

### 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

July 01, 2013

### WELL WORK PERMIT

#### Horizontal 6A Well

This permit, API Well Number: 47-10302894, 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: ZMBG #3H

Farm Name: ZUMPETTA, LAWRENCE, ET AL

API Well Number: 47-10302894

Permit Type: Horizontal 6A Well

Date Issued: 07/01/2013



### **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. <u>Failure to adhere to the specified permit conditions may result in enforcement action.</u>

#### **CONDITIONS**

- 1. 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.
- 2. 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% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) 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.
- 3. 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.
- 4. 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.
- 5. 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.

# STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

	W.VA	. CODE §	22-6A - WELL	WORK PERN	<u>11T APPLICA</u> 103	ATION 06	100
Well Operator:	STONE	E ENERGY (	CORPORATION	494490923	Wetzel	Magnolia	New Martinsville
1) Well Operator.	-			Operator ID	County	District	Quadrangle
State 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10-37		71.100.110				
2) Operator's Well	Number	r:	ZMBG #3	5H	Well Pad Nan	ne: ZME	56
3 Elevation, curren	t groun	d:	1,340' Elev	vation, proposed	d post-constru	etion:	1,334'
4) Well Type: (a)	Gas Other		Oil	_			
	f Gas:	Shallow Horizont	al =	Deep			
5) Existing Pad? Yo	es or No	:	No				
6) Proposed Target The well is to be drilled in thickness of 56' and a roo	the Marcelli	us Shale formation	n. Depth is expected to be				s expected to have a
7) Proposed Total V	Vertical	Depth:	6,740' TVD				
8) Formation at Tot	al Verti	cal Depth:	MARCELLUS	SHALE			
<ol><li>Proposed Total N</li></ol>			13,300' MD				
10) Approximate F				Shallowest and	1,147' Deepest		
11) Method to Dete	rmine F	resh Water	Depth: No	ticeable flow fron	n flow line or wh	en having to s	start soaping
12) Approximate S			1,800'				
13) Approximate C	oal Sear	n Depths:	1,142'				
14) Approximate D	epth to	Possible Vo	oid (coal mine, k	arst, other):	None Antic	cipated	
15) Does land conta	ain coal	seams tribu	itary or adjacent	to, active mine	? <u>No</u>		
16) Describe propo	sed well	work:	Construct well site acc	cording to approved en	gineering plans. MIF	RU conductor rig and	d set 20" conductor into
			MIRU Top Hole Rig and d				
			nt to surface. Continue d		op Hole Rig and MIRU	Horizontal Rig. Dril	I curve and lateral to TD.
Set 5.5" production casin	g and cemer	nt 1000' back into	9.625" casing. RDMO He	orizontal Rig.			
17) Describe fractu MIRU completion Equipm in the lateral section. Stir	ent. Run Cl	BL from approxim	ately 30 degrees in the cu				
			nent to aid in fluid recovery				
in line the well pad will be	reclaimed.	See attached Fra	ac Chemical Addendum fo	r additives that may be	used during the stimul	ation.	
18) Total area to be	disturb	ed, includi	ng roads, stockpi	le area, pits, etc	c, (acres):		28.79
19) Area to be distu	irbed fo	r well pad o	only, less access	road (acres):		9.89	
				Dm	ν	P	scalled Gas
				4-1	-17	Olyton	TANK TO SERVICE

### 20)

### **CASING AND TUBING PROGRAM**

ТҮРЕ	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'	38 CTS
Fresh Water	13.375"	New	J55	54.0	1,300'	1,300'	1,238 CTS
Coal	13.375"	New	J55	54.0	1,300'	1,300' 🗸	1,238 CTS
Intermediate	9.625"	New	J55	36.5	2,570'	2,570' 🗸	693 Lead - 357 Tail CTS
Production	5.5"	New	P110	20.0		13,300' ~	1,100 Lead - 2,177 Tail TOC @ 1,570
Tubing	2.375"	New	J55	4.7		7,200'	N/A
Liners							

Note: The fresh water/coal string will be set above sea level and cemented to surface.

VMH 4-1-13

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	Lead 1.26 - Tail 1.19
Production	5.5"	8.75"	0.361"	12,360 psi	Class A	Lead 1.25 - Tail 1.23
Tubing	2.375"	N/A	0.190"	7,700 psi	N/A	N/A
Liners						

### **PACKERS**

Kind:	N/A	
Sizes:		
Depths Set:		calved Gaz

07/05/2013

21	Describe centralizer placement for each casing stringFresh water/Coal string will incorporate the use
	of bow spring centralizers with one (1) being placed above guide shoe and one (1) every second joint to surface for
	a total of 17 bow spring centralizers will be run.
	- Intermediate string will incorporate the use of bow spring centralizers with one (1) being placed above the guide
	shoe, one (1) above the float collar, and one (1) every third joint to surface. One (1) rigid centralizer will be placed
	near the surface. A total of 23 bow spring centralizers will be run.
	- Production string will incorporate the use of alternating left and right hand spiral centralizers with one (1) every
	fourth joint from TD to KOP, one (1) every third joint from KOP to top of nudge or slant, and one (1) bow spring
	centralizers placed on every third joint to TOC. A total of 76 Spiral and 10 Bow Spring will be be run.
22	) Describe all cement additives associated with each cement type.  - Fresh Water/Coal string will be
	cemented using a slurry of Class A cement with 0.10 lb/sx Cello flake, 0.20% BWOB Anti-Foam, and 1.0% BWOB CaCl2
	- Intermediate string will be cemented using a Lead and Tail slurry; Lead is Class A cement with 0.20 gps Accelerator,
/	0.07 gps Dispersant, 0.10 gps Anti-Foam, 4.0% BWOB Expanding Agent, and 0.50% BWOB Gas Control Agent.
γ	Tail is Class A cement with 1.0% BWOB CaCl2, 0.1 lb/sx Cello-Flake, and 0.2% BWOB Anti Foam.
	-Production string will be cemented using a Lead and Tail slurry; Lead is Class A cement with 0.10 gps Dispersant,
	0.10 gps Anti-Foam, 0.05 gps Retarder, 4.0% BWOB Expanding Agent, and 0.50% BWOB Gas Control Agent.
	Tail is Class A cement with 0.90% BWOB Dispersant, 0.30% BWOB Fluid Loss, 0.20% BWOB Anti-Foam, and 0.60%
	BWOB Retarder.
23	) Proposed borehole conditioning procedures.
	- Fresh Water/Coal section will be conditioned by circulating air through the drill sting at TD for between 30 to 60
	minutes until well bore is clean of cuttings.
	- Intermediate section will be conditioned by circulating air and/or stiff foam through drill string at TD for between
	30 to 120 minutes until well bore is clear of cuttings.
	- Production section will be conditioned by circulating drilling fluid through the drill string at TD fro between 60 to 720
	minutes until shakers are clear of cutting and drill string pulls free of bottom.
*Nc	nte: Attach additional sheets as needed

Om7 4-1-13

Received Gas

Well: ZMBG #3H State: West Virginia STONE ENERGY - PROPOSED HORIZONTAL

Revision: 14-Mar-13

County: Wetzel District: Magnolia Mary

Prospect: Location: Surface: North = 4,387,944 East = 515,391 (UTM NAD 83)

PBHL: North = 4,389,567 East = 514,220 (UTM NAD 83)

PTD: 13300' MD / 6750' TVD

Permit Number: 47-103-0

Permit Issued:

AC Ground Elevation: 1334' Kelly Bushing: 18'

Rig: Spud Date:

TD Date: Rig Release Date:

SIZE	PILOT HOLE FORMATION TO	0.4.1.1	WELLBORE DIAGRAM	CASING & CEMENTING DATA DIRECTIONAL DATA	MW & FLUID TYPE	DEV
24" Hole then Driven	40' KB	(22' BGL)	IIII IIII	CONDUCTOR PIPE		Vertic
-		80' TVD	411 111-	20" x 3/8" wall L/S PE @ 40' (set in bedrock & grouted to surface)		
		1142' TVD			Air / Mist	
17-1/2" Hole		1147' TVD			All / Mist	
	2000000	1300' TVD		SURFACE CASING		Vertic
				13-3/8" 54.5# J-55 STC @ 1300' MD/TVD		
	Salt Water	1800' TVD	3	Set through fresh water zones		
	Little Lime	2210' TVD		Set through coal zones		
12-1/4" Hole	Big Lime	2240' TVD	N 10	Cemented to surface	Stiff Foam	
	Top Big Injun	2340' TVD				
	Base of Big Injun	2440' TVD	ii ii			
		2570' TVD	20 10	INTERMEDIATE CASING		Verti
-			-   -	9-5/8" 36.0# J-55 LTC @ 2570' MD/TVD		
	Berea Sandstone	2800' TVD		Set through potential salt water zones		
				Set below base of Big Injun		
	Gordon Sandstone	3050' TVD		Cemented to surface		
					100.00	
8-3/4" Hole					Air / Dust	
			-   -	Charles Sales		-
			( K	P @ 6024' TVD		
	Rhinestreet Shale	6040' TVD	1 1	247	WBM	
	Cashaqua Shale	6428' TVD	1 1	Day	in Curve	
8-3/4" Hole	Middlesex Shale	6554' TVD	1 1	Villa	in carre	
	West River Shale	6571' TVD	1	PmH 4-1-13		
		6640' TVD	1	1111		
		6660' TVD	1	1		
		6694' TVD	1			
8-3/4" Hole in Lateral	Marcellus Shale	6716' TVD			WBM in Latera	al ~9
	Onondaga Limestone	6772' TVD		1	TD @ 13300' MD / 6740' TVD	1
	A THE PARTY OF THE PROPERTY OF			Landing Point (LP) @ 7299' MD / 6740' TVD	PRODUCTION CASING	
Matan	Formation tops as per verti	ical pilot hole		~90.0° angle	5-1/2" 20.0# P-110 CDC @ 13300' MD	
MOIES						

API No. 47 - 103 - 2899 Operator's Well No. ZMBG #3H

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

# CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name	STON	E ENERGY CORPO	RATION	OP Code	494490923	3
Watershed	Tributary of	Doolin Run	Quadrangle _	Ne	ew Martinsville	
Elevation	1,340'	County	Wetzel	District	Magnolia	
Description of antic	ipated Pit Waste:	Ther	e will not be a waste pi	t constructed on	this well site	
Do you anticipate u	sing more than 5,0	00 bbls of water to o	complete the proposed	well work? Ye	es_ ✓ No_	
Will a synthetic line	er be used in the pi	t? N/A	If so, what mil.?	N/A		
Proposed Disposal I	Land Appli Undergroum Reuse (at A	cation nd Injection (UIC P API Number <u>Flow ba</u> sposal (Supply form	ermit Number_ Hunter ack will be stored in tanks a WW-9 for disposal lo	and re-used at othe cation)	21, 34-121-24037, 34 r well site	-121-24086)
-If oil base Additives to be used Will closed loop sys	d, what type? Synd? See Attached Water be used?	thetic, petroleum, et N-9 Addendum Top Hole and Horizont	n, oil based, etc. Vertical sec. N/A  al drilling rigs will incorporate oved offsite, etc. Approximately approxima	ate the use of a clo	sed loop system	DM IA
-If left in p	it and plan to solid	lify what medium wi	ill be used? Cement, li County Sanitary Landfill (S	me, N/A		
on August 1, 2005, provisions of the pe or regulation can lea I certify u application form an the information, I I submitting false info	by the Office of Ormit are enforceable and to enforcement under penalty of lad all attachments to believe that the information, including	oil and Gas of the Wole by law. Violation action.  aw that I have pershereto and that, base formation is true, a g the possibility of f	and conditions of the lest Virginia Departments of any term or conditionally examined and led on my inquiry of the courate, and complete line or imprisonment.	nt of Environmention of the general am familiar with ose individuals	ental Protection. I ral permit and/or of the the information immediately response	understand that the other applicable law a submitted on this unsible for obtaining
Company Official S	Signature		9/	11/	m)	
Company Official (	Typed Name)		Timothy P. I	McGregor		
Company Official T	Title		Land Coo	rdinator		<del></del>
Subscribed and swo	orn before me this_	a7 <sup>2</sup> day	of March	, 20	13	Received Office of Oil & Gas
My commission exp	anul o	1. Anoduly		Notary	Public	
			WEST CONTROL OF THE PARTY OF TH	STATE OF DANIELL	FICIAL SEAL ARY PUBLIC F WEST VIRGINIA E L SNODERLY V, Fairmont, WV 26554 In Expires May 18, 202	07/05/2013

API No. 47 -	103	-	289	14
Operator's Well	Nο		7MRG #	3H

Property Boundary				
			Diversion	<u> </u>
Road		===	Spring	<b>₩</b>
Existing Fence	—×—×—×	—×—	Wet Spot	Ö
Planned Fence		_/ <del>_</del>	Drain Pipe w/ size in inches ————————————————————————————————————	12
Stream Ones Ditab		-	Waterway	$\Longrightarrow$
Open Ditch	-0.000		Cross Drain	
Rock	0,000		Artificial Filter Strip XXXXXXX	000000000000000000000000000000000000000
North	Ť		Pit: Cut Walls	(III)
Buildings			Pit: Compacted Fill Walls	ymmine.
Water Wells	W		Area for Land Application	Land Harange
Drill Sites	$\check{\oplus}$		of Pit Waste	
Proposed Revegetation Treat	tment: Acres Disturbed	28.7	79 Prevegetation	nH
			revegetation	r
Lime2.0	Tons/acre or to corre	ect to pH	6.5	
Fertilizer (10-20-20	or equivalent)500 - 7	50 lbs/acre	(500 lbs minimum)	
Mulch 0.50 to	o 0.75 TPA + Straw	Tons/acre		
<del></del> -		Seed Mi	ixtures	
Α.	rea I		Δ	area II
Seed Type	lbs/acre		Seed Type	lbs/acre
Marcellus Mix	100.0		Marcellus Mix	100.0
	40.0		White or Ladino Clove	er 10.0
White or Ladino Clover	10.0			
White or Ladino Clover Orchard Grass	40.0	_	Orchard Grass	40.0
	<del> </del>		Orchard Grass Winter Rye	<b>40.0 50.0</b>
Orchard Grass  Winter Rye  Attach: Drawing(s) of road, location	40.0 50.0 ,pit and proposed area for		Winter Rye	
Orchard Grass  Winter Rye  Attach: Drawing(s) of road, location Photocopied section of invol	40.0 50.0  a,pit and proposed area for lived 7.5' topographic sheet		Winter Rye	
Orchard Grass	40.0 50.0  a,pit and proposed area for lived 7.5' topographic sheet	t.	Winter Rye	
Orchard Grass  Winter Rye  Attach: Drawing(s) of road, location Photocopied section of invol	40.0 50.0  Appit and proposed area for lived 7.5' topographic sheet	t.	Winter Rye	

## west virginia department of environmental protection



### Water Management Plan: Secondary Water Sources



WMP-01199

API/ID Number

047-103-02894

Operator:

Stone Energy Corporation

ZMBG #3H

#### 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: 17036 Source Name

Pribble Freshwater Impoundment

Source start date:

2/1/2014

Source end date:

2/1/2015

Source Lat:

39.685144

Source Long:

-80.820002

County

Wetzel

Max. Daily Purchase (gal)

Total Volume from Source (gal):

8,052,200

**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

APPROVED MAY 2 8 2013

WMP-01199 API/ID Number 047-103-02894 Operator: Stone Energy Corporation

ZMBG #3H

#### 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: 17037 Source Name Varioius

Source start date:

2/1/2014

Source end date:

2/1/2015

Source Lat:

Source Long:

County

Max. Daily Purchase (gal)

Total Volume from Source (gal):

347,800

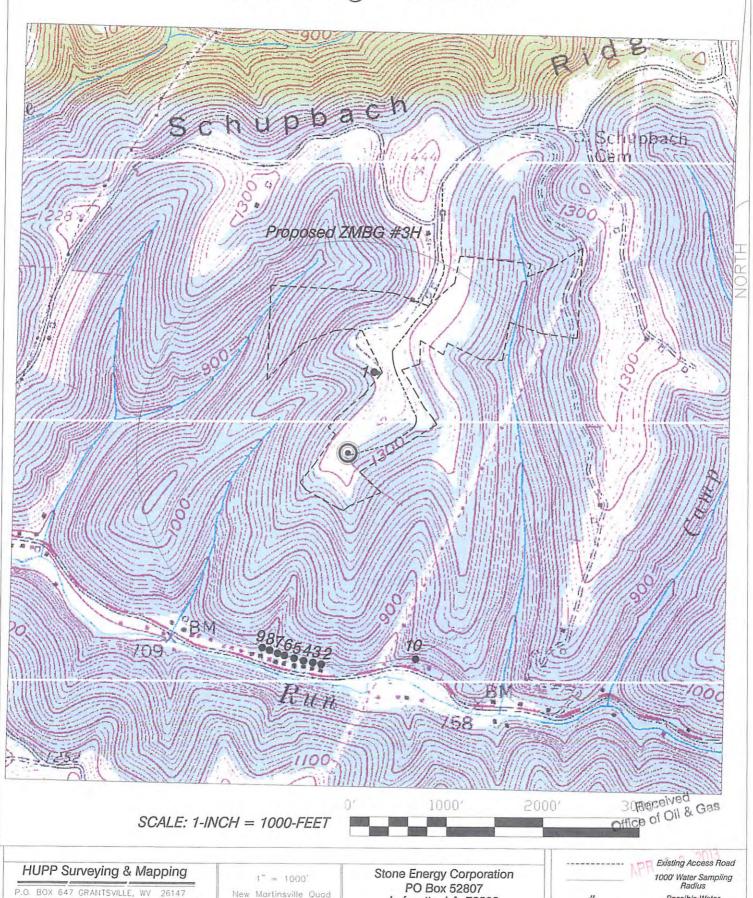
**DEP Comments:** 

Form W-9

# STONE ENERGY CORP. ZMBG #3H WATER

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07/05/2013



Lafayette, LA 70508

New Martinsville Quad

PH:(304)354-7035 E-MAIL: hupp@frontiernet.net

