



LEE COUNTY
SOUTHWEST FLORIDA

BOARD OF COUNTY COMMISSIONERS

John E. Manning
District One

November 23, 2011

Brian Bigelow Mr. Scott M. Sheplak, P.E.
District Two DEP – Office of Permitting and Compliance

Ray Judah Mail Station #5505
District Three 2600 Blair Stone Road

Tammy Hall Tallahassee, Florida 32399
District Four

Frank Mann **RE: Lee County Resource Recovery Facility (RRF)**
District Five **File Numbers: 710119-007-AV, Title V Air Operating Permit Renewal**

Karen B. Hawes **Application**
County Manager **0710119-008-AC/PSD-FL-151-E, Air Construction Permit**

Diana M. Parker **Revision**
County Hearing Examiner **0710119-009-AC, Air Construction Permit, Biosolids Request**

Additional Information Requested by FDEP Email Dated November 15, 2011 – Referring to Item B from DEP Letter of August 15, 2011

Dear Mr. Sheplak:

On August 15, 2011, the Florida Department of Environmental Protection (FDEP) issued a letter to the Lee County RRF (Facility) stating that review of the Facility's request to modify several previously issued PSD permits (PSD-FL-151-B&D), submitted on July 22, 2011, had begun. The letter stated that FDEP needed additional information in order to continue processing the application. On November 11, 2011, the County responded to the DEP's questions. The purpose of this letter is to submit the additional information requested by the FDEP in its email dated November 15, 2011.

DEP Question: The Department understands "biosolids" to be the treated and tested form of sewage sludge, i.e., sewage sludge free of pathogens with a low moisture content like 1%. Your request seems to be not just "biosolids" but to be inclusive of sewage sludge.

Lee County Response: On July 26, 2011, the DEP (by email) asked the County "what is the definition the County used for biosolids?". The County responded (by email) that it considered biosolids to be the material as defined by FAC 62-640 (200) (6). The County is not requesting the Department's approval to combust "Liquid Biosolids" as defined by FAC 62-640 (200) (28). Note, copies of both definitions furnished as "**Attachment 1**".

DEP Question: In item 2., it was indicated that with the combustion of sewage sludge/biosolids are not expected to increase or result in new air pollutant emissions.

· Please quantify mercury emissions from the municipal waste combustion (MWC) units without and with the combustion of sewage sludge/biosolids.

Lee County Response: The County’s original request was to burn up to 5% biosolids on a dry weight basis. The County has decided to revise our request to burn up to 5% biosolids on an as received (i.e., wet) basis. Based on the MSW input capacity of 660 tons per day each for Units 1, 2, and 3, the 5% level corresponds to 33 tons per day, or 1.375 tons per hour, of biosolids as received per unit.

Mercury emissions were estimated using the most recent stack testing (2011) and biosolids analytical data. If the units were operating at the same levels as those tested (i.e., more than 90% capacity), the combustion of biosolids would actually replace, rather than supplement, MSW. Therefore, the mercury emissions estimate with biosolids combustion subtracts out 5% of the MSW-generated mercury emissions.

Using the Fort Meyers biosolids average mercury content (from analytical data previously submitted), the estimated uncontrolled mercury emissions, per unit, are

$$\frac{\text{lb Hg}}{\text{hr}} = 1.375 \frac{\text{tons biosolids, wet}}{\text{hr}} * 0.84 \frac{\text{lb Hg}}{10^6 \text{ lb biosolids, wet}} * 2000 \frac{\text{lb biosolids, wet}}{\text{ton biosolids, wet}}$$

$$\frac{\text{lb Hg}}{\text{hr}} = 0.00231$$

The following table, based on 2011 stack test results, summarizes estimated mercury emissions, with and without the combustion of biosolids.

	2011 Stack Test Results (100% MSW)		Estimated Emissions (95% MSW, 5% biosolids)	
	lb/hr, controlled	Removal Efficiency, %	Biosolids only lb/hr, controlled	Total lb/hr, controlled
Unit 1	0.000191	98.9	0.0000254	0.000207
Unit 2	0.000190	97.4	0.0000601	0.000241
Unit 3	0.000269	99.0	0.0000231	0.000279

Converting these to annual numbers (assuming full time operation at these levels and replacement of 5% of the MSW input with biosolids), the total facility mercury

emission rate without biosolids is estimated at 5.69 lb/yr. The total facility mercury emission rate with biosolids is estimated at 6.36 lb/yr.

DEP Question: In item 7., the analysis of the sewage sludge from the City of Ft. Myers indicated a moisture (water) content of 86% for the sewage sludge. This seems like a high water content; the sewage sludge seems to be in a slurry, almost liquid form. It seems like there could be operational problems handling a slurry/liquid form material at the facility compared to the typical solid wastes that come in. The Department understands that the units at the LCRRF were designed to combust municipal solid waste.

Lee County Response: It is understandable that one would think that a material with 86% water would have the characteristics of a liquid or slurry. In fact, the biosolid that the County manages (with typical dry solid content of 13% to 20%) has the characteristics of a moist soil and is readily handled using the mechanical systems employed at the LCRRF.

· Please provide photographs of the City of Ft. Myer's sewage sludge as received at the Lee County Resource Recovery Facility (LCRRF). Be sure to include a close up photograph.

Response: Photos are included as "Attachment 2".

· Will the "waste storage bunker" referred to in item 6. contain sewage sludge like the one from the City of Ft. Myers with such a high moisture content? Please provide a photograph of a "waste storage bunker" at the LCRRF.

Response: Photos are included as "Attachment 3". There is only one waste storage bunker at the LCRRF and it will contain biosolid material along with other solid waste (also see responses below).

· Please provide more details as to how specifically sewage sludge will be well mixed with municipal solid waste prior to moving it from the tipping floor/pit onto a feed conveyor to an MWC unit.

Response: After the biosolid material is placed in the waste storage bunker, a crane grapple will spread the biosolids over the top of other solid waste in the bunker. Other solid waste may then be spread over the top of the (spread) biosolids. The crane grapple will then grab the combined materials and feed same into a combustor feed hopper. Several grapple iterations will be required for each truckload of biosolids. Note, there are no conveyors used to feed solid waste to the combustors.

· Have you considered introducing the sewage sludge/biosolids into the MWC units another way like with sparging?

Response: Sparging generally means to spray or sprinkle. A considerable amount of equipment and energy would be required to spray the biosolids into the MWC combustors because the biosolid that the County receives has the physical characteristics of a solid. No benefit would result by using such a system. Use of the crane grapple to spread the biosolids over other solid waste in the storage pit and then load the mixture into the combustor feed hoppers is the most viable system for the LCRRF and the method used by other resource recovery facilities.

· Under the proposed scenario by simply unloading the sewage sludge/biosolids onto the tipping floor/waste storage bunker it seems it would be difficult to track how much is actually combusted. How will you measure the quantity of sewage sludge/biosolids actually combusted in the MWC units?

Response: The proposed method to measure the quantity of biosolids combusted was included in our letter of July 21, 2011 as Attachment 1, specific conditions 4.f (PSD 151B) and specific conditions B.6.6 and B.24 (PSD 151D). As noted above, the County's revised request is the approval to combust segregated loads of biosolids and that such material will not exceed 5% by weight of the facility's total fuel. Therefore "Attachment 4" includes proposed language for the PSD permit related to the method of measurement.

DEP Question: Item 5., refers to "initially, approximately 12,000 to 15,000 wet tons of biosolids will be available for combustion on an annual basis."

· Does the LCRRF plan to accept sewage sludge directly from the cited wastewater treatment plants?

Response: Yes.

· Will the sewage sludge be treated at the wastewater treatment plants prior to delivery to the LCRRF?

Response: Generally, solids from the bottom of waste water treatment plant (WWTP) clarifiers are pumped to a thickener tank to coagulate and thicken. The biosolids are then transferred to a digester, and after a period of time, to a filter press, vacuum filter, or a centrifuge. At some WWTP, the biosolids may go to a centrifuge then a filter press in series. When the biosolids are first treated through a digester, a certain amount of pathogen, nitrate, and volatile organic reduction occurs.

· Do you plan to dry the sewage sludge prior to combustion in the municipal waste combustion (MWC) units?

Response: No.

Attached is a Responsible Official Certification as required by Rule 62-213.420(4) of the Florida Administrative Code for any document submitted to the Department for a Title V facility. In addition, a registered Professional Engineer certification is attached, per Department policy regarding the submittal of additional information of an engineering nature. Should you have any questions, please contact me at 239-533-8000 or Mr. Kirk Dunbar of HDR Engineering, Inc. at 763-591-5476.

Sincerely,



Lindsey J. Sampson, Director
Lee County Solid Waste Division

Attachments

Cc: D. Castro, HDR Engineering
K. Dunbar, HDR Engineering
M. Halpin, DEP Siting
A. Satyal, DEP South District
J. Gorrie, Covanta Energy

“Attachment 1”

Definitions from FAC 62-640, Section 200

(6) “Biosolids” means the solid, semisolid, or liquid residue generated during the treatment of domestic wastewater in a domestic wastewater treatment facility, formerly known as “domestic wastewater residuals” or “residuals.” Not included is the treated effluent or reclaimed water from a domestic wastewater treatment plant. Also not included are solids removed from pump stations and lift stations, screenings and grit removed from the preliminary treatment components of domestic wastewater treatment facilities, other solids as defined in subsection 62-640.200(31), F.A.C., and ash generated during the incineration of biosolids. Biosolids include products and treated material from biosolids treatment facilities and septage management facilities regulated by the Department.

(28) “Liquid biosolids” means any biosolids that are less than 12% solids by weight, or that are determined to contain free liquids as defined by Method 9095B (Paint Filter Liquids Test), November 2004, as described in “Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods” (EPA Pub. No. SW-846), January 3, 2008, 73 FR 486, which is hereby adopted and incorporated by reference and is available from the Department of Environmental Protection, Domestic Wastewater Section, M.S. 3540, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 or any of the Department’s District Offices.

“Attachment 2”



Biosolids in Truck



Biosolids on Compost Pad

“Attachment 3”



Tipping Floor and Waste Storage Bunker



Waste Storage Bunker and Crane Grapple

“Attachment 4”

MODIFICATIONS RELATED TO PSD-FL-151-B (MWC Units 1&2)

Specific Conditions, Condition 4.f, Restrictions for Type of Wastes Combusted (from March 15, 2000 modification)

1. Condition 4.f: Delete item “(g) sewage sludge”. Re-letter item “(h) explosives” to letter “(g)”.
2. Condition 4.f: Add the following new paragraph immediately following the eleventh paragraph of this subsection. (The eleventh paragraph begins with the sentence “Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility.”) New paragraph: “Subject to the conditions and limitations contained in this permit, biosolid waste or “biosolids” may be used as fuel at the facility. The total quantity of biosolids received and burned at the facility shall not exceed 5%, by weight of the facility’s total fuel, based on the weight of the biosolids received as recorded by the facility’s truck scales, and the total quantity of other waste received during the same month.”
3. Condition 4.f: Replace the fifteenth paragraph of this subsection with the following paragraph. (The fifteenth paragraph begins with the sentence “Each day the total weight of segregated tires, etc.”) Replacement paragraph: “Each day the total weight of segregated tires and biosolids shall be computed, and the daily total of each shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of tires and total weight of biosolids shall each be divided by the total weight of all waste materials received in the same calendar month, and the resultant numbers shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% limitations.”

MODIFICATIONS RELATED TO PSD-151-D (MWC Unit 3)

Section III Emission Units Specific Conditions

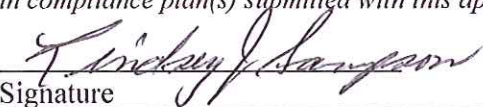
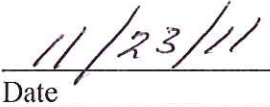
1. Condition B.6.1: Delete item “(g) sewage sludge”. Re-letter items “(h) explosives” and “(i) beryllium containing waste, as defined in 40 CFR 61, Subpart C” to “(g)” and “(h)”, respectively.
2. Condition B.6.6: Add the following paragraph: “Subject to the conditions and limitations contained in this permit, biosolid waste (or biosolids) may be used as fuel at the facility. The total quantity of biosolids received as segregated loads and burned at the facility shall not exceed 5% by weight of the facility’s total fuel received during any month based on the weight of the biosolids received, as recorded by the facility’s truck scales and the total quantity of other waste received during the same month. Compliance with this limitation shall be determined by using a calendar monthly average in accordance with specific condition B.24 below.

3. Condition B.24: Replace the third paragraph of this subsection with the following paragraph. "Each day the total weight of segregated tires and biosolids shall be computed, and the daily total of each shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of tires and total weight of biosolids shall each be divided by the total weight of all waste materials received in the same calendar month, and the resultant numbers shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% limitations.

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name: LINDSEY SAMPSON
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input checked="" type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.
3. Application Responsible Official Mailing Address... Organization/Firm: LEE COUNTY Street Address: 10500 BUCKINGHAM ROAD SUITE 200 City: FORT MEYERS State: FL Zip Code: 33905
4. Application Responsible Official Telephone Numbers... Telephone: (239) 433-8000 ext. Fax: (239) 461-5871
5. Application Responsible Official E-mail Address: sampsolj@leegov.com
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>  Signature  Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: DONALD CASTRO Registration Number: 44569
2. Professional Engineer Mailing Address... Organization/Firm: HDR ENGINEERING, INC. Street Address: 5426 Bay Center Drive, Suite 400 City: TAMPA State: FL Zip Code: 33609-3444
3. Professional Engineer Telephone Numbers... Telephone: (813) 282 - 2404 ext. Fax: () - 813 282 2430
4. Professional Engineer E-mail Address: DON.CASTRO@HDRINC.COM
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input checked="" type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input checked="" type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> <i>Donald J. Castro</i> Signature Date 11/22/11 (seal)

* Attach any exception to certification statement.

