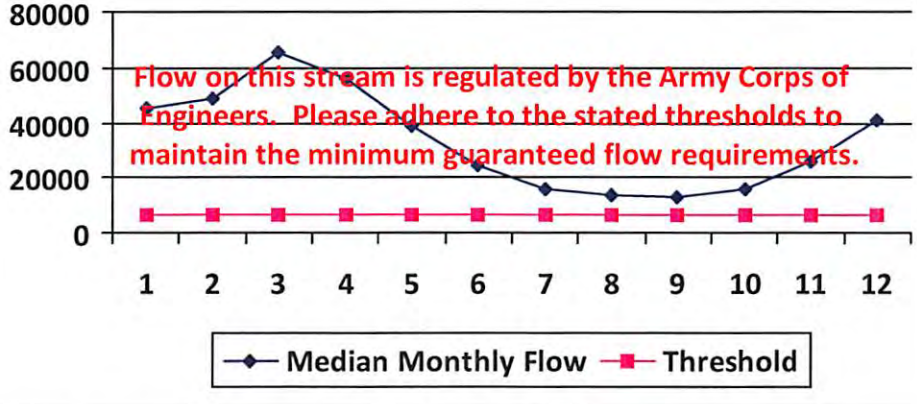
Reference Gaug: 9999999 | Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	1.86
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

09/27/2013

Water Management Plan:
Secondary Water Sources

WMP-01345	API/ID Number	047-103-02913	Operator:	Stone Energy Corporation
		Blake #4H		

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Multi-site impoundment

Source ID:	20559	Source Name	Pribble Freshwater Impoundment	Source start date:	9/1/2014
				Source end date:	9/1/2015
Source Lat:	39.685144	Source Long:	-80.820002	County	Wetzel
Max. Daily Purchase (gal)				Total Volume from Source (gal):	6,100,000

DEP Comments:

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-277

09/27/2013

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Recycled Frac Water

Source ID: 20560 Source Name: Various

Source start date: 9/1/2014
Source end date: 9/1/2015

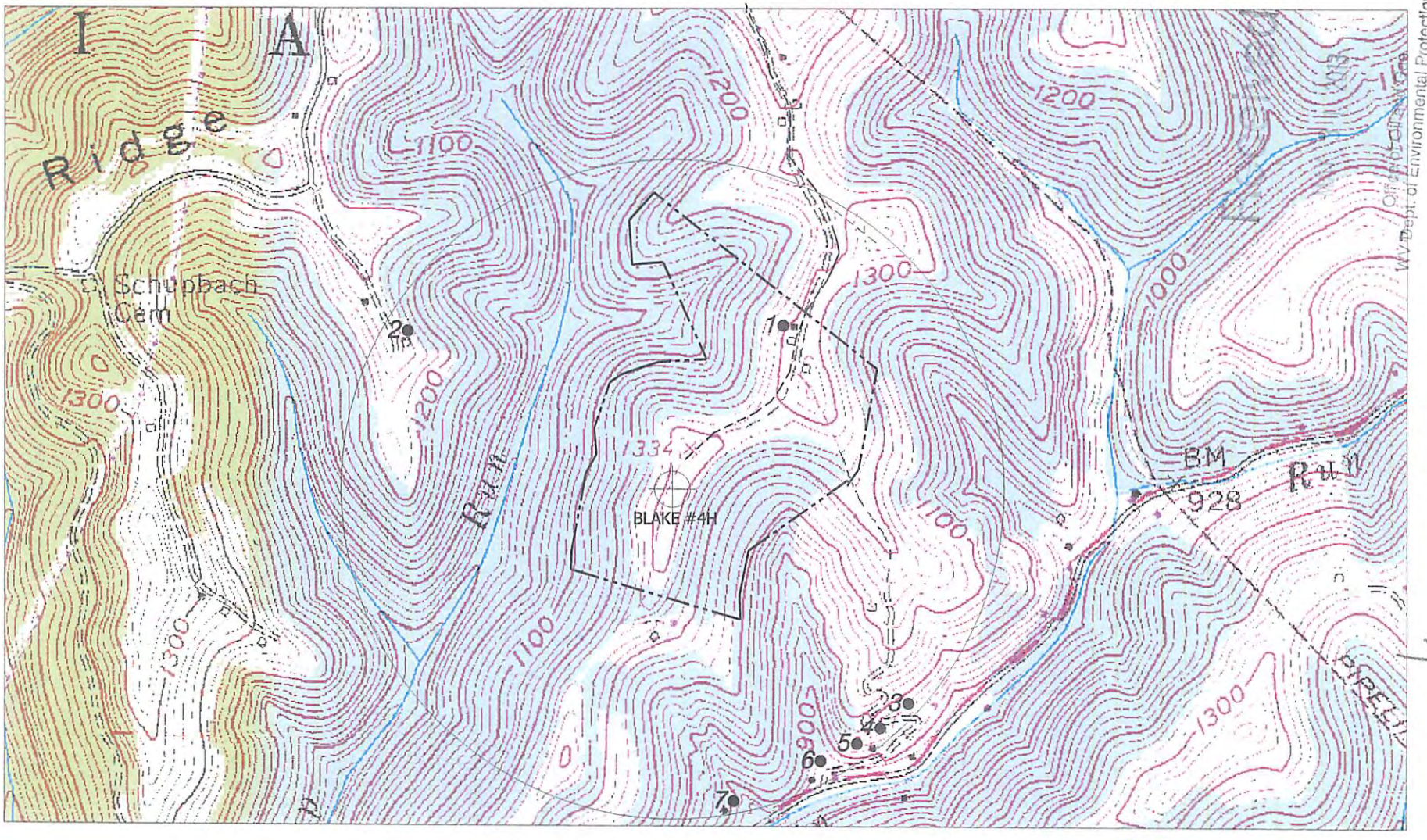
Source Lat: Source Long: County

Max. Daily Purchase (gal) Total Volume from Source (gal): 200,000

DEP Comments:

Form W-9

Stone Energy Corp.
Blake #4H Water



SCALE: 1-INCH = 1000-FEET

0' 1000' 2000' 3000'

DMH
4-30-13

plat spotted 103-02913

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

1" = 1000'
New Martinsville Quad

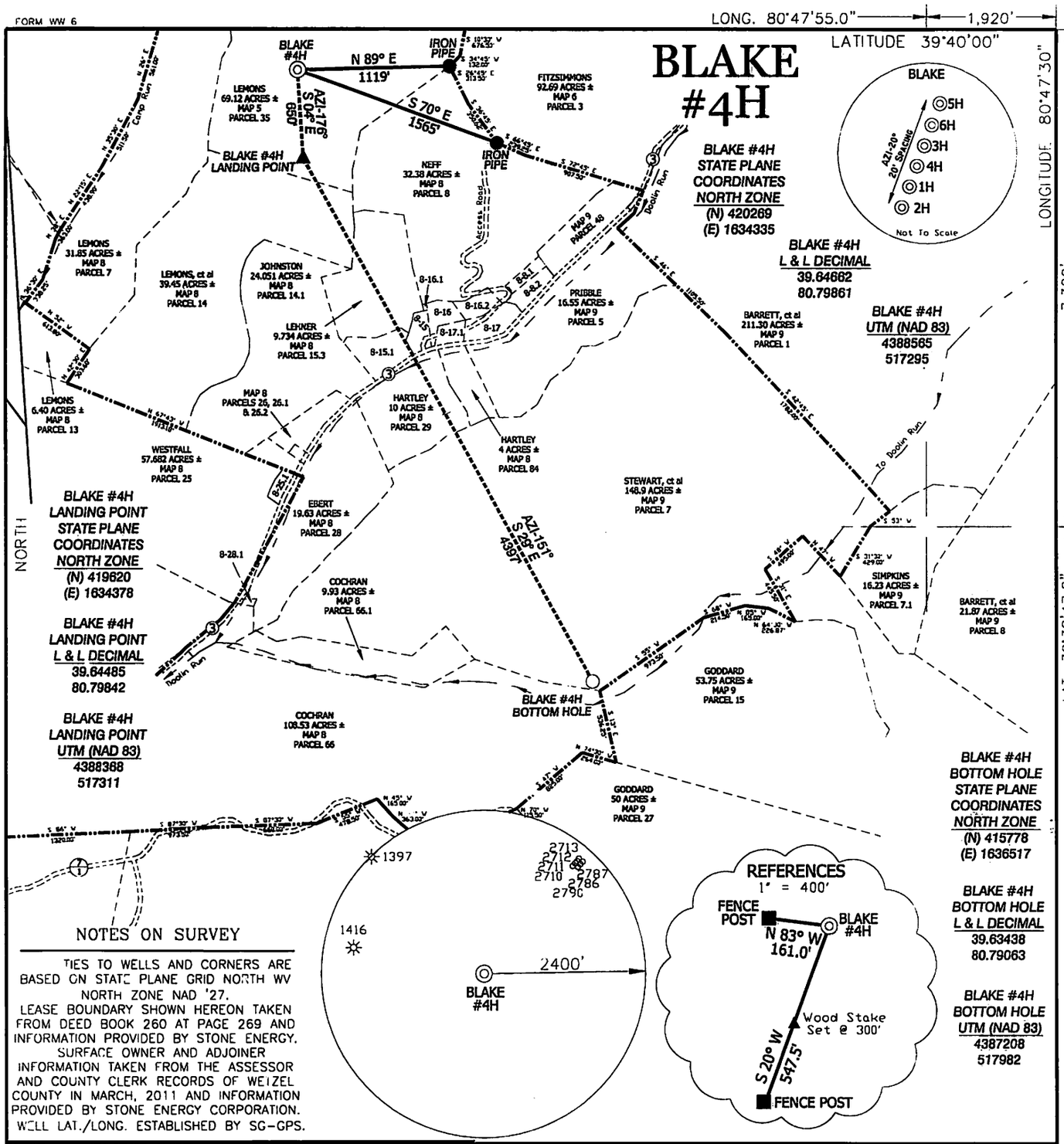
Stone Energy Corporation
PO Box 52807
Lafayette, LA 70508

-------- Existing Access Road

Radius — 1000' Water Sampling Radius

● Possible Water Sources

FORM WW 6



NOTES ON SURVEY

TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 260 AT PAGE 269 AND INFORMATION PROVIDED BY STONE ENERGY.
SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN MARCH, 2011 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
WELL LAT./LONG. ESTABLISHED BY SG-GPS.

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE MAY 14, 20 13

OPERATORS WELL NO. BLAKE #4H

API WELL NO. 47 — 103 — 02913
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500

PROVEN SOURCE OF ELEVATION SG-GPS

FILE NO. W2030 (BK 50-21)

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 1,302' WATERSHED CAMP RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER GARY LEMONS ACREAGE 69.12±
ROYALTY OWNER GARY LEMONS, et al LEASE ACREAGE 279.39± 09/27/2013
PROPOSED WORK : LEASE NO. ___
DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X 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 6,700' MD 11,600'

COUNTY NAME
PERMIT

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