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7/1/09

July 1, 2009

Mr. Jeffery F. Koerner, Administrator  
Florida Department of Environmental Protection  
New Source Review Section  
Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Subject: Air Sampling Results for Wet Dust Collection System  
Hillsborough County Resource Recovery Facility  
Minor Modification - Project No. 0570261-010-AC (PSD-FL-369B)

Dear Mr. Koerner:

On June 9, 2009, The Hillsborough County Resource Recovery Facility undertook environmental sampling in accordance with the protocol submitted to the Department on April 29, 2009. The purpose of the sampling was to determine the grain loading rate that can be reasonably anticipated on Emission Unit No. 101 (Application No. 0570261-010-AC) serving the Facility's Expanded Ash Storage Building. This data will be used in conjunction with the design airflow and nominal removal efficiency supplied by the equipment manufacturer to calculate the mass emission rate from the new point source.

Particulate sampling was conducted in accordance with USEPA Methods 1 through 5 at the inlet ductwork serving the existing fabric filter controlling the Ash Storage Building. Over the course of the sampling, 0.0022 grams of particulate were collected on the filter. At the isokinetically measured sampling rate within the ductwork, this equates to approximately 0.0004 gr/acf. Details of the sampling data are shown in **Attachment 1**.

Because there was very little particulate matter retained on the filter, it was decided to forego the particle size distribution analysis outlined in the April 29, 2009 protocol. The equipment manufacturer only specifies removal efficiency of 83% for particles down to 1  $\mu$ m. Since most of the particles are assumed to be submicron in size, the removal efficiency is estimated to be 40%.

As stated above, the purpose of this testing was to determine the grain loading rate that can be reasonably anticipated in the Ash Building once the new Unit 4 Combustion Unit comes on-line later this year. Therefore, for purposes of calculating the mass emission rate from the



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new point source, the measured grain loading rate of 0.0004 gr/acf is prorated up to 0.0011<sup>1</sup> gr/acf to conservatively estimate conditions in the Ash Storage Building when all 4 units are in operation.

The revised emissions rates were recalculated based on the information shown in **Table 1** and as shown below. The revised emissions were calculated to be 0.17 tons/yr and 0.040 lb/hr based on the outlet concentration of 0.00066 gr/acf. The particles emitted are assumed to be submicron and less than 1 µm. The emission rates will increase to 24.2 tons/yr for total PM, which does not trigger PSD applicability. Therefore, a BACT emission and revised air quality analyses are not required.

**Table 1 – Estimated Emissions for the Proposed Hillsborough Facility**

Description	Parameter
Volumetric Flow	7,000 acfm
Estimated Concentration	0.0011 gr/acf
Nominal Collection Efficiency	40% @ 1 µm
Calculated Emission Rates	0.17 ton/yr
Calculated Emission Rates	0.040 lb/hr

Corrected Concentration (C) Calculations:

$C = \text{Safety Factor} \times \text{Correction Factor} \times \text{Measured Inlet Concentration}$

$$C = 1.25 \times 1,800/800 \times 0.0004 \text{ gr/acf}$$

$$C = 0.0011 \text{ gr/acf}$$

Emission Concentration (EC) Calculations

$EC = (100\% - \text{Collection Efficiency})/100\% \times \text{Corrected Inlet Concentration}$

$$EC = (100\% - 40\%)/100\% \times 0.0011 \text{ gr/acf}$$

$$EC = 0.00066 \text{ gr/acf}$$

Emission (E) Calculations:

$E = \text{Conversion Factor} \times \text{Emission Concentration} \times \text{Volumetric Flow}$

$$E = 7.14 \times 10^{-8} \text{ ton/gr} \times 525,600 \text{ min/yr} \times 0.00066 \text{ gr/acf} \times 7,000 \text{ acf/min} = 0.17 \text{ tons/yr} \approx 0.2 \text{ tons/yr}$$

$$E = 1.43 \times 10^{-4} \text{ lb/gr} \times 60 \text{ min/hr} \times 0.00066 \text{ gr/acf} \times 7,000 \text{ acf/min} = 0.040 \text{ lb/hr} \approx 0.04 \text{ lb/hr}$$

<sup>1</sup> During the testing, 1 of the 3 existing combustion units was offline. Rather than revising the collected data upwards by 150%, it was decided to prorate the collected data based on a 1,800 ton (4 units) to 800 ton (2 units) ratio to account for the offline existing unit and the new combustion Unit #4. A safety factor of 1.25% was added to the prorated data to account for additional variables that could reasonably affect the particulate loading at the new control device.





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Please process the minor permit application based on the above responses. If you have any questions, please contact Robert Velasco at (813) 281-2900, if you have any questions.

Sincerely,

William R. Crellin, P.E.

Project Manager

Camp Dresser & McKee Inc.

cc: DEP (4 copies)  
Barry Boldissar - Hillsborough County  
Tom Smith - Hillsborough County  
Glenn Hoag - Covanta Hillsborough  
Kristen Chardo - Covanta Hillsborough  
CDM File



Robert A. Velasco, P.E., BCCE

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Camp, Dresser McKee, Inc.

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Cert. of Auth. #EB 000020

The seal certifies that the engineering calculations shown herein provide reasonable assurances of achieving the applicable requirements of the Air Construction Permit/Title V permit renewal application.



**ATTACHMENT 1**  
**AIR SAMPLING DATA**

Best Available Copy

813-208-8101

To: Rob Uo

SUMMARY OF TEST DATA

PLANT : WTE

UNIT : BH INLET

RUN NUMBERS : 1, 2, 3

TEST DATE : 6/9/2009

	#1	#2	#3	AVERAGES
DATE	6/9/2009			
START TIME	9:10			
END TIME	11:15			
STACK DIAMETER (INCHES)	24			
NOZZLE DIAMETER (INCHES)	0.280			
TEST TIME (MINUTES)	120			
NUMBER OF TEST POINTS PER RUN	24			
STACK GAS TEMPERATURE (°F)	82.2			
STACK GAS MOISTURE (%)	1.47			
STACK GAS MOLECULAR WEIGHT	28.84			
STACK GAS VOLUME SAMPLED (CUBIC FEET)	78.860			
VOLUME SAMPLED (SCF @ 68°F)	78.997			
STACK GAS VELOCITY (FEET PER SECOND)	27.65			
STACK GAS FLOW RATE (ACFM)	5212.1			
STACK GAS FLOW RATE (DSCFM @ 68°F)	5013.3			
PARTICULATE COLLECTED (GMS)	0.0022			
PARTICULATE CONC (GRAINS/DSCF)	0.0004			
PARTICULATE MASS RATE (LBS/HOUR)	0.0185			
ISOKINETIC SAMPLING RATE, %	96.49			

FIELD DATA AND SAMPLES UNDER THE CONTROL OF:

TIM CAPELLE

LABORATORY ANALYSIS UNDER THE CONTROL OF:

KEN GIVEN