

## Memorandum

# Florida Department of Environmental Protection

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FROM: Scott M. Sheplak, P.E., Bureau of Air Regulation  
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DATE: January 10, 2006

SUBJECT: Hillsborough County Resource Recovery Facility  
Hillsborough County  
Unit #4  
Project Number 0570261-007-AC; PSD-FL-369; PA82-19A  
Sufficiency Review

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On November 21, 2005, the power plant siting office of the Department received an application to add a new unit, Unit #4, to the existing site. The proposed new unit is a 600 ton per day (TPD) municipal waste combustor (MWC). The existing site consists of three MWCs, each having a nominal design rate capacity of 400 TPD. We have completed our initial sufficiency review for the subject application. Below please find the additional information we need to process the air construction permit, Prevention of Significant Deterioration (PSD), part of the application.

### Air Permit Application Comments

You requested concurrent processing of an air construction permit/PSD and a request to revise the current valid Title V permit. In order to process the request to revise the Title V permit with the AC/PSD permit, a compliance plan and schedule is required. Also, any air pollutants triggering CAM applicability require a CAM Plan to be submitted with the Title V permit part of the application. You may request that the Title V permit be revised in a separate action at a later date.

In the air permit application form, DEP Form No. 62-210.900(1)-Form, the authorized representative is Barry M. Boldissar. What is the title of their position?

### Proposed BACT Standards and Emission Limitations

On December 19, 2005, the USEPA proposed to lower the air pollutant standards and emission limitations applicable to MWC units for PM, Cd, Pb, Hg, SO<sub>2</sub> and HCl [See 70 Federal Register 75347]. No changes were proposed to the existing federal NO<sub>x</sub> and PCDD/PCDF standards. EPA claims that the proposed regulation reflects the performance levels currently demonstrated by MWC's within the industry. The original standards were published in 1995 with a compliance deadline of 2000. EPA believes that the proposed emission limits can be achieved

with existing air pollution control technology used by large MWC's. EPA expects no additional costs or economic impacts to comply with the new standards.

In light of this proposal, please reevaluate the proposed BACT standards and emission limitations.

Also, would the facility consider complying with the proposed federal requirements earlier than the federally established deadline for such requirements applicable to emissions monitoring and reporting?

### CEMs

As part of the EPA 12/19/05 proposed changes, the use of various CEMs was offered as alternatives to current testing and various parametric monitoring requirements. The use of PM CEMs would be allowed specifically as an alternative to PM testing. As part of this rulemaking, EPA may also include the optional use of available HC1 CEMs, Hg CEMs, multimetals CEMs and dioxin/furan semi-continuous monitoring system/CEMs. Has the facility considered any of these CEMs?

### Proposed NOx BACT Emission Standard

A NOx emission limitation of 110 ppmvd @ 7% O<sub>2</sub> on a 24-hour average with an ammonia slip of 50 ppmvd is proposed by the applicant as BACT. You proposed a lower 24-hour NOx standard than the new Lee County unit resulting in a 27% reduction. However, the Department believes a lower NOx standard is technically achievable and cost effective.

The Department provided to the applicant and the consultants numerous sources in support of our position that lower NOx emissions are achievable and actually achieved by SNCR or SCR than presumed or proposed in the application. The following is a list of the documents and other information attached to or provided in five separate e-mails dated December 21, 2005:

- NOx and Dioxin Emissions from Waste Incinerator Plants (JRC, EU).
- Material Flows and Investment Costs of Flue Gas Cleaning Systems of Municipal Solid Waste Incinerators.
- Experience with DeNOx Techniques Installed at MSW Incineration Plants in Germany.
- Aquaroll - water cooled grates. VonRoll INOVA.
- The Implementation of National and European Legislation on Air Pollution from MWI in Germany.
- The Analysis Report of Plant No. 2 (Brescia).
- VonRoll DeNOx Processes.
- Session 10, Waste Treatments. 2001 Paris NOx Conference Latest Developments & State of the Art of Catalytic DeNOx after 15 years of experience.
- Session 13, Waste Treatments. SNCR of NOx.
- Session 13, Waste Treatments. NOx Emission Reductions Over Past Decade - WTE's in Netherlands.

- Session 13, Waste Treatments. Seghers DeDInOx: Catalytic NO<sub>x</sub> Reduction and Dioxin Destruction in MWI in Belgium.
- EXCEL list of German facilities many of which have SCR or that meet low numbers with SNCR.
- Martin description of SNCR with references to Tunable Diode Laser monitor and IR camera for optimal reagent use and control efficiency.
- Weblinks to Austrian and German facilities with posted NO<sub>x</sub> performance.

#### Ammonia Slip

The new proposed unit at Lee County will be equipped with a selective non catalytic reduction system designed not to exceed a maximum NO<sub>x</sub> emission rate of 150 ppmvd corrected to 7 percent O<sub>2</sub> on a 24-hour block arithmetic mean as well as 110 ppmvd corrected to 7 percent O<sub>2</sub> on a 12-month rolling average and designed to meet a 15 ppmvd @ 7% O<sub>2</sub> ammonia slip on a 24-hour average. You proposed an ammonia slip of 50 ppmvd @ 7% O<sub>2</sub>. The lower ammonia slip permitted at Lee appears to be achievable. Please comment as to why a higher ammonia slip is being proposed.

#### Hg BACT Emission Standard

A higher mercury standard was proposed than what the Lee County new unit is permitted. The Lee County standard for mercury is 28 ug/dscm, while you proposed a limit of 70 ug/dscm. Please comment as to why a higher limit is being proposed.

#### Hg CEMs

In the U.S., stationary sources will be purchasing, installing and operating mercury CEMs to comply with the recently proposed federal Clean Air Mercury Rule (CAMR). Mercury CEMs are becoming commercially available. Have you considered the purchase, installation and operation an Hg CEMs?

#### Mercury Stack Testing

Please provide a summary of stack test results from other resource recovery units in Florida, specifically from the 3 existing HCRRF units and from the Pasco and Lee County units.

#### Air Pollution Control Technology - Manufacturer Information

Please provide general manufacturer information for the BACT technology you propose specifically, the spray dryer absorber, a fabric filter baghouse, an activated carbon injection system and the "enhanced SNCR" system consisting of SNCR and flue gas recirculation.

#### Process/Operations Flow Diagrams

Please provide a general process/operations flow diagram for the air pollution control equipment showing the layout of air pollution control equipment, flue gas streams, etc.

Please provide a process flow diagram, preferably design plans for the new proposed unit #4.

#### Proposed Emission Reductions for Units 1-3

As part of this permit application for the proposed new Unit #4, you propose to lower the existing allowable air pollutants standards and limitations for Units #1, 2 and 3. The proposed reductions can not be considered as part of the application of BACT to Unit #4. Are these requested reductions used in the modeling analyses completed in this application?

#### Air Modeling Review Comments

1. In the application, an analysis of soil and vegetation was done with respect to deposition. To complete the Additional Impact Analysis, are there any particularly sensitive species impacted from pollutants being released by the proposed facility expansion? Please include wildlife in your analysis.
2. In Section 6.2.5 of the application, it states that "FDEP guidance for calculating the PM<sub>10</sub> 24-hour average is to use the highest of the second highest results over one year of meteorological data, or the highest of the sixth highest results over five years of meteorological data." Although the highest sixth-high can used to determine compliance with the PM<sub>10</sub> 24-hour NAAQS, the 24-hour PM<sub>10</sub> Significant Impact Analysis is compared to the highest second-high concentration. Please confirm that the resultant concentrations of the PM<sub>10</sub> 24-hour Class II Significant Impact analysis was compared to the high second-high, not the high sixth-high or submit new results based on the correct guidance.
3. Does the proposed expansion include any increases of fugitive emissions? Is there an increase in truck traffic that would cause an increase in particulates?
4. The application states that PM originates from three sources with regards to the processes of the facility. Are all sources of PM accounted for in the modeling?
5. Please provide a text file detailing the contents of the modeling folders. For example, please indicate the difference between "ISCSILs-Revised 0905" and "ISCSILs-Revised 0905-25m." Please provide or locate in the application any background information pertaining to the folders named "Bay Dep" and "HRA Dep."
6. Please verify the "Source" inputs with the "Description" statements in the modeling. For example, in the file named "ISCSILs-Revised0905\New\PMU4PM1991.isc," one of the two sources is described as "MWC Stack All Units" when the source inputs are for Unit 4 only.
7. In the application, Table 6-3 lists twelve buildings for BPIP. In the modeling, eleven buildings are included. Please correct the modeling.
8. Please submit a plot plan. The UTM coordinates for Unit 4 used in the modeling cannot be verified without a plot plan.

#### Hillsborough County EPCHC Comments

Volume III, Page 3-1, of the application indicates that the proposed Unit 4 has a nominal capacity of 660 tons per day. The air construction permit application, Page 16, indicates a

maximum incineration rate of 600 ton/day. Please explain and clarify the differences between the “nominal” and “maximum” capacity. Furthermore, what is the new boiler steam flow rate in term of “lb/hr” and how does it correlate with the maximum incineration rate. Please provide the calculation to show the quantity of steam/heat that is generated by amount of waster incinerated with specified temperature and pressure.

2. The estimated NO<sub>x</sub> emissions from the Unit No. 4 are 256.1 TPY, which is more than 6 times of the PSD significant emission rate of 40 TPY. The NO<sub>x</sub> emissions are proposed to be controlled by using SNCR/FGR with a stack emission limit of 110 ppm<sub>dv</sub>. The BACT evaluation is based on the permit limits of Lee County MWC, which is identical to the HCRR-MWC. The proposed NSCR control efficiency is from 35 to 60%, however, the 110 ppm<sub>dv</sub> stack emission limit is determined based on 59% of NSCR control efficiency, which appeared to rely on a “best performance” of the SNCR. As indicated in the application, SCR has not been applied to MWCs in the U.S. The SCR control efficiency for NO<sub>x</sub> has ranged from 50 to 90%, and a stack NO<sub>x</sub> emission limit can be decreased to 70 ppm<sub>dv</sub>. As indicated in the application after comparing with the SNCR and SCR control technologies, the SNCR will remove 324 TPY of NO<sub>x</sub>, and SCR will remove 405 TPY of NO<sub>x</sub>. We solely understand the economic and energy impact by using SCR as an alternative control technology, however, for the environmental impact, we highly recommend SCR with FGR as BACT for the Unit No. 4.
3. Noise {Please note the following comment is related to a local noise ordinance in Hillsborough County.} Volume I, Pages 2-83, Noise Baseline Data Summary, the one-minute equivalent sound levels (Leq) are provided in comparison with the Hillsborough County Noise Criteria Sound Level Limit (dBA). Please be aware of that Sound Level Limits in the Rules of EPCHC, Chapter 1-10.03, are maximum allowable sound level limits on an instantaneous basis. Please provide noise level data in accordance with the sound level limits specified in the Rules of EPCHC under different categories, i.e., residential, commercial, or industrial.

We did not receive any comments from the National Park Service or EPA Region 4. We will pass these on if and when received. Either agency might submit comments during the sufficiency review or during the normal comment period.

The DEP contacts for the air permit application are Debbie Nelson, 850/921-9537 for modeling issues and Scott M. Sheplak, 850/921-9532 on all other matters.

copy to: Al Linero, P.E., Administrator, Permitting South Section