

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor
Jeff Kottkamp
Lt. Governor
Michael W. Sole
Secretary

November 10, 2009

Electronically Sent – Received Receipt Requested

rjensen@fbenergy.com

Mr. Rick Jensen, President
FB Energy, LLC
9040 Town Center Parkway
Bradenton, Florida 34202

Re: Request for Additional Information
DEP File Number: 0810226-001-AC
60 Megawatt (MW) Biomass-Based Electrical Generating Power Plant

Dear Mr. Jensen:

The Department has received your application for an Air Construction Permit on October 13, 2009. The application is to construct a 60 MW (net) Biomass-fueled power plant at Port Manatee in Manatee County, Florida.

Pursuant to Rule 62-4.055(1), Florida Administrative Code (F.A.C.), the Department reviewed the application and requests submittal of the following additional information. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. **Notice of Application:** Please provide proof of publication of the Notice of Application that we provided on October 26, 2009.
2. **Boiler Type:** In Table 3-2 of the application, the type of boiler proposed for the project is described as a grate-type or circulating fluidized bed (CFB) type boiler, while on page 2 of the text of the application and the DEP application forms, the boiler is described as a grate-type. Please clarify what type of boiler will be used in the project. [Rule 62-4.070, F.A.C. Reasonable Assurance]
3. **NO_x Boiler Emissions:** In the application, NO_x emissions from the boiler with Selective Catalytic Reduction (SCR) as the pollution control device are estimated to be 0.02 pounds per million British thermal units (lb/mmBtu on a long-term average) with 10 parts per million (ppm) of ammonia slip. Please provide your basis for assurances that the proposed NO_x value can be achieved in practice. [Rule 62-4.070, F.A.C. Reasonable Assurance]
4. **Wood Waste Biomass Material:** Please provide a clearer description of the biomass that will be utilized at the FB Energy facility. In various places in the application, boiler fuel is described as biomass, wood chips and wood waste material. For an example of a clearer description of woody biomass, see the draft permit and technical evaluation for the ADAGE LLC project in Hamilton County, Florida. The permit and technical evaluation for the ADAGE project may be found at the following link: www.dep.state.fl.us/Air/emission/construction/adage.htm

[Rule 62-4.070, F.A.C. Reasonable Assurance]

5. Maximum Heat Input Rate to the Biomass Boiler: The nominal heat input rate to the boiler stated in the application is 757 mmBtu/hr. Is this the maximum heat input rate to the boiler anticipated for this project and, if so, what is the averaging time for the heat input? If this is not the maximum heat input rate, what is the maximum heat input rate and averaging time for the boiler? [Rule 62-4.070, F.A.C. Reasonable Assurance]
6. Material Handling and Storage Best Management Practices (BMP) Plan: Please provide a BMP plan including a clearer description of the material handling and storage system to insure that biomass materials are taken in and then used on a first-in/first-out basis. Include descriptions of the storage pile management system and reasonable precautions to avoid fugitive emissions, odors and spontaneous combustion such as by minimizing drop distances, misting of material if needed, etc. Also indicate whether dust collectors will be utilized at the drop and transfer points of the fuel handling and storage system. [Rule 62-4.070, F.A.C. Reasonable Assurance]
7. Methods of Compliance for Emission Limits: Neither the application text nor the application forms at the end of the application include compliance methods for proposed pollutant emissions limits. Based on past biomass energy projects, the Department will require continuous emission monitoring systems (CEMS) for criteria pollutants such as NO_x and SO₂. Does FB Energy propose different methods of compliance for criteria pollutants? [Rule 62-4.070, F.A.C. Reasonable Assurance]
8. Biomass Fuel Delivery: It is stated on page 2 of the application text that trucks will deliver biomass fuel to the project site 6 days a week and 12 hours a day. Is the daily delivery schedule from 6:00 am to 6:00 pm? Also, is this delivery schedule final or will some flexibility be required. [Rule 62-4.070, F.A.C. Reasonable Assurance]
9. HAP Emissions: Please provide a more complete analysis to show that emissions of no single hazardous air pollutant (HAP) will equal or exceed 10 tons per year (TPY). In particular provide additional supporting information that hydrogen chloride (HCl) emissions will not exceed 10 TPY and the method of compliance proposed for HCl emissions. Also provide additional information supporting that all emissions of all HAP will not equal or exceed 25 TPY. [Rule 62-4.070, F.A.C. Reasonable Assurance]
10. HCl CEMS: The estimated emissions of HCl from the biomass boiler are listed as 9.83 TPY. For the ADAGE bio-energy project and Highland's ethanol project, the Department requires HCl-CEMS to demonstrate that the HCl emissions will actually be less than 10 TPY. How does FB Energy propose to demonstrate that HCl emissions from its operations will actually be less than 10 TPY? [Rule 62-4.070, F.A.C. Reasonable Assurance]
11. SCR Bypass: During the startup, shutdown and malfunction of the grate-type biomass boiler will there be provisions to bypass the SCR unit? If so, what are the procedures, conditions and timeframes proposed by FB Energy to bypass the SCR unit? [Rule 62-4.070, F.A.C. Reasonable Assurance]
12. Biomass Quality Assurance (QA) and Quality Control Plan (QC): Provide a QA and QC plan dealing with biomass acceptance/rejection criteria. For example, some operators provide a very detailed wood fuel quality control plan. Refer for example to the style of one filed (for a different fuel slate) for the Robbins Community Power project in Illinois that was incorporated in the air permit available at: www.epa.state.il.us/public-notices/2008/robbins-power/draft-permit.pdf
[Rule 62-4.070, F.A.C. Reasonable Assurance]
13. Land Use for Meteorology: Provide additional information regarding the meteorological files. Provide information that was used in determining the land use characteristics of the Sarasota-Bradenton airport. [Rule 62-4.070, F.A.C. Reasonable Assurance]

14. Truck Traffic: Explain how the emission rates for the truck traffic were determined. Explain how the emission rates for the modeled truck sources relate to the emission rates from Tables 3-7 and 5-4 in the application. [Rule 62-4.070, F.A.C. Reasonable Assurance]
15. PM₁₀ Modeling. The Department was unable to replicate the PM₁₀ modeling results. Verify the modeling results. The Department has the input and output files available for comparison if needed. [Rule 62-4.070, F.A.C. Reasonable Assurance]

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C., requires that all applications for a construction permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the application, please include a new certification statement by the authorized representative or responsible official. Rule 62-4.055(1), F.A.C., also requires applicants to respond to requests for information within 90 days or provide a written request for an additional period of time to submit the information.

If you have any questions, please contact David Read (permit engineer) at 850/414-7268, Debbie Nelson (meteorologist) at 850/921-9537 or me at 850-921-9523.

Sincerely,



A.A. Linero, Program Administrator
Special Projects Section

AAL/dlr

Cc: Joe McClash, Chairman, MCPA: joe.mcclash@mymanatee.org
Deborah Getzoff, DEP SWD: deborah.getzoff@dep.state.fl.us
Mara Nasca, DEP SWD: mara.nasca@dep.state.fl.us
Scott Osbourn, P.E., Golder: sosbourn@golder.com
Kathy Forney, EPA Region 4: forney.kathleen@epa.gov
Heather Abrams, EPA Region 4: abrams.heather@epa.gov
Elizabeth Walker, Copy for DEP Files: elizabeth.walker@dep.state.fl.us

Walker, Elizabeth (AIR)

From: Linero, Alvaro
Sent: Tuesday, November 10, 2009 3:09 PM
To: rjensen@fbenergy.com
Cc: joe.mcclash@mymanatee.org; Getzoff, Deborah; Nasca, Mara; sosbourn@golder.com; forney.kathleen@epa.gov; abrams.heather@epa.gov; Walker, Elizabeth (AIR)
Subject: Air Permit Application - FB Energy LLC, Request for Additional Information
Attachments: RAI111009.pdf

Importance: High

Dear Mr. Jensen:

Please read the attached letter as it relates to the air construction permit application filed by you for the FB Energy project at Port Manatee, Manatee County .

We have set up a web link for the project at:

www.dep.state.fl.us/Air/emission/construction/port_manatee.htm

If you have any questions, please call me at 850-921-9523.

Thank you.

alvaro.linero@dep.state.fl.us

Alvaro Linero, P.E., Program Administrator
Bureau of Air Regulation
Special Projects Section
State of Florida DEP
850-921-9523

Livingston, Sylvania

From: Livingston, Sylvania
Sent: Monday, November 30, 2009 2:00 PM
To: 'forney.kathleen@epa.gov'; 'abrams.heather@epa.gov'
Cc: Nelson, Deborah; Nasca, Mara; Zhang-Torres; Walker, Elizabeth (AIR); Linero, Alvaro; Read, David
Subject: RAI Response -0810226-001-AC (Florida Biomass Energy, LLC Biomass-Based Electrical Generating Power Plant)

A Response for Additional Information has been received from FB ENERGY, LLC in regards to RAI sent on November 10, 2009.

Link to Permit Application Documents:

<http://arm-permit2k.dep.state.fl.us/psd/0810226/000042FC.pdf>

ARMS PA Project ID:	0810226-001-AC
Facility Name:	FB ENERGY, LLC
Florida County:	Manatee
Permit Application Processor:	David Read
Processor Phone:	(850) 414-7268
Processor Email Address:	David.Read@dep.state.fl.us
Received	11/25/09

Or, Search for other Air Permit Documents on [Florida's Air Permit Documents Search](#).

Please direct any questions regarding this permit application to the permit application processor. If you have any problems accessing these documents please let me know.

Sylvia Livingston
Bureau of Air Regulation
Division of Air Resource Management (DARM)
Department of Environmental Protection
850/921-9506
sylvia.livingston@dep.state.fl.us

Walker, Elizabeth (AIR)

From: Linero, Alvaro
Sent: Monday, December 07, 2009 11:54 AM
To: 'Amra Rickwa'
Subject: RE: DEP File Number 0810226-001-AC

O.k. Amra:

You will find the letter at:

www.dep.state.fl.us/Air/emission/construction/port_manatee.htm

The specific link to the letter is:

http://www.dep.state.fl.us/Air/emission/construction/port_manatee/RAI111009.pdf

The specific link to their response is:

http://www.dep.state.fl.us/Air/emission/construction/port_manatee/000042FC.pdf

We will copy you on official notices.

Please let me know if this satisfies your information request.

Thank you.

Al Linero.

From: Amra Rickwa [mailto:arickwa@icardmerrill.com]
Sent: Monday, December 07, 2009 11:15 AM
To: Linero, Alvaro
Subject: DEP File Number 0810226-001-AC

Dear Mr. Linero - Please see the attached correspondence regarding the above referenced DEP File.

Thank you,
Amra

Amra Dillard Rickwa

Florida Registered Paralegal to

Robert K. Lincoln, Esq. & Stacy Dillard-Spahn, Esq.



Icard, Merrill, Cullis, Timm, Furen & Ginsburg, P.A.
2033 Main Street, Suite 600
Sarasota, FL 34237

Telephone: (941) 366-8100 x 340

Facsimile: (941) 366-6384

arickwa@icardmerrill.com

The information transmitted is intended solely for the individual or entity to which it is addressed and may contain confidential and/or privileged material. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy or disclose to anyone the message or any information contained in this message. Any review, retransmission, dissemination or other use of or taking action in reliance upon this information by persons or entities other than the intended recipient is prohibited. If you have received this email in error, please contact the sender by reply email and delete the material from any computer.

Thank you very much.

For more information about Icard Merrill Cullis Timm Furen & Ginsburg, P.A., please visit us at <http://www.icardmerrill.com>

ICARD MERRILL

ATTORNEYS & COUNSELORS

Robert K. Lincoln
Attorney at Law

December 7, 2009

RECEIVED

DEC 09 2009

◀ VIA EMAIL & REGULAR MAIL

BUREAU OF AIR REGULATION

2033 Main Street
Suite 600
Sarasota, FL 34237
941.366.8100
Fax: 941.366.6384
rlincoln@icardmerrill.com

icardmerrill.com

Mr. Al Linero
Program Administrator, Special Projects Section
Florida Department of Environmental Protection
2600 Blairstone Road
Tallahassee, FL 32399-2400

Re: **DEP File Number 0810226-001-AC**

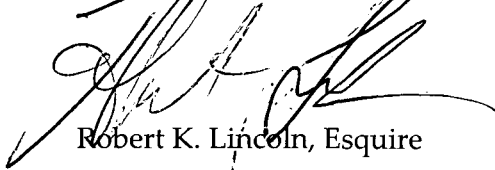
Dear Mr. Linero:

Florida Biomass Energy, LLC has submitted to your department an application for an air construction permit, dated October 9, 2009, for a biomass electrical facility located in Manatee County (Facility Identification No. 0810266). Pursuant to §§ 62-4.055 and 62-110.106, F.A.C. and § 120.60, Florida Statutes, the undersigned hereby formally requests written notice personally or by mail, of any agency action (actual or intended) with respect to the above referenced permit application.

Please also provide me with a copy of the Department's Request for Additional Information (RAI) dated November 10, 2009, regarding the above application. If you have any questions or require further information regarding this request, please feel free to contact me.

Best Regards,

ICARD, MERRILL, CULLIS, TIMM,
FUREN & GINSBURG, P.A.



Robert K. Lincoln, Esquire

RKL/adr

Linero, Alvaro

From: Linero, Alvaro
Sent: Wednesday, December 16, 2009 7:54 AM
To: 'Osbourn, Scott'
Cc: Read, David
Subject: RE: FBEnergy heat Input Increase

Scott:

Does that mean no change in lb/mmBtu factors, lb/hr and tons per year?

Is there a good time to call?

Thanks.

Al Linero.

From: Osbourn, Scott [mailto:Scott_Osbourn@golder.com]
Sent: Monday, December 14, 2009 9:15 AM
To: Read, David
Cc: Linero, Alvaro; Nelson, Deborah
Subject: RE: FBEnergy heat Input Increase

That's correct. FBEnergy is requesting the heat input increase and no increase in any of the associated mass emission rates.

Scott Osbourn (P.E.) | Associate and Senior Consultant | Golder Associates Inc.
5100 West Lemon Street, Suite 114, Tampa, Florida, USA 33609
T: +1 (813) 287-1717 | **D:** +1 (813) 769-5304 | **F:** +1 (813) 287-1716 | **C:** +1 (727) 278-3358 | **E:**
Scott_Osbourn@golder.com | www.golder.com

This email transmission is confidential and may contain proprietary information for the exclusive use of the intended recipient. Any use, distribution or copying of this transmission, other than by the intended recipient, is strictly prohibited. If you are not the intended recipient, please notify the sender and delete all copies. Electronic media is susceptible to unauthorized modification, deterioration, and incompatibility. Accordingly, the electronic media version of any work product may not be relied upon.

Please consider the environment before printing this email.

From: Read, David [mailto:David.Read@dep.state.fl.us]
Sent: Friday, December 11, 2009 7:23 AM
To: Osbourn, Scott
Cc: Linero, Alvaro; Nelson, Deborah
Subject: FBEnergy heat Input Increase

Scott based on the response to the Department's RAI, FBEnergy is requesting a 10% heat input rate increase on a 4 hour average from 757 to 833 mmBtu/hr. However, with the increased heat input rate there was no corresponding increase in the proposed emission limits. Does FBEnergy want to keep the existing emission limits from their application or are they contemplating some increases? If you would like to discuss give Al or I a call.

Have a great weekend.

Thanks

David Lyle Read

Engineering Specialist II

Phone: 850-414-7268

Email: David.Read.dep.state.fl.us

Special Projects Section

Bureau of Air Regulation (BAR)

Division of Air Resource Management (DARM)

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on [this link to the DEP Customer Survey](#). Thank you in advance for completing the survey.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor
Jeff Kottkamp
Lt. Governor
Michael W. Sole
Secretary

December 18, 2009

Electronically Sent – Received Receipt Requested

rjensen@fbenergy.com

Mr. Rick Jensen, President
FB Energy, LLC
9040 Town Center Parkway
Bradenton, Florida 34202

Re: Request for Additional Information
DEP File Number: 0810226-001-AC
60 Megawatt (MW) Biomass-Based Electrical Generating Power Plant

Dear Mr. Jensen:

On November 25, 2009 the Department received your response to our request for additional information (RAI) dated November 10 regarding the application to construct a 60 MW (net) biomass-fueled power plant at Port Manatee in Manatee County, Florida.

Pursuant to Rule 62-4.055(1), Florida Administrative Code (F.A.C.), the Department reviewed the response to the RAI and requests submittal of the following additional information. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

Regarding the 10 percent (%) heat input increase to 833 million Btu per hour (mmBtu/hr):

1. Update Application Pages: Please submit updated application pages affected by the heat input increase.
2. Hydrogen Chloride (HCl): Advise the methods by which HCl emissions will be maintained at less than 10 tons per year (TPY). We understand that HCl emissions will actually be measured continuously, but request reasonable assurance through a description of the methods by which HCl emissions shall be controlled to less than 10 tons per year (TPY) and 25 TPY for all hazardous air pollutant emissions (HAP) combined.
3. Other Emission Limits: Examine whether small increases in other (non-HAP) pollutant estimates (due to the higher heat input) trigger additional rules or permitting requirements. It appears that even at less than 100 TPY of a regulated pollutant, the facility is already a major (Title V) source because it will include a Title IV Acid Rain unit. Therefore an increase to and beyond 100 TPY will not trigger Title V (because it is already triggered). Please confirm and also advise of any requirements that would actually be triggered by the small emission increases.

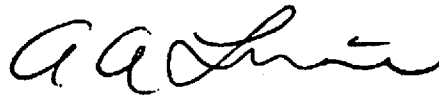
The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C., requires that all applications for a construction permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the

Mr. Rick Jensen, President
DEP File No.: 0810226-001-AC
Page 2

application, please include a new certification statement by the authorized representative or responsible official. Rule 62-4.055(1), F.A.C., also requires applicants to respond to requests for information within 90 days or provide a written request for an additional period of time to submit the information.

If you have any questions, please contact David Read (permit engineer) at 850/414-7268, Debbie Nelson (meteorologist) at 850/921-9537 or me at 850-921-9523.

Sincerely,



A.A. Linero, Program Administrator
Special Projects Section

AAL/dlr

Cc: Joe McClash, Chairman, MCPA: joe.mcclash@mymanatee.org
Deborah Getzoff, DEP SWD: deborah.getzoff@dep.state.fl.us
Mara Nasca, DEP SWD: mara.nasca@dep.state.fl.us
Scott Osbourn, P.E., Golder: sosbourn@golder.com
Kathy Forney, EPA Region 4: forney.kathleen@epa.gov
Heather Abrams, EPA Region 4: abrams.heather@epa.gov
Robert K. Lincoln, Esq.: arickwa@icardmerrill.com
Elizabeth Walker, Copy for DEP Files: elizabeth.walker@dep.state.fl.us

Walker, Elizabeth (AIR)

From: Linero, Alvaro
Sent: Friday, December 18, 2009 10:31 AM
To: rjensen@fbenergy.com
Cc: joe.mcclash@mymanatee.org; Getzoff, Deborah; Nasca, Mara; sosbourn@golder.com; forney.kathleen@epa.gov; abrams.heather@epa.gov; Walker, Elizabeth (AIR); 'arickwa@icardmerrill.com'
Subject: RE: Air Permit Application - FB Energy LLC, Request for Additional Information
Attachments: RAI121809.pdf

Dear Mr. Jensen:

Please read the attached letter as it relates to the air construction permit application filed by you for the FB Energy project at Port Manatee, Manatee County.

If you have any questions, please call me at 850-921-9523.

Thank you.

alvaro.linero@dep.state.fl.us

Alvaro Linero, P.E., Program Administrator
Bureau of Air Regulation
Special Projects Section
State of Florida DEP
850-921-9523

Walker, Elizabeth (AIR)

From: Linero, Alvaro
Sent: Friday, December 18, 2009 10:31 AM
To: rjensen@fbenergy.com
Cc: joe.mcclash@mymanatee.org; Getzoff, Deborah; Nasca, Mara; sosbourn@golder.com; forney.kathleen@epa.gov; abrams.heather@epa.gov; Walker, Elizabeth (AIR); 'arickwa@icardmerrill.com'
Subject: RE: Air Permit Application - FB Energy LLC, Request for Additional Information
Attachments: RA1121809.pdf

Dear Mr. Jensen:

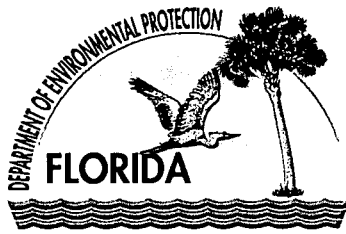
Please read the attached letter as it relates to the air construction permit application filed by you for the FB Energy project at Port Manatee, Manatee County.

If you have any questions, please call me at 850-921-9523.

Thank you.

alvaro.linero@dep.state.fl.us

Alvaro Linero, P.E., Program Administrator
Bureau of Air Regulation
Special Projects Section
State of Florida DEP
850-921-9523



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor
Jeff Kottkamp
Lt. Governor
Michael W. Sole
Secretary

December 18, 2009

Electronically Sent – Received Receipt Requested

rjensen@fbenergy.com

Mr. Rick Jensen, President
FB Energy, LLC
9040 Town Center Parkway
Bradenton, Florida 34202

Re: Request for Additional Information
DEP File Number: 0810226-001-AC
60 Megawatt (MW) Biomass-Based Electrical Generating Power Plant

Dear Mr. Jensen:

On November 25, 2009 the Department received your response to our request for additional information (RAI) dated November 10 regarding the application to construct a 60 MW (net) biomass-fueled power plant at Port Manatee in Manatee County, Florida.

Pursuant to Rule 62-4.055(1), Florida Administrative Code (F.A.C.), the Department reviewed the response to the RAI and requests submittal of the following additional information. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

Regarding the 10 percent (%) heat input increase to 833 million Btu per hour (mmBtu/hr):

1. Update Application Pages: Please submit updated application pages affected by the heat input increase.
2. Hydrogen Chloride (HCl): Advise the methods by which HCl emissions will be maintained at less than 10 tons per year (TPY). We understand that HCl emissions will actually be measured continuously, but request reasonable assurance through a description of the methods by which HCl emissions shall be controlled to less than 10 tons per year (TPY) and 25 TPY for all hazardous air pollutant emissions (HAP) combined.
3. Other Emission Limits: Examine whether small increases in other (non-HAP) pollutant estimates (due to the higher heat input) trigger additional rules or permitting requirements. It appears that even at less than 100 TPY of a regulated pollutant, the facility is already a major (Title V) source because it will include a Title IV Acid Rain unit. Therefore an increase to and beyond 100 TPY will not trigger Title V (because it is already triggered). Please confirm and also advise of any requirements that would actually be triggered by the small emission increases.

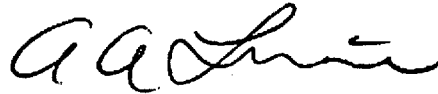
The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C., requires that all applications for a construction permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the

Mr. Rick Jensen, President
DEP File No.: 0810226-001-AC
Page 2

application, please include a new certification statement by the authorized representative or responsible official. Rule 62-4.055(1), F.A.C., also requires applicants to respond to requests for information within 90 days or provide a written request for an additional period of time to submit the information.

If you have any questions, please contact David Read (permit engineer) at 850/414-7268, Debbie Nelson (meteorologist) at 850/921-9537 or me at 850-921-9523.

Sincerely,



A.A. Linero, Program Administrator
Special Projects Section

AAL/dlr

Cc: Joe McClash, Chairman, MCPA: joe.mcclash@mymanatee.org
Deborah Getzoff, DEP SWD: deborah.getzoff@dep.state.fl.us
Mara Nasca, DEP SWD: mara.nasca@dep.state.fl.us
Scott Osbourn, P.E., Golder: sosbourn@golder.com
Kathy Forney, EPA Region 4: forney.kathleen@epa.gov
Heather Abrams, EPA Region 4: abrams.heather@epa.gov
Robert K. Lincoln, Esq.: arickwa@icardmerrill.com
Elizabeth Walker, Copy for DEP Files: elizabeth.walker@dep.state.fl.us

Linero, Alvaro

From: Linero, Alvaro
Sent: Wednesday, February 17, 2010 2:14 PM
To: rjensen@fbenergy.com
Subject: FW: HF emissions based on Fluorene from AP-42 Table 1.6-3

FYI

From: Linero, Alvaro
Sent: Wednesday, February 17, 2010 2:11 PM
To: Osbourn, Scott
Cc: Read, David; Larocca, David; 'Pringle, Paola'
Subject: RE: HF emissions based on Fluorene from AP-42 Table 1.6-3

Please take another look.

Fluorene is not fluorine (F2).

Fluorene is an organic HAP with the chemical formula C13H10.

<http://en.wikipedia.org/wiki/Fluorene>

Al Linero.

From: Pringle, Paola [mailto:Paola_Pringle@golder.com]
Sent: Wednesday, February 17, 2010 1:19 PM
To: Linero, Alvaro
Cc: Read, David; Osbourn, Scott; Larocca, David
Subject: HF emissions based on Fluorene from AP-42 Table 1.6-3

Mr. Linero,

Per request of Scott Osbourn I am sending you more details on the HF estimation for FB Energy. This estimation is based on the Fluorene emission factor from AP-42 Table 1.6-3. Fluorene was converted to HF as detailed below.

Regards,
Paola Pringle

**TABLE 3-4
ACID GAS EMISSION ESTIMATES
FOR THE BOILER AT 100% LOAD**

Parameter	HCl	HF
Heat Input (MMBtu/hr)	757	757
Heat Input (MMBtu/yr)	6,631,320	6,631,320

Uncontrolled Emissions (lb/MMBtu) ^a	0.026	1.78948E-06
Dry Sorbent Control Efficiency (%) (Design Basis) ^b	88	88
Controlled Emissions (lb/MMBtu)	0.00312	2.14738E-07
Emissions (lb/hr)	2.36	1.63E-04
Emissions (TPY)	9.83	7.12E-04

Lb/MMBtu Fluorine (FF)	3.4E-06	AP-42 1.6-3
MW Fluorine	37.996	g/mol
MW HF	19.998	g/mol
lb/mmbtu = ppm / (btu/lb) x (mol W HF/ Mol W F)		
lb/MMBtu HF	=	1.78948E-06
Where Fluorine = FF		

Paola Pringle | Project Engineer | Golder Associates Inc.
5100 West Lemon Street, Suite 114, Tampa, Florida, USA 33609
T: +1 (813) 287-1717 | D: +1 (813) 287-1717 | F: +1 (813) 287-1716 | E: Paola.Pringle@golder.com | www.golder.com

This email transmission is confidential and may contain proprietary information for the exclusive use of the intended recipient. Any use, distribution or copying of this transmission, other than by the intended recipient, is strictly prohibited. If you are not the intended recipient, please notify the sender and delete all copies. Electronic media is susceptible to unauthorized modification, deterioration, and incompatibility. Accordingly, the electronic media version of any work product may not be relied upon.

Please consider the environment before printing this email.