Memorandum

Florida Department of
Environmental Protection

TO: Joseph Kahn, P.E., Director DARM

THRU: Trina L. Vielhauer, Chief

THRU: A. A. Linero, P.E.

FROM: Scott M. Sheplak, P.E.

DATE: September 29, 2006

SUBJECT: Hillsborough County
Department Solid Waste Management
Resource Recovery Facility Unit 4
Final Permit Nos. 0570261-007-AC, PSD-FL-369, & PA83-19A

Attached for approval and signature is a final PSD permit for the construction of a nominal 600 ton per day (TPD) Municipal Waste Combustor referred to as Unit 4 at the existing facility.

This facility is a major PSD source. The proposed project is subject to PSD for emissions of NO_X, CO, MWC Acid Gases (SO_2+HCl), and MWC Organics (dioxin/furan). BACT standards are established for NO_X, CO, SO_2, HCl and dioxin/furans. Emissions of PM/PM_{10} and Hg are limited to provide reasonable assurances of PSD applicability avoidance. Pb and Cd emissions are limited pursuant to NSPS Subpart Eb.

Unit 4 will be a mass burn unit incorporating much of the same technology as the existing units. Air pollution controls will consist of a spray dryer, fabric filter, activated carbon injection system and a selective non-catalytic reduction (SNCR). In addition, the new unit will incorporate flue gas recirculation (FGR) for energy efficiency and pollution reduction.

This project is unique in that it will have the most stringent BACT for NO_X issued for a large MWC and the first Hg-CEMS required on an MWC in the United States!

Comments were received from U.S EPA Region 4, CDM and Covanta Hillsborough, Inc. Minor changes were made in response to the comments; see the attached Final Determination.

We recommend your approval and signature.

Attachments

TLV/AAL/sms

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT

In the Matter of an
Application for Permit by:

Mr. Barry M. Boldissar, Director
Hillsborough County
Department of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

DEP File No. 0570261-007-AC
Permit No. PSD-FL-369 (PA83-19A)
Hillsborough County Resource Recovery Facility
Unit 4, Nominal 600 TPD Municipal Waste Combustor
Hillsborough County

/

Enclosed is Final Permit Number 0570261-007-AC and PSD-FL-369 for the construction of a nominal 600 tons per day municipal waste combustor designated as Unit 4 at the Hillsborough County Resource Recovery Facility Site. The site is located at 350 North Falkenburg Road in Tampa, Hillsborough County. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT (including the Final permit) was sent by certified mail (*) and copies were sent by U.S. Mail or electronic mail before the close of business on 10/3/06 to the person(s) listed:

Barry M. Boldissar, Hillsborough County DSWM*
Jim Norman, Chair, Hillsborough County BCC*
Pam Iorio, Mayor, City of Tampa
Glenn Hoag, Covanta Hillsborough, Inc.*
Gregg Worley, U.S. EPA Region 4, via e-mail
John Bunyak, National Park Service, via e-mail
Steven L. Palmer, P.E., DEP PPSO, via e-mail
Mara Nasca, DEP SWD, via e-mail
Paul Darst, DCA, via e-mail
Jerry Campbell, P.E. Hillsborough Co. EPC, via e-mail
Jason M. Gorrie, P.E., CDM, via e-mail

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 10/3/06 (Date)

FINAL DETERMINATION

Hillsborough County Resource Recovery Facility
Nominal 600 Tons per Day Municipal Waste Combustor
Unit 4

DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)

Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation

September 29, 2006

The Department of Environmental Protection (Department) distributed an Intent to Issue PSD Permit on May 25, 2006 for the construction of a nominal 600 tons per day (TPD) municipal waste combustor (MWC) at the existing Hillsborough County Resource Recovery Facility located southeast of Tampa, west of I-75 and near Brandon. The package included the Draft PSD Permit and the Department's Technical Evaluation and Preliminary Determination. These documents are available at the Department's web page at the following site:

www.dep.state.fl.us/Air/permitting/construction/hillsborough.htm

The Public Notice to Issue PSD Permit was published in the Tampa Tribune on May 25, 2006. The County provided proof of publication to the Department on June 13, 2006. No comments were received from the public. Comments were received from the U.S. Environmental Protection Agency (EPA).

A number of comments were submitted on behalf of the facility owner by its consultant, Camp Dresser McKee (CDM). Additional comments were received by the contracted facility constructor/operator, Covanta Hillsborough, Inc. These are detailed below together with the Department's responses.

No petitions for an administrative hearing regarding the Draft PSD Permit were filed. Therefore the Draft PSD permit was not a contested issue at the certification hearing that was conducted by the Division of Administrative Hearings (DOAH) on July 12, 2006. The DOAH certification case file is available at the following site:

www.doah.state.fl.us/internet/search/docket.cfm?CaseNo=05-004347

The Recommended Order was issued and filed by the Clerk of DOAH on August 2, 2006. The Recommended Order was substantially the same as the Proposed Recommended Order submitted on behalf of the County. It "Recommended that the Governor and Cabinet, sitting as the Siting Board, enter a Final Order granting a site certification for the construction and operation of Unit No. 4 at the Hillsborough County Resource Recovery Facility, in accordance with the Conditions of Certification contained in DEP Exhibit 2." The mentioned Conditions of Certification in the Recommended Order incorporated the Department's Draft PSD Permit as noticed with some minor changes documented below.

The Siting Board voted to approve the Recommended Order at its meeting of September 19, 2006. The Final Order signed by the Governor was clerked on September 27.

Following issuance of the Final Order, the Department is required to take final action on the PSD Permit. That decision is to issue the Final PSD Permit as detailed in the enclosed Notice of Permit. This Final Determination is in support of that decision and also documents the Department's consideration of comments received pursuant to the 30-day comment period and changes to the Draft PSD Permit resulting from those comments.

COMMENTS FROM U.S. EPA REGION 4

The EPA comments were submitted by letter from Mr. Gregg M. Worley dated June 20, 2006. Its comments are given in *italics*. The Department responses follow each comment and are in normal font.

1. *The preliminary determination does not contain a specific acknowledgement of fine particulate matter ($PM_{2.5}$) as a pollutant that will be emitted from Unit 4. Although EPA has not yet issued $PM_{2.5}$ new source review (NSR) implementation rules, $PM_{2.5}$ is a regulated NSR pollutant because it is subject to national ambient air quality standards. We recommend that FDEP acknowledge $PM_{2.5}$ as a regulated NSR pollutant in the final determination. As part of this acknowledgement, you could comment that PM_{10} is being used as a surrogate for $PM_{2.5}$ and that the particulate matter emissions controls proposed for this project are appropriate for control of fine particles.*

   The Department acknowledges that fine particulate matter ($PM_{2.5}$) is a pollutant that will be emitted from Unit 4 and that $PM_{2.5}$ is subject to National Ambient Air Quality Standards (NAAQS). Furthermore, the Department acknowledges that precursors, including sulfur dioxide (SO_2), nitrogen oxides (NO_X), hydrogen chloride (HCl), and ammonia (NH_3) are also emitted from Unit 4.

   MWC Metals/(PM/PM_{10}) and opacity are surrogates for $PM_{2.5}$ directly emitted from Unit 4. MWC Acid Gases (HCl/SO_2) and NH_3 are directly limited and thus reduce the potential for $PM_{2.5}$ formation in the environment.

   Overall, the Department's determination of best available control technology (BACT) is the most stringent to date in the United States. It is more stringent than the requirements in 40 CFR 60, Subpart Eb-Standards of Performance for New Stationary Sources and Emission Guidelines (including hazardous air pollutants) for Existing Sources Municipal Waste Combustors as revised and published by the Environmental Protection Agency (EPA) on May 10, 2006.

   The control strategy to meet the BACT emission limits consists of: spray dryer and fabric filter for MWC Acid Gases (HCl/SO_2) and MWC Metals/(PM/PM_{10}); flue gas recirculation (FGR); and, urea-based selective non-catalytic reduction (SNCR). The described strategy is appropriate for control of fine particles.

2. *We are unable to tell if consideration was given to the possibility of condensible particle emissions from Unit 4. The test method specified for particulate matter emissions in Condition 23 of the draft permit is EPA Method 5 which does not measure condensibles. Since the project narrowly avoided PSD review for PM_{10}, any particulate component not included in the PM_{10} emissions estimate could be important. We suggest that the final permit include a requirement for a one-time test of condensible emissions to assess whether such emissions need to be considered further for Unit 4.*

   The Department acknowledges the possibility of condensable particulate formation from Unit 4. At the time the Department received the application, the applicable Subpart Eb limit for MWC Metals as PM was 24 milligrams per dry standard cubic meter (mg/dscm) corrected

to 7 percent oxygen. The applicant proposed a PM BACT limit of 20.6 mg/dscm that equates to 25.1 tons per year (TPY).

The recently issued Subpart Eb reduced the MWC Metals/PM limitation to 20 mg/dscm that would marginally avoid PSD for PM. The specified test method is still EPA Method 5 and it is consistent with the Department's definition of PM.

The Department reduced the MWC Metals/PM limit to 12 mg/dscm. This value is substantially less than the latest requirement in Subpart Eb and equates to 14.6 TPY. The significant emission rate for PM_{10} is 15 TPY. It is reasonable to expect that the condensable fraction would be less than 10 TPY and that the project will avoid PSD for PM.

It is also reasonable to assume that measurement of PM emissions less than 12 mg/dscm by EPA Method 5 will insure that PM_{10} emissions will (even when considering the condensable fraction) be less than 15 TPY.

The presence of the lime cake in the fabric filter provides ample opportunity for condensation, impaction, diffusion, and interception of condensable PM/PM_{10} to support the conclusion above.

3. *The tabular emissions limits summary in Condition 14 of the draft permit for sulfur dioxide and hydrogen chloride includes limits in terms of parts per million or percent reduction, with the following footnote: "Whichever standard is less stringent." Similarly, the emissions limits for mercury include limits in micrograms per dry standard cubic meter with the same footnote. The footnote is not assigned, however, to the listed pounds-per-hour emissions rates for these three pollutants. Furthermore, the text description of the limits is not altogether consistent with the tabular listings. For example, the text description of the sulfur dioxide limits in Condition 17 is "shall exceed neither 26 ppmvd nor19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved." Please provide an explanation of how the emissions limits for sulfur dioxide, hydrogen chloride, and mercury are to be interpreted. Specifically, does compliance with the percent reduction requirements supersede compliance with all other limits?*

   Compliance with the percent reduction requirements does supersede compliance with the concentration and mass emission limits. The Department adhered to the form of the standards in Subpart Eb and insured that the limits (BACT or to avoid PSD) are at least as stringent as the requirements of that Subpart.

COMMENTS FROM CAMP DRESSER MCKEE (CDM)

Comments were received from Mr. Jason M. Gorrie of CDM by letter dated June 8, 2006. Mr. Gorrie is the professional engineer who sealed the air permit application on behalf of the County. The format and numeration are continued from the previous section.

4. *The emission limits we applied for in our application would have been the lowest emission limits in the USA. We are very concerned that the limits imposed in the Draft Permit may promote undesirable secondary effects.*

   The Department agrees that the NO_X limits are the lowest in the USA. However, European facilities have demonstrated they can achieve even lower limits without promoting the

claimed "undesirable secondary effects." This analysis is detailed in the Department's Technical Evaluation and Preliminary Determination and BACT.

5. *The County will need to inject urea at an aggressive rate if the Facility is to comply with the Department's proposed 90 ppmvd emission limit for NO_X. Increasing the urea injection rate is likely to result in increased levels of ammonia slip, which may exceed 10 ppmvd.*

   The Department believes that it will not be necessary to inject urea at an overly aggressive rate given incorporation of flue gas recirculation (FGR) into the design. This feature and the lower pre-treatment values were not considered by the bidder (FuelTech) in its proposal to supply the SNCR system. The 90 ppmvd NO_X emission limit applies on a 12-month basis and not on a 24-hour basis. Proper operation of the FGR system will moderate the average and typical maximum pre-treatment NO_X concentrations such that the SNCR urea injection rate should remain within the levels presumed necessary to meet the County's proposed 24-hr limit of 110 ppmvd while meeting the Department's 12-month limit of 90 ppmvd. See also the Department's Technical Evaluation and Preliminary Determination and BACT.

6. *A footnote to the previous CDM comment states: "The emissions data for the MWC facility in Brescia, Italy, show that there can be significant levels of ammonia slip when facilities try to reduce NO_X emissions to extremely low levels. The data for the Brescia facility were provided to the Department on February 28, 2006, in the County's response to the Department's Notice of Insufficiency."*

   The Department does not believe that 110 ppmvd on a 24-hour basis and 90 ppmvd on a 12-month basis are "extremely low levels." The Department addressed the Brescia data on page 18 of the Technical Evaluation distributed with the Draft PSD Permit. A Department representative has since visited the Brescia facility while on personal travel and discussed operation of the facility with the operations manager. These discussions support the Department's position that the 110 ppmvd and 90 ppmvd limits for NOx are achievable without ammonia slip problems. See the attached summary of the trip report from Mr. Al Linero to Mr. Tom Smith in the e-mail dated July 18, 2006.

7. *Under certain operating and atmospheric conditions, the ammonia slip may produce a highly opaque plume of ammonium chloride, which may violate the 10% opacity limit. Even if the plume does not constitute a permit violation, the plume is likely to generate negative publicity and ill will for the Facility, the County, and the Department. Other operating experience with SNCR to produce NO_X levels as low as that contemplated by the Draft Permit indicates that there will be other undesirable side effects such as plume formation and/or ammonia vapors in the workplace.*

   Other operators' experience with SNCR to produce NO_X levels as low or lower than contemplated by the Draft Permit support the DEP's conclusion that plume should not be an issue. The DEP added a permitting note to acknowledge this concern raised by the applicant.

8. *Specific Condition B.14 limits ammonia slip to 10 ppmvd when Unit 4 is operated at 195 MMBtu/hr and 15 ppmvd when Unit 4 is operated at 260 MMBtu/hr. It is our understanding that the Department derived these emission levels from the preliminary SNCR equipment specifications prepared by FuelTech. The FuelTech specifications should not be used as permit limits in this case because the specifications were based on a NO_X emission rate of*

110 ppmvd. Since the Department has imposed a NO_X emission limit of 90 ppmvd, the Facility will need to inject more urea than FuelTech anticipated and the SNCR specifications will need to be revised. Increasing the urea injection rate is likely to cause increased ammonia slip. We respectfully request the Department to reconsider the proposed ammonia slip limitations and adjust them in light of the proposed 90 ppmvd NO_X emission level. Please recognize that, to achieve an annual average of 90 ppmvd, it will be necessary to operate at even lower levels to offset the emissions at times when the NO_X levels are above 90 ppmvd.

The 90 ppmvd limit applies on a 12-month basis. There is no 12-month NH_3 limit. The NH_3 limit applies while the County demonstrates compliance with its short-term limit of 110 ppmvd. There is no requirement to demonstrate the ability to meet 10/15 ppmvd NH_3 while NO_X emissions are equal to 90 ppmvd.

9. *Quarterly stack tests for mercury should not be required in this case. The County has agreed to incur the expense associated with the installation and operation of a CEMS for mercury. The County should not be required to incur the additional expense of conducting quarterly stack tests for mercury on a permanent basis. Accordingly, the County respectfully requests the Department to eliminate the requirement in the Draft Permit for quarterly stack testing. If this proposal is unacceptable to the Department, the Department should amend the Draft Permit to state that the quarterly stack testing can be eliminated when the County installs and begins to operate the CEMS for mercury.*

   Quarterly stack testing is specified to demonstrate that mercury emissions are less than 0.022 lb/hr to avoid PSD applicability. The quarterly test is only required for the first two years of operation if a certified CEMS is not used. The Draft Permit was revised prior to the certification hearing. The revisions are shown with strikethrough and double underline.

   To eliminate any further confusion between Specific Conditions 19. and 26. with regard to this Hg testing frequency, a permitting note is added to Specific Condition 19. This permitting note, shown in italics, is added to the Revised Draft Permit. Specific Conditions 19. and 26. are now revised to read:

   Specific Condition 19.

   Mercury Hg: Emissions of Hg shall not exceed 28 µg/dscm or an emissions reduction of 85 percent shall be achieved as demonstrated during the required annual stack test.

   During the first two years of operation, emissions of Hg shall not exceed 0.022 lb/hr as measured during quarterly stack tests to provide reasonable assurance that 12-month emissions are less than the applicable PSD threshold of 200 lb/yr.

   After the certification of the Hg-CEMS as described in Specific Condition 35. ~~Thereafter~~, the owner or operator may demonstrate compliance with all Hg limits in this permit with data collected during an annual stack test or from the ~~required~~ Hg-CEMS ~~as described in Specific Condition 26. Otherwise, the required quarterly testing for mercury shall continue~~.

   {Permitting Note: If the Hg-CEMS is certified prior to the end of the first two years of operation, the permittee may use the CEMS in lieu of the remaining quarterly tests.}

Specific Condition 26.

Subsequent Compliance Testing: Annual compliance stack tests for NO_X, CO, SO_2, HCl, PM/PM_{10}, lead, cadmium, dioxins/furans, and ammonia shall be conducted during each federal fiscal year (October 1st to September 30th). Data collected from the reference method during the required RATA tests for CO, NO_X, and SO_2 may be used to satisfy the annual testing requirement provided the notification requirements and emission testing requirements for performance and compliance tests of this permit are satisfied.

Prior to the certification of the Hg-CEMS as described in Specific Condition 35., ~~P~~performance tests for Hg emissions shall be conducted on a calendar year basis to demonstrate compliance with the concentration/reduction standards. ~~Performance tests to demonstrate compliance with the lb/hr Hg standard shall be conducted on a quarterly basis.~~

~~Following the first two years of operation, the owner or operator may demonstrate compliance with the Hg limits in this permit using the required Hg CEMS in lieu of the quarterly and annual testing requirements provided all provisions of Specific Condition 35 and subpart 40 CFR 60.58b(n) and (o) are met. Otherwise, the required quarterly testing for mercury shall continue.~~ After the certification of the Hg-CEMS as described in Specific Condition 35., the owner or operator may demonstrate compliance with all Hg limits in this permit with data collected from the Hg-CEMS.

[Rules 62-297.310(7)(a) and (b), and 62-296.416, F.A.C., and 40 CFR 60.8 and 60.58b]

ADDITIONAL COMMENTS FROM CDM

Additional comments were received from Mr. Jason M. Gorrie of CDM by letter dated June 22, 2006.

10. *Section III, Item 7 of the Draft Permit states that "the maximum steam production rate shall not exceed 164,000 pounds steam per hour (on a 4-hour block arithmetic average)." The County's application evaluated capacity of the new Unit 4 on an MMBtu/hr basis, not on a steam production rate basis. Relating steam production rate (in pounds per hour) to heat release rate (in MMBtu) is difficult given the varying heat content of the fuel (MSW) and the relatively wider operating window that municipal waste combustors operate within. This is recognized by the USEPA in that Subpart Eb establishes the maximum steam load as 110% of the maximum demonstrated steam load during the most recent dioxin/furan performance test.*

    The County is not opposed to establishing a never to be exceeded value for steamflow, however, the preliminary specifications provided by the boiler vendors suggest that 164,000 lbs/hr is too low. The maximum steamflow should be 190,000 lb/hr. This is equivalent to the 288 MMBtu per hour input used in our air quality analyses.

    The 164,000 pounds steam per hour value had been obtained from the technical specification document prepared by Burns and Roe, Enterprises, Inc. (see SPEC NO. Hills-SM-101A, dated 6-30-05). Similarly, the same documents indicate a heat input of 260 mmBtu/hr. The application was based on a 288 MMBtu/hr heat input.

It is conceivable that the new unit will be able to produce more steam, but the waste processing or heat input rates (or both) will likely be substantially greater than the nominal ratings. The Department will change the steam flow limitation to 190,000 pounds/hr as requested in the emissions unit description and Specific Condition 7. The emission limits for the facility remain unchanged and the permittee must operate the facility to comply with these limits.

11. *Specific Conditions 14 through 21 of the Draft Permit establish lb/hr limitations for many of the regulated pollutants emitted from Unit 4. The emission limitations established as BACT and imposed through NSPS standards are expressed on a concentration basis (either mg/dscm or ppmdv7). Past Department practice has been to establish "equivalent emissions" (in ton/yr) based on the requisite concentration limitation. However, this Draft Permit establishes an actual mass limitation rather than an equivalent emission.*

    From discussions with you, it is our understanding that the EPA requires a mass emission limitation to be imposed when a PSD threshold is triggered. As you know, the concentration limitations have varying averaging periods associated with them. For instance, SO_2 concentration is regulated on a 24-hr geometric mean average and CO concentration is regulated on a 4-hr block arithmetic average. In order to avoid confusion over differing averaging periods, and to satisfy EPA's mass emission limitation requirements, we suggest that the Department establish a ton/year limitation rather than a lb/hour limitation. Such an approach will preserve operating flexibility, avoid confusion, and embody EPA's PPSD increment-consumption requirements. With the flow CEM it will be possible to accurately determine compliance with an annual mass emission limitation.

    Inclusion of pounds per hour (lb/hr) limitations is the common practice for the Department's PSD permitting and BACT determinations. Few MWC units have been built in recent years. However, virtually all of the Department's PSD Permit for non-MWCs include technological limits such as concentrations and relatively short-term mass limits.

12. *Specific Condition No. 29.a. authorized three hours in any 24-hour period of excess emissions. Specific Condition No. 29.c. provisionally allows up to 15 hours for certain types of malfunctions resulting in CO emissions. For clarity, we suggest that the language in 28.a. reference the special provisions of 29.c.*

    The Department separates the State excess emissions rule provisions from the Federal excess emissions regulations. The permitting note after Specific Condition 28. applies to Specific Conditions 28. and 29. For clarity, the permitting note is moved after the Excess Emissions header, before Specific Conditions 28.

COMMENTS FROM COVANTA HILLSBOROUGH, INC. (CHI)

Comments were received from Mr. Joseph Threshler by letter dated June 23, 2006. Mr. Threshler is a CHI Vice President. CHI is the County's contracted "constructor/operator" of the facility. The format and numeration are continued from the previous section. Many of the comments are duplicative of those submitted by CDM for which responses have already been provided and will not be repeated here.

13. *Emissions Unit 107 - Continuous Monitors. The equipment scope listed in under Continuous Monitors includes a continuous flue gas flow rate monitor. Continuous flue gas flow rate monitors have been applied to 40 CFR Part 75 sources; however, they have not been required or applied to large municipal waste combustors because EPA Method 19 has met all of the RATA requirements without introducing additional capital and O&M costs.*

    If the Department is interested in monitoring long-term mass emission rates, EPA method 19 is recommended because of its successful history and because it does not introduce additional cost.

    Given their incremental cost without the provision of any net environmental benefit, Covanta recommends that the requirement for flue gas flow rate monitors be amended to allow the Applicant the opportunity to select either a flue gas monitor or to use EPA Method 19. In either case, the mass emission rate will be subject to the same data quality as determined by the Relative Accuracy Test Audit.

    The flowmeter is necessary to accurately measure CO, SO_2 and NOx emissions on a continuous basis and consistent with the specified averaging periods. The flow meter will remain a requirement as described in Specific Condition 34. of the permit.

14. *Condition 19. In order to establish consistency in permit averaging period between Condition 19 and Condition 35, the following is proposed for the third paragraph of Condition 19;*

    Thereafter, the owner or operator may demonstrate compliance with all Hg limits in this permit with data collected from the required Hg-CEMS as described in Specific Condition 26 with Hg-CEMS data being reported as a quarterly average. Otherwise the required quarterly testing for mercury shall continue.

    The "quarterly" references are to testing frequency in Specific Condition 19. and to the reporting of data in Specific Condition 35., not to the averaging period for mercury emissions data. Specific Conditions 19. and 26. related to Hg compliance and monitoring were addressed and certain changes were made as previously mentioned.

CONCLUSION

The Department will issue the Final PSD Permit with the changes noted above.

Sheplak, Scott

From: Linero, Alvaro
Sent: Tuesday, July 18, 2006 12:32 PM
To: 'Smitht@hillsboroughcounty.org'
Cc: 'jtreshler@covanta.com'
Subject: Update on NOx Technology
Attachments: IMG_0701.JPG; IMG_0711.JPG

Hi Tom:

It's been a while since we met about Unit 4. understand the hearing before the ALJ was conducted last week and I trust all went well.

I just got back from vacation in Switzerland and Italy. I saw the big blue stack for the Brescia facility right off of the Venice/Milan Autostrade (big highway) and couldn't resist pulling over and taking a look.

I met with the Director of the ASM Brescia WTE Plant, Mr. Lorenzo Zamboni lzaniboni@asm.it He gave me a complete rundown of their operations and a tour. I wanted to pass along what may be helpful to you while in the design phase of Hillsborough Unit 4.

All three units operate with SNCR systems. They have Martin moving grates, FGR, spray dryer/fabric filter combos, and activated carbon injection systems. They operate each unit at ~80 mg NOx/m3 which equates to ~ 60 ppmv and were doing so on the day of my visit.

They have no plume issues under their present operations. I myself saw zero opacity. Any potential plume problems from achieving the relatively low NOx values are abated by two fairly recent developments at the plant.

Firstly, they are operating at a lower HCl emission limit following Italy's adoption of certain European Union requirements. Their typical emissions are 4 mg HCl/m3 and the limit is 10 mg/m3. I believe the values are not too different from 4 and 10 ppmv in terms of U.S. standards. You might check your historical record of HCl emissions from Unit 1, 2, and 3 and see how they typically do and check into what your new unit is likely to do.

Secondly, Unit 2 is equipped with the SNCR system in the fumace plus a thin single stage "dusty side" SCR system within the economizer section. It is only about 60 cm in depth (and ~4x13 meters cross-section). The unit was originally designed for that possibility and provided for something like 5 stages of "dusty-side" SCR. They only use one stage. The benefits of the this "trim" SCR system are reduction of reagent consumption and ammonia slip with minimal pressure drop.

They shoot for the same 80 mg/m3 (60 ppmv) NOx exhaust values on all three units. Your 90 ppmv long term value would be roughly 120 mg/m3 so the job will be easier if designed right.

I went ahead and included one picture of the small SCR piece (alongside a corpulent Colombian) so you can see what is physically entailed. I also included a picture of the stack taken on July 6 so you can see what I saw.

Feel free to contact me if you would like to know more about my trip. Good luck on the planned expansion project!

Sincerely,

Al Linero
1-850-921-9523

FINAL

PERMITTEE

Hillsborough County Department Solid Waste Management 601 East Kennedy Boulevard Tampa, Florida 33602	**DEP File No.:** 0570261-007-AC **Permit No.:** PSD-FL-369
	Facility ID No.: 0570261
	Project: Resource Recovery Facility Unit 4

PROJECT AND LOCATION

This permit authorizes the construction of a nominal 600 ton per day (TPD) Municipal Waste Combustor referred to as Unit 4 at the existing facility.

The existing facility, Hillsborough County Resource Recovery Facility (HCRRF), is located at 350 N. Falkenburg Road, Tampa, Hillsborough County. The UTM coordinates are Zone 17, 368.2 km East and 3092.7 km North; Latitude: 27° 57' 14" North and Longitude: 82° 40' 22" West.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the work specified in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

Appendices

The following Appendices are attached as part of this permit.

Appendix A - NSPS Subpart A, Identification of General Provisions

Appendix BD - BACT Determination

Appendix Eb - NSPS Subpart Eb, Standards of Performance For Large Municipal Waste Combustors

Appendix GC - General Conditions

Appendix SC - Standard Conditions

Expiration Date: December 31, 2009

10/2/06

Joseph Kahn, P.E. Effective Date
Director
Division of Air Resource Management

JK/TLV/AAL/sms

FACILITY DESCRIPTION

The existing facility, Hillsborough County Resource Recovery Facility (HCRRF), is located at 350 N. Falkenburg Road, Tampa, Hillsborough County.

The existing facility consists of three municipal waste combustors (MWCs), each having a nominal design rate capacity of 400 tons MSW (municipal solid waste) per day, 150 MMBtu per hour (excluding 9.9 MMBtu/hr from the combustion air preheaters) and 94,270 pounds steam per hour with MSW having a heating value of 4,500 Btu per pound.

The facility is owned by Hillsborough County and is currently operated by Covanta Hillsborough, Inc. a subsidiary of Covanta Energy Corporation. The Hillsborough County Resource Recovery Facility began operation in 1987.

PROJECT

The permittee, Hillsborough County, proposes to construct a new 600 ton per day (TPD) Municipal Waste Combustor referred to as Unit 4 at the existing facility. The nominal design rate capacity is 600 tons MSW per day, with a nominal heat input of 288 MMBtu per hour and nominal steam production of 163,780 pounds per hour (maximum 190,000 lb/hr). The new unit will be equipped with two natural gas-fired auxiliary burners, each with a nominal heat input of 50 MMBtu per hour. The new unit will be installed at the existing site. The flue for the new boiler is already encased in the existing stack. With the addition of the fourth unit, the existing 220 feet tall stack will contain four active flue streams. With the addition of this unit, the site capacity will increase from approximately 1,200 TPD to 1,800 TPD. The site's steam electric generating capacity will be increased from 39 MW to 47 MW (nominal).

The existing ash building and handling system will be expanded. Two new lime storage silos and a new activated carbon storage silo will be constructed for Unit 4.

Unit 4 will be a mass burn unit incorporating much of the same technology as the existing units including: combustion on a reverse-reciprocating grate system; ash discharge system; energy recovery through the furnace waterwall, superheater and economizers; electrical power production; and a pollution control system consisting of a spray dryer, fabric filter, activated carbon injection system and a selective non-catalytic reduction (SNCR). In addition, the new unit will incorporate flue gas recirculation for energy efficiency and pollution reduction.

REGULATORY CLASSIFICATIONS

Section 111, Clean Air Act, Standards of Performance for New Stationary Sources (NSPS): The new unit is a large Municipal Waste Combustor (MWC) unit subject to 40CFR60, Subpart Eb - Standards of Performance for New Stationary Sources and Emission Guidelines for Municipal Waste Combustors.

Sec*tion 112, Clean Air Act, Hazardous Air Pollutants (HAPs):* The facility is a major source of HAPs. The maximum achievable control technology (MACT) requirements typically specified in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for this industry were included in 40CFR60, Subpart Eb as required by Section 169, Clean Air Act, Solid Waste Combustion.

Title IV, Acid Rain: The facility operates no units subject to the acid rain provisions of the Clean Air Act.

Title V, Clean Air Act, Permits: The facility is a Title V or "Major Source" of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year or because it is a Major Source of HAPs. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

Part C, Clean Air Act, Prevention of Significant Deterioration (PSD): The facility is located in an area that is designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is classified as a "municipal incinerator capable of charging more than 250 tons of refuse per day", which is one of the facility categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year, therefore the facility is classified as a "Major Stationary Source" with respect to Rule 62-212.400 F.A.C.

Stationary Sources - Emission Standards in Chapter 62-296, F.A.C.: The facility operates one or more units subject to emission standards. The new Unit 4 is subject to the mercury standard in Rule 62-296.416, F.A.C. The numerical mercury emissions limit under state Rule 62-296.416, F.A.C., is more stringent than the NSPS emissions limit.

Reasonable Available Control Technology (RACT): The entire State of Florida is either classified as attainment or considered to be in attainment (i.e., unclassifiable) with respect to the NAAQS for all pollutants. However, the facility is located in a maintenance area for ozone, particulate matter and lead. The VOC and NO_X RACT provisions do not apply. The new unit has operations that are subject to PM RACT.

Siting: The facility was originally certified under PA83-19 pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

RELEVANT DOCUMENTS

- Received Site Certification and PSD application on November 21, 2005;
- Sufficiency information requested via Power Plant Siting Office on January 10, 2006;
- Supplemental information received on January 17, 2006;
- Received responses to sufficiency request on March 2, 2006;
- Intent to Issue PSD Permit distributed with Siting Staff Report on May 24, 2006;
- Department's Technical Evaluation & Preliminary Determination dated May 24, 2006;
- Comments received from Camp Dresser McKee (CDM) submitted on behalf of the County and dated June 8 and June 22, 2006;
- Comments received from Covanta Hillsborough, Inc. and dated June 22, 2006;
- Recommended Certification Order issued by the Division of Administrative Hearing on August 2, 2006;
- Final Order, including Conditions of Certification, approved by the Siting Board on September 19 and clerked on September 27, 2006; and
- Department's Final Determination dated September 29, 2006.

GENERAL AND ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct, modify or operate this emissions unit shall be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and phone number 850/488-0114. Copies of these documents shall be submitted to the Compliance Authority.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications should be submitted to the compliance authority. The compliance authority is the Department's Southwest District Office at 13051 N. Telecom Parkway, Temple Terrace, FL 33637-0926.
3. General Conditions: The owner and operator are subject to, and shall operate under, the attached General Conditions listed in *Appendix GC* of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 51, 52, 60, 63, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
   [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. Construction and Expiration: The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. In conjunction with an extension of the 18-month period to commence or continue construction (or to construct the project in phases), the Department may require the permittee to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for emissions units regulated by the project. For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4), 62-4.080, 62-210.300(1), and 62-212.400(6)(b), F.A.C.]
6. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

7. Source Obligation.
   (a) Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit.
   (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification
   (c) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.
   [Rule 62-212.400(12), F.A.C.]
8. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification.
   [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
9. Title V Permit: This permit authorizes construction of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emission units. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation and a copy to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

A. Common Conditions

The proposed new emissions units are:

E.U. ID No.	Emission Unit Descriptions
-107	Nominal 288 MMBtu/hr Municipal Waste Combustor & Auxiliary Burners - Unit 4
-108	Pebble Lime Storage Silo - Unit 4
-109	Dolomitic Lime Storage Silo - Unit 4
-110	Activated Carbon Storage Silo - Unit 4
-111	Cooling Tower Cell

CONSTRUCTION ACTIVITIES

1. Unconfined Particulate Matter Emissions: Pursuant to Rules 62-296.320(4)(c)1., 3. & 4., F.A.C., reasonable precautions to prevent emissions of unconfined particulate matter include the following requirements consistent with current practices by the permittee:

   All roads shall be adequately paved, and vacuum swept if appropriate, to minimize accumulations of ash and dust. The unpaved areas of the facility will be maintained and either sodded or landscaped. Hoods, fans, filters, or similar equipment will be used to contain, capture, and/or vent particulate matter. The conveyor systems of the facility will be enclosed or covered. The ash will be wetted before being stored in the ash handling building. Speed limit signs shall be posted. Unprocessed refuse storage areas which must be open for operational purposes (e.g., tipping floor or the refuse bunker while trucks are entering or leaving) shall be under negative air pressure. [Rule 62-296.320(4)(c)2., F.A.C.; and, items proposed by the applicant.]

2. General Pollutant Emission Limiting Standards. Objectionable Odor Prohibited. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]

This section of the permit addresses the following emissions units.

Emissions Unit 107

Description: Emissions unit 107 consists of a nominal 600 TPD mass-burn municipal waste combustor (MWC) with two nominal 50 mmBtu/hr natural gas-fired auxiliary burners. The project will also include: a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; a urea reagent storage tank; and a new settling basin. Exhaust from the new unit will be directed to a separate flue already constructed within the existing 220 foot stack.

Steam Capacity: The nominal steam production rate is 163,780 pounds of steam per hour. The maximum steam production limit is 190,000 lb steam/hr (4-hour block average). The nominal heat input is approximately 288 mmBtu/hour.

Controls: Controls consist of: efficient combustion on the grate and furnace; flue gas recirculation (FGR); a spray dryer/absorber in conjunction with a fabric filter (SD/FF) for control of acid gases, particulate matter, and most metals; activated carbon injection (ACI) to enhance mercury (Hg) removal; selective non-catalytic reduction (SNCR) by ammonia or urea injection for NO_X control.

Stack Parameters: The Department may require the permittee to perform additional air dispersion modeling should the actual specified stack dimensions change. The following summarizes the exhaust characteristics:

Fuel	Heat Input Rate	Exhaust Temp., °F	Flow Rate ACFM
MSW	~288 mmBtu/hour	270° F	~125,000

Continuous Monitors: The unit is equipped with continuous emissions monitoring systems (CEMS) to measure and record NO_X, CO, SO_2, and Hg as well as instrumentation to monitor steam flow, flue gas flow rate, oxygen, temperature, and opacity.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emission unit addressed in this section is subject to a Best Available Control Technology (BACT) determination for nitrogen oxides (NO_X), carbon monoxide (CO), MWC acid gases (SO_2+HCl); SO_2 as an individual pollutant, and MWC organics (dioxin/furan). [Rule 62-212.400, F.A.C.]
2. NSPS Requirements: The municipal waste combustor and auxiliary burners shall comply with all applicable requirements of 40 CFR 60, listed below, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by the applicable NSPS provisions. Some separate reporting and monitoring may be required by the individual subparts.

(a) **Subpart A, General Provisions**, including:

- 40 CFR 60.7, Notification and Record Keeping
- 40 CFR 60.8, Performance Tests
- 40 CFR 60.11, Compliance with Standards and Maintenance Requirements
- 40 CFR 60.12, Circumvention
- 40 CFR 60.13, Monitoring Requirements
- 40 CFR 60.19, General Notification and Reporting Requirements

(b) **Subpart Eb, Standards of Performance for Large Municipal Waste Combustors**

3. Emission Standards for Stationary Sources: This unit has a charging rate of 40 tons per day or more and is subject to the requirements of Stationary Sources – Emission Standards for Waste-To-Energy Facilities of Rule 62-296.416, F.A.C.

AIR POLLUTION CONTROL TECHNOLOGY

4. Control Equipment: The owner or operator shall install, operate and maintain the following air pollution control equipment consistent with the manufacturers' specifications.

NO_X Controls: A flue gas recirculation system (FGR) will be used to limit NO_X formation. A urea-based selective non-catalytic reduction (SNCR) system will be employed for the destruction of NO_X.

MWC Acid Gas Control: A spray dryer (SD) with lime injection will be installed to absorb MWC acid gases.

MWC Organics and Mercury (Hg): An activated carbon injection (ACI) system will be installed to adsorb MWC organics and mercury (Hg).

Particulate Matter (PM/PM_{10}): A fabric filter (FF) baghouse, including absorption/adsorption reagent, will be installed to remove particulate matter.

[BACT Determination, and Rules 62-4.070(1), and (3), F.A.C.]

OPERATIONAL DESCRIPTIONS AND LIMITATIONS

5. Nameplate: The combustor (boiler) shall have a metal name plate affixed in a conspicuous place on the shell showing the manufacturer, model number, type of waste, and rated capacity. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

6. Hours of Operation. This emissions unit may operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

7. Permitted Capacity. The maximum steam production rate shall not exceed 190,000 pounds steam per hour (on a 4-hour block arithmetic average).

{Permitting Note: The nominal capacity of Unit 4 is 600 tons per day and has been determined to be greater than 250 tons per day, thus classifying the unit as a "large MWC unit" under NSPS - 40 CFR 60, Subpart Eb.}

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., 40 CFR 60, Subpart Eb, and Design]

8. Maximum Demonstrated Municipal Waste Combustor Unit Load. Unit load means the steam load of the municipal waste combustor measured as specified in 40 CFR 60.58b(I)(6). Each unit shall not operate at a load level greater than 110 percent of the unit's "maximum demonstrated unit load." Maximum demonstrated municipal waste combustor unit load means the highest 4-hour arithmetic average municipal waste combustor unit load achieved during four consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable limit for municipal waste combustor organics. Higher loads are allowed for testing purposes as specified in 40 CFR 60.53b(b). [40 CFR 60.34b(b), 60.51b, 60.53b(b), and 60.58b(I)(6)]

9. Prohibited Fuels:

   a. The facility shall not burn:
      i. those materials that are prohibited by state or federal law;
      ii. those materials that are prohibited by this permit;
      iii. lead acid batteries;
      iv. hazardous waste;
      v. nuclear waste;
      vi. radioactive waste;
      vii. sewage sludge;
      viii. explosives;
      ix. beryllium-containing waste, as defined in 40 CFR 61, Subpart C.

   b. Further, the facility shall not knowingly burn:
      i. nickel-cadmium batteries pursuant to Section 403.7192 (3);
      ii. mercury containing devices and lamps pursuant to Sections 403.7186(2), and (3);
      iii. untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from similar generators (or sources);
      iv. segregated loads of biological waste; and
      v. CCA treated wood.

10. Authorized Fuels. The primary fuel for the facility is municipal solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (1995). Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW which are described below:

    a. Subject to the conditions and limitations contained in this permit, the following other solid waste may be used as fuel at the facility:
       i. Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
       ii. Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
       iii. Wood pallets, clean wood, and land clearing debris;

iv. Packaging materials and containers;
v. Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or
vi. Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.

b. Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 3%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with **Specific Condition 36.** of this subsection.

c. Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e. the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received as segregated loads and burned at the facility shall not exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with **Specific Condition 36.** of this subsection.

i. Construction and demolition debris.
ii. Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.
iii. Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.
iv. Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.
v. Waste materials that:
   (a) are generated in the manufacture of items in categories (iii) or (iv), above and are functionally or commercially useless (expired, rejected or spent); or
   (b) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.
vi. Waste materials that contain oil from:
   (a) the routine cleanup of industrial or commercial establishments and machinery; or
   (b) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.
vii. Used oil and used oil filters. Used oil containing a PCB concentration equal or greater than 50 ppm shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).

{Permitting note: Waste materials specifically authorized above do not require Department approval.}

viii. Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW.

[Rule 62-4.070(1), and (3), F.A.C.]

11. Segregated Loads: The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is segregated non-MSW material, the fuel shall be either:

    a. well mixed with MSW in the refuse pit; or

    b. alternately charged with MSW in the hopper.

12. Combustion Practices: To ensure that the facility's fuel does not adversely affect the facility's combustion process or emissions, the facility operator shall:

    a. comply with good combustion operating practices in accordance with 40 CFR 60.53b;

    b. install, operate and maintain continuous emissions monitors (CEMS) for oxygen, carbon monoxide, sulfur dioxide, oxides of nitrogen and temperature in accordance with 40 CFR 60.58b; and

    c. record and maintain the CEMS data in accordance with 40 CFR 60.59b.

    These steps shall be used to ensure and verify continuous compliance with the emissions limitations in this permit.

    Natural gas may be used as fuel during warm-up, startup, shutdown, and malfunction periods, and at other times when necessary and consistent with good combustion practices.

MONITORING OF OPERATIONS

13. Continuous Steam Flow Monitoring: Municipal waste combustor unit load means the steam load of the municipal waste combustor unit measured as specified in §60.58b(i)(6). The owner or operator shall install, calibrate, maintain, and operate a steam flow meter, measure steam flow in kilograms (or pounds) per hour on a continuous basis, and record the output of the monitor (in accordance with the ASME method described in 40 CFR 60.58b(i)(6)). Steam flow shall be calculated in 4-hour block arithmetic averages. Higher unit loads are allowed for testing purposes pursuant to 40 CFR 60.53b(b).
    [Rules 62-204.800(8) and 62-4.070(1), and (3), F.A.C., and 40 CFR 60.53(a), and 60.58b(i)]

EMISSIONS STANDARDS

14. Emissions from Unit 4 shall not exceed the emissions standards listed in the following table or in **Specific Conditions 15.-22.** and using the test methods and procedures described in **Specific Conditions 23.-27.**

Pollutant	Emission Standard/Limit[1]	Lb/hour	Basis
Nitrogen Oxides (NO_X)	1st year of operation: 150 ppmvd - 24 hour block average and 110 ppmvd- 30 day rolling average	 79.8 58.5	 Subpart Eb Limit PTE
	Thereafter: 110 ppmvd - 24 hour block average and 90 ppmvd - 12 month rolling average	 58.5 47.9	 BACT BACT
Carbon Monoxide (CO)	80 ppmvd – 30-day rolling avg. 100 ppmvd - 4 hr block average	25.9 32.4	BACT BACT/Eb
Sulfur Dioxide (SO_2)	26 ppmvd - 24 hour block average or 80% reduction[2]	19.2	BACT/Eb
Hydrogen Chloride (HCl)[3]	25 ppmvd or 95% reduction[2]	25.4	BACT/Eb
Particulate Matter (PM/PM_{10})	12.0 mg/dscm	3.3	Avoid PSD
Lead (Pb)	140 µg/dscm	NA	Subpart Eb
Mercury (Hg)	28 µg/dscm or 85% reduction[2]	0.022	Avoid PSD/Eb
Cadmium (Cd)	10 µg/dscm	NA	Subpart Eb
Dioxins/Furans[4]	13.0 ng/dscm	3.61×10^{-6}	BACT/Eb
Opacity	10 % - 6 minute average	NA	BACT/Eb
Ammonia Slip	@ 195 MMBtu/hr: 10 ppmvd @ 260 MMBtu/hr: 15 ppmvd	NA	PM, Opacity.

1 All concentration values are corrected to 7% O_2.
µg/dscm: Micrograms per dry standard cubic meter
mg/dscm: Milligrams per dry standard cubic meter
ng/dscm: Nanograms per dry standard cubic meter
ppmvd: Part per million dry volume
NA: not applicable

2 Whichever standard is less stringent.

3 HCl is not a BACT pollutant. However, it must be limited together with SO_2 because they both comprise MWC-Acid Gases which has its own PSD threshold.

4 Dioxins/furans: Total tetra through octa-chlorinated dibenzo-p-dioxins and dibenzofurans

15. Nitrogen Oxides (NO_X): During the first calendar year of operation, emissions of NO_X in the stack exhaust gas as measured by the required CEMS shall exceed neither 150 ppmvd on a 24-hr daily arithmetic average nor 79.8 lb/hr and shall exceed neither 110 ppmvd nor 58.5 lb/hr on a 30-operating day rolling average.

    Thereafter, emissions of NO_X in the stack exhaust gas as measured by the required CEMS shall exceed neither 110 ppmvd nor 58.5 lb/hr on a 24-hr daily arithmetic average and shall exceed neither 90 ppmvd nor 47.9 lb/hr on a 12-month rolling average, rolled monthly.

    {Permitting Note: The owner or operator may request a permit modification of the 90 ppmvd NO_X standard if ammonia plume or slip issues arise and persist at the facility. The Department reserves the right to make a final determination on any such request.}

16. Carbon Monoxide (CO): Emissions of CO in the stack exhaust gas as measured by the required CEMS shall exceed neither 100 ppmvd on a 4-hr block average nor 32.4 lb/hr and shall exceed neither 80 ppmvd nor 25.9 lb/hr on a 30-operating day rolling average.

17. Sulfur Dioxide (SO_2): Emissions of SO_2 as measured by the required CEMS shall exceed neither 26 ppmvd nor 19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved.

18. Hydrogen Chloride (HCl): Emissions of HCl shall exceed neither 25 ppmvd nor 25.4 lb/hr or, an emissions reduction 95 percent shall be achieved as demonstrated during the required stack test.

19. Mercury Hg: Emissions of Hg shall not exceed 28 µg/dscm or an emissions reduction of 85 percent shall be achieved as demonstrated during the required annual stack test.

    During the first two years of operation, emissions of Hg shall not exceed 0.022 lb/hr as measured during quarterly stack tests to provide reasonable assurance that 12-month emissions are less than the applicable PSD threshold of 200 lb/yr.

    After the certification of the Hg-CEMS as described in **Specific Condition 35.,** the owner or operator may demonstrate compliance with all Hg limits in this permit with data collected during an annual stack test or from the Hg-CEMS.

    {Permitting Note: If the Hg-CEMS is certified prior to the end of the first two years of operation, the permittee may use the CEMS in lieu of the remaining quarterly tests.}

20. Dioxins/Furans: Emissions of dioxins/furans shall exceed neither 13.0 ng/dscm nor 3.61×10^{-6} lb/hr.

21. Particulate Matter (PM/PM_{10}): Emissions of PM shall exceed neither 12.0 mg/dscm nor 3.3 lb/hr. This will simultaneously demonstrate compliance with the PM_{10} limits.

    {Permitting note: Compliance with this condition will also demonstrate that emissions are less than the 15 TPY PSD thresholds for PM_{10} and MWC-Metals.}

22. Opacity: Visible emissions shall not exceed 10 percent opacity on a 6-minute average as measured by the required continuous opacity monitoring system (COMS) and measured by an annual visible emissions test (VE).

TEST METHODS AND PROCEDURES

23. Test Methods: Any required stack test shall be performed in accordance with the following methods.

EPA Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content. Methods shall be performed as necessary to support other methods.
5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
6C	Determination of SO_2 Emissions (Instrumental).
7E	Determination of NO_X Emissions (Instrumental). NO_X emissions testing shall be conducted with the air heater operating at the highest heat input possible during the test.
9	Visual Determination of Opacity
10	Measurement of Carbon Monoxide Emissions (Instrumental). The method shall be based on a continuous sampling train.
23	Measurement of Dioxin/Furan Emissions
26 or 26A	Determination of Hydrogen Chloride Emissions
29	Determination of Metals Emissions from Stationary Sources
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source • This is an EPA conditional test method. • The minimum detection limit shall be 1 ppm.

Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". The other methods are specified in Appendix A of 40 CFR 60, adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. Tests shall be conducted in accordance with the appropriate test method and the applicable requirements specified in this permit, and NSPS Subpart A in 40 CFR 60. [Rules 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

24. Testing Requirements: Initial tests shall be conducted between 90% and 100% of permitted capacity; otherwise, this permit shall be modified to reflect the true maximum capacity as constructed. Subsequent annual tests shall be conducted between 90% and 100% of permitted capacity in accordance with the requirements of Rule 62-297.310(2), F.A.C.
[Rule 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

25. Initial Compliance Demonstration: Initial compliance stack tests shall be conducted within 60 days after achieving the maximum production rate, but not later than 180 days after the initial startup. In accordance with the test methods specified in this permit, Unit 4 exhaust stack gas shall be tested to demonstrate compliance with the emission standards for NO_X, CO, SO_2, HCl, PM/PM_{10}, lead, cadmium, Hg, dioxin/furans, and ammonia. The permittee shall provide the Compliance Authority with any other initial emissions performance tests conducted to satisfy vendor guarantees. [Rule 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

26. Subsequent Compliance Testing: Annual compliance stack tests for NO_X, CO, SO_2, HCl, PM/PM_{10}, lead, cadmium, dioxins/furans, and ammonia shall be conducted during each federal fiscal year (October 1st to September 30th). Data collected from the reference method during the required RATA tests for CO, NO_X, and SO_2 may be used to satisfy the annual testing requirement provided the notification requirements and emission testing requirements for performance and compliance tests of this permit are satisfied.

    Prior to the certification of the Hg-CEMS as described in **Specific Condition 35.**, performance tests for Hg emissions shall be conducted quarterly during the fist two years of operation then on a calendar year basis to demonstrate compliance with the concentration/reduction standards.

    After the certification of the Hg-CEMS as described in **Specific Condition 35.**, the owner or operator may demonstrate compliance with all Hg limits in this permit with data collected from the Hg-CEMS.

    [Rules 62-297.310(7)(a) and (b), and 62-296.416, F.A.C., and 40 CFR 60.8 and 60.58b]

27. Continuous Compliance: The permittee shall demonstrate continuous compliance with the CO, NO_X, and SO_2 emissions standards based on data collected by the certified CEMS. The permittee shall demonstrate continuous compliance with the opacity limit based on data collected by the required COMS. [Rule 62-210.200 (BACT), F.A.C., and 40 CFR 60, Subpart Eb]

EXCESS EMISSIONS

{Permitting Note: The Excess Emissions Rule at Rule 62-210.700, F.A.C., cannot vary or supersede any requirement of an NSPS or NESHAP provision.}

28. Department Regulations: The following conditions apply only to the emissions limits given in **Specific Conditions 14.-22.** that were specified pursuant to BACT or to avoid PSD applicability.

    a. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration. The Department authorizes three hours in any 24-hour period for this emissions unit. A malfunction means any unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner.

    b. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited.

c. The permittee shall notify the Compliance Authority within one working day of discovering any emissions in excess of a CEMS standard subject to the specified averaging period. All such reasonably preventable emissions shall be included in any CEMS compliance determinations. All valid emissions data (including data collected during startup, shutdown and malfunction) shall be used to report emissions for the Annual Operating Report.

[Rule 62-210.700, F.A.C.]

29. Regulations pursuant to 40 CFR 60, Subpart Eb: The following conditions apply only to the emissions limits given in **Specific Conditions 14.-22.** that were specified pursuant to 40 CFR 60, Subpart Eb.

a. *The opacity standards* set forth in 40 CFR 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c)]

b. *Startup, Shutdown and Malfunction.* Except as provided by 40 CFR 60.56b, the standards under 40 CFR 60, Subpart Eb, as incorporated in Rule 62-204.800(8)(b), F.A.C., apply at all times except during periods of startup, shutdown, or malfunction. Duration of startup or shutdown periods are limited to 3 hours per occurrence, except as provided in 40 CFR 60.58b(a)(1)(iii). During periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with the provisions of 40 CFR 60.59b(d)(7).

i. The startup period commences when the affected facility begins the continuous burning of municipal solid waste and does not include any warm-up period when the affected facility is combusting fossil fuel or other non-municipal solid waste fuel, and no municipal solid waste is being fed to the combustor.

ii. Continuous burning is the continuous, semi-continuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning.

[40 CFR 60.58b(a)]

c. *Special Provisions for CO*: For the purpose of compliance with the carbon monoxide emission limits in 40 CFR 60.53b(a), if a loss of boiler water level control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence.
[40 CFR 60.58b(a)(1)(iii)]

CONTINUOUS MONITORING REQUIREMENTS

30. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of CO, NO_X, Hg and SO_2 from Unit 4 in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this subsection. All continuous monitoring systems other than the Hg CEMS shall be installed and functioning within the required performance specifications by the time of the initial performance tests. The Hg CEMS shall be installed and functioning within the required performance specifications by the end of the second year of operation as specified in **Specific Condition 35**.

a. *CO Monitor:* The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

b. *NO_X Monitor:* The NO_X monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2 and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The required RATA tests shall be performed using EPA Method 7E in Appendix A of 40 CFR 60. The NO_X monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

a. *SO2 Monitor.* The SO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2 and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The required RATA tests shall be performed using EPA Method 6C in Appendix A of 40 CFR 60. The SO_2 monitor span values shall be set appropriately, considering the expected range of emissions and corresponding emission standards.

b. *Diluent Monitor.* A continuous emission monitoring system for measuring the oxygen content of the flue gas at each location where carbon monoxide, sulfur dioxide, nitrogen oxides emissions are monitored shall be installed, calibrated, maintained, and operated in accordance with the requirements of 40 CFR 60.58b.

c. *Mercury Monitor.* A mercury monitor (Hg CEMS) shall be installed, certified and operated as described in **Specific Condition 35.** below.

31. COMS: A continuous opacity monitoring system (COMS) shall be installed, calibrated, operated, and maintained in exhaust stack in a manner sufficient to demonstrate continuous compliance with the opacity standard specified in this section. Opacity shall be based on a 6-minute block average computed from at least one observation (measurement) every 15 seconds. For the COMS, the 6-minute block averages shall begin at the top of each hour. The COMS shall meet the applicable requirements of 40 CFR 60.58b(c)(8).

32. CEMS/COMS Certification and Initial Startup: Each CEMS/COMS, other than the Hg CEMS, required by this permit shall be installed prior to startup. Within 60 calendar days of achieving the maximum production rate, but no later than 180 calendar days after initial startup, the owner or operator shall certify each CEMS/COMS. Upon certification of each CEMS/COMS, the owner or operator shall demonstrate compliance with all applicable standards as specified in this permit. The Hg CEMS shall be installed and functioning within the required performance specifications within the first two years of operation as specified in **Specific Condition 35**. [Rules 62-4.070(3), 62-210.800, 62-210.200(BACT) and 62-297.520, F.A.C.; 40 CFR 60.7(a), 60.13(b), and 60.58b, and Appendix B]

33. CEMS Data Requirements: The CEMS shall express the results in the units of the applicable standard and in accordance with 40 CFR 60 subparts A, and Eb.

    a. *Data Exclusion*: Except for monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, each CEMS shall monitor and record emissions during all operations including episodes of startups, shutdowns, and malfunctions. Limited amounts of CEMS emissions data (other than mercury data) recorded during some of these episodes may be excluded from the corresponding compliance demonstration subject to the provisions of **Specific Conditions 28. and 29.** in this subsection. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable.

    b. *Availability*. Monitor availability for each CEMS used to demonstrate compliance shall be 95% or greater in any calendar quarter. Monitor availability shall be reported in the quarterly excess emissions report. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Compliance Authority. The monitor availability requirements of this condition do not apply to the Hg CEMS for the first two years of operation of the CEM system. (This is consistent with the Hg CEMS availability requirement of subpart Eb.)

34. Continuous Flow Monitor: A continuous flow monitor shall be installed to determine the stack exhaust flow rate to be used in determining mass emission rates. The flow monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 6.
[Rules 62-210.200(BACT), 62-204.800(8), and 62-4.070(1) and (3), F.A.C.]

35. Mercury Continuous Emissions Monitoring System (Hg-CEMS): Within 24 months of commencing operation, the owner or operator shall install and certify a mercury CEMS demonstrated to meet the requirements in Performance Specification 12A (PS-12A), "Specifications and Test Procedures for Total Vapor phase Mercury Continuous Monitoring Systems in Stationary Sources," or that has passed verification tests conducted under the auspices of the U.S. Environmental Protection Agency's (EPA) Environmental Technology Verification (ETV) Program. If the vendor provides to the Department verification of certification difficulties such that the CEMS cannot be certified by the certification deadline, and every reasonable effort has been made to do so, the Department shall grant a reasonable extension of time to certify the CEMS. After certification the owner or operator will begin reporting Hg mass emissions data. The owner or operator shall adhere to the calibration drift and quarterly performance evaluation procedures and ongoing data quality assurance procedures in 40 CFR Part 60, Appendix F or 40 CFR Part 75, Appendix B. The mass emissions shall be estimated based on the actual data collected no later than 10 days following the end of the month. The mercury monitoring data results shall be submitted quarterly. The CEMS shall only be used as the method of compliance if the owner or operator, at a minimum, meets the requirements of 40 CFR 60.58b(n). Prior to use of the Hg-CEMS as the method to demonstrate compliance, the owner or operator shall submit written notice to the Department, and receive approval for missing data substitution and a data calculation approach plans.
[Rules 62-4.070(1) and (3), and 62-210.200(BACT), F.A.C., 40 CFR 60.58b, and, Hillsborough County Environmental Protection Commission Local Ordinance 1-3.53.1(f), *Municipal Solid Waste Incinerators* (for Hg monitoring)]

REPORTING AND RECORD KEEPING REQUIREMENTS

36. Segregated Solid Waste Record Keeping: The following records shall be made and kept to demonstrate compliance with the segregated non-MSW percentage limitations of **Specific Condition 10.** of this subsection:
    a. Each segregated load of non-MSW materials, subject to the percentage weight limitations of **Specific Condition 10.,** which is received for processing, shall be documented as to waste description and weight. The weight of all waste materials received for processing shall be measured using the facility truck scale and recorded.
    b. Each day the total weight of segregated tires received shall be computed, and the daily total 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 shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 3% limitation.
    c. Each day the total weight of segregated non-MSW materials received that are subject to the 5% restriction shall be computed, and the daily total 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 segregated non-MSW materials subject to the 5% restriction shall be divided by the total weight of all waste materials received in the same calendar month,

and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% limitation.

[Rules 62-4.070(1) and (3), and 62-210.200(BACT), F.A.C.]

37. Stack Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Compliance Authority on the results of each such test. The required test report shall be filed with the Compliance Authority as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Compliance Authority to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the specified in Rule 62-297.310(8), F.A.C. [Rule 62-297.310(8), F.A.C.]
38. Malfunction Notifications: If temporarily unable to comply with any condition of the permit due to breakdown of equipment (malfunction) or destruction by hazard of fire, wind or by other cause, the permittee shall immediately (within one working day) notify the Compliance Authority. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with Department rules. If requested by the Compliance Authority, the owner or operator shall submit a quarterly written report describing the malfunction. [Rules 62-210.700(6) and 62-4.130, F.A.C.]
39. SIP Quarterly Report: Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing: equipment malfunctions resulting in excluded CEMS data and/or excess emissions; and the monitor availability of each CEMS. The report shall contain the information and follow the general format specified in 40 CFR 60.7(c), subpart A. [Rules 62-4.070(3), 62-4.130, and 62-210.200(BACT), F.A.C.]
40. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370, F.A.C.]

C. Lime and Carbon Storage Silos

This section addresses the following emissions units.

E.U. ID No.	Emission Unit Descriptions
108	Pebble Lime Storage Silo - Unit 4
109	Dolomitic Lime Storage Silo - Unit 4
110	Activated Carbon Storage Silo - Unit 4

EQUIPMENT AND CONTROL TECHNOLOGY

1. Equipment Description: The permittee is authorized to construct one pebble lime storage silo, one dolomitic lime storage silo, and one activated carbon storage silo. Each silo will have a volume of approximately 2,900 cubic feet and will be equipped with its own fabric filter baghouse.
2. Baghouse Controls: Each emissions unit identified for lime and carbon storage shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.015 gr/dscf.

PERFORMANCE REQUIREMENTS

3. Hours of Operation. These emission units may operate continuously (8,760 hours/year). [Rules 62-4.160(2), and 62-210.228(PTE), F.A.C.]
4. Emissions Limits: The following standards apply to each emissions point of this unit:
   a. Visible emissions are limited to 5% opacity from each of the above listed emissions points controlled by a baghouse.
   b. Fugitive emissions are limited to 10% opacity from any emissions point not controlled by a baghouse.

   [Rule 62-070(3), F.A.C.]

   {Note: The baghouses are designed to control PM emissions to 0.015 grains/dry standard cubic foot (gr/dscf). The 5% opacity limitation is consistent with this design and provides reasonable assurance that annual emissions of PM/PM_{10} for all emission points in this emission unit system will be less than 0.5 TPY.}

   [Rules 62-4.070(3), F.A.C.]
5. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits for each emission point shall be demonstrated during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3), and 62-297.310(7)(a), F.A.C]
6. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

REPORTING AND RECORD KEEPING

7. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), F.A.C.]
8. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

This section addresses the following emissions unit.

E.U. ID No.	Emissions Unit Description
111	One Cooling Tower Cell

EQUIPMENT

1. Cooling Tower: The permittee is authorized to construct one cooling tower cell with the following nominal design characteristics: a circulating water flow rate of 11,000 gpm; drift eliminators; a drift rate of no more than 0.001 percent of the circulating water flow. [Application; Design]

EMISSIONS AND PERFORMANCE REQUIREMENTS

2. Drift Rate: Within 60 days of commencing commercial operation, the permittee shall certify that the cooling tower was constructed to achieve the specified drift rate of no more than 0.001 percent of the circulating water flow rate. [Rule 62-210.200(BACT), F.A.C.]

{Permitting Note: This work practice standard is established as BACT avoidance for PM/PM_{10} emissions from the cooling tower. Based on this design criteria, potential emissions are expected to be less than 0.5 tons of PM per year and less than 0.25 tons of PM_{10} per year. Actual emissions are expected to be lower than these rates.}

APPENDIX A - NSPS SUBPART A, IDENTIFICATION OF GENERAL PROVISIONS

Emissions units subject to a New Source Performance Standard of 40 CFR 60 are also subject to the applicable requirements of Subpart A, the General Provisions, including:

§ 60.1 Applicability.

§ 60.2 Definitions.

§ 60.3 Units and abbreviations.

§ 60.4 Address.

§ 60.5 Determination of construction or modification.

§ 60.6 Review of plans.

§ 60.7 Notification and Record Keeping.

§ 60.8 Performance Tests.

§ 60.9 Availability of information.

§ 60.10 State Authority.

§ 60.11 Compliance with Standards and Maintenance Requirements.

§ 60.12 Circumvention.

§ 60.13 Monitoring Requirements.

§ 60.14 Modification.

§ 60.15 Reconstruction.

§ 60.16 Priority List.

§ 60.17 Incorporations by Reference.

§ 60.18 General Control Device Requirements.

§ 60.19 General Notification and Reporting Requirements.

Individual subparts may exempt specific equipment or processes from some or all of these requirements. The general provisions may be provided in full upon request.

APPENDIX BD – BACT DETERMINATION

Refer to the draft BACT proposal discussed in the initial Technical Evaluation for this project and to the Final Determination issued with the Final permit for the rationale regarding the following BACT determination.

Pollutant	Emission Standard/Limit[1]	Lb/hour	Basis
Nitrogen Oxides (NO_X)	110 ppmvd - 24 hour block average and 90 ppmvd - 12 month rolling average	58.5 47.9	BACT BACT
Carbon Monoxide (CO)	80 ppmvd – 30-day rolling avg. 100 ppmvd - 4 hr block average	25.9 32.4	BACT BACT/Eb
Sulfur Dioxide (SO_2)	26 ppmvd - 24 hour block average or 80% reduction[2]	19.2	BACT/Eb
Hydrogen Chloride (HCl)[3]	25 ppmvd or 95% reduction[2]	25.4	BACT/Eb
Dioxins/Furans[4]	13.0 ng/dscm	3.61×10^{-6}	BACT/Eb
Opacity	10 % - 6 minute average	NA	BACT/Eb

[1] All concentration values are corrected to 7% O_2.
µg/dscm: Micrograms per dry standard cubic meter
mg/dscm: Milligrams per dry standard cubic meter
ng/dscm: Nanograms per dry standard cubic meter
ppmvd: Part per million dry volume
NA: not applicable

[2] Whichever standard is less stringent.

[3] HCl is not a BACT pollutant. However, it must be limited together with SO_2 because they both comprise MWC-Acid Gases which has its own PSD threshold.

[4] Dioxins/ furans: Total tetra through octa-chlorinated dibenzo-p-dioxins and dibenzofurans

1. Nitrogen Oxides (NO_X): Emissions of NO_X in the stack exhaust gas as measured by the required CEMS shall exceed neither 110 ppmvd nor 58.5 lb/hr on a 24-hr daily arithmetic average and shall exceed neither 90 ppmvd nor 47.9 lb/hr on a 12-month rolling average, rolled monthly.

2. Carbon Monoxide (CO): Emissions of CO in the stack exhaust gas as measured by the required CEMS shall exceed neither 100 ppmvd on a 4-hr block average nor 32.4 lb/hr and shall exceed neither 80 ppmvd nor 25.9 lb/hr on a 30-operating day rolling average.

3. Sulfur Dioxide (SO_2): Emissions of SO_2 as measured by the required CEMS shall exceed neither 26 ppmvd nor 19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved.

4. Hydrogen Chloride (HCl): Emissions of HCl shall exceed neither 25 ppmvd nor 25.4 lb/hr or, an emissions reduction 95 percent shall be achieved as demonstrated during the required stack test.

5. Dioxins/Furans: Emissions of dioxins/furans shall exceed neither 13.0 ng/dscm nor 3.61×10^{-6} lb/hr.

   {Permitting note: Compliance with this condition will also demonstrate that emissions are less than the 15 TPY PSD thresholds for PM_{10} and MWC-Metals}

6. Opacity: Visible emissions shall not exceed 10 percent opacity on a 6-minute average as measured by the required continuous opacity monitoring system (COMS) and measured by an annual visible emissions test (VE).

[40 CFR 60.44b, Rules 62-210.200(BACT), 62-204.800(8), 62-4.070, F.A.C.]

APPENDIX Eb - NSPS Subpart Eb, Standards of Performance For Large Municipal Waste Combustors.

Applicability of 40CFR60, Subpart Eb- Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996.

The proposed Hillsborough County Resource Recovery Facility Unit 4 is a new Large Municipal Waste Combustor (Large MWC) because it is a waste combustion unit that is capable of combusting more than 250 tons per day (TPD) of municipal solid waste (MSW).

The rules applicable to Large MWC's are given at 40CFR60, Sections 60.50b through 60.59b. More specifically, Unit 4 is a Mass Burn Waterwall Furnace. The emission limits applicable to this category of MWC are specified by type of combustor in the relevant sections, paragraphs and tables that address individual pollutants including CO, NO_X, SO_2, HCl, PM, dioxin/furan, opacity, Cd, Hg, Pb, and various emission monitoring and operational parameters.

Subpart 40CFR60, Subpart Eb was revised on May 10, 2006 just a few days prior to preparation of the draft permit for Unit 4. The Department is revising the Subpart description normally included in this appendix to reconcile the new requirements with the previous ones. An updated and complete Appendix Eb highlighting the requirements applicable to Unit 4 will be included in the final permitting action if and when issued.

The Department has insured that the Permit is at least as stringent as the requirements of the revised Subpart Eb. Particular attention has been given to the revised PM, Pb, Cd and Hg including the use of Hg-CEMS.

The previous version of 40CFR60, Subpart Eb with links to the May 10, 2006 changes is available at:

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=e62a6113b2c8fd1679806489b479eab4&rgn=div6&view=text&node=40:6.0.1.1.1.15&idno=40

Appendix GC - General Conditions

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

   a. Have access to and copy and records that must be kept under the conditions of the permit;
   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. A description of and cause of non-compliance; and

   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

   The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (X);
    b. Determination of Prevention of Significant Deterioration (X);
    c. Compliance with National Emission Standards for Hazardous Air Pollutants ( ); and
    d. Compliance with New Source Performance Standards (X).

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:

        1) The date, exact place, and time of sampling or measurements;
        2) The person responsible for performing the sampling or measurements;
        3) The dates analyses were performed;
        4) The person responsible for performing the analyses;
        5) The analytical techniques or methods used; and
        6) The results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Appendix SC - Construction Permit Standard Conditions

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this facility.

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]

2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permitee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]

7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and62-210.200(203), F.A.C.]

8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]

9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

TESTING REQUIREMENTS

10. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]

12. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

13. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.

    a. Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

    b. Minimum Sample Volume. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

    c. Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

    [Rule 62-297.310(4), F.A.C.]

14. Determination of Process Variables

    a. Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

    b. Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

    [Rule 62-297.310(5), F.A.C.]

15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.

16. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]

17. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

18. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide

sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1) The type, location, and designation of the emissions unit tested.
2) The facility at which the emissions unit is located.
3) The owner or operator of the emissions unit.
4) The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5) The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6) The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7) A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8) The date, starting time and duration of each sampling run.
9) The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10) The number of points sampled and configuration and location of the sampling plane.
11) For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12) The type, manufacturer and configuration of the sampling equipment used.
13) Data related to the required calibration of the test equipment.
14) Data on the identification, processing and weights of all filters used.
15) Data on the types and amounts of any chemical solutions used.
16) Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17) The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18) All measured and calculated data required to be determined by each applicable test procedure for each run.
19) The detailed calculations for one run that relate the collected data to the calculated emission rate.
20) The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21) A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

RECORDS AND REPORTS

19. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

20. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 1670 0013 3110 0895

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

Postmark Here

Mr. Barry M. Boldissar, Director
Solid Waste Management Department
Hillsborough County
Post Office Box 1110
Tampa, Florida 33601

PS Form 3800, May 2000 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Barry M. Boldissar, Director
Solid Waste Management Department
Hillsborough County
Post Office Box 1110
Tampa, Florida 33601

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) CLERK OF CIRCUIT COURT MAIL SERVICES

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

OCT - 6 2015

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7000 1670 0013 3110 0895

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, Florida 32399-2400

RECEIVED

OCT 09 2006

BUREAU OF AIR REGULATION

C001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 20 2006

Ms. Trina L. Vielhauer, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Ms. Vielhauer:

Thank you for your letter dated May 24, 2006, and the accompanying prevention of significant deterioration (PSD) preliminary determination and draft PSD permit for a proposed modification of the Hillsborough County Resource Recovery Facility. The proposed modification consists of adding a fourth municipal waste combustor (Unit 4).

We first wish to commend the Florida Department of Environmental Protection (FDEP) on the thoroughness of its technical evaluation for this project. Our comments on the draft permit package are as follows. The word "we" in these comments refers to the Region 4 office of the U.S. Environmental Protection Agency (EPA).

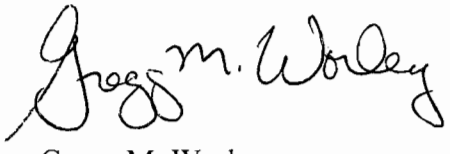
1. The preliminary determination does not contain a specific acknowledgement of fine particulate matter ($PM_{2.5}$) as a pollutant that will be emitted from Unit 4. Although EPA has not yet issued $PM_{2.5}$ new source review (NSR) implementation rules, $PM_{2.5}$ is a regulated NSR pollutant because it is subject to national ambient air quality standards. We recommend that FDEP acknowledge $PM_{2.5}$ as a regulated NSR pollutant in the final determination. As part of this acknowledgement, you could comment that PM_{10} is being used as a surrogate for $PM_{2.5}$ and that the particulate matter emissions controls proposed for this project are appropriate for control of fine particles.

2. We are unable to tell if consideration was given to the possibility of condensible particle emissions from Unit 4. The test method specified for particulate matter emissions in Condition 23 of the draft permit is EPA Method 5 which does not measure condensibles. Since the project narrowly avoided PSD review for PM_{10}, any particulate component not included in the PM_{10} emissions estimate could be important. We suggest that the final permit include a requirement for a one-time test of condensible emissions to assess whether such emissions need to be considered further for Unit 4.

3. The tabular emissions limits summary in Condition 14 of the draft permit for sulfur dioxide and hydrogen chloride includes limits in terms of parts per million or percent reduction, with the following footnote: "Whichever standard is less stringent." Similarly, the emissions limits for mercury include limits in micrograms per dry standard cubic meter with the same footnote. The footnote is not assigned, however, to the listed pounds-per-hour emissions rates for these three pollutants. Furthermore, the text description of the limits is not altogether consistent with the tabular listings. For example, the text description of the sulfur dioxide limits in Condition 17 is "shall exceed neither 26 ppmvd nor19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved." Please provide an explanation of how the emissions limits for sulfur dioxide, hydrogen chloride, and mercury are to be interpreted. Specifically, does compliance with the percent reduction requirements supersede compliance with all other limits?

If you have any questions concerning the comments in this letter, please call Jim Little at 404-562-9118.

Sincerely,



Gregg M. Worley
Chief
Air Permits Section

Lead (Pb)	0.17	140 µg/dscm	Stack Test	Subpart Eb
Mercury (Hg)	<0.10	28 µg/dscm*	Stack Test	Avoid PSD
Cadmium (Cd)	0.01	10 µg/dscm	Stack Test	Subpart Eb
MWC Organics (dioxin/furan)	$1.6x10^{-8}$	13.0 ng/dscm	Stack Test	BACT/Eb
Opacity	NA	10 percent	6-minute COMS	BACT/Eb
Ammonia (NH_3)	<15	15/10 ppmv	Stack Tests based on load	PM, Opacity

* Alternative percent (%) removal requirements apply if values exceeded. SO_2 (80%), HCl (95%), Hg (85%)

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit, unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue PSD Permit. Written comments or requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400 or the e-mail address provided below. Any written comments filed shall be made available for public inspection. If comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. This PSD permitting action is being coordinated with a certification under the Power Plant Siting Act (Sections 403.501-518, F.S.). If a petition for an administrative hearing on the Department's Intent to Issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing (if one is held), as provided under Section 403.507(3). Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32399-2400 Telephone: 850/488-0114 Fax: 850/921-9533	Dept. of Environmental Protection Southwest District Office 13051 North Telecom Parkway Temple Terrace, Florida 33637-0926 Telephone: 813/632-7600 Fax: 813/744-6458	Hillsborough County Environmental Protection Commission 3629 Queen Palm Drive Tampa, Florida 33619-1309 Telephone: 813/627-2600 Fax: 813-627-2660

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the authorized representative, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Scott Sheplak or Debbie Nelson of the Bureau of Air Regulation at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114 for additional information. Key correspondence, draft permit and technical evaluation can be accessed by clicking on "Hillsborough County Resource Recovery Facility" under the "Waste-to-Energy" tab at the following web page:

www.dep.state.fl.us/Air/permitting/construction/hillsborough.htm

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared C. Pugh, who on oath says that she is the Advertising Billing Supervisor of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE IN THE TAMPA TRIBUNE

in the matter of PUBLIC NOTICE OF INTENT

was published in said newspaper in the issues of *MAY 25, 2006

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, this advertisement for publication in the said newspaper.

Sworn to and subscribed by me, this 25 day of MAY, A.D. 2006

Personally Known ✓ or Produced Identification____ Type of Identification Produced____

#1725137

Ana Maria Hodel
Commission # DD551357
Expires: MAY 11, 2010
www.AaronNotary.com

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Hillsborough County Resource Recovery Facility Unit 4

DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to Hillsborough County. The permit is one of several authorizations needed to construct a nominal 600 tons per day (TPD) municipal waste combustor (MWC) at the existing Hillsborough County Resource Recovery Facility southeast of Tampa, west of 75 and near Brandon. A PSD applicability analysis and a determination of Best Available Control Technology (BACT) were required pursuant to Rule 62-212.400(2)(a) and 10(b), Florida Administrative Code (FAC) for emissions of nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), MWC acid gases, and MWC organics. The applicant's address is Hillsborough County Department of Solid Waste Management, 601 East Kennedy Boulevard, Tampa, Florida 33602.

The applicant proposes to construct a new MWC Unit 4. The primary components are: a new nominal 600 TPD MWC; a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; and a new settling basin. When the project is completed, the facility will be able to process approximately 1,800 TPD of solid waste and generate approximately 47 MW (net) of electricity.

The general area is in attainment with respect to all State and National Ambient Air Quality Standards. There has been approximately 200,000 tons per year (TPY) of SO_2 and NO_X reductions since 1998 from stationary sources the Tampa Bay area due to the natural gas repowering of the coal-fired TECO Gannon (Bayside) Station and addition of a scrubber and Low NO_X burners at the TECO Big Bend Station. Dispersion modeling indicates that proposed project will not cause or contribute to a violation of the ambient air quality standards or allowable increases (increments). All of the modeled ground-level pollutant impacts are less than the respective significant impact levels that would otherwise require applications of more involved multiple-source dispersion models.

The proposed project is subject to 40CFR60, Subpart Eb-Standards of Performance for New Stationary Sources a Emission Guidelines (including hazardous air pollutants) for Existing Sources Municipal Waste Combustors as revised and published by the Environmental Protection Agency (EPA) on May 10, 2006.

To meet the requirements of Subpart Eb and BACT, the applicant will install: a spray dryer (SD) with lime inject to absorb MWC acid gases; an activated carbon injection (ACI) system to adsorb MWC organics and mercury (H a fabric filter (FF) baghouse to remove particulate matter, including absorption/adsorption reagent; a flue gas recirculation (FGR) to limit NO_X formation; and a urea-based selective non-catalytic reduction (SNCR) system to destroy NO_X. Continuous emissions monitoring systems (CEMS) are required for CO, NO_X, SO_2 and Hg are required as well as a continuous opacity monitoring system (COMS).

The Department has determined that emissions for several key pollutants, particularly those that are affected by reagent use, can be lower than required by Subpart Eb. The Department has determined that BACT for NO_X is 1 parts per million by volume, dry corrected to 7 percent oxygen (ppmvd @7% O_2) of NO_X on a 24-hour average a 90 ppmvd @7% O_2 on a 12-month average, rolled monthly. This is the most stringent BACT for NO_X issued for large MWC in the United States.

Mercury (Hg) emissions will be limited to 28 micrograms per dry standard cubic meter (µg/dscm). Compliance v be determined in accordance with the existing procedures in 40CFR60, Subpart Eb. However, the Department h determined that by the second year of operation, reliable Hg-CEMS will be available and requires that one be installed to measure actual emissions. This instrument represents the first Hg-CEMS required on an MWC in the United States. This instrument will provide much better information on short term and long term Hg emissions a insure that annual emissions are less than the threshold requiring a BACT determination pursuant to PSD.

The following table summarizes the estimated annual emissions and pollutant concentration limits in accordance with the Department's BACT determination, Subpart Eb, or to avoid PSD. Because of the degree of control, son pollutants are emitted at levels less than the thresholds requiring emissions limits.

Pollutant	Emissions TPY	Emission Limit	Measurement Basis	Limit Basis
NO_X	210	110/90 ppmvd	24-hr/12-month CEMS	BACT
CO	113	100/80 mg/dscm	4-hr/30-day CEMS	BACT/Eb
MWC Acid Gases (SO_2+HCl)	84+111=195	26/25 ppmvd*	24-hr CEMS/Stack Test	BACT/Eb
MWC Metals/PM/PM_{10}	14.6	12 mg/dscm	Stack Test	Avoid PSD
Ozone as VOC	12	NA	NA	NA
Sulfuric Acid Mist	<<7	NA	NA	NA
Fluorides (F)	<<3	NA	NA	NA
Lead (Pb)	0.17	140 µg/dscm	Stack Test	Subpart Eb
Mercury (Hg)	<0.10	28 µg/dscm*	Stack Test	Avoid PSD
Cadmium (Cd)	0.01	10 µg/dscm	Stack Test	Subpart Eb
MWC Organics (dioxin/furan)	$1.6x10^{-6}$	13.0 ng/dscm	Stack Test	BACT/Eb
Opacity	NA	10 percent	6-minute COMS	BACT/Eb
Ammonia (NH_3)	<15	15/10 ppmv	Stack Tests based on load	PM, Opacity

* Alternative percent (%) removal requirements apply if values exceeded. SO_2 (80%), HCl (95%), Hg (85%)

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit, unless a

Patty

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

HILLSBOROUGH COUNTY,

Petitioner,

vs.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Respondent.

OGC Case No. 06-1226
DEP File No. 0570261-007-AC
DEP Draft Permit No. PSD-FL-369

_____/

ORDER DENYING REQUEST FOR EXTENSION OF TIME TO FILE PETITION FOR HEARING

This cause has come before the Florida Department of Environmental Protection (Department) upon receipt of a request made by the Petitioner, Hillsborough County, to grant an extension of time to file a petition for administrative hearing concerning the Department's draft permit number PSD-FL-369 for the County's Resource Recovery Facility located in Hillsborough County, Florida. This permit is associated with Siting Certification case number 05-2692 (DOAH case No. 05-4347EPP). The applicant has requested an expedited Siting Certification hearing date and one has been set for July 12-13, 2006. To prevent delay of the expedited Site Certification hearing,

IT IS ORDERED:

The request for an extension of time to file a petition for administrative proceeding is DENIED. The Petitioner shall have until **June 21, 2006**, to file a petition in this matter. Filing shall be complete upon receipt by the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

DONE and ORDERED this 7th day of June, 2006, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

JACK CHISOLM, Deputy General Counsel
3900 Commonwealth Boulevard, MS - 35
Tallahassee, Florida 32399-3000
850/245-2242 facsimile 850/245-2302

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via _ U. S. Mail ✓ facsimile ✓ **only**, this 7th day of June, 2006, to:

David S. Dee, Esquire
Young van Assenderp, P.A.
Post Office Box 1833
Tallahassee, FL 32302-1833

facsimile: 850/561-6834

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

PATRICIA E. COMER
Assistant General Counsel
3900 Commonwealth Boulevard – MS 35
Tallahassee, Florida 32399-3000
850/245-2242 facsimile: 850/245-2302

with a courtesy copy to:

Trina L. Vielhauer, Chief
Bureau of Air Regulation

facsimile: 850/921-9533

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

May 24, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Barry M. Boldissar, Director
Hillsborough County Department of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

Re: Hillsborough County Resource Recovery Facility
DEP File No. 0570261-007-AC (PSD-FL-369, PA82-19A)
Nominal 600 TPD Municipal Waste Combustor Unit No. 4

Dear Mr. Boldissar:

Enclosed are documents indicating the Department's intent to issue a permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD) to Hillsborough County for construction of a nominal 600 tons per day municipal waste combustor at the Hillsborough County Resource Recovery Facility. The documents include: the "Intent to Issue PSD Permit;" the "Public Notice of Intent to Issue PSD Permit;" the Department's "Technical Evaluation and Preliminary Determination" including a draft determination of Best Available Control Technology; and the Draft Permit.

The Public Notice must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven (7) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any other written comments you wish to have considered concerning the Department's proposed action to Mr. A. A. Linero, Program Administrator, South Permitting at the above letterhead address. If you have any questions, please call Scott Sheplak at 850/921-9532 or Mr. Linero at 850/921-9523.

Sincerely,

Trina L. Vielhauer, Chief,
Bureau of Air Regulation

TLV/aal

Enclosures

In the Matter of an
Application for Permit by:

Hillsborough County
Department of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

Authorized Representative:
Mr. Barry M. Boldissar, Director

DEP File No. 0570261-007-AC
Draft Permit No. PSD-FL-369 (PA83-19A)
Hillsborough County
Resource Recovery Facility - Unit 4
Nominal 600 TPD Municipal Waste Combustor

INTENT TO ISSUE PSD PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD), copy of DRAFT Permit attached, for the proposed project as detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination for the reasons stated below.

The applicant, Hillsborough County, applied on November 21, 2005 (deemed sufficient on March 31, 2006) to the Department for a PSD permit for a nominal 600 tons per day municipal waste combustor (Unit 4) at the Hillsborough County Resource Recovery Facility located at 350 North Falkenburg Road in Tampa, Hillsborough County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that a PSD permit is required.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue PSD Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of the enclosed Public Notice. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

This PSD permitting action is being coordinated with a certification under the Power Plant Siting Act (Sections 403.501-518, F.S.). If a petition for an administrative hearing on the Department's Intent to Issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing (if one is held), as provided under Section 403.507(3).

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each

rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit (including the Public Notice, Technical Evaluation and Preliminary Determination, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail or by electronic mail before the close of business on 5/25/06 to the persons listed:

Barry M. Boldissar, Hillsborough County DSWM*
Jim Norman, Chair, Hillsborough County BOCC*
Pam Iorio, Mayor, City of Tampa
Gregg Worley, U.S. EPA Region 4, Atlanta GA
John Bunyak, National Park Service, Denver CO
Steven L. Palmer, DEP Siting Office
Mara Nasca, DEP SWD
Paul Darst, Department of Community Affairs
Jerry Campbell, Hillsborough County EPC
Jason Gorrie, P.E., CDM
Glenn Hoag, Covanta Hillsborough, Inc.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 5/25/06 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Hillsborough County Resource Recovery Facility Unit 4

DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to Hillsborough County. The permit is one of several authorizations needed to construct a nominal 600 tons per day (TPD) municipal waste combustor (MWC) at the existing Hillsborough County Resource Recovery Facility southeast of Tampa, west of I-75 and near Brandon. A PSD applicability analysis and a determination of Best Available Control Technology (BACT) were required pursuant to Rule 62-212.400(2)(a) and 10(b), Florida Administrative Code (FAC) for emissions of nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), MWC acid gases, and MWC organics. The applicant's address is Hillsborough County Department of Solid Waste Management, 601 East Kennedy Boulevard, Tampa, Florida 33602.

The applicant proposes to construct a new MWC Unit 4. The primary components are: a new nominal 600 TPD MWC; a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; and a new settling basin. When the project is completed, the facility will be able to process approximately 1,800 TPD of solid waste and generate approximately 47 MW (net) of electricity.

The general area is in attainment with respect to all State and National Ambient Air Quality Standards. There have been approximately 200,000 tons per year (TPY) of SO_2 and NO_X reductions since 1998 from stationary sources in the Tampa Bay area due to the natural gas repowering of the coal-fired TECO Gannon (Bayside) Station and addition of a scrubber and Low NO_X burners at the TECO Big Bend Station. Dispersion modeling indicates that the proposed project will not cause or contribute to a violation of the ambient air quality standards or allowable increases (increments). All of the modeled ground-level pollutant impacts are less than the respective significant impact levels that would otherwise require applications of more involved multiple-source dispersion models.

The proposed project is subject to 40CFR60, Subpart Eb-Standards of Performance for New Stationary Sources and Emission Guidelines (including hazardous air pollutants) for Existing Sources Municipal Waste Combustors as revised and published by the Environmental Protection Agency (EPA) on May 10, 2006.

To meet the requirements of Subpart Eb and BACT, the applicant will install: a spray dryer (SD) with lime injection to absorb MWC acid gases; an activated carbon injection (ACI) system to adsorb MWC organics and mercury (Hg); a fabric filter (FF) baghouse to remove particulate matter, including absorption/adsorption reagent; a flue gas recirculation (FGR) to limit NO_X formation; and a urea-based selective non-catalytic reduction (SNCR) system to destroy NO_X. Continuous emissions monitoring systems (CEMS) are required for CO, NO_X, SO_2 and Hg are required as well as a continuous opacity monitoring system (COMS).

The Department has determined that emissions for several key pollutants, particularly those that are affected by reagent use, can be lower than required by Subpart Eb. The Department has determined that BACT for NO_X is 110 parts per million by volume, dry corrected to 7 percent oxygen (ppmvd @7% O_2) of NO_X on a 24-hour average and 90 ppmvd @7% O_2 on a 12-month average, rolled monthly. This is the most stringent BACT for NO_X issued for a large MWC in the United States.

Mercury (Hg) emissions will be limited to 28 micrograms per dry standard cubic meter (µg/dscm). Compliance will be determined in accordance with the existing procedures in 40CFR60, Subpart Eb. However, the Department has determined that by the second year of operation, reliable Hg-CEMS will be available and requires that one be installed to measure actual emissions. This instrument represents the first Hg-CEMS required on an MWC in the United States. This instrument will provide much better information on short term and long term Hg emissions and insure that annual emissions are less than the threshold requiring a BACT determination pursuant to PSD.

The following table summarizes the estimated annual emissions and pollutant concentration limits in accordance with the Department's BACT determination, Subpart Eb, or to avoid PSD. Because of the degree of control, some pollutants are emitted at levels less than the thresholds requiring emissions limits.

Pollutant	Emissions TPY	Emission Limit	Measurement Basis	Limit Basis
NO_X	210	110/90 ppmvd	24-hr/12-month CEMS	BACT
CO	113	100/80 mg/dscm	4-hr/30-day CEMS	BACT/Eb
MWC Acid Gases (SO_2+HCl)	84+111=195	26/25 ppmvd*	24-hr CEMS/Stack Test	BACT/Eb
MWC Metals/PM/PM_{10}	14.6	12 mg/dscm	Stack Test	Avoid PSD
Ozone as VOC	12	NA	NA	NA
Sulfuric Acid Mist	<<7	NA	NA	NA
Fluorides (F)	<<3	NA	NA	NA
Lead (Pb)	0.17	140 µg/dscm	Stack Test	Subpart Eb
Mercury (Hg)	<0.10	28 µg/dscm*	Stack Test	Avoid PSD
Cadmium (Cd)	0.01	10 µg/dscm	Stack Test	Subpart Eb
MWC Organics (dioxin/furan)	$1.6x10^{-6}$	13.0 ng/dscm	Stack Test	BACT/Eb
Opacity	NA	10 percent	6-minute COMS	BACT/Eb
Ammonia (NH_3)	<15	15/10 ppmv	Stack Tests based on load	PM, Opacity

* Alternative percent (%) removal requirements apply if values exceeded. SO_2 (80%), HCl (95%), Hg (85%)

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit, unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue PSD Permit. Written comments or requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400 or the e-mail address provided below. Any written comments filed shall be made available for public inspection. If comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. This PSD permitting action is being coordinated with a certification under the Power Plant Siting Act (Sections 403.501-518, F.S.). If a petition for an administrative hearing on the Department's Intent to Issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing (if one is held), as provided under Section 403.507(3). Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32399-2400 Telephone: 850/488-0114 Fax: 850/921-9533	Dept. of Environmental Protection Southwest District Office 13051 North Telecom Parkway Temple Terrace, Florida 33637-0926 Telephone: 813/632-7600 Fax: 813/744-6458	Hillsborough County Environmental Protection Commission 3629 Queen Palm Drive Tampa, Florida 33619-1309 Telephone: 813/627-2600 Fax: 813-627-2660

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the authorized representative, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Scott Sheplak or Debbie Nelson of the Bureau of Air Regulation at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114 for additional information. Key correspondence, draft permit and technical evaluation can be accessed by clicking on "Hillsborough County Resource Recovery Facility" under the "Waste-to-Energy" tab at the following web page: www.dep.state.fl.us/Air/permitting/construction/hillsborough.htm

Department of
Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

P.E. Certification Statement

Permittee:
Hillsborough County
Department Solid Waste Management
Hillsborough County Resource Recovery Facility (HCRRF)

DEP File No.: 0570261-007-AC
Permit No.: PSD-FL-369

Project Type: Air Construction Permit
600 Ton per Day (TPD) Municipal Waste Combustor - Unit 4

I HEREBY CERTIFY *that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

Scott M. Sheplak, P.E. Date
Registration Number: 48866

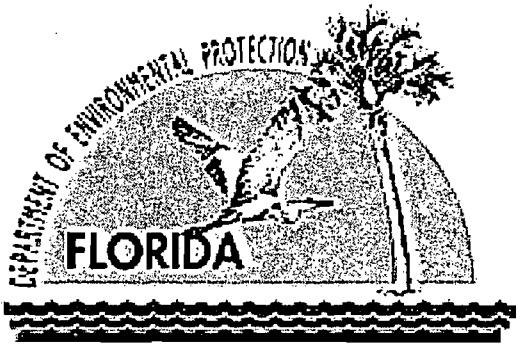
Permitting Authority:
Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/921-9532
Fax: 850/921-9533

AAL/SMS

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

Hillsborough County Resource Recovery Facility
Nominal 600 Tons per Day Municipal Waste Combustor

DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)



Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation

May 24, 2006

1. APPLICATION INFORMATION

Applicant Name and Address

Hillsborough County
Department of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

Authorized Representative:
Barry M. Baldissar, Director

Processing Schedule

- Received Site Certification and PSD application on November 21, 2005;
- Sufficiency information requested via Power Plant Siting Office on January 10, 2006;
- Supplemental information received on January 17, 2006;
- Received responses to sufficiency request on March 2, 2006;
- Siting Application found sufficient on March 31, 2006; and
- Intent to Issue PSD Permit distributed with Siting Staff Report on May 24, 2006.

Facility Description and Location

Hillsborough County (the County) owns and operates (through Covanta Energy) the Hillsborough County Resource Recovery Facility (Hillsborough County RRF), which is located southeast of Tampa, west of I-75, and north of the Crosstown Expressway near Branford. The existing facility consists of three municipal waste combustors (MWCs), each having a nominal design rate capacity of 400 tons per day (TPD) of municipal solid waste (MSW). The location of the Hillsborough County RRF is shown in Figure 1.

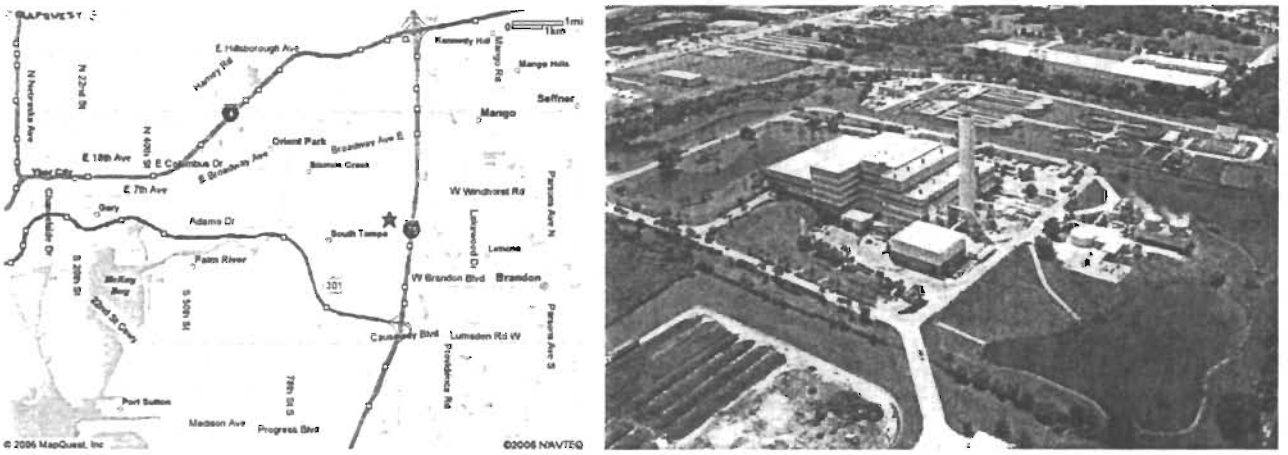


Figure 1. Location and Aerial View from Southeast of the Hillsborough County RRF

The Hillsborough County RRF is located approximately 78 kilometers south-southeast of the Chassahowitzka National Wildlife Refuge, a Class I area with respect to the rules for the Prevention of Significant Deterioration (PSD).

Regulatory Categories

Section 111, Clean Air Act, Standards of Performance for New Stationary Sources: The facility is subject to 40CFR60, Subpart Eb - Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources Municipal Waste Combustors.

Sec*tion 112, Clean Air Act, Hazardous Air Pollutants (HAP):* The facility is a major source of HAP. The maximum achievable control technology (MACT) requirements typically specified in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for this industry were included in 40CFR60, Subpart Eb as required by Section 169, Clean Air Act, Solid Waste Combustion.

Title V, Clean Air Act, Permits: The facility is a Title V or "Major Source" of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year or because it is a Major Source of HAPs. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

Part C, Clean Air Act, Prevention of Significant Deterioration (PSD): The facility is located in an area that is designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is classified as a "municipal incinerator capable of charging more than 250 tons of refuse per day", which is one of the facility categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year, therefore the facility is classified as a "Major Stationary Source" with respect to Rule 62-212.400 F.A.C.

Siting: The facility was originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

2. PROPOSED PROJECT

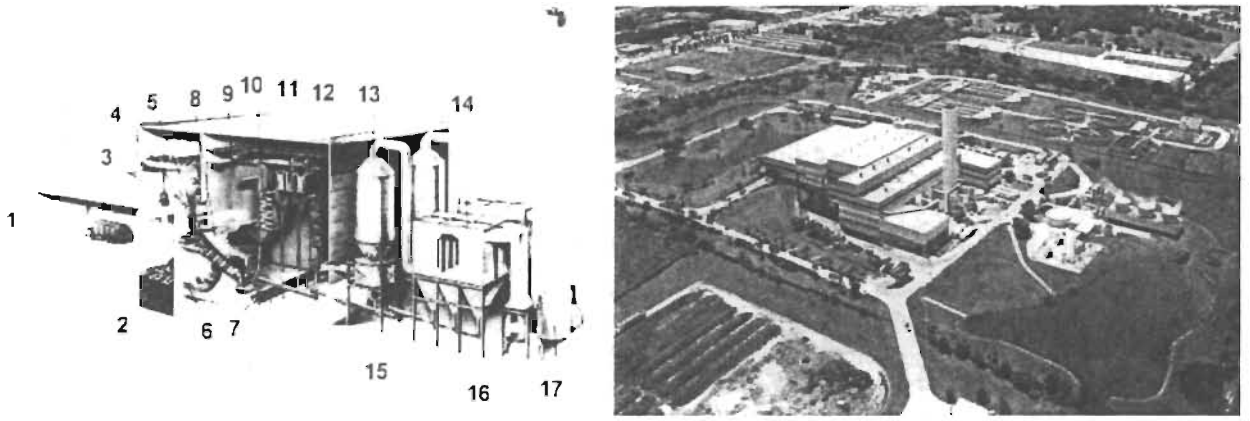
Project Description

The applicant proposes to construct a nominal 600 TPD mass-burn municipal waste combustor (MWC) with a heat input rate of 288 million Btu per hour. The project will also include: a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; a urea reagent storage tank; and a new settling basin. Exhaust from the new unit will be directed to a separate flue already constructed within the existing 220 foot stack.

The existing facility is operated for the County by Covanta Energy. Covanta is a partner with Martin GmbH of Germany in MWC technology. The typical physical design of a Martin/Covanta unit is seen in the diagram on the following page. The mass burn waterwall is the most common design and is used by Covanta as well as Wheelabrator at most of the facilities they operate.

There are several approaches for pollution control. By far, the most common approach in the United States at new MWC's is the use of a spray dryer/absorber in conjunction with a fabric filter (SD/FF) for control of acid gases, particulate matter, and most metals. This is the approach used in the typical Martin/Covanta and VonRoll/Wheelabrator designs in the United States.

Additional controls include activated carbon injection (ACI) to enhance mercury (Hg) removal and selective non-catalytic reduction (SNCR) by ammonia or urea injection for NO_X control.



1. Tipping Floor
2. Refuse Holding Pit
3. Grapple Feed Chute
4. Feed Chute
5. Martin Stoker Grate
6. Combustion Air Fan
7. Martin Ash Discharger
8. Combustion Chamber
9. Radiant Zone (furnace)
10. Convection Zone
11. Superheater
12. Economizer
13. Dry Gas Scrubber
14. Baghouse
15. Fly Ash Handling System
16. Induced Draft Air Fan
17. Stack
18. NO_X, Hg Control Not shown

Figure 2. Martin/Covanta Mass Burn MWC. Expanded Hillsborough County RRF

Addition of ACI and SNCR results in the well-known designs known as SD/FF/ACI/SNCR that forms the basis of the most recent revision of the HAP emissions limits for new MWC's within 40CFR60 Subpart Eb.[1] The project incorporates flue gas recirculation (FGR) to further reduce NO_X emissions.

The photograph on the right side was modified by an artist's rendition of how the facility will look when viewed from the southeast after construction of Unit 4. Basically the components of the unit shown in the left hand side of the diagram will be placed on the south side of the facility and will share the existing stack. Comparison with Figure 1 shows building extensions towards the south and on the northeast side of the facility. Also visible is a third cooling tower to the east and additional electrical switchyard equipment. By and large the facility will look much the same as it does today, despite a 50 percent increase in capacity.

Project Description

Some of the following process description is taken from a European Community publication on emissions from waste incineration, equipment descriptions from the Martin GmbH and VonRoll websites and the Department's understanding of the process.

Incineration is the destruction of solid, liquid and gaseous wastes through the application of heat within a controlled combustion system. The purpose of incineration is to reduce the volume of waste that needs land disposal and to reduce the toxicity of waste, making it more sterile. "Resource recovery" and "waste-to-energy" (WTE) are concepts that add significant value to incineration.

An RRF or WTE facility is a complete industrial installation containing most or all of the following features:

- Waste receiving and separation
- Waste storage and handling

- Waste feeding
- Furnace for combustion
- Heat recovery equipment followed by steam and electricity generation
- Air pollution control devices (flue gas treatment)
- Residue (ash and wastewater) handling installations

An animated depiction of the components of an MWC is available at the VonRoll website at: www.vonrollinova.ch/site/english/technologie/index.html by clicking on "the inner life of a plant".

A schematic of a mass-burn MWC with steam electrical power production and air pollution control equipment is shown in the following figure. Some of the points where pollutants can be removed or formation prevented are shown. The Hg removal is not shown, but typically consists of an activated carbon injection (ACI) system and subsequent removal in the dust collector.

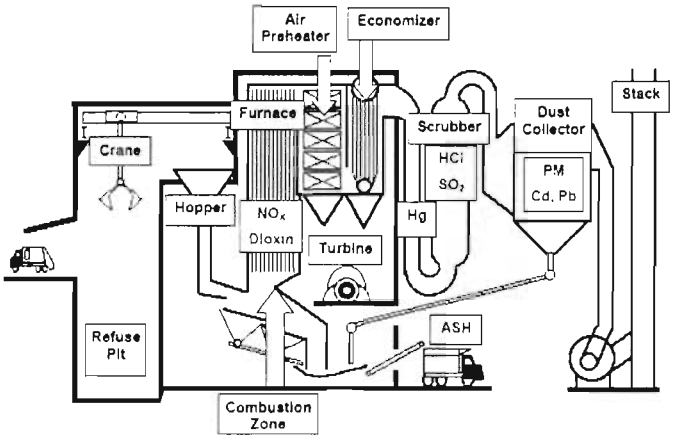


Figure 3. Schematic of a Typical Mass-burn MWC. Refuse pit at ARM Brescia facility, Italy

Waste is delivered, weighed, sorted/separated if necessary, and tipped into the refuse pit, such as the one shown above, where it is temporarily stored. The tipping hall and refuse pit are closed buildings to minimize dust and odor releases. The waste is mixed in the refuse pit which is designed to hold sufficient fuel for several days of combustion as waste is only delivered during normal hours while the plant operates "24/7".

Air is continually extracted from the pit to maintain a negative pressure and serves as combustion air for the furnace.

A crane system lifts the waste from the refuse pit and transports it to the feed chute, which consists of a hopper and chute. Hydraulic-driven feed rams push the waste onto the horizontal combustion grate.

The grate system and furnace comprise the core of a MWC. The Martin designs can be horizontal or reverse-acting grates. Options exist regarding the manner by which the waste is mixed on the grates, number of zones, the way underfire air is introduced, overfire air arrangement, grate cooling, etc. The waste begins to burn at the grate front end and the fuel bed temperatures reach over 1,000°C. The waste is combusted to inert mineral bottom ash through the slow and uniform mixing and agitating motion of the fuel bed.

Basically the temperature is maintained high enough to destroy hazardous organic compounds such as dioxin/furan but low enough to reduce the potential for refractory damage and minimize thermal NO_X emissions. Overfire air is injected into the furnace above the fuel bed via nozzles arranged opposite each other in the front and rear furnace walls. The flue gases are thus subject to turbulence, mixed in an extremely efficient manner, and completely burn out.

Following are some of the components used in the combustion zone. Water cooled grates are available from a number of manufacturers including Martin, VonRoll, Seghers and others. They last longer than air cooled grates, allow more efficient use of primary air for combustion rather than cooling, and can aid in NO_X minimization. The heat absorbed by the water within the grates is recovered. Rows of water-cooled tiles can be added to rows of air cooled tiles in a hybrid grate arrangement based on the characteristics of the waste (i.e. high calorific value, or wet, etc.).

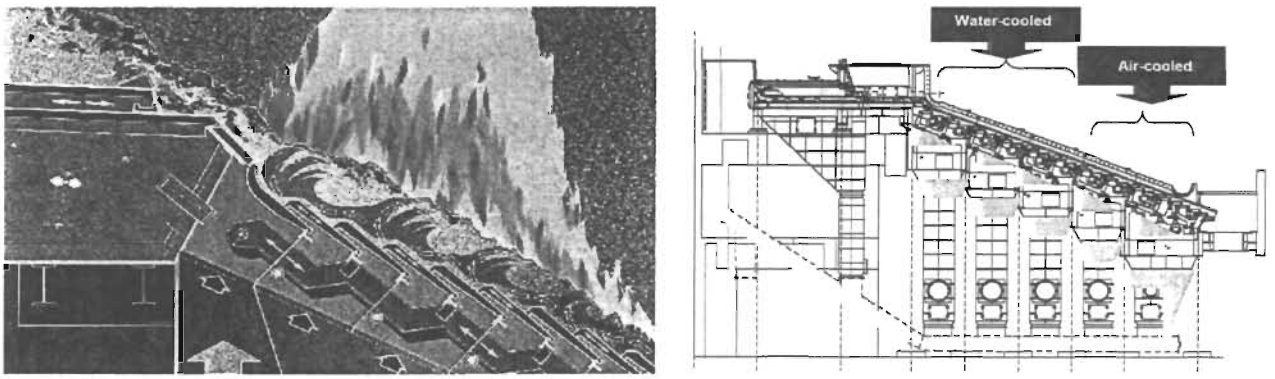


Figure 4. Martin GmbH Grate System and Seghers Hybrid Water/Air Cooled Grate System

The following figure includes a picture of the Tampa MacKay Bay RRF and a side view diagram of one of their new Riley boilers. Each boiler includes a furnace, two empty passes and several superheater and economizers in the final passes. Radiant and calorific energy released in the combustion chamber and furnace is recovered by the furnace waterwall, convective zone, superheater and economizer. The steam that is produced is used to run a steam turbine-electrical generator.

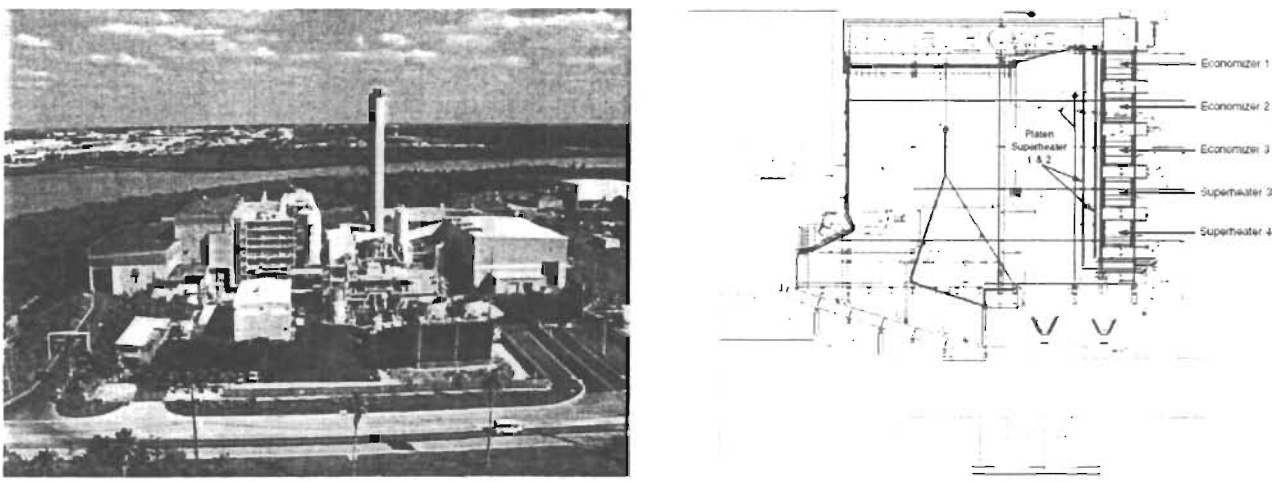


Figure 5. Aerial View, Tampa MacKay Bay RRF and Side Elevation of Riley Furnace/Boiler

In the Martin GmbH system, the hot, burned-out bottom ash is transported from the grate end to the water bath of the discharger. In the water bath, the bottom ash is completely quenched. The discharge ram pushes the bottom ash under the air sealing wall towards the drop-off edge. As a result, the bottom ash is completely quenched and is discharged in a dust-free and odorless manner. Excess water is squeezed out by the compressing action of the discharge ram. The bottom ash is moist and cool when discharged.

Most NO_X is released from combustion of fuel nitrogen, with the exception of thermal NO_X formed in "hot spots". NO_X control can be achieved within the furnace by SNCR, FGR, or other sophisticated combustion techniques.

Other pollutants released in the furnace include: Particulate matter (PM/PM_{10}) including MWC metals such as lead (Pb) and cadmium (Cd); MWC acid gases such as sulfur dioxide (SO_2) and hydrogen chloride (HCl); MWC organics including dioxin and furan; and highly volatile mercury (Hg).

The cooled flue gas leaving the economizer can be cleaned using a variety of equipment such as electrostatic precipitators (ESP's), fabric filters, spray absorbers, scrubbers, activated coke filters, and catalytic converters. The typical U.S. design uses the SD/FF combo using lime slurry instead of ESP/scrubbers. Also it incorporates activated carbon injection (ACI) instead of activated coke filter. SNCR is used instead of selective catalytic reduction (SCR) for NO_X control.

The SD/FF/ACI/SNCR design emits clean exhaust with minimal opacity and no steam plume. Subparts Eb requires use of continuous emission monitoring systems (CEMS) for CO, SO_2, NO_X, opacity, etc.

Typical Fuel Slate

The primary fuel for the unit is municipal solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (1995). Natural gas and propane are typical auxiliary fuels used during startup or to maintain stable combustion given the varying characteristics of MSW.

The County processes other solid wastes that are not strictly classified as MSW. Following is an example of a typical fuel slate for MWC's in Florida. The actual fuel slate for the proposed project will be stated in the permit.

The facility shall not burn any of the following materials:

a) those materials that are prohibited by state or federal law;
b) those materials that are prohibited by this permit;
c) lead acid batteries;
d) hazardous waste;
e) nuclear waste;
f) radioactive waste;
g) sewage sludge;
h) explosives;
i) beryllium-containing waste, as defined in 40 CFR 61, Subpart C.

Further, the facility shall not knowingly burn:

a) nickel-cadmium batteries pursuant to Section 403.7192 (3);
b) mercury containing devices and lamps pursuant to Sections 403.7186(2) & (3);

c) untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from similar generators (or sources);
d) segregated loads of biological waste; and
e) CCA treated wood.

The following other solid waste may be used as fuel at the facility:

a) confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
b) contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this determination, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
c) wood pallets, clean wood, and land clearing debris;
d) packaging materials and containers;
e) clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves;
f) rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings;
g) Construction and demolition debris.
h) Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.
i) Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.
j) Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.
k) Waste materials that:
   i. are generated in the manufacture of items in categories (c) or (d), above and are functionally or commercially useless (expired, rejected or spent); or
   ii. are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.
l) Waste materials that contain oil from:
   iii. the routine cleanup of industrial or commercial establishments and machinery; or
   iv. spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.
m) Used oil and used oil filters. Used oil containing a PCB concentration equal or greater than 50 ppm shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).
   {Permitting note: Waste materials specifically authorized above do not require Department approval.}
n) Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW, subject to prior approval of the Department

Potential Emissions

The project will result in emissions of the pollutants listed in the following table. The applicable rules sometimes use different nomenclature for the same pollutant. Therefore, the category of MWC Metals relies on the measurement of PM (basically as a surrogate) but has a lower PSD applicable threshold, Similarly the category of MWC Acid Gases has a threshold of 40 TPY and, in addition to HCl, includes SO_2 that has its own applicable threshold of 40 TPY. PM, PM_{10} and MWC Metals all include fine cadmium (Cd) and lead (Pb) that are also separately listed because of other applicable regulation. MWC Organics are determined by measuring dioxin and furan.

Table 1. Estimated Annual Emissions before (and after) Department Review

Pollutant	Emissions TPY	PSD Significant Emission Rate in TPY	PSD Review Required?
NO_X	256 (210)	40	Yes
CO	113	100	Yes
MWC Acid Gases (SO_2+HCl)	84+111=195	40 (also 40 for SO_2 alone)	Yes
PM/PM_{10}/MWC Metals	25 (14.6)	25/15/15	No
Ozone as VOC	12	40	No
Sulfuric Acid Mist	74 (<<7)	7	No
Fluorides (F)	3.5 (<<3)	3	No
Lead (Pb)	0.24 (0.17)	0.6	No
Mercury (Hg)	0.17 (<0.1)	0.1	No
Cadmium (Cd)	0.02 (0.01)	Not Applicable (NA)	NA
MWC Organics (dioxin/furan)	$1.6x10^{-5}$	$3.5x10^{-6}$	Yes
Ammonia	43 (<15)	NA	NA

3. RULE APPLICABILITY

Local Air Rules and Ordinances - Hillsborough County Environmental Protection Commission

Chapter	Description
1-3	Stationary Air Pollution Sources and Ambient Air Quality Standards
1-3.53.1(f)	Municipal Solid Waste Incinerators (dioxin/furan, activated carbon, Hg monitoring)

Federal Regulations

This project is subject to certain applicable federal provisions regarding air quality as established by the EPA in the Code of Federal Regulations (CFR) and summarized below.

Title 40	Description
Part 52	Subpart A, as Applicable and Subpart K – State of Florida SIP Approvals
Part 60	New Source Performance Standards, in Particular 40CFR60 Subparts A and Eb
Part 70	State Operating Permit Programs

State Regulations

The project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the following rules in the Florida Administrative Code.

Chapter	Description
62-4	Permits
62-17	Electrical Power Plant Siting
62-204	Air Pollution Control – General Provisions
62-210	Stationary Sources of Air Pollution – General Requirements
62-212	Preconstruction Review (including PSD Requirements)
62-213	Operation Permits for Major Sources of Air Pollution
62-296	Stationary Sources - Emission Standards
62-297	Stationary Sources - Emissions Monitoring

Description of PSD Applicability Requirements

The Department regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program, as defined in Rule 62-212.400, F.A.C. A PSD review is only required in areas currently in attainment with the National Ambient Air Quality Standard (AAQS) for a given pollutant or areas designated as "unclassifiable" for the pollutant. A new facility is considered "major" with respect to PSD if the facility emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant, or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the facility categories listed in 62-210.200 (definitions, Major Stationary Source), F.A.C., or
- 5 tons per year of lead.

For modifications at existing PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates (SERs) listed in 62-210.200 (definitions, Significant Emissions Rate) F.A.C. Any pollutant emissions expected to be above the listed Significant Emission Rates are considered to be "significant" and are subject to PSD preconstruction review which includes the application of best available control technology for each PSD pollutant, and an ambient air quality impact analysis as specified in 62-212.400(8) and (10), F.A.C. Based on the initial application, BACT analysis, though not necessarily determinations, for this project were required for NO_X, CO, MWC-Acid Gases (SO_2+HCl), SO_2 as a separate pollutant, MWC-Metals, PM, PM_{10}, sulfuric acid mist (SAM), Fluorides (F), mercury (Hg), and MWC-Organics (dioxin/furan).

The other part of PSD review requires an Air Quality Analysis consisting of: an air dispersion modeling analysis to estimate the resulting ambient air pollutant concentrations; a comparison of modeled concentrations from the project with National Ambient Air Quality Standards and PSD Increments; an analysis of the air quality impacts from the proposed project upon air quality related values (AQRV's) including soils, vegetation, wildlife, and visibility; and an air quality impacts evaluation from commercial, residential, and industrial growth related to the proposed project.

4. DRAFT DETERMINATION OF BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

4.1 BACT Determination Procedure

BACT is defined in Rule 62-210.200 (definitions), FAC as follows:

"Best Available Control Technology" or "BACT" –

a. *An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account:*

   1. *Energy, environmental and economic impacts, and other costs;*
   2. *All scientific, engineering, and technical material and other information available to the Department; and*
   3. *The emission limiting standards or BACT determinations of Florida and any other state; determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.*

b. *If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of an emissions unit or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation.*

c. *Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.*

d. *In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63.*

According to Rule 62-212.400(4), FAC, the applicant must at a minimum provide certain information in the application including:

a. *A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine BACT including a proposed BACT.*

4.2 New Source Performance Standards

The United States Environmental Protection Agency (EPA) promulgated 40CFR60, Subpart Eb in 1995 to control emissions of the typical products of combustion such as PM/PM_{10}, NO_X, SO_2, CO that are typically the pollutants of interest in BACT determinations. Per a requirement of the Clean Air Act Amendments of 1990, Section 129 required EPA to regulate HAPs from MWCs pursuant to Section 111 and therefore under 40CFR Part 60 rather than 40CFR Part 63.

The typical requirements of 40CFR63 to set National Emission Standards for Hazardous Air Pollutants (NESHAP) and to determine maximum achievable control technology (MACT) for large MWCs are covered by 40CFR60, Subpart Eb.

EPA developed Subpart Eb relying largely on the most recent MWC units built in the U.S., with special attention to the Lee County RRF. The basis of the limits set in Eb is the previously mentioned SD/FF/ACI/SNCR configuration. On May 10, 2006 EPA issued a Final Rule that modified Subpart Eb. The revised rule is based largely on the performance of this configuration following testing of the newer units and retrofitted existing units that incorporated the mentioned strategy.

The Department notes that EPA addressed MWCs in a very comprehensive manner by addressing all pollutants of concern, describing the monitoring requirements and identifying appropriate technology. Therefore, the Department will rely on EPA's evaluations for Subpart Eb when determining BACT for many of the pollutants. There are a few exceptions where the Department's recent permitting indicates that lower emissions limits constitute BACT.

The following table contains the most recent Subpart Eb emission limit for mass-burn MWCs.

Table 2. Comparison of Applicant's Original Proposed Emission Limits with Requirements for MWC's per Subpart Eb Promulgated on May 10, 2006

Pollutant	Subpart Eb	Proposed Unit 4
Nitrogen Oxides (NO_X)	180 ppmvd (1st year) 150 (thereafter) (24 hr mean)	110 ppmvd (24-hr mean)
Carbon Monoxide (CO)	100 ppmvd (4-hr block mean)	80 ppmvd (4-hr block mean)
Sulfur Dioxide (SO_2)	30 ppmvd or 80% control (24-hr geometric mean)	26 ppmvd or 80% control (24-hr geometric mean)
Hydrogen Chloride (HCl)	25 ppmvd or 95% control[2]	25 ppmvd or 95% control
Particulate Matter (PM)	20 mg/dscm	20.6 mg/dscm
Lead (Pb)	140 µg/dscm	200 µg/dscm
Mercury (Hg)	50 µg/dscm or 85% control[2]	28 µg/dscm or 85% control[2]
Cadmium (Cd)	10 µg/dscm	20 µg/dscm
Dioxin/Furan (CDD/CDF)	13 ng/dscm	13 ng/dscm

As previously mentioned, the nomenclature between the NSPS limits and the PSD pollutants is somewhat different and will be reconciled when setting limitations under the two programs.

The overall observation is that certain emission limits as originally proposed by the applicant for Unit 4 will not comply with the new Subpart Eb. However, the Department reviewed the data assessed by EPA's consultant in their proposal to revise Subpart Eb and has reasonable assurance that the SD/FF/ACI/SNCR configuration proposed by the County will readily achieve the latest emission limits per Subpart Eb.[2] Reference to the EPA consultant's data will be made when assessing control on several of the pollutants discussed below.

The rationale for this conclusion is that no data were excluded (as outliers) by EPA's consultant from tests conducted on the Hillsborough, Lake and Lee RRF's which are all of the Martin design with the SD/FF/ACI/SNCR configuration. All measurements reviewed by EPA's consultant from Hillsborough, Lake and Lee RRF's are already less than the new Subpart Eb. The emission limits in Subpart Eb and the technology configuration defined by SD/FF/ACI/SNCR place an effective floor on BACT and the technology to achieve it.

4.3 NO_X Formation and Control

The Department assessed industrial NO_X emission trends in Hillsborough County since 1998. Between 1998 and 2005 emissions of NO_X were reduced by approximately 40,000 tons per year from TECO's power plants.[3] By comparison the proposed increase (before application of the Department's BACT analysis) from Hillsborough County Unit 4 is 256 TPY. While this point is not the key factor in a BACT determination, it does help put the issue in better perspective.

As previously discussed, NO_X formation is largely a function of fuel NO_X and the ability to control "hot spots" to avoid thermal NO_X formation. The "standard configuration" relies on SNCR, but does not address combustion techniques, catalysts, or enhancement to SNCR that have been used to achieve low emissions in several European countries.

Flue Gas Recirculation

In a MWC, more secondary air is required to provide turbulence than is needed simply for supplying oxygen. The resulting excess oxygen encourages both NO_X and dioxin formation. Flue gas recirculation (FGR) involves branching off flue gases downstream of the fabric filter and returning them to the combustion chamber to replace some of the overfire air.

FGR replaces 10-30% of secondary air (with N_2 and CO_2) reducing oxygen and peak temperatures thereby reducing NO_X generation. FGR gives around 20% NO_X reduction, but it has, in combination with repositioning air inlets (using Computational Fluid Dynamics to optimize locations) and improved control, given 25-35% reduction.

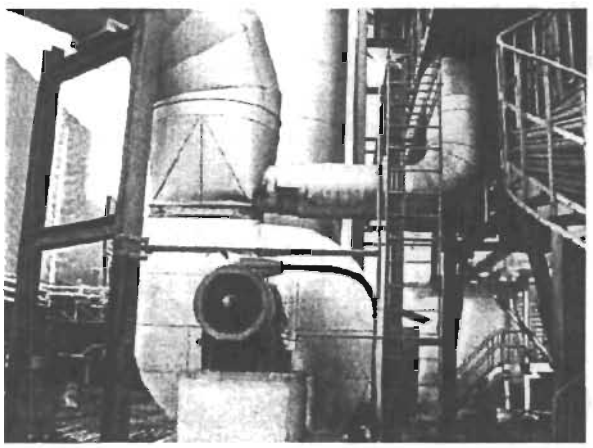
Higher re-circulation rates can cause corrosion due to elevated CO concentrations and condensation of corrosive compounds. However these potential problems as well as heat loss can be avoided by insulating the gas ducts. The thermal efficiency of the installation may be increased by the re-circulation of the already warmed flue gases. In the United Kingdom, all incineration plants are expected to include FGR or provide a clear site specific justification why FGR is not used.[4]

FGR was not considered as part of the NO_X control strategy by EPA when developing the Subpart Eb limits issued in 1995 although suppliers, such as Enercon, supplied FGR on small MWC's (<250 TPD.

Configurations with FGR, a hybrid air/water-cooled grate system, and more effective SNCR systems make it possible to reduce NO_X to levels much less than required by Subpart Eb for large MWC's in a cost-effective and energy-efficient manner.

Basic SNCR

SNCR technology involves injection of ammonia or urea at a point (or points) in the process characterized by a temperature window between 850 and 1100 °C. The following figures from Seghers and Martin GmbH depict FGR and SNCR, respectively.



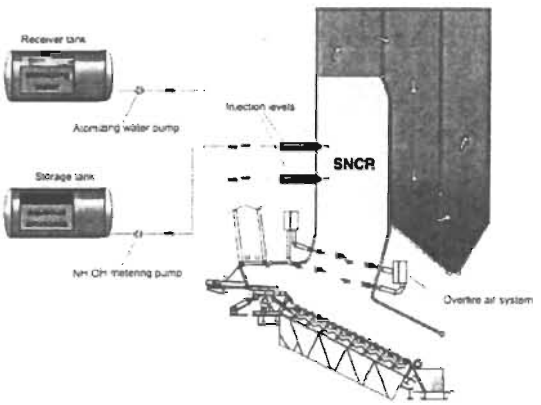


Figure 6. FGR System, Orebro, Sweden.[5] Martin GmbH Basic Ammonia SNCR System

The precise temperature window for SNCR may vary significantly based on the specific application. Residence time, turbulence, oxygen content, and a number of other factors specific to the given gas stream are also important. SNCR destroys NO_X by a two-step process as follows:

Equation 1. Ammonia reacts with available hydroxyl radicals to form amine radicals and water per the following theoretical equation:

$$NH_3 + OH^* \rightarrow NH_2^* + H_2O$$

Equation 2. Amine radicals combine with nitrogen oxides to form nitrogen and water.

$$NH_2^* + NO \rightarrow N_2 + H_2O$$

Equation 3. The two steps are typically expressed as a single "global reaction".

$$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O$$

The simplified equation does not convey the kinetics. But it suggests that, theoretically, SNCR will function best in an oxidizing atmosphere.

Equation 4. The global reaction for the variation using urea is different.

$$4NO + 2CO(NH_2)_2 + O_2 \rightarrow 4N_2 + 2CO_2 + 4H_2O$$

Equation 5. In a reducing atmosphere, CO competes with ammonia for available OH radicals

$$CO + OH^* \rightarrow CO_2 + H^*$$

Because of the balancing of temperature, CO, and O_2, it is important to insure good combustion and to avoid hot and cold spots when using SNCR. These are also important consideration in selecting the level (or levels) in the furnace for ammonia or urea injection.

The County plans to use the urea-based NO_XOUT process licensed by Fueltech. Reagent injection will be practiced at three levels. The following table is from the SNCR Technical Specification prepared by Burns and Roe for the County.[6]

Table 3. SNCR NO_XOUT System Process Design Table for Two Heat Input Levels

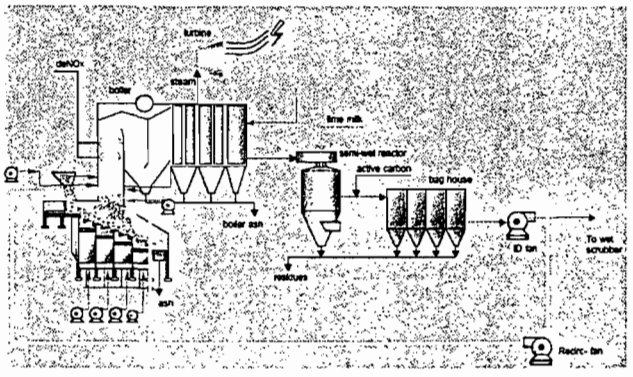
Parameter @ Maximum Heat Input	@260 mmBtu	@195 mmBtu
Uncontrolled NO_X (ppmd @7% O_2)	350	350
Uncontrolled NO_X (lb/hr)	141	106
Percent NO_X Reduction (%)	69	69
Controlled NO_X (ppmd @7% O_2)	110	110
Controlled NO_X (lb/hr)	44	33
NO_X Removed (lb/hr)	109	73
Expected NO_XOUT Reagent Flow (gph)	54	41
Ammonia Slip (ppm as measured)	15	10
Furnace CO (ppm)	<100	<100
Type of Furnace	Martin MSW Combustor	
Flue Gas Temperature (Degrees Fahrenheit)	1750-1950 (950-1065 °C)	
Injectors	3 Levels of 7 injectors	
Fuel fired	MSW	

Fueltech submitted a bid for a very similar specification also prepared by Burns and Roe for the Lee County RRF Unit 3 project that is presently under construction.[7, 8] At the recommendation of the County's Solid Waste Department, Covanta Lee Inc., and Burns and Roe the bid was accepted on September 20, 2005 at a total cost of approximately $1,081,000 FOB. The Fueltech proposal was a specific requirement by Covanta Lee to guarantee, as the operator, compliance with the NO_X standard.

The Fueltech bid includes: engineering; modeling; reagent tank; circulation module; ILC metering; three distribution modules; 21 wall injectors; furnace temperature monitor; control room interface; freight, installation support; and training/startup, all equipment, performance bond, and training.

The Bid Specification for Hillsborough RRF Unit 4 is based on a maximum uncontrolled NO_X concentration (the main basis of design) of 350 ppmvd. The final design for the Lee County RRF estimates uncontrolled NO_X emissions at 200-350 ppmvd.

An example of a Seghers NO_X strategy within the SD/FF/ACI/SNCR configuration is shown on the left hand side of the following figure. [10] The design includes FGR and a hybrid water/air-cooled grate system. The values on the right hand side indicate the range of NO_X, beginning with the hybrid grate as the baseline (i.e. no FGR/SNCR) and progressively adding FGR (only 10% recirculation) and SNCR. The "typical value" is an estimate of the baseline case, without the hybrid grate system.



NO_x	mg/Nm³ Dry, 11% O_2	ppm Dry, 7 % O_2
No FGR, No SNCR	300 - 350	220 – 255
With FGR, No SNCR	230 – 265	167 – 193
With FGR, With SNCR	<150	< 110
Typical values	300 - 450	220 - 330

Figure 7. SD/FF/ACI/SNCR/FGR/Hybrid Grate & Results at Orebro. Startup 2003.

The values achieved at Orebro are useful in the present analysis, because they show how the baseline can be reduced prior to consideration of the benefits of SNCR. The typical range of baseline values of 220 to 330 NO_X ppmvd @7% O_2 is for all practical purposed the same as given for the nearly identical Lee and Hillsborough County RRF projects (200-350 ppmvd @7% O_2). For reference, the Orebro facility reported ammonia slip (exiting the boiler, not the final wet scrubber) of 11 ppm @7% O_2. (From this point on all ppm value presumes 7% O_2)

The main difference between the Orebro and Hillsborough RRF designs is that the former relies on the benefits of the hybrid grate system and FGR to reduce the baseline before relying on the SNCR system whereas the latter specifies an SNCR system capable of handling the entire reduction to 110 ppmvd. The County has not incorporated water-cooled grates but is including an FGR system. The County did not include the NO_X reductions of FGR in achieving 110 ppmvd. Yet, the County included the FGR costs in the cost effectiveness calculation of the FGR/SNCR strategy given in the application in Table 3-9. This overestimated the cost of SNCR control at $2,400 ton of NO_X removed instead of the typical values on the order of $1,000 per ton removed.

The Department estimates that the typical pre-SNCR values for the Hillsborough County RRF will be reduced by FGR to a range of 150 to 265 ppmvd. Assuming only 60% reductions by SNCR (versus 69%) and with a much lower starting point, it should be possible to achieve typical, short-term emissions to a range of 60 to 106 ppmvd. This would meet the proposed 110 ppmvd limit on a 24-hour basis and a lower value, less than 90 ppmvd on a longer basis (e.g. 30 days or 12 months, rolled monthly), without excessive ammonia emissions.

Enhanced SNCR

The Fueltech SNCR system represents what can be achieved with a good design. There are further enhancements that can allow additional reduction. These include but are not limited to:

- Excess reagent injection and tail end scrubbing to remove or recover the excess ammonia;

- Infrared camera and process controls in conjunction with the many injectors to optimize use of reagent with respect to three dimensional furnace temperature profile;
- Tunable diode laser (TDL) to identify areas of excess ammonia and adjust the injectors and total reagent usage accordingly.

An example of an SNCR system based on injection of excess reagent is described by VonRoll as follows: "Achieving high removal efficiency of NO_X requires injecting more ammonia than is consumed. The excess can be removed downstream by the flue gas scrubber. With our patented process, the ammonia is recovered from the effluent. And the process equipment takes up very little space. Experience demonstrates that the SNCR $DeNO_X$ process is capable of removing up to 90% of the NO_X from the flue gas."[11]

This scenario would necessitate the use of a wet scrubber in place of SD within the previously discussed SD/FF/ACI/SNCR configuration. However it is possible to add a smaller duty scrubber to the configuration to absorb the excess ammonia when needed to achieve 90% removal. The County considered this strategy and submitted the following costs.

Table 4. Summary of Applicant's Estimated Costs for Ammonia Scrubbing Equipment

Description	Wet Scrubber
Estimated Capital Costs	$3,000,000
Estimated Annualize Capital (7%, 20 yrs)	$300,000
Estimated Annualized O&M Costs	$450,000
Total Annual Cost	$730,000
Tons of Ammonia Removed per Year	61
Total Cost per Ton of Ammonia Removed	$24,000

It does not appear that the estimate was made pursuant to a bid specification such as the SNCR package prepared by Burns & Roe for Lee and Hillsborough County. The Department does not necessarily agree with the estimate and notes that it is approximately three times the cost of the basic SNCR system.

According to the consultant, CDM, the County "has expressed concern about the resulting ammonia loading to its WWTP, which may require costly wastewater pretreatment technology to be installed. Additionally, because the ammonia scrubber relies on wet scrubbing technology, a significant vapor plume would be created."

The cost estimate above does not take into consideration the fact that installation of such a scrubber will allow reduction of NO_X from the 60-70% range estimated by Fueltech to the 90% removal rate estimated by VonRoll. Basically a further reduction of NO_X emissions on the order of 150 tons per year can be achieved for a marginal cost-effectiveness less than $5,000 per ton of NO_X removed while still achieving an average cost-effectiveness for NO_X control by SNCR on the order of $2,000 per ton.

CDM used the estimate to claim a cost of $24,000 per ton of ammonia removed. However instead of increasing the load to the wastewater treatment plant, the water can be stripped of ammonia that can, in turn, be introduced into the furnace for NO_X control via a number of paths. For example, an SNCR test program conducted at several cement plants showed that ammonia has a lower temperature window than urea. The ammonia can be returned to the process at a place in the furnace where the temperature is somewhat cooler.

A number of "smart systems" have been described that used in conjunction with SNCR and FGR can improve efficiency and reduce ammonia emissions that the County believes are possible when attempting to achieve low emission values. An early version of such a system is used at the Brescia Termoutilizzatore in Italy. The unit has the same "Martin" configuration (SD/FF/ACI/SNCR plus 30% FGR) planned for Hillsborough. In addition an expert system with infrared camera control was included.

The project was authorized in 1993 with a requirement to achieve 200 NO_X mg/dscm (roughly 147 ppmvd – 24 hour basis). The design data from 1994 specified a NO_X concentration of 100 mg/dscm (~73 ppmvd). [12] According to the required declaration of compliance published in the local newspaper:[13]

"Tutti i valori sono nella norma e l'NOx (ossidi di azoto) è intorno a 120 mg/metro cubo." This means "All of the values are within the norm and NO_X (nitrogen oxides) are approximately 120 mg/dscm (~88 ppmvd)."

More recently, at the 2003 meeting of the WTERT Council in Tampa, the Brescia facility was the subject of the key lecture. The representative from Brescia reported that the plant achieves 80 mg/dscm (~ 58 ppmvd). This is actually a typical value for MWC's in countries such as Italy, Switzerland, Austria, Germany, and Holland where even lower numbers are often achieved. Values in the U.K, France, Sweden, and the U.S. e.g. are typically higher.

In fact, according to more recent information about the facility, emissions during the second half of 2003 were between 30 and 40 mg/dscm (roughly 20 to 30 ppmvd). The data are shown in the table on the following page taken from the 2004 report of the "Observatory" (comprised of citizens, outreach experts, government and environmental officials, academia, etc.) that oversees the function of the facility for the general public.[14]

At a meeting with the Department, the County related some potential problems at Brescia such as visible emissions caused by excess ammonia emissions interacting with acid gases.[15] The County also provided information from 2003 showing concurrently low NO_X and high NH_3 emissions of 48 and 53 ppmvd, respectively.[16] The Department believes the technical explanation is overuse of ammonia to achieve NO_X values of 20 to 50 ppmvd and not from operating the SNCR system as designed (to meet ~73 ppmvd).

Martin GmbH provides systems "which optionally use an *insitu* NH_3 laser measuring signal, minimize aqueous ammonia consumption, and substantially reduce ammonia slip. The system injects aqueous ammonia in the correct temperature window by controlling injection as a function of the prevailing combustion conditions." Martin GmbH claims to have "successfully installed SNCR systems in several Central European plants and attained guaranteed NO_X values (in some cases down to levels below 70 mg NO_X/Nm^3 (~ 50 ppmvd)) with low ammonia slip in the flue gas **upstream** of the flue gas cleaning system."[17] (Emphasis added). They did not claim to achieve values in the 20 to 50 ppmvd range without causing visible emissions.

Table 5. Risultati degli Ulteriori Monitoraggi Periodici Effettuati da ARPA Anno 2003. Results of Periodic Monitoring Conducted by the Regional EPA in 2003.

Data dell'indagine	CO Monossido di Carbonio		SO_2 Biossido di Zolfo		NO_x Ossidi di Azoto		Hg Mercurio		NH_3 Ammoniaca	
	Valore limite 50 mg/Nm³ media giornaliera 200 mg/Nm³ media oraria*		*Valore limite* 200 mg/Nm³ media giornaliera 400 mg/Nm³ media oraria*		*Valore limite* 200 mg/Nm³ media giornaliera 400 mg/Nm³ media oraria*		*Valore limite* 0,05 mg/Nm³ media oraria*		mg/Nm³**	
	linea 1	*linea 2*	*linea 1*	*linea 2*	*linea 1*	*linea 2*	*linea 1*	*linea 2*	*linea 1*	*linea 2*
9 gennaio 2003	20,2	-	0,1	-	66,8	-	0,0007	-	9,6	-
14 gennaio 2003	-	15,9	-	0,8	-	90,2	-	0,0009	-	-
23 gennaio 2003	-	16,5	-	0	-	92	0,0011	-	0,5	-
30 gennaio 2003	-	-	-	-	-	-	-	<0,0005	-	0,2
5 febbraio 2003	-	-	-	-	-	-	0,0013	-	-	-
14 febbraio 2003	17,4	-	0	-	45,9	-	-	0,0008	-	-
19 febbraio 2003	11,8	-	0	-	35,6	-	0,0012	-	-	-
26 febbraio 2003	-	18,4	-	0	-	50,8	-	0,0007	-	-
7 marzo 2003	-	-	-	-	-	-	0,0013	-	-	-
13 marzo 2003	-	22	-	0	-	35	0,0009	-	-	-
20 marzo 2003	20,4	-	0	-	44,7	-	-	<0,0005	-	-
28 marzo 2003	-	15,6	-	0	-	54,8	0,0018	-	-	-
4 aprile 2003	21,6	-	0	-	47,7	-	-	0,0012	-	-
9 aprile 2003	-	21	-	0	-	59,9	0,0012	-	-	-
17 aprile 2003	18	-	0	-	40,5	-	-	0,0029	-	-
2 maggio 2003	-	21,1	-	0	-	45,9	0,0035	-	-	-
8 maggio 2003	-	25,4	-	0	-	51,3	-	0,0012	-	-
15 maggio 2003	-	22,9	-	0	-	47,9	-	0,0015	-	6,9
22 maggio 2003	-	21,3	-	0	-	49,8	-	0,0011	-	-
28 maggio 2003	-	24,6	-	0	-	44,1	-	0,0011	-	-
5 giugno 2003	21,3	-	0	-	49,8	-	0,0009	-	-	-
13 giugno 2003	-	-	-	-	-	-	-	0,0009	-	-
19 giugno 2003	-	-	-	-	-	-	0,0031	-	-	-
24 giugno 2003	-	-	-	-	-	-	-	<0,0005	-	-
4 luglio 2003	-	-	-	-	-	-	<0,0005	-	-	-
10 luglio 2003	12,5	-	0	-	32,9	-	-	0,0027	-	-
31 luglio 2003	-	16,6	-	0	-	38,2	<0,0005	-	-	-
8 agosto 2003	14	-	0	-	37,6	-	-	0,0007	-	-
12 agosto 2003	-	-	-	-	-	-	-	0,0012	-	-
22 agosto 2003	14,5	-	0	-	38,8	-	-	0,0009	-	-
29 agosto 2003	-	16,2	-	0	-	35	0,0004	-	-	-
4 settembre 2003	-	-	-	-	-	-	0,0015	-	-	-
12 settembre 2003	14,4	-	0	-	41,3	-	0,0009	-	5,4	-
25 settembre 2003	15,4	-	0	-	36,7	-	<0,0005	-	-	-
2 ottobre 2003	12,7	-	0	-	35,1	-	-	0,001	-	-
8 ottobre 2003	-	11	-	0	-	34,2	0,0008	-	-	-
14 ottobre 2003	11,4	-	-	-	-	-	-	0,0012	-	-
23 ottobre 2003	-	12	-	0	-	34,7	0,0005	-	-	9,1
31 ottobre 2003	18,6	-	0	-	36,8	-	-	0,0008	-	-
6 novembre 2003	-	11,1	-	0	-	39,9	<0,0005	-	-	-
20 novembre 2003	19,5	-	0	-	28,6	-	-	0,0009	-	-
2 dicembre 2003	-	17,1	-	0	-	30,9	<0,0005	-	-	-
18 dicembre 2003	-	-	-	-	-	-	0,0021	-	7,5	-
23 dicembre 2003	-	-	-	-	-	-	-	<0,0005	-	-

** valore limite stabilito da autorizzazione del 6/12/2000 della Regione Lombardia.*
*** la normativa sia Italiana che Europea non stabilisce alcun valore limite.*

Selective Catalytic Reduction (SCR) Process

There are hundreds of examples of SCR for the control of NO_X. Numerous installations exist in the United States, Europe and Japan. Most of the projects have been conducted in the electric power industry for a wide selection of fuels, energy cycles. A substantial number of European MWC's rely on SCR.

SCR relies on the same principle as SNCR. The reactions occur at lower temperatures and require a catalyst, typically containing vanadium, titanium, or zeolite. Based on the design of the catalyst and operating conditions, the temperature window is between 200 and 600 °C. Newer catalysts may be available that are effective at even lower temperatures.

There are three possible SCR system configurations to integrate the SCR reactor into the flue gas cleaning chain.[17] These configurations are: high dust, low dust, or tail end and are shown, with special focus on the high dust system, in the following figure.[18] The type of SCR configuration employed at a given plant depends on site-specific parameters such as flue gas dust loading, SO_2 concentration, and whether the SCR unit is integrally designed with the plant or retrofitted.

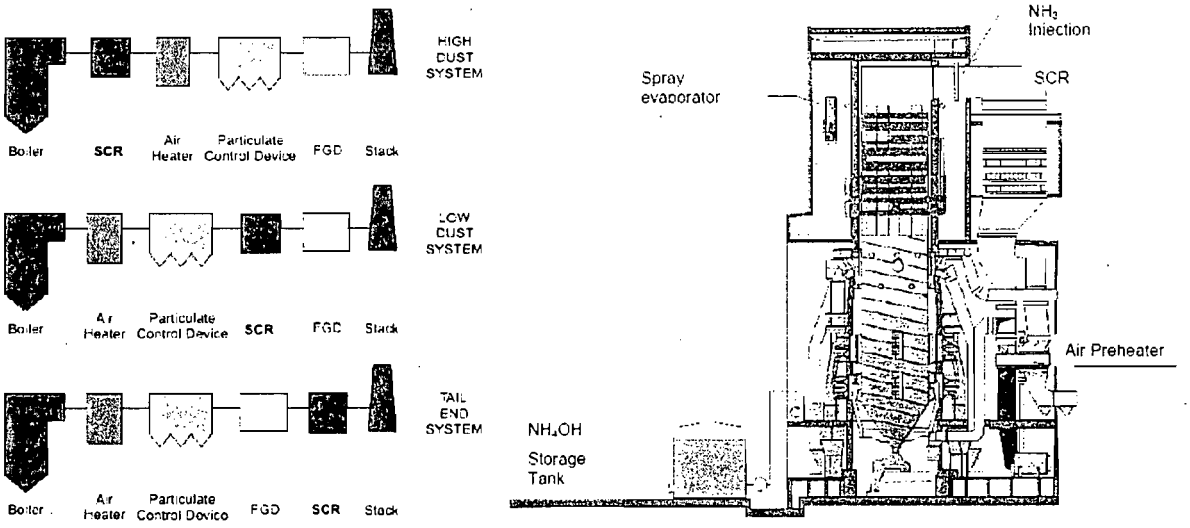


Figure 8. Possible Locations of SCR Reactor and Detail of "High Dust System".

Numerous high dust applications have been built or are under construction, for example at the Gulf Crist Power Plant in Pensacola and the TECO Big Bend Station in Tampa. As previously mentioned, a high dust system will be installed at ARM Brescia in Italy. The "low dust" system shown above is used at a number of European MWC's.

MWC equipment manufacturer, VonRoll describes the low dust system as "DeNO_X on the hot side". In a MWC, the flue gas is cooled to approximately 260 °C (500 °F). The SCR system is located between the electrostatic precipitator (ESP) and flue gas desulfurization device such as a wet scrubber. This option would not be straightforward at Hillsborough County because the SD and FF combination is basically an integrated unit unlike the ESP/WS combination.

An example of the "tail end SCR" system was designed in the late 1980's and started up at the Spittelau Plant in Austria in 1991. The plant and the SCR module are shown in the following photographs.

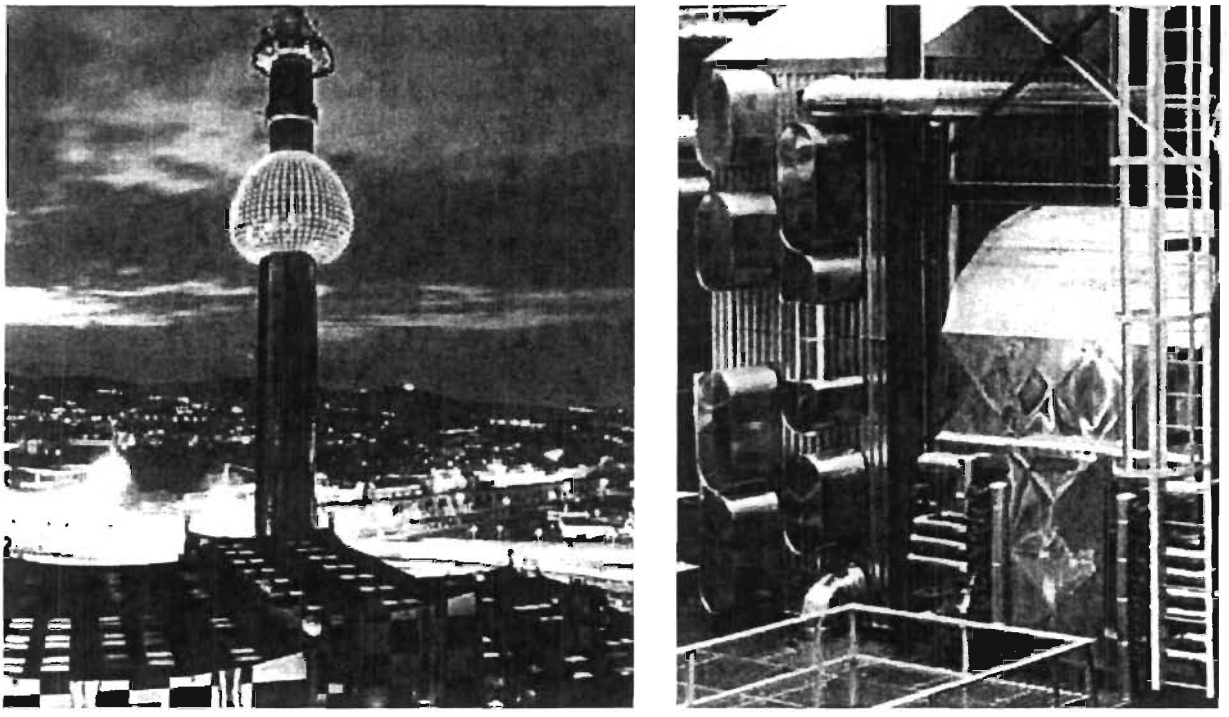


Figure 9. Spittelau Thermal Waste Treatment Plant. Tail End SCR System at Spittelau

The system is described in the operator's brochure as follows:[19]

"The DeNO$_X$ facility, as the final stage of the flue gas treatment process, utilizes selective catalytic reduction (SCR). The flue gas streams from both treatment lines are combined, mixed with vaporized ammonia water (NH_3) and heated to a reaction temperature of 280 °C by a heating tube and gas duct burners.

"Passing through the 3 catalytic converter stages causes the nitrogen oxides (NO_X) to react with the added ammonia and the oxygen in the flue gas to form nitrogen and steam, and also results in dioxin and furan destruction. The resultant exhaust gas is then cooled to 115 °C in the third heat exchanger and finally released into the atmosphere through a 126 m high stack."

Austria has an emission limit of 100 mg NO_X/dscm (~70 ppmvd @15% O_2) for MWC's. The City of Vienna limits emissions from the Spittelau Plant to 37 mg/dscm (~25 ppmvd).

Emissions data are available at: www.fcc.at/sauberbrenner/sauberbrenner/em_wertspit.html
For reference the initial testing conducted on the facility indicated NO_X emissions in the range of 25 to 30 mg/dscm (~ 18 to 21 ppmvd).

Review of Hillsborough County SCR Cost Estimate

The County included a design and cost estimate for SCR at the proposed Unit 4. The County acknowledged possible NO_X reductions ranging from 50 to 90% and commented that the technology has not been applied to MWC's in the U.S. The County listed a number of facilities where SCR is practiced in Europe and documented emissions between 0 and 90 ppmvd. The majority of values were in the range of 25 to 50 ppmvd.

According to the application, the County received some offers of emissions guarantees of 50 ppmvd and even lower. These were evaluated by the applicant for cost-effectiveness on the basis they would achieve only the Austrian limit of 100 mg/dscm (70 ppmvd). This presumption is contradicted by Spittelau experience described above and by the performance of other European plants cited by the County. The Department rejects this presumption and notes that it artificially causes overestimation of NO_X emissions and of costs per ton of NO_X removed.

Following is the estimate given in the County's application for tail end SCR on Unit 4.

Table 6. Summary of Applicant's Estimated Costs for Ammonia Scrubbing Equipment

Description	Wet Scrubber
Estimated Capital Costs	$22,985,000
Estimated Annualized Capital (7%, 20 yrs)	$2,170,000
Estimated Annualized O&M Costs	$3,521,000
Total Annual Cost	$5,691,000
Tons of NO_X Removed per Year	405
Total Cost per Ton of NO_X Removed	$14,100

The capital costs are remarkably high and out of proportion compared with the duty of the SCR installation and the roughly $90,000,000 cost estimate for Unit 4 given in the FY06-07 County Budget Report.[21]

Some extraordinary (one-time) costs were included in the cost estimate for Unit 4, including modifying the entire plant and relocating some existing buildings for the single SCR system. One unusual expense is sales tax for a tax-exempt entity (the County). Some of the extraordinary, if they indeed must be incurred, should not be included as factors in calculating the subsequent annual O&M costs.

The Department rejects the SCR cost estimate and believes the system can be installed and operated at less than half of the estimated cost.

Department Evaluation of SCR versus SNCR

The Department reviewed a reference on NO_X controls prepared by EPA in the mid-1990's.[22] It provides a good comparison (for the time) between SCR and SNCR and addresses some other natural gas technologies such as reburn.

Although some of the information is now dated, there are useful concepts presented regarding the manner in which comparisons can be made on an industry-specific basis. The following figures compare several SNCR, natural gas strategies, and SCR on the familiar basis of capital costs. The third, fourth, and sixth columns reflect two SNCR strategies and one SCR strategy. By interpolation between the 400 and 750 TPD units, the figure suggests that conventional SNCR and SCR cost roughly $1,000,000 and $10,000,000 respectively for a 600 TPD MWC.

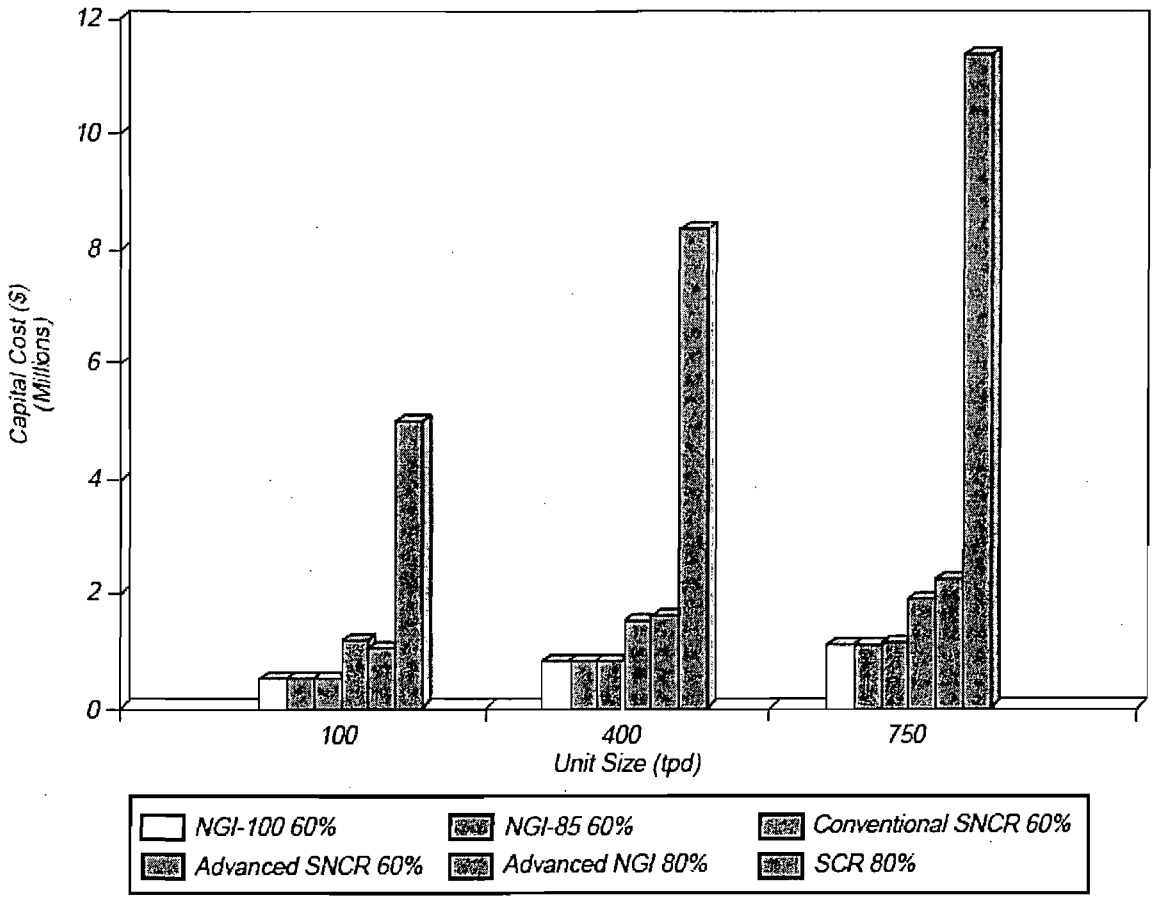


Figure 10. Capital Costs of NO_X Control Strategies for Different Sized MWC's.

The following table presents capital costs for SNCR per ton of installed capacity for four different class sizes of MWC's. Other categories include "tipping fee impacts" and the familiar cost-effectiveness parameter. Costs are presented within each category for three different levels of technology indicated by percent (%) NO_X reduction. Cost estimates for the 600 TPD MWC were interpolated by the Department from 400 and 750 TPD class estimates.

Table 7. Model Plant Cost Estimates for Conventional SNCR* (EPA, 1995)

	Total Capital Cost ($1000/TPD Capacity)			"Tipping Fee Impact" ($/ton MSW)			Cost Effectiveness ($/ton NO_X		
Reduction (%)	45	60	65	45	60	65	45	60	65
100 TPD MWC	5.1	5.1	5.1	3.7	3.9	4.1	4,300	3,380	3,235
400 TPD MWC	2.0	2.0	2.0	1.3	1.5	1.6	1,500	1,270	1,290
600 TPD MWC	1.7	1.7	1.7	1.1	1.3	1.4	1,240	1,190	1,070
750 TPD MWC	1.5	1.5	1.5	0.9	1.1	1.2	1,050	940	990

The values do not change much within a given class size with respect to the percent of NO_X removed. The most notable points regarding the 600 TPD class MWC are:

- Control by SNCR is very cost-effective and more so with increasing NO_X reduction;
- The "Tipping Fee Impact" is minimal – less than 3% of the facility tipping fee; and
- The capital cost is low – around 1% of the cost of the proposed County project.

"Tipping fee impact" is an incremental cost that indicates the potential cost of the technology on the MSW generator. However, it does not necessarily reflect the amount by which the plant's tipping fee will actually increase as a result of applying the control technology.

"Advanced SNCR" (for the time) assumes use of furnace pyrometry and additional process controls to also achieve 60% reduction with less reagent (less slip, plume potential) than is needed for conventional SNCR. Based on the previous figure, the capital cost of advanced SNCR would be less than $2,000,000.

The following figure compares the various strategies in terms of the traditional cost-effectiveness analysis. The precise cost-effectiveness of conventional SNCR (at 60% removal) is, per the above table, $1,190/ton NO_X removed. By interpolation within the following figure, the cost-effectiveness of advanced SNCR is somewhere between $1,500 and 2,000/ton removed and clearly cost-effective. By interpolation, the cost-effectiveness of SCR would be roughly $7,000/ton which some experts would (today) consider cost-effective by the traditional methodology.

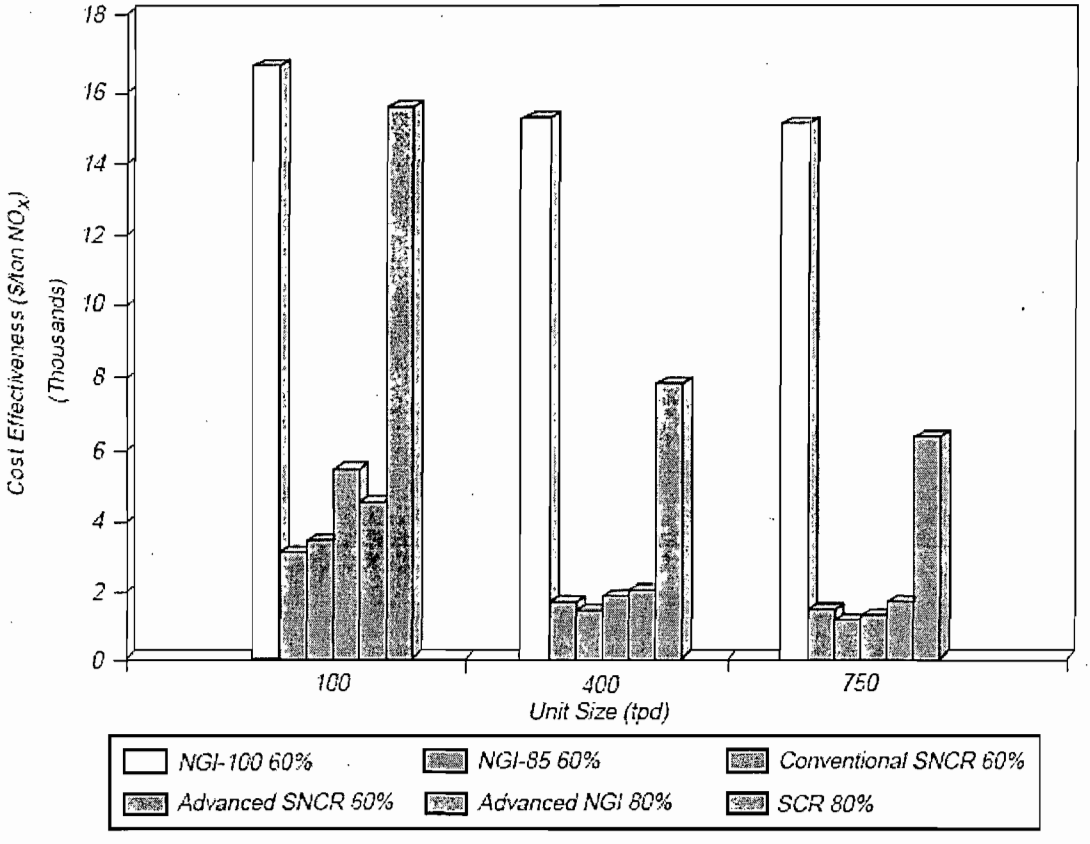


Figure 11. Estimated Cost-Effectiveness of NO_X Control for MWC's (EPA 1995).

The following figure is a cost comparison between the different strategies and tipping fees.

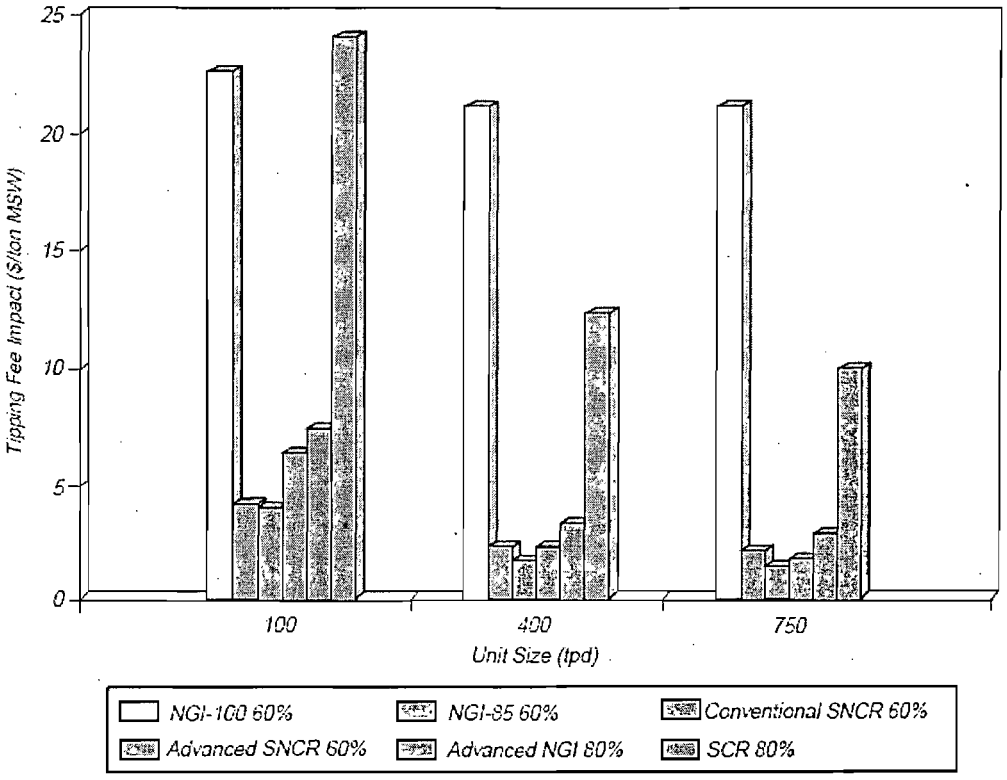


Figure 12. Impacts of NO_X Control on MWC Tipping Fees MWC's (EPA 1995).

The "tipping fee impact" values for SNCR and SCR can be compared with approximate estimates of tipping fees in Florida to determine possible impacts on Florida's solid waste disposal practices. This comparison reveals that installation of SCR could (currently) significantly increase tipping fees at MWC facilities and could cause facilities to reassess land disposal options.

In 2000, tipping fees at Class I Florida MSW landfills (with leachate collection, liners, monitoring, gas collection, etc.) averaged $42.85 per ton. At the same time, MWC tipping fees averaged $55.22 statewide and could be more today given federally mandated air pollution control improvements at some of the facilities.[23] As shown in the above graph, the use of conventional or advanced SNCR does not significantly impact the tipping fees at MWC's. It is estimated that SNCR controls equate to $1.30 to $2.00/ton of waste or between 2.5 and 4% of the tipping fees.

Interpolation of the results of the graph above for 400 and 750 TPD MWC's suggests that the cost of SCR on a 600 TPD MWC is on the order of $11/ton of waste, potentially five times higher than the SNCR component within the tipping fee. This equates to 20% of the average tipping fee in 2000 for MWC's. Based on the interpolation of the above EPA graph, the comparative effect of SCR is an incremental impact of $9.00 to 9.70. This is equivalent to 16 to 18% in terms of a tipping fee impact (assuming costs are passed on).

The additional capital cost and tipping fee impact for SCR can be important factors when assessing whether to expand an existing MWC facility or pay the shipping costs to a Class I landfill with a lower tipping fee.

The Department accepts the County's proposal to limit NO_X to 110 ppmvd on a 24-hour basis. The overwhelming evidence suggests a long term value of 90 ppmvd can be attained with the planned design and with minimal visible emissions. A 12-month averaging time will compensate for seasonal factors affecting the waste stream. The limits comprise BACT and are the lowest values for a MWC in the U.S.

Recent information from Europe suggests that with experience they have reduced the differential between SNCR and SCR. In one study conducted for the European Commission, the difference between the options was approximately €4.50/metric tonne (approximately $5.00/ton) for an installation in Flanders (Belgium).[24]

There are future possibilities for achieving low NO_X values using tail end SCR systems by more cost-effective means than the SCR system describe by the County. One is to use porous extrudiates in a packed reactor.[25] Dürr Environmental claims to have achieved 90% removal with a system for a chemical process to treat an exhaust of 29,250 standard cubic feet per minute (scfm) with a temperature of 250 °F. For comparison, the clean exhaust flow rate from Unit 4 will be approximately 91,000 scfm and 270 °F.

For reference ARM Brescia in Italy plans to install a high dust SCR system on one line as a large-scale demonstration project under a European initiative called "NextGenBiowaste".[26] If successful, high dust SCR may prove to be more cost-effective than the tail end systems with reheat.

Such systems might in the future prove to be a less expensive option to achieve very low emissions than tail end SCR using conventional catalysts or even enhanced SNCR systems in conjunction with FGR, water-cooled grates, furnace controls, etc. The Department will require future applicants to research and develop the costs for high dust and low temperature tail end SCR systems for comparison with enhanced SNCR.

4.4 CO Formation and Control

Incomplete burnout is the cause of CO emissions. Time, temperature, and turbulence are the keys to good combustion given the often wet and variable quality of fuel. According to the County's estimate, annual CO emissions will be 113 TPY and the project barely triggers PSD and a BACT determination for this pollutant.

EPA did not review CO emissions from mass burn facilities in the latest update of Subpart Eb. However, EPA defined a new category for existing facilities that converted to a "refuse-derived fuel" (RFD) process. The main facility affected was the Miami-Dade County RRF, believed to be the largest in the world. The CO limit was increased from 200 to 250 ppmvd on a 24-hour basis.

The limit for new mass-burn MWC's was not changed and is 100 ppmvd on a 4-hour block basis. The applicant proposed 80 ppmvd as BACT on a 4-hour block. In the case of the Lee County Project, the CO limits were 100 ppmvd on a 4-hour block and 80 ppmvd on a 30-day rolling average.

Although statistics from Lee County Units 1 and 2 indicate that 80 ppmvd is achievable on a 4-hour block, the Department will limit Hillsborough Unit 4 to the Subpart Eb limit of 100 ppmvd on a 4-hour basis. The rationale is that FGR can increase CO limits due to recirculation of exhaust gas and lower O_2 concentration in the furnace. The Department prefers to leave intact any flexibility afforded by the higher 4-hour limit to help minimize NO_X emissions (i.e.

allow maximum feasible FGR). This will also minimize the probability of exceeding a 24-hour CO limit as occurred with some of the Miami-Dade RRF units.

The Department is confident, however, that if the facility meets 100 ppmvd on a 4-hour basis, it will achieve a 30-day BACT limit of 80 ppmvd of CO.

4.5 MWC Acid Gases

MWC Acid Gases (MWC-AG) is a PSD category and requires a BACT determination. MWC AG is comprised of SO_2 and HCl. The sum of the two components is estimated by the applicant to be 195 TPY based on the separate limits for each proposed by the County to meet Subpart Eb. The Department will address the two components of MWC-AG separately.

SO_2 Formation and Control

The Department assessed industrial SO_2 emission trends in Hillsborough County since 1998. Between 1998 and 2005 emissions of SO_2 were reduced by approximately 160,000 tons per year from TECO's power plants.[27] By comparison the proposed increase (before application of the Department's BACT analysis) from Hillsborough County Unit 4 is 84 TPY. While this point is not the key factor in a BACT determination, it does help put the issue in better perspective.

Emissions of SO_2 from MWC's are generally low even before control. Referring back to Table 2, the recent Subpart Eb regulation did not change the SO_2 limit. The Department previously set a limit of 26 ppmvd for the Lee County Unit 3 project that is less than the value of 30 ppmvd in Subpart Eb.

After excluding "outliers", EPA's consultant evaluated SO_2 data for the SD/FF/ACI/SNCR configuration during the development of the new Subpart Eb. The mean of the data retained was 6.4 ppmvd. EPA's consultant estimated that 95 and 99% of data are less than 17 and 22 ppmvd respectively when assuming a "normal distribution". The Lee County RRF BACT SO_2 value is still acceptable as BACT and typical emissions will likely be less than 10 ppmvd.

Hydrogen Chloride (HCl)

HCl is not a PSD pollutant. The Department will include the Subpart Eb limit of 25 ppmvd or 95% control in the permit. After excluding "outliers", EPA evaluated HCl data for the SD/FF/ACI/SNCR configuration during the development of the new Subpart Eb. The mean of the data retained was 8.5 ppmvd. EPA estimated that 95 and 99% of data are less than 19 and 24 ppmvd respectively when assuming a normal distribution.

The Department notes, however, that it may be necessary at times for the County to inject more lime slurry to minimize HCl emissions to avoid ammonium chloride (NH_4Cl) as a result of excess urea use to control NO_X.

Conclusion on MWC Acid Gases

Based on the previous discussions, it is likely the sum of the two pollutants will actually be on the order of 15 ppmvd and annual emissions are likely to be less than 100 TPY.

It is possible to conduct a "co-incident analysis" of (SO_2 + HCl) to set a BACT for MWC-AG that is less than the sum of the two NSPS limits. However the Department has determined that the individual limits for SO_2 and for HCl in Subpart Eb are adequate as BACT for SO_2 and MWC-AG and will not include a separate limit to track as MWC-AG.

4.6 MWC-Metals, PM/PM_{10}

MWC Metals is a PSD category and requires a BACT determination because estimated annual emissions of 25 TPY are greater than the significant emission threshold of 15 TPY for this pollutant. PM is the measured surrogate for MWC Metals and has a greater PSD threshold of 25 TPY. PM limits are often set after determining BACT for PM_{10}. Typically applicants agree to lower values than BACT for PM to avoid conducting more difficult PM_{10} fractionation and measurement. The Department will address the two components of MWC-Metals separately.

Particulate Matter (PM)

The applicant initially proposed a PM/PM_{10} limit value of 20.6 mg/dscm to simultaneously satisfy BACT for PM/PM_{10} and MWC-Metals. However adherence to the new Subpart Eb emission limit of 20 mg/dscm immediately reduces the annual emissions of PM (also of $PM_{10}$and MWC-Metals) to a little less than 24 TPY. By adherence to this value, PSD for PM is not triggered, but PSD for MWC Metals and for PM_{10} is triggered.

For reference, after excluding "outliers", EPA's consultant evaluated PM data for the SD/FF/ACI/SNCR configuration during the development of the new Subpart Eb. The mean of the data retained was 3.2 mg PM/dscm. EPA estimated that 95 and 99% of data are less than 7.6 and 9.5 mg/dscm respectively when assuming a normal distribution.

Particulate Matter less than 10μ in Diameter (PM_{10})

The applicant's initial PM_{10} limit value of 20.6 mg/dscm would have triggered PSD category and a BACT determination because originally estimated annual emissions of ~24 TPY are greater than the significant emission threshold of 15 TPY for this pollutant. If 9.5 mg PM/dscm is greater than 99% of the PM data reviewed by EPA, then it is logical to conclude that PM_{10} emissions are even less.

A value of 12 mg/dscm for PM_{10} would be reasonable to expect when PM emissions are 20 mg/dscm as provided by Subpart Eb. This level would satisfy BACT, but would actually reduce PM_{10} annual emissions to 14.6 TPY and less than the PSD threshold.

Conclusion on MWC-Metals

A value of 12 mg/dscm for MWC-Metals (such as determined for PM_{10}) would also satisfy BACT for MWC-Metals. This value will actually reduce annual emissions to 14.6 TPY and less than the PSD threshold for MWC-Metals.

A single value of 12 mg/dscm for PM/PM_{10}/MWC-Metals would constitute BACT for the three parameters, but would reduce emissions below the PSD thresholds. The Department has determined that all three parameters can meet this concentration limit and will include in the permit to avoid PSD and a BACT determination while satisfying Subpart Eb.

4.7 Sulfuric Acid Mist (SAM)

The applicant estimated annual SAM emissions of 74 TPY. This value is greater than the PSD significant emission rate threshold of 7 TPY. The Department reviewed historical Annual Operating Reports (AOR's) from the facility for the year before and all of the years after it was upgraded to comply with the 40CFR60 Subpart Cb requirements for existing MWC's. SAM emissions for Units 1, 2, and 3 combined were reported as 28.5 tons in 2000. Thereafter, the

applicant has reported emissions from the three units combined of approximately 1 TPY through 2005.

The Department reviewed the measured data from stack tests conducted at the completion of the control equipment to SD/FF/ACI/SNCR. The values were 0.00026, 0.0002, and 0.00033 grains per dry standard cubic foot (gr/dscf) compared with a limit of 0.072 gr/dscf. Thus measured emissions were less than 1% of the applicable concentration limit.

There is no SAM-limiting standard in the recent Subpart Eb update. The Department believes that the SD/FF/ACI/SNCR configuration as a work practice and the emission limitations for MWC Acid gases, and PM/PM_{10}, provide reasonable assurance that the proposed Unit 4 will not emit 3 or more TPY of F. It is unnecessary to set a BACT based limit for this pollutant or require testing given the history detailed above.

4.8 Fluorides (F)

The applicant originally estimated annual fluoride emissions of 3.5 TPY, a value that exceeds the PSD significant emission rate threshold of 3 TPY. The Department reviewed historical data from the facility since it was upgraded to comply with the 40CFR60 Subpart Cb requirements for existing MWC's and found that annual emissions are always much less than 3 TPY. The annual test data are given in the following table.

Most if not all of the measured values were in the "non-detect" using the standard EPA methods. The operator reported the values in a conservative manner such that the "limit of detectability" was used to estimate emissions. Assuming fulltime operation, the sum of emissions from the three units is less than 0.4 TPY of F.

There is no fluoride-limiting standard in the recent Subpart Eb update. The Department believes that the SD/FF/ACI/SNCR configuration as a work practice and the emission limitations for MWC Acid gases, and PM/PM_{10}, provides reasonable assurance that the proposed Unit 4 will not emit 3 or more TPY of F. It is unnecessary to set a BACT based limit for this pollutant or testing requirements given the history detailed above.

Table 8. Fluoride Emissions from Hillsborough County Resource Recovery Facility

Year	Unit 1 (lb/hr)	Unit 2 (lb/hr)	Unit 3 (lb/hr)
2001	0.017	0.017	0.023
2002	0.021	0.034	0.035
2003	0.019	0.017	0.017
2004	0.017	0.017	0.017
2005	0.016	0.015	0.015

4.9 Lead (Pb) and Cadmium (Cd)

Pb is a PSD pollutant but its emissions are not significant for this project. Cd is not a PSD pollutant. The emission limits for both pollutants were modified by the new Subpart Eb. The

Department will replace the applicant's proposed values with the new Subpart Eb limits. These are 140 and 10 µg/dscm respectively.

4.10 Hg Release and Control

Mercury is released during combustion. The primary sources of mercury in MSW include: batteries; mercury containing devices such as thermostats; thermometers and switches; and lighting.

The following data was provided by the County and lists the results of Hg inlet and outlet tests on several Martin/Covanta facilities with the SD/FF/ACI/SNCR configuration in Florida.

Table 9. Hg Concentrations (µg/dscm), Removal Efficiencies (%) Key Covanta Facilities

Facility		Lee County RRF			Pasco County RRF			Hillsborough Co. RRF		
Date	Unit	Inlet	Outlet	%	Inlet	Outlet	%	Inlet	Outlet	%
2001	1	198	23	87	674	13	96	226	9	96
	2	119	28	76	219	12	95	145	6	96
	3	-	-	-	190	6	97	243	9	96
2002	1	240	12	95	109	12	88	142	7	95
	2	130	11	92	149	10	94	149	8	95
	3	-	-	-	144	3	96	149	8	95
2003	1	127	26	79	118	3	97	221	21	90
	2	257	31	87	143	5	96	156	8	95
	3	-	-	-	247	4	97	130	14	89
2004	1	173	23	87	127	13	87	145	15	90
	2	94	15	84	96	12	87	187	18	90
	3	-	-	-	116	7	93	106	19	82
2005	1	166	36	77	160	4	96	141	23	82
	2	183	14	91	101	8	92	77	21	72
	3	-	-	-	88	5	94	155	18	86

The measurements indicate that historically, Hillsborough and Pasco RRF's have Hg characteristics that comply with standard proposed by the Department for Unit 4. Lee County's values are well within their permit limits (70 µg/dscm) for their first two Units. The new Lee County RRF Unit 3 that is under construction will meet a limit of 28 µg/dscm and may require some additional carbon injection to meet that limit.

The applicant proposed a concentration limit of 28 µg Hg/dscm or 85% removal (whichever is less stringent). In calculating potential to emit (PTE), the County assumed 85% removal from an incoming stream of 890 µg Hg/dscm yielding as much as 134 µg/dscm after treatment. This

results in PSD-significant emissions of 0.163 TPY (326 lb/year), thus triggering a PSD review and BACT determination.

Given the emission data in the above table, the Department expects typical emissions less than 20 µg Hg/dscm and on the order of 40 lb Hg/year. For reference, all 13 measurements for the similar Brescia configuration are listed in Table 5. These were taken from the previously-mentioned "Osservatorio Report" and were less than 4 µg Hg/dscm.

After excluding "outliers" EPA's consultant evaluated Hg data for the SD/FF/ACI/SNCR configuration during the development of the new Subpart Eb. The mean of the data retained was 8 µg/dscm. EPA's consultant estimated that 95 and 99% of data are less than 22 and 27 µg Hg/dscm respectively when assuming a "normal distribution". EPA's consultant also estimated that 95 and 99% of data are less than 25 and 49 µg/dscm respectively when assuming a "log-normal distribution". In the Final Rule Preamble EPA stated:

"A 50 percent reduction in inlet mercury levels suggests an emission limit of 40 µg/dscm in the MACT standards. Public comments and test data suggested that levels less than 30 µg/dscm are being achieved. However, in consideration of the potential use of mercury CEMS (Hg-CEMS) and the higher mercury variability that may be observed with CEMS use, the final standards were set at 50 µg/dscm for both existing and new MWC units."

Hillsborough County's proposed value of 28 µg Hg/dscm is significantly less than the value of 50 µg/dscm set by EPA. However the Department believes that lower values than 28 µg/dscm will be achieved, as suggested by the above table, by optimization of the ACI equipment in combination with real-time Hg data to optimize the system. If that value is not met then an 85% removal standard applies and the data show that this removal requirement is typically met even when it is not applicable.

The Department will set a limit of 28 µg Hg/dscm or 85% removal (whichever is less stringent) as requested by the applicant. The first value equates to approximately, 68 lb/yr which substantially less than the PSD threshold of 200 lb Hg/yr. However, the applicant estimated potential to emit (PTE) at 326 lb/year based on the assumption of 890 µg/dscm in the flue gas before treatment and removal by the SD/FF/ACI components of the control system.

To insure that PSD is not triggered, the Department will set an annual emission limit of 190 lb Hg/year to be monitored by use of a mercury CEMS. To exceed 190 lb Hg/year would require continuous emissions averaging 48 µg Hg/dscm which is approximately equal to the value set by EPA through Subpart Eb.

The Department is presently writing regulations pursuant to EPA's Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR). CAMR requires installation of recently developed or improved (3rd Generation) continuous emission monitoring system (CEMS) for Hg at power plants for the purpose of accurately measuring and trading Hg allowances in such a manner that total statewide Hg emissions will be reduced.

The latest Hg CEMS's undergoing evaluation by EPA are more accurate and precise than those heretofore available. The Department concludes that the 3rd generation Hg-CEMS will be available and reasonably accurate by the time Hillsborough County RRF Unit 4 starts operation. The Department will require the County install a Hg-CEMS within 24 months of startup, which is after the date by which the power plants install similar equipment.

In promulgating the latest Subpart Eb rule for MWC's, EPA recognized that Hg-CEMS are available and in use at several German MWC's. In the final rule, EPA allowed Hg-CEMS as an optional test methods since performance specifications are available. The owners or operators of a MWC would provide EPA a 30 day notice before starting to use the Hg-CEMS and a 30 day notice if they elect to discontinue the use of the CEMS. As an incentive for the optional application EPA removed the 90 and 95% monitoring availability requirements for the first 2 years of application.

The required use of the Hg-CEMS for the purpose of demonstrating annual emissions shall not constitute a request by the applicant to EPA for the purposes described above and does not relieve the applicant from the compliance requirements in Subpart Eb or pursuant to this determination. In applying the Subpart Eb Hg limit of 50 µg/dscm, the Department will follow the Hg limit and (at the request of the applicant) allow optional Hg-CEMS use as described in Subpart Eb.

After installation of the Hg-CEMS, the County may at its option choose to meet the limit of 28 µg Hg/dscm on a 12-month rolling average in the manner described for electric power plants pursuant to 40CFR60, Subpart Da.

The Department notes that the County's own regulations clearly suggest use of Hg-CEMS at MWC's. The rationale, which is to minimize emissions of dioxin/furan and Hg, is consistent with the view of the Department. For reference, the County's rule 1-3.53.1(f):[28]

Municipal Waste Incinerators – mercury and dioxin/furan emissions shall be controlled by combustion practices, operation and maintenance, and operation of a carbon injection system. An alternative would be to install a continuous emission monitor for the pollutant mercury and adjust the carbon feed rate accordingly. This continuous emission monitor shall be installed and operated in accordance with a promulgated USEPA Performance Specification. Any such alternative must be approved by the Executive Director prior to implementation.

In applying the Department limit of 28 µg Hg/dscm, the Department will use the standard EPA Hg stack testing methods, but require quarterly testing. After installation of the Hg-CEMS, the County may at its option achieve the limit of 28 µg Hg/dscm on a 12-month rolling average in the manner described for electric power plants pursuant to 40CFR60, Subpart Da.

4.11 MWC Organics, Dioxin/furan

MWC Organics is a PSD category and requires a BACT determination because estimated annual emissions are greater than the significant emission threshold (~ factor of 4). MWC Organics is comprised of CDD (dioxin) and CDF (furan). After excluding "outliers", EPA evaluated CDD/CDF data for the SD/FF/ACI/SNCR configuration during the development of the new Subpart Eb. The mean of the data retained was 2.4 ng/dscm. EPA estimated that 95 and 99% of data are less than 7.4 and 9.5 ng/dscm respectively when assuming a normal distribution.

The Department believes that Unit 4 will generally achieve the same value as the other units using the SD/FF/ACI/SNCR configuration. Measured emissions will likely be less than the PSD threshold although applicability is on the basis of "potential-to-emit" (PTE) requiring a BACT determination.

The Department will accept EPA's recent evaluation of Subpart Eb as BACT for this application. However, for future reference, the Department does not necessarily believe that the statistical procedures suitable for an NSPS limit are suitable for BACT pollutants in general. Fine tuning of ACI in conjunction with the Hg-CEMS will likely have some benefits in the control of MWC Organics as suggested by the Hillsborough County regulation.

4.12 Ammonia (NH_3)

The applicant specified a limit of 15 ppmvd for NH_3 slip for the SNCR system that will be installed for this project to meet 110 ppmvd when uncontrolled emissions are 350 ppmvd and the unit is operated at a heat input of 260 mmBtu/hr. Similarly, the applicant specified a limit of 10 ppmvd NH_3 when the heat input is 195 mmBtu/hr. These values are acceptable for the purposes of minimizing plume formation potential and PM/PM_{10} emissions.

4.13 Emission Limits including BACT

The following table is a compilation of emission concentration or mass emission limitations based on Subpart Eb, the Department BACT determination or as necessary to avoid PSD and a BACT determination.

Table 10. Emission Limits Applicable to Hillsborough County RRF Unit 4

Pollutant	Emission Limit	Measurement Basis	Limit Basis
NO_X	110/90 ppmvd	24-hr/12-month CEMS	BACT
CO	100/80 mg/dscm	4-hr/30-day CEMS	BACT/Eb
MWC Acid Gases (SO_2/HCl)	26/25 ppmvd*	24-hr CEMS/Stack Test	BACT/Eb
MWC Metals/PM/PM_{10}	12 mg/dscm	Stack Test	Avoid PSD
Ozone as VOC	NA	NA	NA
Sulfuric Acid Mist	NA	NA	NA
Fluorides (F)	NA	NA	NA
Lead (Pb)	140 µg/dscm	Stack Test	Subpart Eb
Mercury (Hg)	28 µg/dscm*	Quarterly Stack Test	Avoid PSD
Cadmium (Cd)	10 µg/dscm	Stack Test	Subpart Eb
MWC Organics (dioxin/furan)	13.0 ng/dscm	Stack Test	BACT/Eb
Ammonia (NH_3)	15/10 ppmv	260/195 mmBtu/hr Stack Test	PM, Opacity
Opacity	10 percent	6-minute COMS	Subpart Eb

* Alternative 85 percent removal requirement applies.

The rationale for the values is discussed above. In the case of NO_X, the Department will allow an initial limit of 150 ppmvd for the first year of operation on a 24-hour basis but require attainment of 110 ppmvd on a 30-day basis. This will provide ample time to optimize the SNCR and FGR systems to achieve the lower guaranteed value of 110 ppmvd on a 24-hour basis beginning the second year of operation. At the same time a limit of 90 ppmvd on a 12-month block rolled monthly. Only forward months will be included in the calculation. Therefore the first 12-month block will be completed at the end of the second year of operation.

5. COMPLIANCE, EXCESS EMISSIONS, AND OTHER ISSUES

5.1 General Compliance Principles

With some exceptions, the Department will rely to the extent feasible on the test methods, exclusions, and excess emission provisions provided by Subpart Eb for most pollutants. Subpart Eb requires testing and monitoring for NO_X, CO, SO_2, HCl, PM, Pb, Hg, Cd, dioxin/furan and opacity as well as MWC operating parameters such as load level and flue gas temperature.

NO_X, CO and SO_2 are required to be measured using CEMS's. Opacity is required to be monitored using a COMS and measured by an annual visible emissions test. Annual visible emissions testing must be conducted to determine compliance with the fugitive ash emission requirements.

Emissions of other pollutants are determined by an annual stack test. An annual stack test using Method 5 is required for demonstration of compliance with the PM limit. The assumption can be made that all PM measured during the Method 5 stack test is actually PM_{10}. If, during the Method 5 test, the PM_{10} limit of 12 mg/dscm is achieved, it is safe to assume that both PM and PM_{10} limits have been met.

5.2 Compliance with Mercury Limit

Subpart Eb requires testing on an annual basis to demonstrate compliance with the applicable mercury standard using EPA Reference Method 29, or as an alternative ASTM D6784-02. In lieu of the required mercury testing, the owner or operator has the option to demonstrate compliance by the required Hg-CEMS. The applicable state rule for Waste-to-Energy Facilities (62-296.416, F.A.C.) requires a compliance demonstration for mercury using Method 29 on an annual basis.

Although the facility has chosen to show compliance with the federal standard using one of the annual stack test methods, the Department will require the facility to install, operate, and maintain a continuous monitoring system for the measurement of mercury emissions in addition to the stack testing requirements. Quality Assurance and Quality Control (QA/QC) procedures will be required to ensure proper maintenance of the CEMS system, and acquisition of acceptable quality emissions data. As part of the ongoing QA/QC of the CEMS, annual relative accuracy testing is required.

Upon approval by the Department, the CEMS may be used by the facility as the method of compliance with the applicable mercury limit. At that time, the Department may allow for the substitution of the quarterly stack testing requirement in the permit and the annual stack testing requirement in 62-296.416, with the data acquired during the annual relative accuracy tests.

6. AIR QUALITY IMPACT ANALYSIS

6.1 Introduction

The project as originally proposed by the applicant would increase emissions of eleven pollutant categories at levels in excess of PSD significant amounts: CO; NO_X; MWC-Acid Gases (SO_2+HCl); SO_2 as an individual pollutant; MWC-Metals; PM; PM_{10}; Mercury (Hg); MWC-Organics (dioxin and furans); Fluorides (F); and sulfuric acid mist (SAM). Subsequent evaluation by the Department and application of lower emission limits eliminated six of the pollutants from triggering PSD Review. They are MWC-Metals, PM, PM_{10}, Hg, F, and SAM.

PM_{10}, SO_2 and NO_X are criteria pollutants and have national and state ambient air quality standards (AAQS), PSD increments, significant impact levels and de minimis monitoring levels defined for them. Though the project will no longer trigger PSD for PM10, the evaluation by the applicant is included below. CO is a criteria pollutant and has only AAQS, significant impact levels and de minimis monitoring levels defined for it. There are no applicable PSD increments, AAQS, significant impact or de minimis monitoring levels for MWC Acid Gases (SO_2+HCl) and MWC-Metals, or MWC-Organics. NO_X is an ozone (O_3) precursor and any net increase of 100 tons per year requires an ambient impact analysis including the gathering of preconstruction ambient air quality data for ozone (O_3).

6.2 Major Stationary Sources in Hillsborough County

The current largest stationary sources of air pollution in Hillsborough County are listed below. The information is from annual operating reports submitted to the Department.

Table 11. Major Sources of NO_X in Hillsborough County

Owner	Site Name	Tons per year
Tampa Electric Company	Big Bend Station (2004)	27,779
Hillsborough County	Resource Recovery Facility	***598***
Tampa Electric Company	Bayside Station (formerly Gannon)	453
City of Tampa	McKay Bay RRF	394
Hillsborough County	***RRF Unit 4 (proposed PTE)***	***256***
Mosaic Fertilizer	Mosaic Riverview	183
C.F. Industries	Plant City Phosphate	84

Table 12. Largest Sources of SO_2 in Hillsborough County

Owner	Site Name	Tons per year
Tampa Electric Company	Big Bend Station (2004)	11,917
Mosaic Fertilizer	Mosaic – Riverview Facility	4512
CF Industries, Inc.	Plant City Phosphate	4046
Gulf Coast Recycling, Inc.	Gulf Coast Recycling, Inc. (2004)	671
Hillsborough County	***RRF Unit 4 (proposed PTE)***	***84***

Table 13. Largest Sources of PM in Hillsborough County

Owner	Site Name	Tons per year
Tampa Electric Company	Big Bend Station (2004)	739
Tampa Electric Company	Bayside Station (formerly Gannon)	181
New NGC, Inc.	New NGC, Inc.	94
Kinder Morgan, LLC	Sutton Terminal	75
Mosaic Fertilizer	Mosaic – Riverview Facility	68
CF Industries, Inc.	Plant City Phosphate	60
E Associated Terminals CO	E Associated Terminal Rock Port	56
Conagra	Conagra	39
Gulf Marine Repair Corp.	Gulf Marine Repair	30
Hillsborough County	***RRF Unit 4 (proposed PTE)***	***25***

Table 14. Largest Sources of CO in Hillsborough County

Owner	Site Name	Tons per year
Tampa Electric Company	Big Bend Station (2004)	1065
Gulf Coast Recycling, Inc.	Gulf Coast Recycling, Inc. (2004)	972
New NGC, Inc.	New NGC, Inc. Apollo Beach (2004)	126
Hillsborough County	***RRF Unit 4 (proposed PTE)***	***113***
New NGC, Inc.	New NGC, Inc.	67
Tampa Electric Company	Bayside Station (formerly Gannon)	59

6.3 Air Quality and Monitoring in the Hillsborough County

The Hillsborough County Local Program operates thirty-five monitors at nineteen sites measuring PM_{10}, $PM_{2.5}$, ozone, lead, toxics, CO, NO_2 and SO_2. The 2005 monitoring network is shown in the figure below. Measured ambient air quality information is summarized in the subsequent table.

The highest measured values of all pollutants are all less than the respective National Ambient Air Quality Standards (NAAQS). Based on local emission trends, it is not likely that ground-level concentrations will approach the NAAQS levels, at least at the monitoring locations. One exception is ozone because it is formed from precursors that are clearly available (NO_X and VOC) from local industrial and transportation emissions. The tendency to form ozone is accentuated by hot ambient temperature, solar insolation, high pressure, and relatively low wind speed.

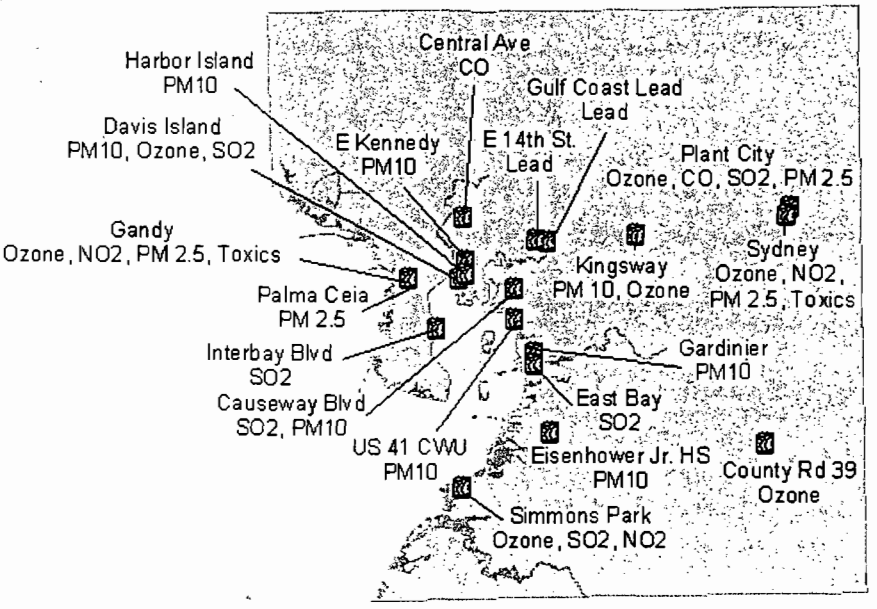


Figure 13. Hillsborough County Ambient Air Monitoring Network

Table 15. Ambient Air Quality in Hillsborough County Nearest to Project Site (2005)

Pollutant	Location	Averaging Period	Ambient Concentration				
			High	2nd High	Mean	Standard	Units
PM_{10}	Causeway Blvd.	24-hour	76	69		150 [a]	ug/m^3
		Annual			26	50 [b]	ug/m^3
SO_2	Causeway Blvd.	3-hour	84	65		500 [a]	ppb
		24-hour	21	12		100[a]	ppb
		Annual			2	20 [b]	ppb
NO_2	Gandy	Annual			8	53 [b]	ppb
CO	Central Ave.	1-hour	4	4		35 [a]	ppm
		8-hour	4	3		9 [a]	ppm
Ozone	Davis Island	1-hour	0.102	0.102		0.12 [C]	ppm
		8-hour	0.081	0.077		0.08 [C]	ppm

a - Not to be exceeded more than once per year
b - Arithmetic mean
c - Not to be exceeded on more than an average of one day per year over a three-year period

6.4 Air Quality Impact Analysis

Significant Impact Analysis

Significant Impact Levels (SILs) are defined for PM/PM_{10}, CO, NO_X and SO_2. A significant impact analysis is performed on each of these pollutants to determine if a project can cause an increase in ground level concentration greater than the SIL for each pollutant.

In order to conduct a significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. The models used in this analysis and any required subsequent modeling analyses are described below. The highest predicted short-term concentrations and highest predicted annual averages predicted by this modeling are compared to the appropriate SILs for the PSD Class I Chassahowitzka National Wildlife Refuge (CNWA) and the PSD Class II Area (everywhere except the CNWR).

For the Class II analysis a combination of fence line, near-field and far-field receptors were chosen for predicting maximum concentrations in the vicinity of the project. The fence line receptors consisted of discrete Cartesian receptors spaced at 50-meter intervals around the facility fence line. The remaining receptor grid consisted of densely spaced Cartesian receptors at 100 meters apart starting at the property line and extending out to 10 kilometers.

For the Class I analysis discrete receptors located at the CNWA were used. These receptors represent a subset of receptors provided by the National Park Service.

If this modeling at worst-load conditions shows ground-level increases less than the SILs, the applicant is exempted from conducting any further modeling. If the modeled concentrations from the project exceed the SILs, then additional modeling including emissions from all major facilities or projects in the region (multi-source modeling) is required to determine the proposed project's impacts compared to the AAQS or PSD increments.

The applicant's initial PM/PM_{10}, CO, NO_X, and SO_2 air quality impact analyses for this project indicated that maximum predicted impacts from all pollutants are less than the applicable SILs for the Class II area (i.e. all areas except CNWR). These values are tabulated in the table below and compared with existing ambient air quality measurements from the local ambient monitoring network.

Table 16. Maximum Projected Air Quality Impacts from Hillsborough County RRF Unit 4 Project for Comparison to the PSD Class II Significant Impact Levels

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Ambient Air Standards (ug/m^3)	Significant Impact?
SO_2	Annual	0.1	1	~5	60	NO
	24-Hour	2	5	~55	260	NO
	3-Hour	6	25	~218	1300	NO
PM_{10}	Annual	0.2	1	~26	50	NO
	24-Hour	0.7	5	~76	150	NO
CO	8-Hour	6	500	~4600	10,000	NO
	1-Hour	12	2000	~4600	40,000	NO
NO_2	Annual	0.4	1	~15	100	NO

It is obvious that maximum predicted impacts from the project are much less than the respective AAQS and the baseline concentrations in the area. SO_2, PM_{10}, CO and NO_X are also less than the respective significant impact levels that would otherwise require more detailed modeling efforts.

The nearest PSD Class I area is the CNWR located about 78 km to the north of the project site. Maximum air quality impacts from the proposed project are summarized in the following table. The results of the initial PM/PM_{10}, NO_X and SO_2 air quality impact analyses for this project indicated that maximum predicted impacts from SO_2, PM_{10}, and NO_2 are less than the applicable SILs for the Class I area. Therefore no further detailed modeling efforts are required for these pollutants.

Table 17. Maximum Air Quality Impacts from the Hillsborough Resource Recovery Facility Unit 4 Project for comparison to the PSD Class I SILs at CNWR

Pollutant	Averaging Time	Max. Predicted Impact at Class I Area (ug/m^3)	Class I Significant Impact Level (ug/m^3)	Significant Impact?
PM_{10}	Annual	0.0006	0.2	NO
	24-hour	0.009	0.3	NO
NO_2	Annual	0.003	0.1	NO
SO_2	Annual	0.002	0.1	NO
	24-hour	0.03	0.2	NO
	3-hour	0.1	1	NO

Preconstruction Ambient Monitoring Requirements

A preconstruction monitoring analysis is done for those pollutants with listed de minimis impact levels. These are levels, which, if exceeded, would require pre-construction ambient monitoring. For this analysis, as was done for the significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. Per the following table, the maximum predicted impacts for all pollutants with listed de minimis impact levels were less than these levels. Thus no pre-construction monitoring is required.

Table 18. Maximum Air Quality Impacts vs. the De Minimis Ambient Impact Levels.

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	De Minimis Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Impact Greater Than De Minimis?
PM_{10}	24-hour	0.7	10	~76	NO
NO_2	Annual	0.4	14	~15	NO
SO_2	24-hour	2	13	~55	NO
CO	8-hour	6	575	~4600	NO

There are no ambient standards or *de minimis* air quality levels associated with VOC, which is a precursor for the pollutant ozone. The impacts of VOC and NOx emissions on ozone levels are not usually seen locally, but contribute to regional formation of ozone. Projects with VOC and NOx emissions greater than 100 tons per year are required to perform an ambient impact analysis for ozone including the gathering of preconstruction ambient air quality data. The applicant estimated annual potential VOC and NOx emissions from the project to be 12 and 256 tons per year respectively. Therefore, a preconstruction monitoring analysis for ozone is required.

Based on the preceding discussions, the only additional detailed air quality analyses (inclusive of all sources in the area) required by the PSD regulations for the proposed project is the following:

- A Preconstruction Monitoring and Ambient Air Quality analysis for ozone (NOx);
- An analysis of impacts on soils, vegetation, visibility, and of growth-related air quality modeling impacts.

Models and Meteorological Data Used in the Air Quality Analysis

PSD Class II Area: The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project in the surrounding Class II Area. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. It incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition.

The ISCST3 model allows for the separation of sources, building wake downwash, and various other input/output parameters. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfied the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service at Tampa International Airport. The 5-year period of meteorological data was from 1991 through 1995. This dataset is the most recent available in the electronic format compatible with the ISCST3 model. In general, meteorological data used for modeling provides typical and potential situations that an area experiences over several years. Therefore, datasets that are not current may still produce accurate modeling results. This airport station was selected for use in the study because it is the closest primary weather station to the study area and is most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

In reviewing this permit application, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification should EPA revise the

may affect other actions taken by the source owners or operators. A more detailed discussion of the required analyses follows.

PSD Class I Area: The California Puff (CALPUFF) dispersion model was used to evaluate the pollutant emissions from the proposed project in the Class I CNWR beyond 50 km from the proposed project. Meteorological MM4 and MM5 data used in this model was from 1990, 1992 and 1996.

CALPUFF is a non-steady state, Lagrangian, long-range transport model that incorporates Gaussian puff dispersion algorithms. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, line, area, and volume sources.

The CALPUFF model has the capability to treat time-varying sources, is suitable for modeling domains from tens of meters to hundreds of kilometers, and has mechanisms to handle rough or complex terrain situations. Finally, the CALPUFF model is applicable for inert pollutants as well as pollutants that are subject to linear removal and chemical conversion mechanism.

Preconstruction Monitoring Analysis for Ozone

There are six ozone monitoring sites in Hillsborough County which are all in attainment with the National Ambient Air Quality Standards. The closet monitoring site is directly east of the project site and is representative of the air quality in the vicinity of the project. Therefore, placing a preconstruction monitor at the project site is not needed, nor required to obtain background air quality concentrations.

Ozone

Ozone is an area-wide pollution problem and the solution to reducing ozone levels is broad-based local and regional reductions in NO_X and VOC emissions (the precursors to ozone formation). According to the applicant, in 1999, Hillsborough County had total emissions of NO_X and VOC of 111,237 TPY and 52,205 TPY respectively from industrial and mobile sources. As mentioned in the BACT analysis, there have already been reductions of approximately 40,000 TPY of NO_X from TECO power plants and additional reductions are expected following completion of SCR projects underway at the Big Bend Station.

The Hillsborough Resource Recovery Facility Unit 4 will add at most 256 TPY of NO_X and 12 TPY of VOC that will constitute an insignificant contribution to the regional ozone precursor emissions.

To demonstrate that the 256 tons of NO_X and 12 tons of VOC will not cause or contribute to a violation, a very sophisticated and expensive model would need to be run for the entire region. The key inputs to the model would be traffic, power plants throughout the region, other industrial sources, and meteorology. The uncertainty in any regional ozone model would be greater than the contribution from this project.

6.5 Additional Impacts Analysis

Impact on Soils, Vegetation, and Wildlife:

The project will incorporate a complete air pollution control treatment system consisting of a spray dryer, fabric filter, activated carbon injection system and selective non-catalytic reduction

(SNCR) that will minimize emissions of particulate matter, acid gases, metals, ozone precursors, and hazardous air pollutants including mercury.

The maximum ground-level concentrations predicted to occur for PM_{10}, CO, NO_X, and SO_2 as a result of the proposed project, including background concentrations, will be considerably less than the respective AAQS.

With the high level of pollution control and much less than significant air quality impact, it is reasonable to assume the impacts on soils, vegetation, or wildlife will be minimal or insignificant.

The applicant submitted a section within the Site Certification Application that included an evaluation of the effects of emissions upon aquatic life, the wood stork and the river otter. According to the conclusions from that report, "aquatic and terrestrial wildlife are not predicted to be at risk from adverse effects due to operation of a four-unit Hillsborough County RRF."

As part of the Additional Impact Analysis, Air Quality Related Values (AQRV) are evaluated with respect to the Class I area. This includes the analysis of sulfur and nitrogen deposition. The CALPUFF model is also used in this analysis to produce quantitative impacts. The results of the analysis show that nitrogen and sulfur deposition rates are less than the significant impact levels (0.01 kg/ha/yr) determined by the National Park Service.

The applicant also reviewed nitrogen deposition into Tampa Bay and estimated the contribution from this project at 0.5 TPY. As previously discussed, very substantial reductions in the Tampa Bay area have already occurred. These have already reduced nitrogen deposition into Tampa Bay by a much greater amount than the increases due to Unit 4.

Impact on Visibility:

The applicant submitted a visibility analysis for the CNWR. The analysis included modeling from the CALPUFF model. The National Park Service threshold for visibility percent change in extinction is 5%. The modeling results concluded that the modification may contribute to one day in three years being slightly above 5% (5.43%), which is less than 0.1% of the time. The National Park service has not made any comments regarding this project. Given that the modeling results are based on worst-case scenarios, the likelihood of the worse-case emissions occurring on the one day of meteorology out of three years is unlikely and therefore, will not have an adverse impact on visibility in the CNWR.

Growth-Related Impacts Due to the Proposed Project:

The project is accommodating growth in the area rather than stimulating growth. There will be few new permanent employees or businesses in the area due to the project. Truck traffic will increase due to greater deliveries of MSW, but will offset traffic patterns elsewhere in the County that would otherwise be directed to landfills.

Growth-Related Air Quality Impacts since 1977:

According to the applicant, population growth in the area of the proposed project, Hillsborough County, has increased 42% since 1980. Despite the growth, county-wide air quality has improved in terms of SO_2, NO_X, and PM/PM_{10} as reported by the County's ambient air monitoring network. The county was redesignated from marginal ozone non-attainment to attainment in the mid-1990's.

There have been reductions of 160,000 and 40,000 TPY of SO_2 and NO_X respectively since 1998 due to the natural gas repowering of the coal-fired TECO Gannon (now Bayside) Station and addition of a scrubber and Low NO_X burners at the TECO Big Bend Station. Both plants were in existence prior to 1977.

Endangered Species Considerations

The purpose of the ESA is to conserve "the ecosystems upon which endangered and threatened species depend" and to conserve and recover listed species.[26] Under the law, species may be listed as either "endangered" or "threatened".

Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened.

While state PSD permits are not generally reviewed for adherence with the Endangered Species Act, the State of Florida's Power Plant Certification process requires an assessment of existing ecology and determination of project impacts. Appendix 12-1 of Volume II of the Site Certification Application addresses ecology and includes a "Florida Natural Areas Inventory" of rare species compiled by Florida State University's Institute of Science and Public Affairs.

The compilation includes a review of the potential habitats for rare species within five miles of the site, including sightings of the Eastern Indigo Snake, the Florida Sandhill Crane, Little Blue Heron, Limpkin, Snowy Egret, Bald Eagle, Gopher Tortoise, Roseatte Spoonbill, Short-tailed Snake, Osprey, American Alligator and Wood Stork. As previously mentioned, the effects emissions on the Wood Stork were evaluated by the applicant.

The review includes a summary of rare species and natural communities in the county as well as the legal status (e.g. endangered, threatened, listed, etc.), descriptions of the previously mentioned wildlife, and "Common Plant Communities in Southwest Florida". The relevant sections of the Site Certification Application with this information are available at the State and local environmental program offices.

Following is a gallery of some of the previously mentioned birds from the Southwest Florida Water Management District's website at:
www.sfwmd.gov/org/wrp/wrp_evg/2_wrp_evg_info/photos_birds.html

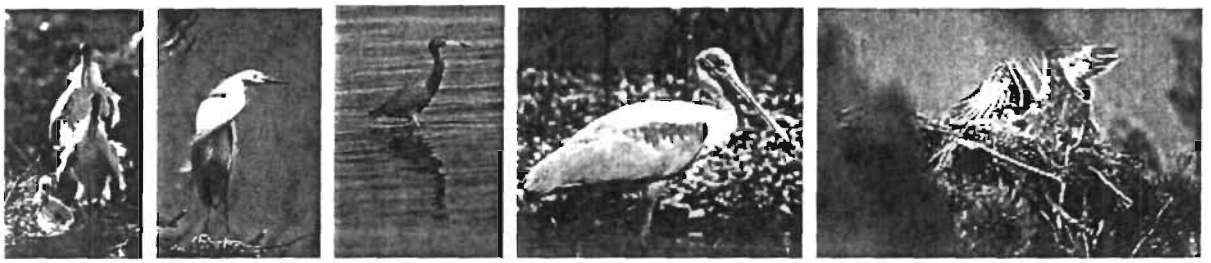


Figure 14. Wood Stork, Snowy Egret, Little Blue Heron, Roseatte Spoonbill, Osprey

According to the U. S. Fish and Wildlife Service (F&WS) website at there were 111 threatened or endangered species (per the federal list) in Florida on May 18, 2004. The reader is referred to the following website: http://ecos.fws.gov/tess_public/TESSWebpageUsaLists?state=FL

REFERENCES

[1] Final Rule. National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines. Federal Register Vol. 69, No. 67, May 10, 2006. Pages 18327 – 18343.

[2] Memorandum and Attachments. Huckaby, J., Eastern Research Group to Stevenson, W., EPA Combustion Group. Large MWC 5-Year Review / Performance Analysis / Stack Test Pollutant. October 27, 2005.

[3] Worldwide Web. EPA Clean Air Markets. www.epa.gov/airmarkets/emissions/prelimarp/index.html Accessed May 14, 2006.

[4] Technical Note. Environment Agency of the United Kingdom and Wales and the Scottish Environment Agency. "Interim Sector Guidance for the incineration of waste and fuel manufactured from or including waste." Bristol, UK. 2001.

[5] Presentation. Seghers Keppel. Design, Construction, Start-up and Commissioning of a State-of-the-Art Water-Cooled Grate WtE-Plant for Örebro, Sweden. North American Waste-to-Energy Conference. Tampa, Florida. April 2003.

[6] Worldwide Web. Fueltech NV: www.fueltechnv.com Air Pollution Control links. Accessed January 2006.

[7] Bid Specification. Burns and Roe Enterprises. "Technical Specification for SNCR System – Hillsborough County WTE Facility Expansion". Issued September 3, 2004.

[8] Agenda Item Summary. Lee County Board of County Commissioners. Award of Formal Quotation RFP B&R 2661-M-310 and Issuance of Purchase Order to Fuel Tech for a Proprietary SNCR System. September 20, 2005.

[9] Letter. Sampson, L., Lee County to Vielhauer T., Florida DEP. Lee County Conditions of Certification – Make and Models of MWC, Pollution Control Equipment. January 8, 2006.

[10] Reference 5.

[11] Brochure. VonRollINOVA DENO$_X$ Processes. Available at VonRollINOVA webpage: www.vonrollinova.ch/site/english/dokumentation/pdf/vri_entstickung_e.pdf

[12] Lecture/Presentation. Bonomo, A., ASM Brescia S.p.a. Waste-to-Energy Advances: The Brescia Experience. Second Meeting of WTERT Council, Tampa, Florida April, 28-30, 2003

[13] Public Notice. Termoutilizzatore: Emissioni in Regola. Giornale Di Brescia. Thursday October 19, 2000.

[14] L'Osservatorio, *Rapporto Dell'Osservatorio Sul Funzionamento del Termoutilizzatore di Brescia Relativo agli Anni 2002 e 2003.* Brescia, Italy. September 2004.

[15] Meeting. Hillsborough County Solid Waste Department and Florida DEP. Hillsborough County RRF Unit 4 Permit Status. May 11, 2006.

[16] Letter. Gorrie, J., CDM to Linero, A., Florida DEP. Supplemental Information Hillsborough County Resource Recovery Facility Expansion. Site Certification Application. January 17, 2006.

[17] Worldwide Web. Martin GmbH Website: www.martingmbh.de/englisch/index2.htm Technology and SNCR links. Accessed May 11, 2006.

REFERENCES

[1] Final Rule. National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines. Federal Register Vol. 69, No. 67, May 10, 2006. Pages 18327 – 18343.

[2] Memorandum and Attachments. Huckaby, J., Eastern Research Group to Stevenson, W., EPA Combustion Group. Large MWC 5-Year Review / Performance Analysis / Stack Test Pollutant. October 27, 2005.

[3] Worldwide Web. EPA Clean Air Markets. www.epa.gov/airmarkets/emissions/prelimarp/index.html Accessed May 14, 2006.

[4] Technical Note. Environment Agency of the United Kingdom and Wales and the Scottish Environment Agency. "Interim Sector Guidance for the incineration of waste and fuel manufactured from or including waste." Bristol, UK. 2001.

[5] Presentation. Seghers Keppel. Design, Construction, Start-up and Commissioning of a State-of-the-Art Water-Cooled Grate WtE-Plant for Örebro, Sweden. North American Waste-to-Energy Conference. Tampa, Florida. April 2003.

[6] Worldwide Web. Fueltech NV: www.fueltechnv.com Air Pollution Control links. Accessed January 2006.

[7] Bid Specification. Burns and Roe Enterprises. "Technical Specification for SNCR System – Hillsborough County WTE Facility Expansion". Issued September 3, 2004.

[8] Agenda Item Summary. Lee County Board of County Commissioners. Award of Formal Quotation RFP B&R 2661-M-310 and Issuance of Purchase Order to Fuel Tech for a Proprietary SNCR System. September 20, 2005.

[9] Letter. Sampson, L., Lee County to Vielhauer T., Florida DEP. Lee County Conditions of Certification – Make and Models of MWC, Pollution Control Equipment. January 8, 2006.

[10] Reference 5.

[11] Brochure. VonRollINOVA $DENO_X$ Processes. Available at VonRollINOVA webpage: www.vonrollinova.ch/site/english/dokumentation/pdf/vri_entstickung_e.pdf

[12] Lecture/Presentation. Bonomo, A., ASM Brescia S.p.a. Waste-to-Energy Advances: The Brescia Experience. Second Meeting of WTERT Council, Tampa, Florida April, 28-30, 2003

[13] Public Notice. Termoutilizzatore: Emissioni in Regola. Giornale Di Brescia. Thursday October 19, 2000.

[14] L'Osservatorio, *Rapporto Dell'Osservatorio Sul Funzionamento del Termoutilizzatore di Brescia Relativo agli Anni 2002 e 2003.* Brescia, Italy. September 2004.

[15] Meeting. Hillsborough County Solid Waste Department and Florida DEP. Hillsborough County RRF Unit 4 Permit Status. May 11, 2006.

[16] Letter. Gorrie, J., CDM to Linero, A., Florida DEP. Supplemental Information Hillsborough County Resource Recovery Facility Expansion. Site Certification Application. January 17, 2006.

[17] Worldwide Web. Martin GmbH Website: www.martingmbh.de/englisch/index2.htm Technology and SNCR links. Accessed May 11, 2006.

DRAFT

PERMITTEE

Hillsborough County
Department Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

DEP File No.: 0570261-007-AC
Permit No.: PSD-FL-369
Facility ID No.: 0570261
Project: Resource Recovery Facility Unit 4

PROJECT AND LOCATION

This permit authorizes the construction of a nominal 600 ton per day (TPD) Municipal Waste Combustor referred to as Unit 4 at the existing facility.

The existing facility, Hillsborough County Resource Recovery Facility (HCRRF), is located at 350 N. Falkenburg Road, Tampa, Hillsborough County. The UTM coordinates are Zone 17, 368.2 km East and 3092.7 km North; Latitude: 27° 57' 14" North and Longitude: 82° 40' 22" West.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the work specified in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

Appendices

The following Appendices are attached as part of this permit.

Appendix A	NSPS Subpart A, Identification of General Provisions
Appendix BD	Final BACT Determinations and Emissions Standards
Appendix Eb	NSPS Subpart Eb - Requirements for Municipal Waste Combustors
Appendix GC	General Conditions
Appendix SC	Standard Conditions

Expiration Date: December 31, 2009
Effective Date: {date signed below}

_____ _____
Director date
Division of Air Resource Management

D/AAL/sms

FACILITY DESCRIPTION

The existing facility, Hillsborough County Resource Recovery Facility (HCRRF), is located at 350 N. Falkenburg Road, Tampa, Hillsborough County.

The existing facility consists of three municipal waste combustors (MWCs), each having a nominal design rate capacity of 400 tons MSW (municipal solid waste) per day, 150 MMBtu per hour (excluding 9.9 MMBtu/hr from the combustion air preheaters) and 94,270 pounds steam per hour with MSW having a heating value of 4,500 Btu per pound.

The facility is owned by Hillsborough County and is currently operated by Covanta Hillsborough, Inc. a subsidiary of Covanta Energy Corporation. The Hillsborough County Resource Recovery Facility began operation in 1987.

PROJECT

The permittee, Hillsborough County, proposes to construct a new 600 ton per day (TPD) Municipal Waste Combustor referred to as Unit 4 at the existing facility. The nominal design rate capacity is 600 tons MSW per day, with a nominal heat input of 288 MMBtu per hour and maximum steam production of 163,780 pounds per hour. The new unit will be equipped with two natural gas-fired auxiliary burners, each with a nominal heat input of 50 MMBtu per hour. The new unit will be installed at the existing site. The flue for the new boiler is already encased in the existing stack. With the addition of the fourth unit, the existing 220 feet tall stack will contain four active flue streams. With the addition of this unit, the site capacity will increase from approximately 1,200 TPD to 1,800 TPD. The site's steam electric generating capacity will be increased from 39 MW to 47 MW (nominal).

The existing ash building and handling system will be expanded. Two new lime storage silos and a new activated carbon storage silo will be constructed for Unit 4.

Unit 4 will be a mass burn unit incorporating much of the same technology as the existing units including: combustion on a reverse-reciprocating grate system; ash discharge system; energy recovery through the furnace waterwall, superheater and economizers; electrical power production; and a pollution control system consisting of a spray dryer, fabric filter, activated carbon injection system and a selective non-catalytic reduction (SNCR). In addition the new unit will incorporate flue gas recirculation for energy efficiency and pollution reduction.

REGULATORY CLASSIFICATIONS

Section 111, Clean Air Act, Standards of Performance for New Stationary Sources (NSPS): The new unit is a large Municipal Waste Combustor (MWC) unit subject to 40CFR60, Subpart Eb - Standards of Performance for New Stationary Sources and Emission Guidelines for Municipal Waste Combustors.

Sec*tion 112, Clean Air Act, Hazardous Air Pollutants (HAPs):* The facility is a major source of HAPs. The maximum achievable control technology (MACT) requirements typically specified in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for this industry were included in 40CFR60, Subpart Eb as required by Section 169, Clean Air Act, Solid Waste Combustion.

Title IV, Acid Rain: The facility operates no units subject to the acid rain provisions of the Clean Air Act.

Title V, Clean Air Act, Permits: The facility is a Title V or "Major Source" of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year or because it is a Major Source of HAPs. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

Part C, Clean Air Act, Prevention of Significant Deterioration (PSD): The facility is located in an area that is designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is classified as a "municipal incinerator capable of charging more than 250 tons of refuse per day", which is one of the facility categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year, therefore the facility is classified as a "Major Stationary Source" with respect to Rule 62-212.400 F.A.C.

Stationary Sources - Emission Standards in Chapter 62-296, F.A.C.: The facility operates one or more units subject to emission standards. The new Unit 4 is subject to the mercury standard in Rule 62-296.416, F.A.C. The numerical mercury emissions limit under state Rule 62-296.416, F.A.C., is more stringent than the NSPS emissions limit.

Reasonable Available Control Technology (RACT): The entire State of Florida is either classified as attainment or considered to be in attainment (i.e., unclassifiable) with respect to the NAAQS for all pollutants. However, the facility is located in a maintenance area for ozone, particulate matter and lead. The VOC and NOx RACT provisions do not apply. The new unit has operations that are subject to PM RACT.

Siting: The facility was originally certified under PA83-19 pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

RELEVANT DOCUMENTS

- Received Site Certification and PSD application on November 21, 2005;
- Sufficiency information requested via Power Plant Siting Office on January 10, 2006;
- Supplemental information received on January 17, 2006;
- Received responses to sufficiency request on March 2, 2006;
- Siting Application found sufficient on March 31, 2006; and
- Intent to Issue PSD Permit distributed with Siting Staff Report on May 24, 2006.

GENERAL AND ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct, modify or operate this emissions unit shall be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and phone number 850/488-0114. Copies of these documents shall be submitted to the Compliance Authority.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications should be submitted to the compliance authority. The compliance authority is the Department's Southwest District Office at 13051 N. Telecom Parkway, Temple Terrace, FL 33637-0926.
3. General Conditions: The owner and operator are subject to, and shall operate under, the attached General Conditions listed in *Appendix GC* of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 51, 52, 60, 63, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
   [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. Construction and Expiration: The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. In conjunction with an extension of the 18-month period to commence or continue construction (or to construct the project in phases), the Department may require the permittee to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for emissions units regulated by the project. For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4), 62-4.080, 62-210.300(1), and 62-212.400(6)(b), F.A.C.]
6. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
7. Source Obligation.
   (a) Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the

time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit.

(b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification

(c) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

[Rule 62-212.400(12), F.A.C.]

8. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification.
[Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

9. Title V Permit: This permit authorizes construction of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emission units. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation and a copy to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

A. Common Conditions

The proposed new emissions units are:

E.U. ID No.	Emission Unit Description
-107	Nominal 288 MMBtu/hr Municipal Waste Combustor & Auxiliary Burners - Unit 4
-108	Pebble Lime Storage Silo - Unit 4
-109	Dolomitic Lime Storage Silo - Unit 4
-110	Activated Carbon Storage Silo - Unit 4
-111	Cooling Tower Cell

CONSTRUCTION ACTIVITIES

1. Unconfined Particulate Matter Emissions: Pursuant to Rules 62-296.320(4)(c)1., 3. & 4., F.A.C., reasonable precautions to prevent emissions of unconfined particulate matter include the following requirements consistent with current practices by the permittee:

   All roads shall be adequately paved, and vacuum swept if appropriate, to minimize accumulations of ash and dust. The unpaved areas of the facility will be maintained and either sodded or landscaped. Hoods, fans, filters, or similar equipment will be used to contain, capture, and/or vent particulate matter. The conveyor systems of the facility will be enclosed or covered. The ash will be wetted before being stored in the ash handling building. Speed limit signs shall be posted. Unprocessed refuse storage areas which must be open for operational purposes (e.g., tipping floor or the refuse bunker while trucks are entering or leaving) shall be under negative air pressure. [Rule 62-296.320(4)(c)2., F.A.C.; and, items proposed by the applicant.]

2. General Pollutant Emission Limiting Standards. Objectionable Odor Prohibited. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]

This section of the permit addresses the following emissions units.

Emissions Unit 107

Description: Emissions unit 107 consists of a nominal a nominal 600 TPD mass-burn municipal waste combustor (MWC) with two nominal 50 mmBtu/hr natural gas-fired auxiliary burners. The project will also include: a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; a urea reagent storage tank; and a new settling basin. Exhaust from the new unit will be directed to a separate flue already constructed within the existing 220 foot stack.

Steam Capacity: The maximum steam production rate is 164,000 pounds of steam per hour (4-hour block average). The nominal heat input to achieve this load is approximately 288 mmBtu/hour.

Controls: Controls consist of: efficient combustion on the grate and furnace; flue gas recirculation (FGR); a spray dryer/absorber in conjunction with a fabric filter (SD/FF) for control of acid gases, particulate matter, and most metals; activated carbon injection (ACI) to enhance mercury (Hg) removal; selective non-catalytic reduction (SNCR) by ammonia or urea injection for NO_X control.

Stack Parameters: The Department may require the permittee to perform additional air dispersion modeling should the actual specified stack dimensions change. The following summarizes the exhaust characteristics:

Fuel	Heat Input Rate	Exhaust Temp., °F	Flow Rate ACFM
MSW	~288 mmBtu/hour	270° F	~125,000

Continuous Monitors: The unit is equipped with continuous emissions monitoring systems (CEMS) to measure and record NO_X, CO, SO_2, and Hg as well as instrumentation to monitor steam flow, flue gas flow rate, oxygen, temperature, and opacity.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emission unit addressed in this section is subject to a Best Available Control Technology (BACT) determination for nitrogen oxides (NO_X), carbon monoxide (CO), MWC acid gases (SO_2+HCl); SO_2 as an individual pollutant, and MWC organics (dioxin/furan). [Rule 62-212.400, F.A.C.]

2. NSPS Requirements: The municipal waste combustor and auxiliary burners shall comply with all applicable requirements of 40 CFR 60, listed below, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by the applicable NSPS provisions. Some separate reporting and monitoring may be required by the individual subparts.

   (a) **Subpart A, General Provisions**, including:

   - 40 CFR 60.7, Notification and Record Keeping

- 40 CFR 60.8, Performance Tests
- 40 CFR 60.11, Compliance with Standards and Maintenance Requirements
- 40 CFR 60.12, Circumvention
- 40 CFR 60.13, Monitoring Requirements
- 40 CFR 60.19, General Notification and Reporting Requirements

(b) **Subpart Eb, Standards of Performance for Large Municipal Waste Combustors**

3. Emission Standards for Stationary Sources: This unit has a charging rate of 40 tons per day or more and is subject to the requirements of Stationary Sources – Emission Standards for Waste-To-Energy Facilities of Rule 62-296.416, F.A.C.

AIR POLLUTION CONTROL TECHNOLOGY

4. Control Equipment: The owner or operator shall install, operate and maintain the following air pollution control equipment consistent with the manufacturers' specifications.

NO_X Controls: A flue gas recirculation system (FGR) will be used to limit NO_X formation. A urea-based selective non-catalytic reduction (SNCR) system will be employed for the destruction of NO_X.

MWC Acid Gas Control: A spray dryer (SD) with lime injection will be installed to absorb MWC acid gases.

MWC Organics and Mercury (Hg): An activated carbon injection (ACI) system will be installed to adsorb MWC organics and mercury (Hg).

Particulate Matter (PM/PM_{10}): A fabric filter (FF) baghouse, including absorption/adsorption reagent, will be installed to remove particulate matter.

[BACT Determination, and Rules 62-4.070(1), and (3), F.A.C.]

OPERATIONAL DESCRIPTIONS AND LIMITATIONS

5. Nameplate: The combustor (boiler) shall have a metal name plate affixed in a conspicuous place on the shell showing the manufacturer, model number, type of waste, and rated capacity. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

6. Hours of Operation. This emissions unit may operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

7. Permitted Capacity. The maximum steam production rate shall not exceed 164,000 pounds steam per hour (on a 4-hour block arithmetic average).

{Permitting Note: The nominal capacity of Unit 4 is 600 tons per day and has been determined to be greater than 250 tons per day, thus classifying the unit as a "large MWC unit" under NSPS - 40 CFR 60, Subpart Eb.}

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., 40 CFR 60, Subpart Eb, and Design]

8. Maximum Demonstrated Municipal Waste Combustor Unit Load. Unit load means the steam load of the municipal waste combustor measured as specified in 40 CFR 60.58b(I)(6). Each unit shall not operate at a load level greater than 110 percent of the unit's "maximum demonstrated unit

load." Maximum demonstrated municipal waste combustor unit load means the highest 4-hour arithmetic average municipal waste combustor unit load achieved during four consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable limit for municipal waste combustor organics. Higher loads are allowed for testing purposes as specified in 40 CFR 60.53b(b). [40 CFR 60.34b(b), 60.51b, 60.53b(b), and 60.58b(I)(6)]

9. Prohibited Fuels:

   a. The facility shall not burn:

      i. those materials that are prohibited by state or federal law;
      ii. those materials that are prohibited by this permit;
      iii. lead acid batteries;
      iv. hazardous waste;
      v. nuclear waste;
      vi. radioactive waste;
      vii. sewage sludge;
      viii. explosives;
      ix. beryllium-containing waste, as defined in 40 CFR 61, Subpart C.

   b. Further, the facility shall not knowingly burn:

      i. nickel-cadmium batteries pursuant to Section 403.7192 (3);
      ii. mercury containing devices and lamps pursuant to Sections 403.7186(2), and (3);
      iii. untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from similar generators (or sources);
      iv. segregated loads of biological waste; and
      v. CCA treated wood.

10. Authorized Fuels. The primary fuel for the facility is municipal solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (1995). Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW which are described below:

    a. Subject to the conditions and limitations contained in this permit, the following other solid waste may be used as fuel at the facility:

       i. Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
       ii. Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
       iii. Wood pallets, clean wood, and land clearing debris;
       iv. Packaging materials and containers;
       v. Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or

vi. Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.

b. Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 3%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with **Specific Condition 36** of this subsection.

c. Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e. the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received as segregated loads and burned at the facility shall not exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with **Specific Condition 36** of this subsection.

i. Construction and demolition debris.
ii. Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.
iii. Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.
iv. Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.
v. Waste materials that:
   (a) are generated in the manufacture of items in categories (iii) or (iv), above and are functionally or commercially useless (expired, rejected or spent); or
   (b) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.
vi. Waste materials that contain oil from:
   (a) the routine cleanup of industrial or commercial establishments and machinery; or
   (b) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.
vii. Used oil and used oil filters. Used oil containing a PCB concentration equal or greater than 50 ppm shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).

{Permitting note: Waste materials specifically authorized above do not require Department approval.}

viii. Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW.

[Rule 62-4.070(1), and (3), F.A.C.]

11. Segregated Loads: The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is segregated non-MSW material, the fuel shall be either:

    a. well mixed with MSW in the refuse pit; or

    b. alternately charged with MSW in the hopper.

12. Combustion Practices: To ensure that the facility's fuel does not adversely affect the facility's combustion process or emissions, the facility operator shall:

    a. comply with good combustion operating practices in accordance with 40 CFR 60.53b;

    b. install, operate and maintain continuous emissions monitors (CEMS) for oxygen, carbon monoxide, sulfur dioxide, oxides of nitrogen and temperature in accordance with 40 CFR 60.58b; and

    c. record and maintain the CEMS data in accordance with 40 CFR 60.59b.

    These steps shall be used to ensure and verify continuous compliance with the emissions limitations in this permit.

    Natural gas may be used as fuel during warm-up, startup, shutdown, and malfunction periods, and at other times when necessary and consistent with good combustion practices.

MONITORING OF OPERATIONS

13. Continuous Steam Flow Monitoring: Municipal waste combustor unit load means the steam load of the municipal waste combustor unit measured as specified in §60.58b(i)(6). The owner or operator shall install, calibrate, maintain, and operate a steam flow meter, measure steam flow in kilograms (or pounds) per hour on a continuous basis, and record the output of the monitor (in accordance with the ASME method described in 40 CFR 60.58b(i)(6)). Steam flow shall be calculated in 4-hour block arithmetic averages. Higher unit loads are allowed for testing purposes pursuant to 40 CFR 60.53b(b).
    [Rules 62-204.800(8) and 62-4.070(1), and (3), F.A.C., and 40 CFR 60.53(a), and 60.58b(i)]

EMISSIONS STANDARDS

14. Emissions from Unit 4 shall not exceed the emissions standards listed in the following table or in **Specific Conditions 15-22** and using the test methods and procedures described in **Specific Conditions 23-27**.

Pollutant	Emission Standard/Limit[1]	Lb/hour	Basis
Nitrogen Oxides (NO_X)	1st year of operation: 150 ppmvd - 24 hour block average and 110 ppmvd- 30 day rolling average	 79.8 58.5	 Subpart Eb Limit PTE
	Thereafter: 110 ppmvd - 24 hour block average and 90 ppmvd - 12 month rolling average	 58.5 47.9	 BACT BACT
Carbon Monoxide (CO)	80 ppmvd – 30-day rolling avg. 100 ppmvd - 4 hr block average	25.9 32.4	BACT BACT/Eb
Sulfur Dioxide (SO_2)	26 ppmvd - 24 hour block average or 80% reduction[2]	19.2	BACT/Eb
Hydrogen Chloride (HCl)	25 ppmvd or 95% reduction[2]	25.4	BACT/Eb
Particulate Matter (PM/PM_{10})	12.0 mg/dscm	3.3	Avoid PSD
Lead (Pb)	140 µg/dscm	NA	Subpart Eb
Mercury (Hg)	28 µg/dscm or 85% reduction[2]	0.022	Avoid PSD/Eb
Cadmium (Cd)	10 µg/dscm	NA	Subpart Eb
Dioxins/Furans[3]	13.0 ng/dscm	3.61×10^{-6}	BACT/Eb
Opacity	10 % - 6 minute average	NA	BACT/Eb
Ammonia Slip	@ 195 MMBtu/hr: 10 ppmvd @ 260 MMBtu/hr: 15 ppmvd	NA	PM, Opacity.

[1] All concentration values are corrected to 7% O_2.
µg/dscm: Micrograms per dry standard cubic meter
mg/dscm: Milligrams per dry standard cubic meter
ng/dscm: Nanograms per dry standard cubic meter
ppm: Part per million dry volume
NA: not applicable

[2]Whichever standard is less stringent.

[3]Dioxins/ furans: Total tetra through octa-chlorinated dibenzo-p-dioxins and dibenzofurans

[40 CFR 60.44b, Rules 62-210.200, 62-210.200(BACT), 62-204.800(8), 62-4.070, F.A.C.]

15. Nitrogen Oxides (NO_X): During the first calendar year of operation, emissions of NO_X in the stack exhaust gas as measured by the required CEMS shall exceed neither 150 ppmvd on a 24-hr daily arithmetic average nor 79.8 lb/hr and shall exceed neither 110 ppmvd nor 58.5 lb/hr on a 30-operating day rolling average.

    Thereafter, emissions of NO_X in the stack exhaust gas as measured by the required CEMS shall exceed neither 110 ppmvd nor 58.5 lb/hr on a 24-hr daily arithmetic average and shall exceed neither 90 ppmvd nor 47.9 lb/hr on a 12-month rolling average, rolled monthly.

16. Carbon Monoxide (CO): Emissions of CO in the stack exhaust gas as measured by the required CEMS shall exceed neither 100 ppmvd on a 4-hr block average nor 32.4 lb/hr and shall exceed neither 80 ppmvd nor 25.9 lb/hr on a 30-operating day rolling average.

17. Sulfur Dioxide (SO_2): Emissions of SO_2 as measured by the required CEMS shall exceed neither 26 ppmvd nor 19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved.

18. Hydrogen Chloride (HCl): Emissions of HCl shall exceed neither 25 ppmvd nor 25.4 lb/hr or, an emissions reduction 95 percent shall be achieved as demonstrated during the required stack test.

19. Mercury Hg: Emissions of Hg shall not exceed 28 µg/dscm or an emissions reduction of 85 percent shall be achieved as demonstrated during the required annual stack test.

    During the first two years of operation, emissions of Hg shall not exceed.0.022 lb/hr as measured during quarterly stack tests to provide reasonable assurance that 12-month emissions are less than the applicable PSD threshold of 200 lb/yr.

    Thereafter, the owner or operator may demonstrate compliance with all Hg limits in this permit with data collected from the required Hg-CEMS as described in **Specific Condition 26.** Otherwise, the required quarterly testing for mercury shall continue.

20. Dioxins/Furans: Emissions of dioxins/furans shall exceed neither 13.0 ng/dscm nor 3.61×10^{-6} lb/hr.

21. Particulate Matter (PM/PM_{10}): Emissions of PM shall exceed neither 12.0 mg/dscm nor 3.3 lb/hr. This will simultaneously demonstrate compliance with the PM_{10} limits.

    {Permitting note: Compliance with this condition will also demonstrate that emissions are less than the 15 TPY PSD thresholds for PM_{10} and MWC-Metals.}

22. Opacity: Visible emissions shall not exceed 10 percent opacity on a 6-minute average as measured by the required continuous opacity monitoring system (COMS) and measured by an annual visible emissions test (VE).

TEST METHODS AND PROCEDURES

23. Test Methods: Any required stack test shall be performed in accordance with the following methods.

EPA Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content. Methods shall be performed as necessary to support other methods.
5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
6C	Determination of SO_2 Emissions (Instrumental).
7E	Determination of NO_X Emissions (Instrumental). NO_X emissions testing shall be conducted with the air heater operating at the highest heat input possible during the test.
9	Visual Determination of Opacity
10	Measurement of Carbon Monoxide Emissions (Instrumental). The method shall be based on a continuous sampling train.
23	Measurement of Dioxin/Furan Emissions
26 or 26A	Determination of Hydrogen Chloride Emissions
29	Determination of Metals Emissions from Stationary Sources
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source • This is an EPA conditional test method. • The minimum detection limit shall be 1 ppm.

Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". The other methods are specified in Appendix A of 40 CFR 60, adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. Tests shall be conducted in accordance with the appropriate test method and the applicable requirements specified in this permit, and NSPS Subpart A in 40 CFR 60. [Rules 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

24. Testing Requirements: Initial tests shall be conducted between 90% and 100% of permitted capacity; otherwise, this permit shall be modified to reflect the true maximum capacity as constructed. Subsequent annual tests shall be conducted between 90% and 100% of permitted capacity in accordance with the requirements of Rule 62-297.310(2), F.A.C. [Rule 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

25. Initial Compliance Demonstration: Initial compliance stack tests shall be conducted within 60 days after achieving the maximum production rate, but not later than 180 days after the initial startup. In accordance with the test methods specified in this permit, Unit 4 exhaust stack gas shall be tested to demonstrate compliance with the emission standards for NO_X, CO, SO_2, HCl, PM/PM_{10}, lead, cadmium, Hg, dioxin/furans, and ammonia. The permittee shall provide the Compliance Authority

with any other initial emissions performance tests conducted to satisfy vendor guarantees. [Rule 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

26. Subsequent Compliance Testing: Annual compliance stack tests for NO_X, CO, SO_2, HCl, PM/PM_{10}, lead, cadmium, dioxins/furans, and ammonia shall be conducted during each federal fiscal year (October 1st to September 30th). Data collected from the reference method during the required RATA tests for CO, NO_X, and SO_2 may be used to satisfy the annual testing requirement provided the notification requirements and emission testing requirements for performance and compliance tests of this permit are satisfied.

    Performance tests for Hg emissions shall be conducted on a calendar year basis to demonstrate compliance with the concentration/reduction standards. Performance tests to demonstrate compliance with the lb/hr Hg standard shall be conducted on a quarterly basis.

    Following the first two years of operation, the owner or operator may demonstrate compliance with the Hg limits in this permit using the required Hg CEMS in lieu of the quarterly and annual testing requirements provided all provisions of **Specific Condition 35** and subpart 40 CFR 60.58b(n) and (o) are met. Otherwise, the required quarterly testing for mercury shall continue.

    [Rules 62-297.310(7)(a) and (b), and 62-296.416, F.A.C., and 40 CFR 60.8 and 60.58b]

27. Continuous Compliance: The permittee shall demonstrate continuous compliance with the CO, NO_X, and SO_2 emissions standards based on data collected by the certified CEMS. The permittee shall demonstrate continuous compliance with the opacity limit based on data collected by the required COMS. [Rule 62-210.200 (BACT), F.A.C., and 40 CFR 60, Subpart Eb]

EXCESS EMISSIONS

28. Department Regulations: The following conditions apply only to the emissions limits given in **Specific Conditions 14-22** that were specified pursuant to BACT or to avoid PSD applicability.

    a. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration. The Department authorizes three hours in any 24-hour period for this emissions unit. A malfunction means any unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner.

    b. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited.

    c. The permittee shall notify the Compliance Authority within one working day of discovering any emissions in excess of a CEMS standard subject to the specified averaging period. All such reasonably preventable emissions shall be included in any CEMS compliance determinations. All valid emissions data (including data collected during startup, shutdown and malfunction) shall be used to report emissions for the Annual Operating Report.

    [Rule 62-210.700, F.A.C.]

{Permitting Note: The Excess Emissions Rule at Rule 62-210.700, F.A.C., cannot vary or supersede any requirement of an NSPS or NESHAP provision.}

29. Regulations pursuant to 40 CFR 60, Subpart Eb: The following conditions apply only to the emissions limits given in **Specific Conditions 14-22** that were specified pursuant to 40 CFR 60, Subpart Eb.

    a. *The opacity standards* set forth in 40 CFR 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c)]

    b. *Startup, Shutdown and Malfunction.* Except as provided by 40 CFR 60.56b, the standards under 40 CFR 60, Subpart Eb, as incorporated in Rule 62-204.800(8)(b), F.A.C., apply at all times except during periods of startup, shutdown, or malfunction. Duration of startup or shutdown periods are limited to 3 hours per occurrence, except as provided in 40 CFR 60.58b(a)(1)(iii). During periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with the provisions of 40 CFR 60.59b(d)(7).

        i. The startup period commences when the affected facility begins the continuous burning of municipal solid waste and does not include any warm-up period when the affected facility is combusting fossil fuel or other non-municipal solid waste fuel, and no municipal solid waste is being fed to the combustor.

        ii. Continuous burning is the continuous, semi-continuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning.

    [40 CFR 60.58b(a)]

    c. *Special Provisions for CO*: For the purpose of compliance with the carbon monoxide emission limits in 40 CFR 60.53b(a), if a loss of boiler water level control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence.
    [40 CFR 60.58b(a)(1)(iii)]

CONTINUOUS MONITORING REQUIREMENTS

30. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of CO, NO_X, Hg and SO_2 from Unit 4 in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this subsection. All continuous monitoring systems other than the Hg CEMS shall be installed and functioning within the required performance specifications by the time of the initial performance tests. The Hg CEMS shall be installed and functioning within the required performance specifications by the end of the second year of operation as specified in **Specific Condition 35**.

a. *CO Monitor:* The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

b. *NO_X Monitor:* The NO_X monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2 and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The required RATA tests shall be performed using EPA Method 7E in Appendix A of 40 CFR 60. The NO_X monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

a. *SO2 Monitor.* The SO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2 and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The required RATA tests shall be performed using EPA Method 6C in Appendix A of 40 CFR 60. The SO_2 monitor span values shall be set appropriately, considering the expected range of emissions and corresponding emission standards.

b. *Diluent Monitor.* A continuous emission monitoring system for measuring the oxygen content of the flue gas at each location where carbon monoxide, sulfur dioxide, nitrogen oxides emissions are monitored shall be installed, calibrated, maintained, and operated in accordance with the requirements of 40 CFR 60.58b.

c. *Mercury Monitor.* A mercury monitor (Hg CEMS) shall be installed and operated as described in **Specific Condition 35** below.

31. COMS: A continuous opacity monitoring system (COMS) shall be installed, calibrated, operated, and maintained in exhaust stack in a manner sufficient to demonstrate continuous compliance with the opacity standard specified in this section. Opacity shall be based on a 6-minute block average computed from at least one observation (measurement) every 15 seconds. For the COMS, the 6-minute block averages shall begin at the top of each hour. The COMS shall meet the applicable requirements of 40 CFR 60.58b(c)(8).

32. CEMS/COMS Certification and Initial Startup: Each CEMS/COMS, other than the Hg CEMS, required by this permit shall be installed prior to startup. Within 60 calendar days of achieving the maximum production rate, but no later than 180 calendar days after initial startup, the owner or operator shall certify each CEMS/COMS. Upon certification of each CEMS/COMS, the owner or operator shall demonstrate compliance with all applicable standards as specified in this permit. The Hg CEMS shall be installed and functioning within the required performance specifications within the first two years of operation as specified in **Specific Condition 35**. [Rules 62-4.070(3),

62-210.800, 62-210.200(BACT) and 62-297.520, F.A.C.; 40 CFR 60.7(a), 60.13(b), and 60.58b, and Appendix B]

33. CEMS Data Requirements: The CEMS shall express the results in the units of the applicable standard and in accordance with 40 CFR 60 subparts A, and Eb.

    a. *Data Exclusion*: Except for monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, each CEMS shall monitor and record emissions during all operations including episodes of startups, shutdowns, and malfunctions. Limited amounts of CEMS emissions data (other than mercury data) recorded during some of these episodes may be excluded from the corresponding compliance demonstration subject to the provisions of **Specific Conditions 28 and 29** in this subsection. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable.

    b. *Availability*. Monitor availability for each CEMS used to demonstrate compliance shall be 95% or greater in any calendar quarter. Monitor availability shall be reported in the quarterly excess emissions report. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Compliance Authority. The monitor availability requirements of this condition do not apply to the Hg CEMS for the first two years of operation of the CEM system. (This is consistent with the Hg CEMS availability requirement of subpart Eb.)

34. Continuous Flow Monitor: A continuous flow monitor shall be installed to determine the stack exhaust flow rate to be used in determining mass emission rates. The flow monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 6.
[Rules 62-210.200(BACT), 62-204.800(8), and 62-4.070(1) and (3), F.A.C.]

35. Mercury Continuous Emissions Monitoring System (Hg-CEMS): Within 24 months of commencing operation, the owner or operator shall install and certify a mercury CEMS demonstrated to meet the requirements in Performance Specification 12A (PS-12A), "Specifications and Test Procedures for Total Vapor phase Mercury Continuous Monitoring Systems in Stationary Sources," or that has passed verification tests conducted under the auspices of the U.S. Environmental Protection Agency's (EPA) Environmental Technology Verification (ETV) Program. If the vendor provides to the Department verification of certification difficulties such that the CEMS cannot be certified by the certification deadline, and every reasonable effort has been made to do so, the Department shall grant a reasonable extension of time to certify the CEMS. After certification the owner or operator will begin reporting Hg mass emissions data. The owner or operator shall adhere to the calibration drift and quarterly performance evaluation procedures and ongoing data quality assurance procedures in 40 CFR Part 60, Appendix F or 40 CFR Part 75, Appendix B. The mass emissions shall be estimated based on the actual data collected no later than 10 days following the end of the month. The mercury monitoring data results shall be submitted quarterly. The CEMS shall only be used as the method of compliance if the owner or operator, at a minimum, meets the requirements of 40 CFR 60.58b(n). Prior to use of

the Hg-CEMS as the method to demonstrate compliance, the owner or operator shall submit written notice to the Department, and receive approval for missing data substitution and a data calculation approach plans.
[Rules 62-4.070(1) and (3), and 62-210.200(BACT), F.A.C., 40 CFR 60.58b, and, Hillsborough County Environmental Protection Commission Local Ordinance 1-3.53.1(f), *Municipal Solid Waste Incinerators* (for Hg monitoring)]

REPORTING AND RECORD KEEPING REQUIREMENTS

36. Segregated Solid Waste Record Keeping: The following records shall be made and kept to demonstrate compliance with the segregated non-MSW percentage limitations of **Specific Condition 10** of this subsection:

    a. Each segregated load of non-MSW materials, subject to the percentage weight limitations of **Specific Condition 10,** which is received for processing, shall be documented as to waste description and weight. The weight of all waste materials received for processing shall be measured using the facility truck scale and recorded.

    b. Each day the total weight of segregated tires received shall be computed, and the daily total 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 shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 3% limitation.

    c. Each day the total weight of segregated non-MSW materials received that are subject to the 5% restriction shall be computed, and the daily total 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 segregated non-MSW materials subject to the 5% restriction shall be divided by the total weight of all waste materials received in the same calendar month, [illegible] shall be multiplied by 100 to express the ratio in percentage terms. [illegible] shall be compared to the 5% limitation.

[Rules [illegible] (3), and 62-210.200(BACT), F.A.C.]

37. Test [illegible] owner or operator of an emissions unit for which a compliance test is [illegible] shall [illegible] with the Compliance Authority on the results of each such test. The [illegible] report [illegible] filed with the Compliance Authority as soon as practical but no later than [illegible] the last [illegible] run of each test is completed. The test report shall provide sufficient [illegible] emissions unit [illegible] ted and the test procedures used to allow the Compliance Authority to [illegible] were properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the specified in Rule 62-297.310(8), F.A.C. [Rule 62-297.310(8), F.A.C.]

38. Malfunction Notifications: If temporarily unable to comply with any condition of the permit due to breakdown of equipment (malfunction) or destruction by hazard of fire, wind or by other cause, the permittee shall immediately (within one working day) notify the Compliance Authority. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward

reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with Department rules. If requested by the Compliance Authority, the owner or operator shall submit a quarterly written report describing the malfunction. [Rules 62-210.700(6) and 62-4.130, F.A.C.]

39. SIP Quarterly Report: Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing: equipment malfunctions resulting in excluded CEMS data and/or excess emissions; and the monitor availability of each CEMS. The report shall contain the information and follow the general format specified in 40 CFR 60.7(c), subpart A. [Rules 62-4.070(3), 62-4.130, and 62-210.200(BACT), F.A.C.]
40. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370, F.A.C

C. Lime and Carbon Storage Silos

This section addresses the following emissions units.

E.U. ID No.	Brief Description
108	Pebble Lime Storage Silo - Unit 4
109	Dolomitic Lime Storage Silo - Unit 4
110	Activated Carbon Storage Silo - Unit 4

EQUIPMENT AND CONTROL TECHNOLOGY

1. Equipment Description: The permittee is authorized to construct one pebble lime storage silo, one dolomitic lime storage silo, and one activated carbon storage silo. Each silo will have a volume of approximately 2,900 cubic feet and will be equipped with its own fabric filter baghouse.
2. Baghouse Controls: Each emissions unit identified for lime and carbon storage shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.015 gr/dscf.

PERFORMANCE REQUIREMENTS

3. Hours of Operation. These emission units may operate continuously (8,760 hours/year). [Rules 62-4.160(2), and 62-210.228(PTE), F.A.C.]
4. Emissions Limits: The following standards apply to each emissions point of this unit:
   a. Visible emissions are limited to 5% opacity from each of the above listed emissions points controlled by a baghouse.
   b. Fugitive emissions are limited to 10% opacity from any emissions point not controlled by a baghouse.

   [Rule 62-070(3), F.A.C.]

   {Note: The baghouses are designed to control PM emissions to 0.015 grains/dry standard cubic foot (gr/dscf). The 5% opacity limitation is consistent with this design and provides reasonable assurance that annual emissions of PM/PM_{10} for all emission points in this emission unit system will be less than 0.5 TPY.}

   [Rules 62-4.070(3), F.A.C.]
5. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits for each emission point shall be demonstrated during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3), and 62-297.310(7)(a), F.A.C]
6. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

C. Lime and Carbon Storage Silos

REPORTING AND RECORD KEEPING

7. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), F.A.C.]

8. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)
D. Cooling Tower

This section of the permit addresses the following new emissions unit.

ID	Emission Unit Description
111	One Cooling Tower Cell

EQUIPMENT

1. Cooling Tower: The permittee is authorized to construct one cooling tower cell with the following nominal design characteristics: a circulating water flow rate of 11,000 gpm; drift eliminators; a drift rate of no more than 0.001 percent of the circulating water flow. [Application; Design]

EMISSIONS AND PERFORMANCE REQUIREMENTS

2. Drift Rate: Within 60 days of commencing commercial operation, the permittee shall certify that the cooling tower was constructed to achieve the specified drift rate of no more than 0.001 percent of the circulating water flow rate. [Rule 62-210.200(BACT), F.A.C.]

{Permitting Note: This work practice standard is established as BACT avoidance for PM/PM_{10} emissions from the cooling tower. Based on this design criteria, potential emissions are expected to be less than 0.5 tons of PM per year and less than 0.25 tons of PM_{10} per year. Actual emissions are expected to be lower than these rates.}

APPENDIX A - NSPS SUBPART A, IDENTIFICATION OF GENERAL PROVISIONS

Emissions units subject to a New Source Performance Standard of 40 CFR 60 are also subject to the applicable requirements of Subpart A, the General Provisions, including:

§ 60.1 Applicability.

§ 60.2 Definitions.

§ 60.3 Units and abbreviations.

§ 60.4 Address.

§ 60.5 Determination of construction or modification.

§ 60.6 Review of plans.

§ 60.7 Notification and Record Keeping.

§ 60.8 Performance Tests.

§ 60.9 Availability of information.

§ 60.10 State Authority.

§ 60.11 Compliance with Standards and Maintenance Requirements.

§ 60.12 Circumvention.

§ 60.13 Monitoring Requirements.

§ 60.14 Modification.

§ 60.15 Reconstruction.

§ 60.16 Priority List.

§ 60.17 Incorporations by Reference.

§ 60.18 General Control Device Requirements.

§ 60.19 General Notification and Reporting Requirements.

Individual subparts may exempt specific equipment or processes from some or all of these requirements. The general provisions may be provided in full upon request.

APPENDIX BD – BACT DETERMINATION

Refer to the draft BACT proposal discussed in the initial Technical Evaluation for this project and to the Final Determination issued with the Final permit for the rationale regarding the following BACT determination.

Pollutant	Emission Standard/Limit[1]	Lb/hour	Basis
Nitrogen Oxides (NO_X)	110 ppmvd - 24 hour block average and 90 ppmvd - 12 month rolling average	58.5 47.9	BACT BACT
Carbon Monoxide (CO)	80 ppmvd – 30-day rolling avg. 100 ppmvd - 4 hr block average	25.9 32.4	BACT BACT/Eb
Sulfur Dioxide (SO_2)	26 ppmvd - 24 hour block average or 80% reduction[2]	19.2	BACT/Eb
Hydrogen Chloride (HCl)[3]	25 ppmvd or 95% reduction[2]	25.4	BACT/Eb
Dioxins/Furans[4]	13.0 ng/dscm	3.61×10^{-6}	BACT/Eb
Opacity	10 % - 6 minute average	NA	BACT/Eb

[1] All concentration values are corrected to 7% O_2.
µg/dscm: Micrograms per dry standard cubic meter
mg/dscm: Milligrams per dry standard cubic meter
ng/dscm: Nanograms per dry standard cubic meter
ppm: Part per million dry volume
NA: not applicable

[2] Whichever standard is less stringent.

[3] HCl is not a BACT pollutant. However, it must be limited together with SO_2 because they both comprise MWC-Acid Gases which has its own PSD threshold.

[4] Dioxins/ furans: Total tetra through octa-chlorinated dibenzo-p-dioxins and dibenzofurans

1. Nitrogen Oxides (NO_X): Emissions of NO_X in the stack exhaust gas as measured by the required CEMS shall exceed neither 110 ppmvd nor 58.5 lb/hr on a 24-hr daily arithmetic average and shall exceed neither 90 ppmvd nor 47.9 lb/hr on a 12-month rolling average, rolled monthly.

2. Carbon Monoxide (CO): Emissions of CO in the stack exhaust gas as measured by the required CEMS shall exceed neither 100 ppmvd on a 4-hr block average nor 32.4 lb/hr and shall exceed neither 80 ppmvd nor 25.9 lb/hr on a 30-operating day rolling average.

3. Sulfur Dioxide (SO_2): Emissions of SO_2 as measured by the required CEMS shall exceed neither 26 ppmvd nor 19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved.

4. Hydrogen Chloride (HCl): Emissions of HCl shall exceed neither 25 ppmvd nor 25.4 lb/hr or, an emissions reduction 95 percent shall be achieved as demonstrated during the required stack test.

5. Dioxins/Furans: Emissions of dioxins/furans shall exceed neither 13.0 ng/dscm nor 3.61×10^{-6} lb/hr.

   {Permitting note: Compliance with this condition will also demonstrate that emissions are less than the 15 TPY PSD thresholds for PM_{10} and MWC-Metals}

6. Opacity: Visible emissions shall not exceed 10 percent opacity on a 6-minute average as measured by the required continuous opacity monitoring system (COMS) and measured by an annual visible emissions test (VE).

   [40 CFR 60.44b, Rules 62-210.200, 62-210.200(BACT), 62-204.800(8), 62-4.070, F.A.C.]

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

A. A. Linero, P.E., Program Administrator
South Permitting Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

Trina L. Vielhauer, Chief
Bureau of Air Regulation

Date

Approved By:

Joseph H. Kahn, Director
Division of Air Resources Management

Date

APPENDIX EB - Standards of Performance For Large Municipal Waste Combustors.

Applicability of 40CFR60, Subpart Eb- Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996.

The proposed Hillsborough County Resource Recovery Facility Unit 4 is a new Large Municipal Waste Combustor (Large MWC) because it is a waste combustion unit that is capable of combusting more than 250 tons per day (TPD) of municipal solid waste (MSW).

The rules applicable to Large MWC's are given at 40CFR60, Sections 60.50b through 60.59b. More specifically, Unit 4 is a Mass Burn Waterwall Furnace. The emission limits applicable to this category of MWC are specified by type of combustor in the relevant sections, paragraphs and tables that address individual pollutants including CO, NO_X, SO_2, HCl, PM, dioxin/furan, opacity, Cd, Hg, Pb, and various emission monitoring and operational parameters.

Subpart 40CFR60, Subpart Eb was revised on May 10, 2006 just a few days prior to preparation of the draft permit for Unit 4. The Department is revising the Subpart description normally included in this appendix to reconcile the new requirements with the previous ones. An updated and complete Appendix Eb highlighting the requirements applicable to Unit 4 will be included in the final permitting action if and when issued.

The Department has insured that Permit is at least as stringent as the requirements of the revised Subpart Eb. Particular attention has been given to the revised PM, Pb, Cd and Hg including the use of Hg-CEMS.

The previous version of 40CFR60, Subpart Eb with links to the May 10, 2006 changes is available at:

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=e62a6113b2c8fd1679806489b479eab4&rgn=div6&view=text&node=40:6.0.1.1.1.15&idno=40

Appendix - Construction Permit General Conditions

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

   a. Have access to and copy and records that must be kept under the conditions of the permit;
   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. A description of and cause of non-compliance; and

   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

   The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (X);
    b. Determination of Prevention of Significant Deterioration (X);
    c. Compliance with National Emission Standards for Hazardous Air Pollutants ( ); and
    d. Compliance with New Source Performance Standards (X).

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:

        1) The date, exact place, and time of sampling or measurements;
        2) The person responsible for performing the sampling or measurements;
        3) The dates analyses were performed;
        4) The person responsible for performing the analyses;
        5) The analytical techniques or methods used; and
        6) The results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Appendix SC - Construction Permit Standard Conditions

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this facility.

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]

2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permitee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]

7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and62-210.200(203), F.A.C.]

8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]

9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

TESTING REQUIREMENTS

10. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]

12. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

13. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.

    a. Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

    b. Minimum Sample Volume. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

    c. Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

    [Rule 62-297.310(4), F.A.C.]

14. Determination of Process Variables

    a. Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

    b. Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

    [Rule 62-297.310(5), F.A.C.]

15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.

16. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]

17. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

18. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide

sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1) The type, location, and designation of the emissions unit tested.
2) The facility at which the emissions unit is located.
3) The owner or operator of the emissions unit.
4) The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5) The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6) The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7) A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8) The date, starting time and duration of each sampling run.
9) The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10) The number of points sampled and configuration and location of the sampling plane.
11) For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12) The type, manufacturer and configuration of the sampling equipment used.
13) Data related to the required calibration of the test equipment.
14) Data on the identification, processing and weights of all filters used.
15) Data on the types and amounts of any chemical solutions used.
16) Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17) The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18) All measured and calculated data required to be determined by each applicable test procedure for each run.
19) The detailed calculations for one run that relate the collected data to the calculated emission rate.
20) The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21) A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

RECORDS AND REPORTS

19. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

20. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C

7000 1670 0013 3110 1571

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Pam Iorio
City of Tampa, Mayor's Office
306 East Jackson Street
Tampa, Florida 33602

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X CITY OF TAMPA ☑ Ag ☐ Ad

B. Received by (Printed Name) C. Date of 5-30

D. Is delivery address different from item 1? ☐ Ye ☑ No
If YES, enter delivery address below:

TAMPA FL MAY 30 2006 USPS 33602

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Mer
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Y

2. Article Number (Transfer from service label) 7000 1670 0013 3110 15

PS Form 3811, February 2004 Domestic Return Receipt 102595

PS Form 3800, May 2000 See Reverse for Instructions

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)

Postmark Here

OFFICIAL USE

Mayor Pam Iorio
City of Tampa, Mayor's Office
306 East Jackson Street
Tampa, Florida 33602

7000 1670 0013 3110 1663

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Barry M. Boldissar, Director
Hillsborough County Department
of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X CLERK OF CIRCUIT COURT MAIL SERVICES

B. Received by (Printed Name) C. Date

D. Is delivery address different from item 1? ☐
If YES, enter delivery address below: ☐

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for M
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐

2. Article Number (Transfer from service label) 7000 1670 0013 3110 1663

PS Form 3811, February 2004 Domestic Return Receipt 10

PS Form 3800, May 2000 See Reverse for Instruc

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)

Postmark Here

Mr. Barry M. Boldissar, Director
Hillsborough County Department
of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

7000 1670 0013 3110 1649

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Jim Norman, Chair
Hillsborough County Board
of County Commissioners
Post Office Box 1110
Tampa, Florida 33601

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X CLERK OF CIRCUIT COURT MAIL SERVICES

B. Received by (Printed Name) C. D

D. Is delivery address different from item 1?
If YES, enter delivery address below:

MAY 30 2006

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee)

2. Article Number (Transfer from service label) 7000 1670 0013 3110 16

PS Form 3811, February 2004 Domestic Return Receipt 10

PS Form 3800, May 2000 See Reverse for Instructions

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)

Postmark Here

Mr. Jim Norman, Chair
Hillsborough County Board of
of County Commissioners
Post Office Box 1110
Tampa, Florida 33601

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

December 7, 2005

Mr. Gregg M. Worley, Chief
Air Permits Section
U.S. EPA, Region 4
61 Forsyth Street
Atlanta, Georgia 30303-8960

RE: Hillsborough County Resource Recovery
Facility Expansion, Unit 4
0570261-007-AC, PSD-FL-369

Dear Mr. Worley:

Enclosed for your review and comment is a PSD application submitted by Hillsborough County to construct a new 600 ton-per-day boiler (Unit 4) at their resource recovery facility in Tampa, Hillsborough County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/921-9533. If you have any questions, please contact Scott Sheplak, review engineer, at 850/921-9532.

Sincerely,

Patty Adams

for A. A. Linero, P.E., Administrator
South Permitting Section

AAL/pa

Enclosure

cc: S. Sheplak

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

December 7, 2005

Mr. John Bunyak, Chief
Policy, Planning & Permit Review Branch
NPS – Air Quality Division
P. O. Box 25287
Denver, Colorado 80225

RE: Hillsborough County Resource Recovery
Facility Expansion, Unit 4
0570261-007-AC, PSD-FL-369

Dear Mr. Bunyak:

Enclosed for your review and comment is a PSD application submitted by Hillsborough County to construct a new 600 ton-per-day boiler (Unit 4) at their resource recovery facility in Tampa, Hillsborough County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/921-9533. If you have any questions, please contact Scott Sheplak, review engineer, at 850/921-9532.

Sincerely,

Patty Adams

for A. A. Linero, P.E., Administrator
South Permitting Section

AAL/pa

Enclosure

cc: S. Sheplak

PEEL HERE PEEL HERE

Please fold or cut in half

DO NOT PHOTOCOPY

Using a photocopy could delay the delivery of your package and will result in additional shipping charge

SENDER'S RECEIPT
Waybill #: 28995278351

To(Company):
National Park Service
Air Division
12795 W. Alameda Parkway

Lakewood, CO 80228
UNITED STATES

Attention To: Mr. John Bunyak
Phone#: 303-966-2818

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 15.96
Protection: Not Required
Description: PSD-FL-369 application

Weight (lbs.): 4
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 12:00 (Next business day by 12 PM)

Special Svc:

Date Printed: 12/7/2005
Bill Shipment To: Sender
Bill To Acct: 778941286

DHL Signature (optional) _____ Route _____ Date _____ Time _____

For Tracking, please go to www.dhl-usa.com or call 1-800-225-5345

Thank you for shipping with DHL

Create new shipment ▶ View pending shipments Print waybill

▲ PEEL HERE PEEL HERE ▲

Please fold or cut in half

DO NOT PHOTOCOPY

Using a photocopy could delay the delivery of your package and will result in additional shipping charge

SENDER'S RECEIPT
Waybill #: 28995361356

To(Company):
U.S. EPA Region 4
Air Permits Section
61 Forsyth Street

Atlanta, GA 30303
UNITED STATES

Attention To: Mr. Gregg M. Worley
Phone#: 404-562-9141

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 6.1
Protection: Not Required
Description: PSD-FL-369 application

Weight (lbs.): 4
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 12:00 (Next business day by 12 PM)

Special Svc:

Date Printed: 12/7/2005
Bill Shipment To: Sender
Bill To Acct: 778941286

DHL Signature (optional) _____ Route _____ Date _____ Time _____

For Tracking, please go to www.dhl-usa.com or call 1-800-225-5345

Thank you for shipping with DHL

Create new shipment ▶ View pending shipments Print waybill

5505 5515

MS#____

Department of Environmental Protection
2600 Blair Stone Rd
Tallahassee FL 32399-2400

$04.05
US POSTAGE

Mary -
I can't read the address on the label but according to the application it should be:
1715 N. Westshore Blvd.
suite 875
Tampa FL 33607

RECEIVED
JUN 21 2006
BUREAU OF AIR REGULATION

ATTEMPTED NOT KNOWN

Mr. Jason M. Gorrie, P.E., CDM
[redacted]
Tampa, Florida [redacted]

PRIORITY MAIL
UNITED STATES POSTAL SERVICE
WWW.USPS.GOV
LABEL 107R, OCT 1997

Return to Sender no person w/ this name @ company

Re-Mailed on 6/22
MH

7000 1670 0013 3110 1663

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

Postmark Here

Mr. Barry M. Boldissar, Director
Hillsborough County Department
of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

PS Form 3800, May 2000 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Barry M. Boldissar, Director
Hillsborough County Department
of Solid Waste Management
601 East Kennedy Boulevard
Tampa, Florida 33602

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X CLERK OF CIRCUIT COURT MAIL SERVICES ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

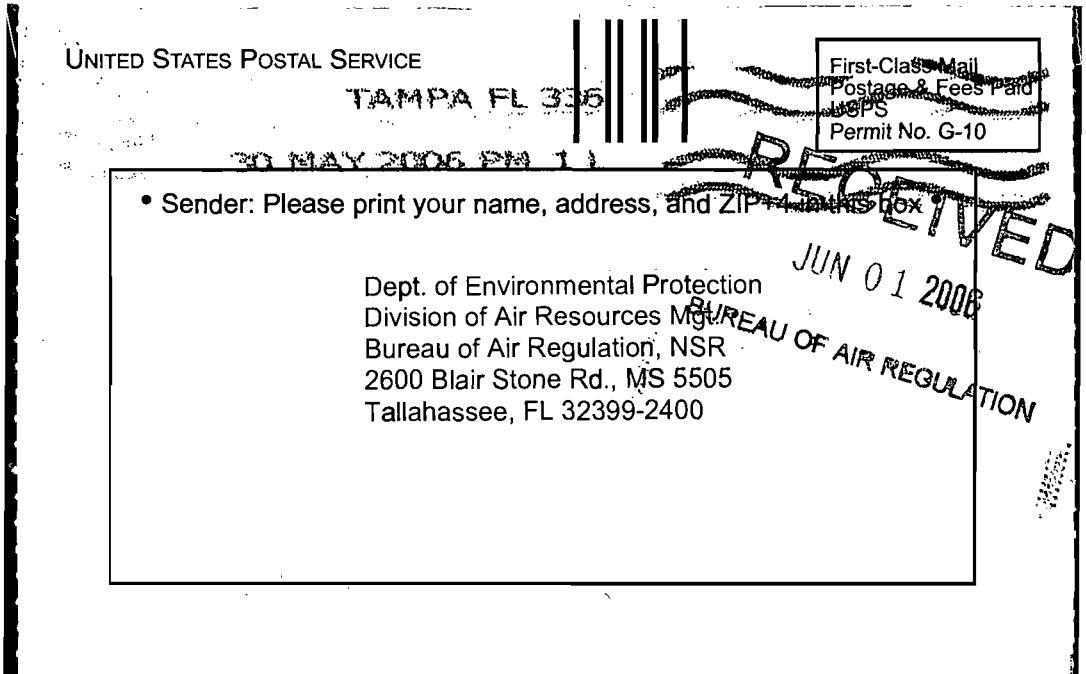
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

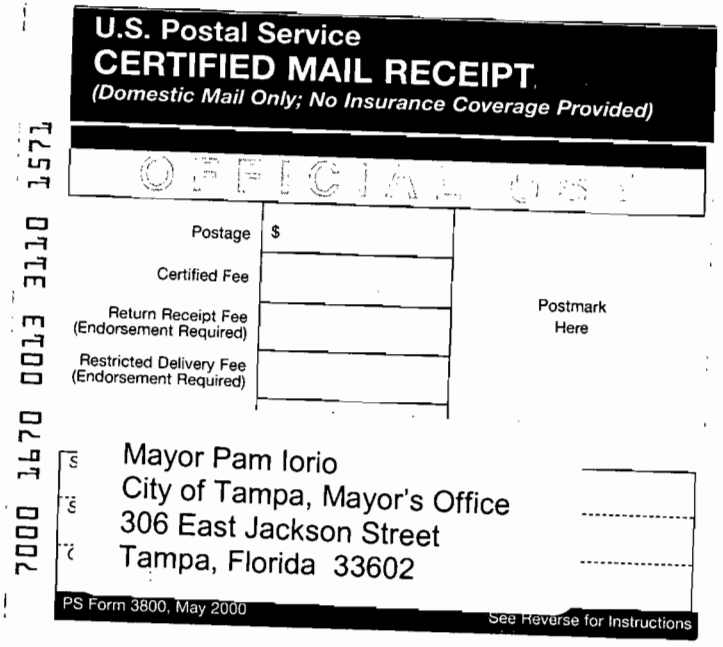
3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7000 1670 0013 3110 1663

PS Form 3811, February 2004 — Domestic Return Receipt — 102595-02-M-1540


UNITED STATES POSTAL SERVICE
TAMPA FL 336
First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10
• Sender: Please print your name, address, and ZIP+4 in this box
Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400
RECEIVED
JUN 01 2006
BUREAU OF AIR REGULATION



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)

Postmark Here

7000 1670 0013 3110 1571

Mayor Pam Iorio
City of Tampa, Mayor's Office
306 East Jackson Street
Tampa, Florida 33602

PS Form 3800, May 2000 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Pam Iorio
City of Tampa, Mayor's Office
306 East Jackson Street
Tampa, Florida 33602

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X CITY OF TAMPA ☑ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery 5-30-06

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☑ No

MAY 30 2006 USPS 33602

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7000 1670 0013 3110 1571

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

UNITED STATES POSTAL SERVICE

TAMPA FL 336

30 MAY 2006 PM 2 T

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

RECEIVED
JUN 01 2006
BUREAU OF AIR REGULATION

• Sender: Please print your name, address, and ZIP+4 in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

C001

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 1670 0013 3110 1649

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

Postmark Here

Mr. Jim Norman, Chair
Hillsborough County Board of
of County Commissioners
Post Office Box 1110
Tampa, Florida 33601

PS Form 3800, May 2000 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Jim Norman, Chair
Hillsborough County Board of
of County Commissioners
Post Office Box 1110
Tampa, Florida 33601

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X CLERK OF CIRCUIT COURT MAIL SERVICES ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

MAR 30 2006 ... STATION ... FL 3360...

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7000 1670 0013 3110 1649

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

RECEIVED
JUN 01 2006
BUREAU OF AIR REGULATION

• Sender: Please print your name, address, and ZIP+4 in this box

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

C001

Memorandum

Florida Department of Environmental Protection

TO: Trina L. Vielhauer

FROM: A.A. Linero

DATE: May 22, 2006

SUBJECT: Hillsborough County RRF Unit 4 – Nominal 600 TPD MWC
DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)

Attached is the draft permit package for Hillsborough County Resource Recovery Facility Unit 4. The project consists of a nominal 600 TPD mass-burn municipal waste combustor (MWC). The site is located southeast of Tampa near Brandon.

The unit will be equipped with auxiliary natural gas burners for startup, shutdown and upset conditions. The control configuration is spray dryer/fabric filter/activated carbon injection/SNCR that is the basis of the NSPS Subpart Eb that also addresses the purposes of MACT. By and large, I relied on the values in the recently revised Subpart Eb when setting limits, particularly for HAP's. The significant exceptions were more stringent limits on nitrogen oxides (NO_X), particulate matter (PM), and mercury (Hg) to comply with BACT or to avoid PSD. This led to stringent limits as well on PM_{10} and the category of MWC-Metals that is based on PM but has a SER equal to that of PM_{10}.

NO_X emissions will be controlled by SNCR to 110 parts per million at 7 percent oxygen (ppmvd) on a 24-hr basis and 90 ppmvd on a 12-month average, rolled monthly. This is believed to be the most stringent BACT for a large mass-burn MWC in the United States and is significantly more stringent than the Subpart Eb limit of 150 ppmvd. The increase of 210 TPY of NO_X is dwarfed by the tens of thousands of TPY of NO_X in reductions already achieved in the Tampa Bay area as a result of the Department's enforcement actions and the large reductions expected from the required installation of SCR equipment at TECO Big Bend Station.

We found that the County's estimates for SCR are unrealistically high. However I still concluded that even the capital costs are significant compared with the budget for the MWC and the operating costs are meaningful with respect to tipping fees. For the future we will continue to look for technological breakthroughs that may make high dust SCR systems more feasible or that require minimal or no reheating for tail end SCR.

The County's plan to use FGR and multiple injection heights and injectors will suffice to reduce emissions to 90 ppmvd without causing a plume problem once the system is optimized. A longer 12-month averaging time will provide time to compensate for occasional higher NO_X emissions that the County believes will occur when avoiding the visible plume excursions that the County is concerned about. There is no reason under 12-month averaging to provide for short-term 120 ppmvd excursions since they proposed 110 ppmvd on a 24-hour basis.

We recommend that during the first year, they be limited to 110 ppmvd on a 30-day rolling average and 150 ppmvd on a 24-hour basis. By the second year they should be able to begin accumulating data toward the 12-month rolling average of 90 ppmvd while meeting the 24-hour limit of 110 ppmvd.

We included the same limit as the Lee County Unit 3 for Hg, but added an Hg-CEMS consistent with our most recent permitting actions for sources of Hg and Hillsborough County rules. They estimated an Hg input that triggers PSD if they exceed 28 µg/dscm and the alternate 85% removal requirement applies. That would allow 0.134 µg/dscm and 326 lb Hg/yr and I consider that highly unlikely. By requiring the Hg-CEMS, they can verify Hg emissions less than 200 lb/yr and more likely demonstrate substantially less emissions.

Modeled impacts on ambient air quality are minimal and below significant impact levels that would otherwise require detailed modeling. We determined that fluoride and sulfuric acid emissions are inherently less than PSD thresholds. PM, PM_{10}, MWC-Metals will not trigger PSD following application of "BACT-Equivalent" emission limits. We recommend your approval of the attached package for public distribution.

AAL/aal

Attachments

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared C. Pugh, who on oath says that she is the Advertising Billing Supervisor of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE IN THE TAMPA TRIBUNE

in the matter of PUBLIC NOTICE OF INTENT

was published in said newspaper in the issues of

*MAY 25, 2006

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, this advertisement for publication in the said newspaper.

Sworn to and subscribed by me, this 25 day of MAY, A.D. 2006

Personally Known ✓ or Produced Identification ____ Type of Identification Produced ____

#1725137

Ana Maria Hodel
Commission #DD551367
Expires: MAY 11, 2010
www.AaronNotary.com

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Hillsborough County Resource Recovery Facility Unit 4

DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to Hillsborough County. The permit is one of several authorizations needed to construct a nominal 600 tons per day (TPD) municipal waste combustor (MWC) at the existing Hillsborough County Resource Recovery Facility southeast of Tampa, west of I-75 and near Brandon. A PSD applicability analysis and a determination of Best Available Control Technology (BACT) were required pursuant to Rule 62-212.400(2)(a) and 10(b), Florida Administrative Code (FAC) for emissions of nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), MWC acid gases, and MWC organics. The applicant's address is Hillsborough County Department of Solid Waste Management, 601 East Kennedy Boulevard, Tampa, Florida 33602.

The applicant proposes to construct a new MWC Unit 4. The primary components are: a new nominal 600 TPD MWC; a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; and a new settling basin. When the project is completed, the facility will be able to process approximately 1,800 TPD of solid waste and generate approximately 47 MW (net) of electricity.

The general area is in attainment with respect to all State and National Ambient Air Quality Standards. There have been approximately 200,000 tons per year (TPY) of SO_2 and NO_X reductions since 1998 from stationary sources in the Tampa Bay area due to the natural gas repowering of the coal-fired TECO Gannon (Bayside) Station and addition of a scrubber and Low NO_X burners at the TECO Big Bend Station. Dispersion modeling indicates that the proposed project will not cause or contribute to a violation of the ambient air quality standards or allowable increases (increments). All of the modeled ground-level pollutant impacts are less than the respective significant impact levels that would otherwise require applications of more involved multiple-source dispersion models.

The proposed project is subject to 40CFR60, Subpart Eb-Standards of Performance for New Stationary Sources and Emission Guidelines (including hazardous air pollutants) for Existing Sources Municipal Waste Combustors as revised and published by the Environmental Protection Agency (EPA) on May 10, 2006.

To meet the requirements of Subpart Eb and BACT, the applicant will install: a spray dryer (SD) with lime injection to absorb MWC acid gases; an activated carbon injection (ACI) system to adsorb MWC organics and mercury (Hg); a fabric filter (FF) baghouse to remove particulate matter, including absorption/adsorption reagent; a flue gas recirculation (FGR) to limit NO_X formation; and a urea-based selective non-catalytic reduction (SNCR) system to destroy NO_X. Continuous emissions monitoring systems (CEMS) are required for CO, NO_X, SO_2 and Hg are required as well as a continuous opacity monitoring system (COMS).

The Department has determined that emissions for several key pollutants, particularly those that are affected by reagent use, can be lower than required by Subpart Eb. The Department has determined that BACT for NO_X is 110 parts per million by volume, dry corrected to 7 percent oxygen (ppmvd @7% O_2) of NO_X on a 24-hour average and 90 ppmvd @7% O_2 on a 12-month average, rolled monthly. This is the most stringent BACT for NO_X issued for a large MWC in the United States.

Mercury (Hg) emissions will be limited to 28 micrograms per dry standard cubic meter (µg/dscm). Compliance will be determined in accordance with the existing procedures in 40CFR60, Subpart Eb. However, the Department has determined that by the second year of operation, reliable Hg-CEMS will be available and requires that one be installed to measure actual emissions. This instrument represents the first Hg-CEMS required on an MWC in the United States. This instrument will provide much better information on short term and long term Hg emissions and insure that annual emissions are less than the threshold requiring a BACT determination pursuant to PSD.

The following table summarizes the estimated annual emissions and pollutant concentration limits in accordance with the Department's BACT determination, Subpart Eb, or to avoid PSD. Because of the degree of control, some pollutants are emitted at levels less than the thresholds requiring emissions limits.

Pollutant	Emissions TPY	Emission Limit	Measurement Basis	Limit Basis
NO_X	210	110/90 ppmvd	24-hr/12-month CEMS	BACT
CO	113	100/80 mg/dscm	4-hr/30-day CEMS	BACT/Eb
MWC Acid Gases (SO_2+HCl)	84+111=195	26/25 ppmvd*	24-hr CEMS/Stack Test	BACT/Eb
MWC Metals/PM/PM_{10}	14.6	12 mg/dscm	Stack Test	Avoid PSD
Ozone as VOC	12	NA	NA	NA
Sulfuric Acid Mist	<<7	NA	NA	NA
Fluorides (F)	<<3	NA	NA	NA
Lead (Pb)	0.17	140 µg/dscm	Stack Test	Subpart Eb
Mercury (Hg)	<0.10	28 µg/dscm*	Stack Test	Avoid PSD
Cadmium (Cd)	0.01	10 µg/dscm	Stack Test	Subpart Eb
MWC Organics (dioxin/furan)	$1.6x10^{-6}$	13.0 ng/dscm	Stack Test	BACT/Eb
Opacity	NA	10 percent	6-minute COMS	BACT/Eb
Ammonia (NH_3)	<15	15/10 ppmv	Stack Tests based on load	PM, Opacity

* Alternative percent (%) removal requirements apply if values exceeded. SO_2 (80%), HCl (95%), Hg (85%)

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit, unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue PSD Permit. Written comments or requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400 or the e-mail address provided below. Any written comments filed shall be made available for public inspection. If comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. This PSD permitting action is being coordinated with a certification under the Power Plant Siting Act (Sections 403.501-518, F.S.). If a petition for an administrative hearing on the Department's Intent to Issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing (if one is held), as provided under Section 403.507(3). Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32399-2400 Telephone: 850/488-0114 Fax: 850/921-9533	Dept. of Environmental Protection Southwest District Office 13051 North Telecom Parkway Temple Terrace, Florida 33637-0926 Telephone: 813/632-7600 Fax: 813/744-6458	Hillsborough County Environmental Protection Commission 3629 Queen Palm Drive Tampa, Florida 33619-1309 Telephone: 813/627-2600 Fax: 813-627-2660

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the authorized representative, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Scott Sheplak or Debbie Nelson of the Bureau of Air Regulation at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114 for additional information. Key correspondence, draft permit and technical evaluation can be accessed by clicking on "Hillsborough County Resource Recovery Facility" under the "Waste-to-Energy" tab at the following web page
www.dep.state.fl.us/Air/permitting/construction/hillsborough.htm

Sheplak, Scott - file -

From: Gorrie, Jason [GorrieJM@CDM.com]
Sent: Tuesday, July 18, 2006 1:50 PM
To: Sheplak, Scott
Subject: RE: Update on NOx Technology

thanks.

Covanta generally operates their scrubbers in a robust fashion. Covanta operates with a very low SO2 setpoint, so HCL is generally well scrubbed. Trace amounts of ambient chloride in a coastal environment might present an issue for Hillsborough, but overall, this is good news. Thanks for passing this along.

From: Sheplak, Scott [mailto:Scott.Sheplak@dep.state.fl.us]
Sent: Tuesday, July 18, 2006 1:29 PM
To: Gorrie, Jason
Subject: Update on NOx Technology

Jason,
FYI.
Apparantly keeping the HCl emissions low will minimize plume formation as proven at the Brescia Italy facility.
Scott

From: Linero, Alvaro
Sent: Tuesday, July 18, 2006 12:32 PM
To: 'Smitht@hillsboroughcounty.org'
Cc: 'jtreshler@covanta.com'
Subject: Update on NOx Technology

Hi Tom:

It's been a while since we met about Unit 4. I understand the hearing before the ALJ was conducted last week and I trust all went well.

I just got back from vacation in Switzerland and Italy. I saw the big blue stack for the Brescia facility right off of the Venice/Milan Autostrade (big highway) and couldn't resist pulling over and taking a look.

I met with the Director of the ASM Brescia WTE Plant, Mr. Lorenzo Zamboni lzaniboni@asm.it He gave me a complete rundown of their operations and a tour. I wanted to pass along what may be helpful to you while in the design phase of Hillsborough Unit 4.

All three units operate with SNCR systems. They have Martin moving grates, FGR, spray dryer/fabric filter combos, and activated carbon injection systems. They operate each unit at ~80 mg NOx/m3 which equates to ~ 60 ppmv and were doing so on the day of my visit.

They have no plume issues under their present operations. I myself saw zero opacity. Any potential plume problems from achieving the relatively low NOx values are abated by two fairly recent developments at the plant.

Firstly, they are operating at a lower HCl emission limit following Italy's adoption of certain European Union requirements. Their typical emissions are 4 mg HCl/m3 and the limit is 10 mg/m3. I believe the values are not too different from 4 and 10 ppmv in terms of U.S. standards. You might check your historical record of HCl emissions from Unit 1, 2, and 3 and see how they typically do and check into what your new unit is likely to do.

Secondly, Unit 2 is equipped with the SNCR system in the furnace plus a thin single stage "dusty side" SCR system within the economizer section. It is only about 60 cm in depth (and ~4x13 meters cross-section). The unit was originally designed for that possibility and provided for something like 5 stages of "dusty-side" SCR. They only use one stage. The benefits of the this "trim"

SCR system are reduction of reagent consumption and ammonia slip with minimal pressure drop.

They shoot for the same 80 mg/m3 (60 ppmv) NOx exhaust values on all three units. Your 90 ppmv long term value would be roughly 120 mg/m3 so the job will be easier if designed right.

I went ahead and included one picture of the small SCR piece (alongside a corpulent Colombian) so you can see what is physically entailed. I also included a picture of the stack taken on July 6 so you can see what I saw.

Feel free to contact me if you would like to know more about my trip. Good luck on the planned expansion project!

Sincerely,

Al Linero
1-850-921-9523

TO: Jason M. Gorrie, P.E., CDM, via e-mail
gorriejm@cdm.com

FROM: Scott M. Sheplak, P.E., Bureau of Air Regulation
Scott.Sheplak@dep.state.fl.us

DATE: March 30, 2006

SUBJECT: Hillsborough County Resource Recovery Facility
Hillsborough County
Unit #4
Project Number 0570261-007-AC; PSD-FL-369; PA82-19A
2nd Sufficiency Review

To summarize our telephone conversation of this afternoon, these are the items we discussed related to the insufficiency response dated 02/28/06 from CDM. I need the following additional information:

1. NOx SNCR Performance Information. No new or additional NOx BACT technologies or limitations were proposed in the response. Please provide performance reports and/or studies on SNCR units, preferably any actual studies completed on Units 1-3 at HCRRF. If not available from HCRRF, other units closely related, i.e., Lee, Pasco, etc. Please include details on ammonia injection rates, e.g., curves showing ammonia injection vs. NOx emissions. {This is more justification of the BACT for this project.}

2. Process/Operations and Air Pollution Control Device Equipment Layout. In response to the request for process/operations and air pollution control device equipment layout, only a list of drawings/specifications was provided. The process/operations and air pollution control device drawings and/or specs of interest appear to have been identified in the response in *Appendix C* specifically as Document Nos. 1v400v32, SM-105, SM-101, SM-107, SM-119 and M-310. {I found SC001 the site plan.}

3. EPA 12/19/05 proposed changes. Correspondence or comments from IWSA to EPA in response to EPA's proposed new MWC standards. You indicated that IWSA was commenting to EPA on the proposed changes.

In response to this item -- *"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?"* I misunderstood the reference to "expanded facility" in Volume I of the application as applying to all units, Units 1-4.

See you next Tuesday at HCRRF at 2 p.m. A follow up meeting on the drafting of the permit and what BACT will be would be good.

COVANTA ENERGY, Inc.

SPEC NO. Hills-SM-105A

DATE 10/22/04

TECHNICAL SPECIFICATION

FOR

AIR POLLUTION CONTROL SYSTEM

Facility Name: HILLSBOROUGH WTE FACILITY EXPANSION

Location: HILLSBOROUGH COUNTY, FLORIDA

****

****

Specification Prepared By:

A/E Name: Burns and Roe Enterprises, Inc.
800 Kinderkamack Road

Address: Oradell, New Jersey 07649

Telephone: (201) 986-4096

Approved for Release:

	Printed Name	Signature	Date
1.	SP Stefanke	SP Stefanke	10-22-04
2.	BOBN ZUCHOWSKI		10-22-04
3.			
4.			
5.			

TECHNICAL SPECIFICATION
FOR
AIR POLLUTION CONTROL SYSTEM

TABLE OF CONTENTS

TABLE OF CONTENTS – (CONT"D)

TABLE OF CONTENTS – (CONT'D)

TABLE OF CONTENTS – (CONT'D)

TABLE OF CONTENTS – (CONT"D)

TABLE OF CONTENTS – (CONTD")

1.0 GENERAL

This Specification details the technical requirements for the design, fabrication, shop testing, delivery, erection, field testing, start-up (including bag precoat), and initial operation of the Air Pollution Control (APC) System for a municipal waste-to-energy facility. Where a conflict exists within this Document (this includes all the attachments listed in the Table of Contents), the more stringent requirement shall apply; if the conflict is not a case of more or less stringent, then the order of priority shall be 1) Air Permit (Attachment 9), 2) Service Agreement (Attachment 12), and 3) remainder of the Specification. All conflicts shall be brought to the attention of the Purchaser.

In general, the APC system shall include one or more trains of experience-proven equipment, complete with all ductwork and accessories. Each train shall be sized for the Design gas flow of one refuse fired boiler, reference Attachment 2. The equipment provided shall include a system complete in every detail except as specifically excluded herein.

System configuration shall be as indicated in Attachment 1. If multiple configurations are indicated in Attachment 1, separate proposals shall be provided for each required configuration.

It is the intent of this Specification that the Seller provide and install a complete "stand-alone" system. All Purchaser-supplied utilities, foundations, erection support, etc must be clearly defined by the Seller.

NOTE THAT PROJECT SPECIFIC REQUIREMENTS ARE INCLUDED IN ATTACHMENT 1.

1.1 Scope

The scope of Seller's supply for the Air Pollution Control equipment begins at the outlet flanges of the Purchaser's economizer and extends through the scrubber vessel (spray dryer), baghouse (or precipitator), and I.D. fans to the inlet flange at the stack. The scope of Seller's equipment supply for the reagent preparation system begins at the truck connection to the lime storage silo and extends to the dry scrubber. Lime will be delivered by trucks with pneumatic unloading systems.

1.2 Work to be Provided

The Seller shall furnish the following equipment, material, and services. The listing below is not intended to be complete. The Seller shall furnish all equipment, material, erection, and services required to provide a complete, readily maintained, and properly operating APC system, which satisfies the performance guarantees and requirements of this Specification.

1.2.1 Acid Gas Removal System

Scrubber complete with atomization equipment, gas distribution devices, external stiffeners, access door, and hopper.

Scrubber vessel atomizer/nozzle enclosure complete with heating and ventilation system, spare atomizer/motor assembly stand, an overhead monorail/trolley/hoist system for systems with removable

COVANTA ENERGY, Inc.

SPEC NO. Hills -SM-101A

DATE ~~10/22/04~~ 6/30/05

TECHNICAL SPECIFICATION

FOR

(MSW) MUNICIPAL SOLID WASTE STEAM GENERATORS

Facility Name: HILLSBOROUGH WTE FACILITY EXPANSION

Location: HILLSBOROUGH COUNTY, FLORIDA

****

****

Specification Prepared By:

A/E Name: Burns and Roe, Enterprises, Inc.
800 Kinderkamack Road

Address: Oradell, New Jersey 07649

Telephone: (201) 986-4096

A/E Approved for Release:

	Printed Name	Signature	Date
1.	S.P. Sturtzke	S.P. Sturtzke	10-22-04
2.	Leon Zuckowski		10-22-04
3.	S.P. Sturtzke	S.P. Sturtzke	6-30-05
4.			
5.			

Load point			1=nom.	2	4	5	7	9
Fuel throughput		kg/h	22680	18900	13608	19440	24948	24948
		lb/hr	50000	41667	30000	42857	55000	55000
Low heating value	LHV	kJ/kg	10294	12626	10294	6781	6781	9231
High heating value	HHV	Btu/lb	5000	6000	5000	3500	3500	4545

Calculated flue gas composition in furnace, under normal conditions

wet:	CO_2	% by vol.	10,554	10,679	10,312	9,850	9,973	10,461
	O_2	% by vol.	5,857	6,244	5,723	5,042	5,105	5,660
	N_2 + Ar	% by vol.	64,875	66,822	63,384	58,980	59,712	63,762
	H_2O	% by vol.	18,649	16,190	20,518	26,066	25,148	20,053
	SO_2	% by vol.	0,014	0,014	0,014	0,013	0,013	0,014
	HCl	% by vol.	0,051	0,051	0,050	0,048	0,049	0,050
	HF	% by vol.	-	-	-	-	-	-
dry:	CO_2	% by vol.	12,974	12,741	12,974	13,323	13,323	13,085
	O_2	% by vol.	7,200	7,450	7,200	6,820	6,820	7,080
	N_2 + Ar	% by vol.	79,747	79,731	79,747	79,774	79,774	79,755
	SO_2	% by vol.	0,017	0,017	0,017	0,018	0,018	0,017
	HCl	% by vol.	0,062	0,061	0,062	0,065	0,065	0,063
	HF	% by vol.	-	-	-	-	-	-

Calculated noxious gas content in the wet flue gas in furnace (theoretical), under normal conditions, not referred to O_2

SO_2	mg/m³	405	409	397	384	389	404
	ppmv	142	143	139	134	136	141
HCl	mg/m³	834	840	815	788	798	829
	ppmv	513	516	501	484	490	510
HF	mg/m³	-	-	-	-	-	-
	ppmv	-	-	-	-	-	-

Load point			1=nom.	2	4	5	7	9
Fuel throughput		kg/h	22680	18900	13608	19440	24948	24948
		lb/hr	50000	41667	30000	42857	55000	55000
Low heating value	LHV	kJ/kg	10294	12626	10294	6781	6781	9231
High heating value	HHV	Btu/lb	5000	6000	5000	3500	3500	4545

Calculated flue gas composition at boiler outlet, under normal conditions

wet:	CO_2	% by vol.	10,473	10,597	10,183	9,728	9,874	10,380
	O_2	% by vol.	5,972	6,355	5,911	5,239	5,259	5,777
	N_2 + Ar	% by vol.	64,978	66,909	63,571	59,221	59,895	63,874
	H_2O	% by vol.	18,513	16,074	20,273	25,752	24,910	19,905
	SO_2	% by vol.	0,014	0,014	0,013	0,013	0,013	0,014
	HCl	% by vol.	0,050	0,051	0,049	0,047	0,048	0,050
	HF	% by vol.	-	-	-	-	-	-
dry:	CO_2	% by vol.	12,852	12,627	12,772	13,101	13,150	12,960
	O_2	% by vol.	7,329	7,572	7,414	7,056	7,004	7,213
	N_2 + Ar	% by vol.	79,740	79,724	79,735	79,762	79,764	79,748
	SO_2	% by vol.	0,017	0,017	0,017	0,017	0,017	0,017
	HCl	% by vol.	0,062	0,060	0,061	0,064	0,064	0,063
	HF	% by vol.	-	-	-	-	-	-

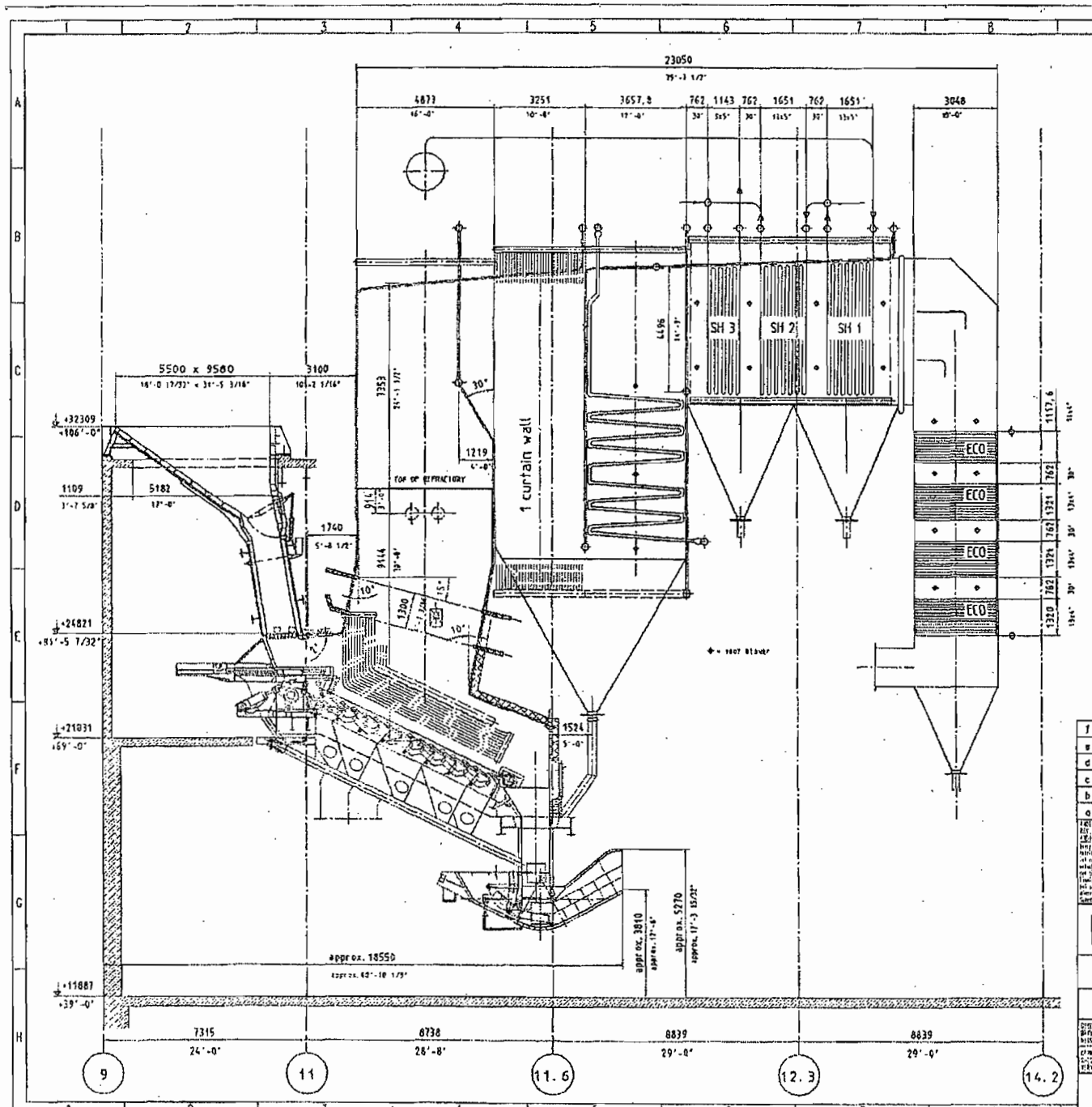
Calculated noxious gas content in the wet flue gas at boiler outlet (theoretical), under normal conditions, not referred to O_2

SO_2	mg/m³	402	406	392	379	385	401
	ppmv	141	142	137	133	135	140
HCl	mg/m³	828	834	805	778	790	823
	ppmv	509	513	495	478	486	506
HF	mg/m³	-	-	-	-	-	-
	ppmv	-	-	-	-	-	-

MARTIN GmbH für Umwelt- und Energietechnik	Date : 07-29-2005	Name : Koehler	Sheet : No. : 1	Doc. - No. : 8A 459 Q07
Project : Hillsborough - EXPANSION	80 % heat input with FGR			
Our No. : 050 459	480 tpd - 5,000 Btu/lb			
	(Underfire air temp. = 300 °F)			

BOILER DESIGN DATA	Units of measurement			
	US- units	Metric- units	US- units	Metric- units
Refuse throughput per unit	%	%	80.00	80.00
Refuse quantity per unit	sht/h	kg/h	20.00	18,144
Calorific value of refuse	Btu/lb	kcal/kg	5,000	2,460
Ash	%	%	20.90	20.90
Moisture	%	%	20.80	20.80
Combustible matter	%	%	58.30	58.30
Design pressure (approx.)	psig	atü	698	49.1
Drum pressure (approx.)	psig	atü	649	45.6
Live steam pressure (approx.)	psig	atü	615	43.2
Live steam temperature	°F	°C	750	399
Saturated steam temperature	°F	°C	496	258
Feedwater temperature	°F	°C	250	121
Flue gas temperature at boiler outlet	°F	°C	405	207
Preheated air temperature	°F	°C	300	149
Ambient temperature	°F	°C	80	27
Boiler efficiency, calcul.	%	%	71.80	83.13
, guarant.	%	%	70.30	81.40
Steam output, calcul.	lb/h	kg/h	131,240	59,530
, guarant.	lb/h	kg/h	128,506	58,290
Considered blow down	%	%	2.0	2.0
Quantity of injected water (calcul.) :				
First stage : SH1 - SH2	lb/h	kg/h	-	-
Second stage : SH2 - SH3	lb/h	kg/h	4,189	1,900
Total (steam temp. control)	lb/h	kg/h	4,189	1,900
Part load (controlled steam temp.)	%	%	80	80
Gross heat release	10^6*Btu/h	Gcal/h	200.00	44.63
Heat input from preheated air	10^6*Btu/h	Gcal/h	9.37	2.36
Heat input from recirculated gas	10^6*Btu/h	Gcal/h	3.13	0.79
Total heat input	10^6*Btu/h	Gcal/h	212.50	47.78
Combustion air quantity	SCFM	Nm³/h	46,795	74,080
Recirculated gas quantity	SCFM	Nm³/h	14,296	22,632
Flue gas quantity, furnace	SCFM	Nm³/h	70,798	112,080
Flue gas quantity, system exit	SCFM	Nm³/h	71,349	112,952

Best Available Copy



MARTIN® Reverse-Acting Grate

Number of runs	:	4
Stoker width	:	29'-5 9/16"
Number of steps	:	13
Total grate area	:	693.2 sq.ft

steam rate	:	164,240 lb/hr
steam temperature	:	750 °F
steam pressure	:	615 psig
boiler feedwater temp.	:	250 °F
eco fluegas exit temp.	:	430 °F

boiler width	:	30'-8" = 92 x 4"
evaporator	:	45 sections
superheater #3	:	72 flows
superheater #2	:	72 flows
superheater #1	:	72 flows
economizer	:	23 flows

a	"feed chute: support design and inlet section dimensions adjusted"	03.05.2004	fa

MARTIN GMBH für Umwelt- und Energietechnik
Leopoldstr. 248, D-80807 München

1:96 (1/8"=1'-0")	050459	HILLSBOROUGH Unit 4

BOILER SKETCH

06.04.2004	FIs/fa	

2A459Q03 a

ATTACHMENT 7

TECHNICAL DATA SUPPLIED BY CONTRACTOR

PERFORMANCE GUARANTEES

1.	Steam output, based on firing the specified refuse fuel, 250 °F feed water, 300 °F under-fire and 80 °F overfire air, 56 % excess air	163,780 lb/hr
	Steam output, based on firing the specified auxiliary fuel with the burner at 100% burner load, 250 °F feed water	65,512 lb/hr
2.	Superheated steam pressure at the steam non-return valve outlet	615 psig
3.	Maximum steam impurity leaving the super-heater, based on appropriate ABMA boiler water concentrations for the normal operating pressure	0.5 ppm (TDS)
4.	Total boiler steam/water side pressure drop at MCR, from feed water terminal point to main steam terminal point	135 psi
5.	Maximum flue gas exit temperature rise from 430 °F to no more than 505 °F after 4000 hours accumulated operation and no manual cleaning of fireside surfaces	Yes yes/no
6.	Control range of 80% of steam flow as guaranteed in item 1 above, while maintaining the outlet steam temperature of 750 °F plus or minus 10°F	Yes yes/no
7.	Maximum total fan motor power consumption (kW) when operating at 100%, as per item 1 above	400 kW
8.	Economizer water flow mass rate (minimum water mass flow rate 400,000 lb/sq. ft-hr)	385,000 / 535,900 lb/sq. ft-hr

6-30-05
~~03/10/04~~
Conformed

COMBUSTION/STEAM GENERATION UNITS

1.	Number of Units	1
2.	Type	MSW Stoker Boiler
3.	Manufacturer	Riley Power Inc.
4.	Maximum Continuous Rating (MCR) Solid Waste Capacity	600 TPD
	Note: All data in Items 4 through 24 shall be per Steam Generation Unit	
5.	Design Data (MCR)	
	a) Continuous steam output	163,780 lb/hr
	b) Blowdown	3,275 lb/hr
	c) Steam pressure (at superheater non-return valve outlet)	615 psig
	d) Steam temperature (at superheater non-return valve outlet)	750 °F
	e) Feed water temperature	250 °F
6.	Boiler Design Pressure	800 psig
7.	Boiler Structural Design Pressure	35 "wg (plus or minus)
8.	Heat Loss Calculation Summary	

Item		Btu/hr	%
a.	Heat Input	266,912	---
b.	Heat Output	190,905	---
c.	Losses:		
	i Dry Gas:		8.94
	ii Moisture:		15.52
	iii Residue:		2.50*
	iv Convection & Radiation:		0.86
	v Manufacturer's Margin:		1.00
	Total Losses		28.82
d.	Boiler Efficiency		71.18

*Carbon loss is the responsibility of the Martin Combustion System.

6-30-06
~~03/10/04~~
Conformed

COVANTA ENERGY, Inc.

SPEC NO. Hills-SM-107A

DATE 06/24/05

TECHNICAL SPECIFICATION

FOR

STEAM TURBINE GENERATOR

Facility Name: HILLSBOROUGH WTE FACILITY EXPANSION

Location: HILLSBOROUGH COUNTY, FLORIDA

****

****

Specification Prepared By:

A/E Name: Burns and Roe Enterprises, Inc.
800 Kinderkamack Road
Address: Oradell, New Jersey 07649

Telephone: (201) 986-4096

A/E Approved for Release:

	Printed Name	Signature	Date
1.	S.P. Shukla	S.P. Shukla	10-18-04
2.	LEON ZUCHOWSKI		10/21/04
3.	ED TENGWALL		6/24/05 CONFORMED ISSUE
4.			
5.			

TECHNICAL SPECIFICATION
FOR
STEAM TURBINE GENERATOR

TABLE OF CONTENTS

1.0 GENERAL

1.1 Scope

This Specification details the technical and quality assurance requirements for furnishing and delivering single casing, single flow, condensing, non-reheat steam turbine generator(s). The steam turbine will be of the uncontrolled extraction type as specified herein. The generator will be ~~directly connected to the steam turbine or will be~~ of the geared type.

The existing and operating Hillsborough County WTE facility consists of three (3) stoker/boiler units rated each at 400 TPD fired by 4,500 Btu/lb municipal solid waste or refuse. Steam produced in these boilers drives a nominal 29 MW condensing steam turbine generator. The expansion will consist of a new independent combustion unit (stoker/boiler/APC train) rated at 600 TPD fired by 5,000 Btu/lb refuse, and a new steam turbine.

1.2 Work to be Provided

The Seller shall furnish all equipment, materials and services for one complete turbine-generator unit including all standard and special accessories as detailed below. The performance requirements and parameters of the turbine are defined in the technical requirements part of the specification. Attachment 1, Section 10 defines project specific modifications to this specification.

1.2.1 Turbine

Multi valve, single casing, single flow, condensing, non-reheat turbine designed in accordance with Design Data of Attachment 1 and consisting of the following major components:

1. Sole plates, jacking bolts and plates and shims
2. Uncontrolled e~~E~~xtraction steam connections
   ~~a) Uncontrolled extractions.~~
   ~~b) Automatic controlled extraction (if required) – turbine shall be provided with a multi-valve partial arc control stage system at the extraction opening through which steam must flow to the turbine stage below the extraction outlet.~~
3. Exhaust connection or flange. The Purchaser will furnish the expansion joint with the condenser. The expansion joint shall match Seller supplied exhaust flange bolt pattern.
4. Turbine drip, drain and vent connections and associated piping up to an including the first valve.
~~5. Exhaust casing spray nozzles and associated controls and piping (if required).~~
5~~6~~. Exhaust casing relief diaphragms, including one set of spare diaphragms.
6~~7~~. Turbine rotor grounding devices.
7~~8~~. Main steam stop valves.
8~~9~~. Strainers and temporary screens for main stop valves.
9~~10~~. Blowdown covers and internal blanking fixtures for main stop valves.
10~~1~~. Turning gear.
11~~2~~. Turbine and generator shaft couplings.

COVANTA ENERGY

SPEC. NO.	B&R M-310
ISSUE	001
DATE	09/03/04

TECHNICAL SPECIFICATION

FOR

SNCR SYSTEM

Facility Name: **HILLSBOROUGH WTE FACILITY EXPANSION**

Location: **HILLSBOROUGH COUNTY, FLORIDA**

****

****

Specification Prepared By:

A/E Name: **Burns and Roe, Enterprises, Inc.**
Address: **800 Kinderkamack Road**
Oradell, New Jersey 07649
Telephone: **201-986-4096**

A/E Approved for Release:

	Printed Name	Signature	Date
1.	S.P. Sturtzke	S P Sturtzke	9-7-04
2.	LEON ZUCHOWSKI		9-7-04
3.			
4.			
5.			

TECHNICAL SPECIFICATION M-310

SNCR SYSTEM

COVANTA ENERGY

HILLSBOROUGH COUNTY, FLORIDA
WTE PLANT EXPANSION

Prepared by
Burns and Roe Enterprises, Inc.
800 Kinderkamack Road
Oradell, NJ 07649

Hillsborough County WTE Plant Expansion
SNCR System Specification
Project Specific Requirements

The existing and operating Hillsborough County WTE facility consists of three (3) stoker/boiler units rated each at 400 TPD fired by 4,500 Btu/lb municipal solid waste or refuse. Steam produced in these boilers drives a nominal 29 MW condensing steam turbine generator. The expansion will consist of a new independent combustion unit (stoker/boiler/APC train) rated at 600 TPD fired by 5,000 Btu/lb refuse, and a new steam turbine. An SNCR System for the reduction of nitrogen oxides will be provided as part of the expansion for the new boiler. The specific requirements for the SNCR System are per this Specification and as follows.

Project Specific Requirements:

The SNCR System shall be designed to meet the required performance levels with the boiler operating at Maximum Continuous Rating (MCR). This will be based on the injection of a urea based reagent into multiple injection levels (temperature zones) in the furnace. The System will consist of an insulated 15,000 gallon fiberglass reinforced plastic (FRP) heated and insulated storage tank that will feed into the circulation module located near the tank. From the circulation module the urea will be pumped to a redundant metering module with independent level control that will automatically meter the reagent into a dilution water stream based on the demand of the system and control of the flow to the multiple levels of injection.

At each injection level distribution modules will control the flow of the diluted reagent and atomizing air to each injector. The flow to and the operation of each level of injectors will be automatically controlled based upon unit load with feed back from the CEM system. Atomizing and cooling air will be provided from two (2) dedicated SNCR compressors furnished by Purchaser. Each SNCR compressor will be sized to provide the maximum amount of air with all urea injection nozzles in-service. The new SNCR compressors will be tied into the existing plant air system for backup. Makeup water for the SNCR System will be from the Plant's Service Water System, which is treated, reclaimed water (sewage effluent).

The SNCR System shall include all on-skid piping, safety valves, and instrumentation necessary for a complete, safe, and operable system.

SNCR SYSTEM REQUIREMENTS

INTRODUCTION

Please provide a proposal for the engineering, equipment supply, start-up, and optimization of a Fuel Tech NOxOUT® SNCR NOx Reduction System to be installed at the Hillsborough WTE Plant for the proposed 600TPD Martin mass burn municipal waste combustor to be installed as part of the overall expansion of the facility. The System shall be based on the information provided herein for a 69% NOx reduction from a baseline of 350 ppmd @ 7% O_2 to 110ppmd @ 7% O_2 with 15ppm ammonia slip as measured at the stack.

The Fuel Tech NOxOUT Process is based on the injection of urea-based reagents into the upper furnace that will provide effective, safe, reliable and flexible NOx control.

The proposed system for this application should consist of a 15,000 gallon FRP heated and insulated Reagent Storage Tank that would feed into a Circulation Module that would be installed near the tank. This would provide reagent feed off a circulation loop to an Independent Level Control Metering Module that will automatically meter the reagent into a dilution water stream based on the demands of the system and control the flow to three (3) levels of injection. At each injection level, distribution modules will then control the flow of diluted reagent and atomizing air to seven (7) injectors installed in the furnace. The flow to the injectors is automatically controlled based on unit load and furnace gas temperature and with a feedback from the CEM system.

The systems shall be complete with a PLC based control system that will automatically control the system based on load, temperature, and targeted NOx levels. The control system will typically use both steam flow and furnace gas temperatures as a feed forward to determine the location and approximate reagent feed-rates per injection level. The NOx signal from the CEM would be used as a feed back to fine tune the system to automatically maintain the NOx set point.

Both the Circulation Module and the Metering Modules shall be supplied with redundancy for increased reliability and flexibility.

In addition, the proposal shall include Equipment Design, Engineering, Computer Modeling as required, Start-up and Optimization Services.

The equipment shall consist of self-contained modules that require a minimum of installation. The only outage that should be required will be for the installation of the injection ports. All other installation and hookups should occur external to the boiler.

The urea reagent would be supplied by tank truck from licensed suppliers.

TECHNOLOGY DESCRIPTION

Fuel Tech NOxOUT® SNCR Process

The NOxOUT® Process is a post-combustion NOx reduction method that reduces NOx through a controlled injection of NOxOUT® A or other NOxOUT® reagents into the combustion gas path of fossil-fired and waste-fired boilers, furnaces, incinerators, or heaters. NOxOUT® A is a 50% urea solution plus a small amount of additives for scale and corrosion control. This reagent is readily available and requires no special safety precautions for handling.

The use of urea for control of oxides of nitrogen was developed under the sponsorship of the Electric Power Research Institute (EPRI) between 1976 and 1981. Fuel Tech is EPRI's exclusive licensing agent for the urea-based technology. These early investigations provided fundamental thermodynamic and kinetic information of the NOx-urea reaction chemistry and identified some traces of by-products. The predominant overall reaction is described as:

$$CO(NH_2)_2 + 2NO + 1/2\ O_2 \text{ ®> } 2N_2 + CO_2 + 2H_2O$$

Urea + Nitrogen Oxide ®> Nitrogen + Carbon Dioxide + Water

Through some trace quantities of ammonia and carbon monoxide may form, the quantities of these can often be controlled through application know-how.

The NOx removal efficiency and reagent utilization are related by a variable known as Normalized Stoichiometric Ration (NSR). This ratio is defined as shown below. NOxOUT® A utilization is equal to the NOx reduction divided by NSR.

$$NSR = \frac{\text{Actual Molar Ratio of Reagent to Inlet NOx}}{\text{Stoichiometric Molar Ratio of Reagent to Inlet NOx}}$$

Fuel Tech has expanded the technology by developing chemical injection hardware, widening the applicable temperature range, and process control expertise required for commercial applications. Fuel Tech's licensing agreement with EPRI, combined with its successful in-house developments, is marketed commercially under the trade name NOxOUT®.

Two key parameters that affect the process performance are flue gas temperature and the reagent distribution. The NOx reducing reaction is temperature sensitive; by-product emissions become significant at lower than the optimum temperature range while chemical utilization and NOx reduction decrease at higher than the optimum. This optimum temperature range is specific to each application. The reagent needs to be distributed within this optimum temperature zone to obtain the best performance. Typically, the distribution is more difficult for large units and for units with high flue gas velocity.

The NOxOUT® Process is designed with the aid of Computational Fluid Dynamics (CFD) and Chemical Kinetic Model (CKM) in addition to results from field tests. The CFD model simulates flue gas flows and temperature inside a unit while the CKM calculates the reaction between urea

and NOx based on temperature and flow information from CFD. A combination of these two models determines the optimum temperature region and the optimum injection strategy to distribute the reagent. With an ability to estimate NOx reduction, a model study can be performed to determine if an application is a right fit for the process.

The reagent distribution is facilitated by chemical injectors developed by Fuel Tech. Utilizing pressurized air, these injectors atomize and direct the NOxOUT® reagents into the combustion gas path. The droplet size distribution and spray coverage developed by the injectors promote efficient contact between the NOxOUT® reagents and the NOx in the flue gas.

The NOxOUT® Process provides effective boiler load following capabilities. Through the computer modeling, an injection strategy is developed that makes use of multilevel injection, control of reagent concentration, droplet size and spray patterns, and the chemical enhancers.

Several years of field-testing indicate that the NOxOUT® Process is applicable on various types of units firing many different fuels. The process was successfully proven on units fired with coal, oil, gas, wood or municipal solid or hazardous waste. These units varied in size and type: package boilers, process heaters, incinerators, circulating or bubbling fluidized beds, waste heat boilers, utility boilers. By virtue of being a post-combustion process, unit size and type and fuel type have some, but not a major effect on the process.

There are substantial benefits gained from the application of the NOxOUT® Process compared to first generation NOx control technologies, such as ammonia injection. These benefits are briefly summarized below:

- Use of non-toxic, non-hazardous chemicals.
- Potentially lower capital cost due to the lack of large system compressors and elimination of anhydrous ammonia storage, handling, and safety equipment.
- Lower operating costs resulting primarily from minimization of gas (steam or compressed air) requirements.
- Inherently more effective control of spray patterns and chemical distribution for better mixing with the use of liquid rather than gas-based reagents, thereby resulting in better chemical utilization.
- Chemical enhancers that can be used to improve control of potential by-product generation while reducing NOx over an expanded temperature range.

STANDARD NOxOUT® SYSTEM DESCRIPTION

The NOxOUT® Process incorporates a reagent storage and delivery system to inject the NOxOUT®A solution into the combustion gases of the boiler. Concentrated NOxOUT®A solution (50%) urea is delivered by truck and transferred into the Chemical Storage Tank.

The Chemical Storage Tank is typically a closed top vertical tank, fabricated of fiberglass reinforced polyester and premium grade vinyl ester resin. It is designed per ASTM D3299-88. The tank is

supplied with level indicator, manway, vent, internal down pipe, external fill pipe, ladder, hold down and lifting lugs, and necessary connections and isolation valves. Site conditions will determine the connections and isolating valves. Site conditions will also determine the need for heat trace, insulation, and seismic qualifications.

The Circulation Module serves the NOxOUT® process in a dual role. While its primary purpose is to supply the chemical NOxOUT®A to the Metering Modules, it has a secondary purpose of keeping the chemical at a temperature above 80°F, through constant circulation and, if necessary, a circulation heater. The Module is skid mounted and fully shop tested. It consists of redundant centrifugal pumps, an electric in-line heater, a duplex strainer, one self-contained control panel, and all associated stainless steel pipe, tubing, valves and instrumentation.

The control panel consists of local controls for the Circulation Module. The heater is controlled by a thermostat and is preset to a temperature of 80°F. When the pump is running, and the temperature falls below the set point, the heater will automatically activate. The circulation pump should run at all times. The pressure indicators will show if the system is not running properly. There are temperature and pressure indicators, and a flow meter/switch for monitoring the correct system operation. The local control panel will also digitally show the tank level and temperature.

The Metering Module is a skid-mounted unit used to supply mixed NOxOUT®A to each Distribution Module. The unit is prepackaged and shop tested and includes a chemical metering pump, turbine pump to supply water pressure boost, an inline mixer, and a local control panel. At the discharge of the boost pump is a recirculation loop with a manual regulating valve to properly control the flow and pressures to the injectors. In addition, the module contains all necessary valves, check valves, water strainer, flow transmitter, pressure and flow switches and stainless steel piping/tubing to make it a self-contained metering and pumping system. At a minimum, redundant pumps with motors is suggested. In some cases, a completely redundant Metering Module is preferred. For situations where chemical biasing/Independent chemical injection to each level of operation NOx reduction is a function of the chemical feed rate, which is controlled by varying the speed of the metering pump through a 4-20mAmp signal. Control for the Metering Module is provided at the Local Control Panel or the Plant DCS (or Fuel Tech supplied Master Control Module - PLC). The system will operate in local or remote mode. In the local mode, instrumentation and electrical control is performed at the module. In the remote mode, control is performed from the Plant DCS. The module also has a hand/auto mode associated with the metering pump and the water boost pump. When the system is in auto and is turned off, the chemical pump will stop, the chemical valve closes and an automatic water flush occurs.

In any mode, the pumps will shut down for low air pressure, low chemical flow, or low water flow. A low tank level alarm will shut the Metering Module down in the Auto Mode. The flow control for the metering pump also has a local and remote mode. In the remote mode, the metering pump receives a 4-20ma signal from the Plant DCS, which controls the pump motor speed. This controls the chemical feed rate. In the local mode, metering pump control is performed at the local control panel using the digital flow controller. The Plant Control signal is disabled. Chemical totalization is provided on the flow indicator.

Mixed NOxOUT®A is transported from the Metering Module to the Distribution Modules, which channel the NOxOUT®A mixture to each injector. Each Module consists of flow meters, balancing valves and regulators, which accurately control and display the chemical and atomizing air to each injector. Also contained on these modules are the necessary manual ball valves, gauges and stainless steel tubing required to adequately control the NOxOUT®A injection process.

The injectors consist of an atomizing chamber in which the air and NOxOUT®A mixture first meet. The mixed chemical deflects off an internal orifice plate while being continuously atomized in the chamber by the addition of plant air (up to 80 psig may be necessary), which is the atomizing medium. The atomized chemical then flows through the injector tube to the nozzle. The nozzle is specially designed and characterized to meet the appropriate plant conditions. This is done by detailed computer analysis of the temperature, combustion and gas velocity profiles in the boiler. The atomized NOxOUT®A reagent then enters the boiler and mixes with the boiler flue gas to form nitrogen, carbon dioxide and water. Air is required for cooling at any time the injectors are in operation and not retracted from the boiler. The injectors are equipped with quick disconnects and hydraulic hoses for flexibility and ease of maintenance.

The final addition to the injector is an outer cooling air jacket. This shield is ceramic coated and is attached to the atomizing chamber. Plant air is fed into the coolant air jacket at low volume and pressure. The air acts as a coolant for the nozzle and the jacket minimizes direct contact between the corrosive flue gas and the injector. This maximizes the useful life of the nozzle in a hostile environment.

PROCESS DESIGN TABLE

Type of Furnace		Martin MSW Combustor	
Fuel Fired		MSW	
Maximum Heat Input mmBTU/hr		260	195
Uncontrolled NOx:	ppmd @7% O_2	350	350
	#/hr	141	106
Percent NOx Reduction		69%	69%
Controlled NOx:	ppmd @7% O_2	110	110
	#/hr	44	33
NOx Removed	#/hr	109	73
Expected NOxOUT® A Flow, gph		54	41
Furnace CO, ppm		<100	<100
Ammonia Slip (ppm as measured)	15	10	
Injectors		3 Levels of 7 injectors	
Flue Gas Temp		1750 to 1950°F	

SCOPE OF SUPPLY

1 15,000 Gallon NOxOUT® A REAGENT STORAGE TANK

Fiberglass Reinforced Plastic (FRP) with Premium Grade Vinylester Resin. Fabricated per ASTM D3299-88 where applicable, 1.5 specific gravity, heating package to maintain 80°F, site specific variables include: seismic zone, wind load, snow load, and temperature variance.

Includes heat trace and insulation with thermostat control, level transmitter, manway, vent, internal downpipe, external fill pipe, ladder, hold down and lifting lugs, FRP flanges for inlet, outlet, and fill, and circulation line valves for suction isolation, drain, and return control.

Typical Size: 12' OD x 17.8' SS x 19.3' OAH; 5,250 lbs.

Reference FTI Drawing C-1

1 CIRCULATION MODULE (SLP3-C)

Designed for continuous circulation and heating of the NOxOUT® A chemical and to supply feed of the reagent into the Metering Module. The NOxOUT® tank level indication and alarms will be mounted on this module adjacent to the local control panel.

Module includes complete assembly and testing, local control panel (NEMA 4X), redundant SS centrifugal pumps with TEFC motors and motor starters, stainless steel skid with basin, 3 kw electric heater, duplex strainer for chemical, flow sensor and indicator for NOxOUT® A, reagent temperature indicator, tank level indication, and all necessary SS components, piping (Sch. 40, socket-welded), and fittings.

Typical size: 4'W X 7'L X 6'H; 1,500 lbs.
Reference FTI Drawing D-1

1 REDUNDANT METERING MODULE (SLP3-MS-ILC) WITH INDEPENDENT LEVEL CONTOL

This module is designed for Independent Level Control, which permits a biasing of the chemical to each injection level that is in use. It has a completely common back-up system (placed in the center of the skid) that can act as a fully redundant system for either level of control. Provides flow and pressure control of the fluids used in the NOxOUT® Process, NOxOUT® A and Dilution Water. The water supply will be adjusted, via a pressure control valve, to a set pressure that will allow for proper flow to each Distribution Module. The proper amount of NOxOUT® A is then fed, by use of a metering pump and an AC drive controller, into the dilution water discharge line and through a static mixer. The water/boost pump is supplied to power the mixed chemical up to each injector level at the proper pressures and flow rates. The local control panel on this module can operate in local or remote. In the remote mode the plant control room DCS or supplied PLC can automatically feed the optimized amount of NOxOUT® A reagent water pressure through the use of a 4-

20ma signal. Automatic flush of the system is also provided to clear chemical from the lines prior to shut down.

Also includes complete assembly and testing, (1) local control panel with PLC (NEMA 4X), (3) SS metering pumps with AC motors and drive controllers, (3) turbine/boost pumps with TEFC motors and motor starters, stainless steel skid with basin, (3) static mixers, (3) magnetic flowmeters with digital indicators for controlling chemical flow, (3) magnetic flowmeters, pressure control valves, pressure transmitters and indicator for controlling water flows, duplex strainer for water, air pressure switch, regulator for water inlet, (3) chemical calibration columns, and all necessary components, piping (SS Sch. 40 socket-welded), and fittings.
Typical Size: 4'W x 12'L x 6'H
Approximate weight 3,200 lbs.
Reference FTI Drawing E-4

3 **DISTRIBUTION MODULES (SLP3-D-7)**

These Modules are placed at each level just prior to the injectors and are used as a guide and check for proper injector performance. Air for atomization and cooling is introduced through this Module. One panel is supplied for each injector. They are grouped and pip-manifolded together for ease of installation.

This Module includes the necessary panels per module. Complete assembly and testing, flow and pressure indication with regulators for chemical and atomizing air. Each panel will be mounted to a free-standing stainless steel base and a pipe-manifold assembled for easy flow accessibility.

Typical Size 2'W x 7.7'L x 6'H, 700 lbs
Reference FTI Drawing F- 2

21 **WALL INJECTOR ASSEMBLIES (SLP3-I-NFTL-A)**

Each FT injector will be appropriately sized and characterized for proper flows and pressures that are required to achieve the necessary NOx reductions. The injectors are made completely of 316L stainless steel and the nozzle tip and cooling shield will be supplied with a ceramic coating. The cooling shield is typically 3/4" tubing (.750" O.D. & 0.83" wall thickness). The inner atomizing tube is typically 3/8" tubing, standard length is 2.5'.

Each Injector Assembly includes Fuel Tech air atomized injector, adapter for insertion adjustment, coupler to attach to boiler support, quick-connects and 6' long steel-braided flex hoses for both the chemical and atomizing air connections.
Reference FTI Drawing G-1

1 FURNACE TEMPERATURE MONITOR

The optical pyrometer will be used to provide continuous furnace temperature monitoring. They will be mounted on the side of each furnace near the furnace exit and will be used as a control input to the system monitoring changes in gas temperatures due to variations in load, burner tilt position or soot blowing.

The optical pyrometer detects radiation primarily at visible wavelengths where its accuracy is maximized while minimizing errors resulting from the relatively cool walls that surround the gas. This visible radiation is emitted by the ash particles transported by the exhaust gases, and not by the gases themselves. Since the ash particles are typically smaller than 30μm in diameter and thermally equilibrate with the surrounding gas in a few tens of microseconds, their temperature accurately reflects the local gas temperature. The instrument is pre-programmed to calculate the temperature of the ash cloud. It will measure the average temperature of the gas in the line of site across the width of the boiler with a slight bias to the side from which the measurements are taken.
Reference FTI Drawings G-11, G-15

1 CONTROL ROOM INTERFACE

Control of the NOxOUT Modules is facilitated by a PLC based control system utilizing an Allen-Bradley SLC 5/04 processor on each Circulation and Metering Modules. These PLC's control the local operation of each module. In addition to local control, the Metering Module PLC is responsible for control of the overall SNCR NOx reduction process. This is accomplished by routing to the PLC the required boiler parameters such as NOx, operating O2, and boiler load. The PLCs are programmed during the initial phases of the equipment construction and then fine-tuned during the start-up testing to respond to specific unit and emissions conditions.

A-B PanelView 550's provide a human-machine interface for local operation at each of the various modules. Each unit has a digital display that acts as the window to module and/or unit operation. From the 550, the operator can monitor all of the system performance as well as control the system and adjust the automatic operation at the various load conditions. This is accomplished through the use of the display screen and the attached keypad.

Additional monitoring and control can be provided for both the control room operator and the operator working on the side of the boiler via DH+ communication and the use of a customer-supplied interface to the plant's Distributed Control System (DCS).

ENGINEERING:

Fuel Tech will provide project and process engineering and the following drawings and information:

- P&ID
- Skid Arrangements
- Foundation Loads
- Tank Arrangement
- Interface Drawings
- Injector Locations
- Electrical Drawings and Bill of Materials
- Pump Performance Curves
- O&M Manuals
- Computer Model Output as required

The Circulation, Metering and Distribution Modules will be skid mounted with all equipment, piping, instruments, electrical and controls shop assembled. Installation will require interconnecting mechanical and electrical. Size, weight and electrical requirements are specified on the Equipment Specification sheets.

All control devices require field installation.

ENGINEERING SERVICES:

- Computational Fluid Dynamics and Kinetic Modeling as required
- Project Engineering
- On site installation assistance (x mandays)
- Training, Startup and Optimization Service (x mandays)
- Operation and Maintenance Manuals (5 Copies)

SCOPE OF SUPPLY BY OTHERS

1. Installation of Fuel Tech Supplied Equipment
2. Control Power Supply
3. Implement Control Logic Schemes into plant control system
4. DCS Interface for Allen Bradley DH+
5. NOx, Ammonia and CO Monitoring Equipment
6. Auxiliary Power: 20 to 25kw, 480volt, 3 ∅ (Connected Load).
7. Compressed Air: Maximum: 290 SCFM @ 60 to 80psig
8. Make-up Water: 11 to 21 gpm (Expected 14gpm)
9. Chemical Supply*
10. Testing

*** NOxOUT® A Reagent prices should be obtained from a licensed NOxOUT® A Reagent Supplier List (Appendix G), along with Reagent Specifications and Material Safety Data Sheets.**

Lee County Board Of County Commissioners
Agenda Item Summary — **Blue Sheet No. 2005**

1. ACTION REQUESTED/PURPOSE:
Approve award of formal quotation (RFP B&R 2661-M-310) and issuance of a purchase order to Fuel Tech, Inc. the sole-source provider / proposer, meeting all specification requirements for a proprietary Nitrogen Oxide Select Non Catalytic Reduction system including engineering, modeling, and all equipment, in the not to exceed amount of $1,081,000.00 that includes an allowance of $11,000.00 for a performance bond and $67,700.00 for installation, start-up, and training service.

2. WHAT ACTION ACCOMPLISHES:
Provides the necessary SNCR De-NOx equipment/system for the Waste To Energy Expansion Project.

3. MANAGEMENT RECOMMENDATION: Staff recommends approval of this request.

4. Departmental Category: 8 C8D			5. Meeting Date: 09-20-2005
6. Agenda:	7. Requirement/Purpose: *(specify)*		8. Request Initiated:
X Consent		Statute	Commissioner
Administrative		Ordinance	Department: Public Works
Appeals	X	Admin. Code 4-1	Division: Solid Waste
Public		Other	By: Lindsey J. Sampson
Walk-On			

9. Background:

Sealed quotes were received by the County's design engineer, Burns & Roe, on behalf of the Solid Waste Division on June 15, 2005. On that date one response was received from the sole-source provider meeting all technical requirements for this system and equipment. After review and conformance for technical and commercial requirements recommendation was made to award to Fuel Tech, Inc. offering a patented, proprietary system. Additionally, Covanta Lee, Inc., the County's WTE Operator requires that the Fuel Tech equipment be utilized for the expansion project in order for Covanta to provide a guarantee related to NOx emissions from the combustion unit.

Funds are available in account string: 200923 40102.506540

Attachments: Burns & Roe bid evaluation dated 8/2/05
Covanta comments and recommendation dated 9/2/05

10. Review for Scheduling:

Department Director	Purchasing or Contracts	Human Resources	Other	County Attorney	Budget Services				County Manager/P.W. Director
					Analyst	Risk	Grants	Mgr.	
9.6.05	NA per JS	NA					RK 9/7	9/8	9.6.05

11. Commission Action:
_____Approved
_____Deferred
_____Denied
_____Other

RECEIVED BY COUNTY ADMIN: 9/6/05 4:16
COUNTY ADMIN FORWARDED TO: 9/6/05

CO. ATTY. FORWARDED TO: 9-6-05

August 2, 2005

LEE COUNTY
WTE EXPANSION PROJECT
FORT MYERS, FLORIDA
RFP 2661-M 310
SELECTIVE NON-CATALYTIC REDUCTION (SNCR)

BID EVALUATION

Burns and Roe Enterprises, acting on behalf of Lee County, issued Request for Proposal No. 2661-M 310 "SNCR" on May 30, 2005 to Fuel Tech, Inc. Fuel Tech is a sole source supplier of this equipment. It is a patented process for the reduction of Nitrogen Oxides (NOx). The system is based upon the injection of urea-reagents into the combustion path of the boiler that provides NOx reduction and control. Fuel Tech is a licensed agent for the urea-based technology.

Fuel Tech bid was received June 15, 2005.

RECOMMENDATION:

The recommended award of the contract is to Fuel Tech, Inc. Recommended award price is **$1,070,000,** which includes a complete system, freight costs FOB Jobsite. It does not include cost for Performance Bond or Sales/Use Tax. A breakdown of pricing is as follows:

Engineering	$ 208,300.
Modeling	50,000.
15,000g Reagent Tank	112,700.
Circulation Module w/enclosure	145,300.
ILC Metering Module	228,500.
(3) Distribution Modules	84,700.
(21) Wall Injectors	46,600.
Furnace Temperature Monitor	39,800.
Control Room Interface	61,300.
Freight	23,100.
Installation Support (5 mandays)	9,700.
Training/Start-up (30 mandays)	58,000.
TOTAL	**$1,070,000.**

Breakdown prices were provided for information purposes. Performance Bond cost (not included above) is $11,000.

Bid Evaluation 2661-M310 "SNCR" (cont'd)

Fuel Tech's payment terms are:

10% with Order
10% Submittal of approval drawings
30% Release for Construction
40% Date of Shipment
10% Acceptance or (6) months after delivery

Fuel Tech took exceptions to the Services/Goods Purchase Conditions as included in the RFP. Discussions with Fuel Tech deleted certain exceptions. A mark-up of Fuel Tech's requested changes in attached. Also attached is Fuel Tech's Confidentiality Agreement, which they request execution.

Once terms are resolved and acceptable to the County, price and payment terms are negotiable with Fuel Tech.

Fuel Tech's price is valid through August 31, 2005 and June 15, 2006 delivery is confirmed.

COVANTA LEE COUNTY
LEE COUNTY RESOURCE RECOVERY FACILITY
WASTE TO ENERGY EXPANSION PROJECT

Date: June 22, 2005
By: T. Kutylowski

TECHNICAL BID EVALUATION
REQUEST FOR PROPOSAL No. 2661-M-310
SNCR SYSTEM

SUMMARY

Request for proposal was sent to Fuel Tech, Inc. Fuel Tech proposed their NOxOUT SNCR NOx Reduction System. The proposal was received and evaluated.

A preliminary evaluation was performed. This evaluation revealed that some of the data supplied by the Seller was incorrectly stated. The Seller was asked to correct this data, and promptly responded with the corrections.

TECHNICAL DISCUSSION

The proposal submitted by Fuel Tech Inc. is for a complete package. It is to contain one (1) each of the following:

- 15,000 Gallon Reagent Tank
- Circulation Module (SLP3-C)
- Circulation Enclosure
- Redundant Metering Module (SLP3-MS-ILC)
- Furnace Temperature Monitor
- Control Room Interface

Also included are three (3) Distribution Modules (SLP3-D-7) and twenty-one (21) Wall Injector Assemblies. Engineering and Engineering services, i.e. computer modeling, are also included in the proposal.

PERFORMANCE EVALUATION

Fuel Tech has offered the following:

Twenty-four averaging period reveals a 10 ppmdv NH_3 slip at the stack. Urea consumption during the twenty-four hour period is 50 gallons per hour. The NH_3 Slip guarantee is at a heat input of 265 mmBTU/hr.

At 195 mmBTU/hr heat input, NH_3 Slip measure at the stack is guaranteed to be 10 ppmdv over a twenty-four (24) hour averaging period. The urea consumption during that 24 hour period is 37 gallons per hour.

For a one-hour period, NH_3 slip measured at the stack is guaranteed at 20 ppmdv. This is double the amount specified in the specification (10 ppmdv). However, this is the least amount of slip possible at the conditions stated; 265-

However, this is the least amount of slip possible at the conditions stated; 265-mmBTU/hr heat input, an uncontrolled NOx of 350 ppmdv, and a stack NOx of 110 ppmdv. These conditions also use the most amount of urea, 71 gallons per hour.

During all of the above-mentioned periods, the NO_x concentration as measured at the stack is guaranteed to be 110 ppmdv @7% O_2. The one (1) hour sampling time did have an ammonia slip of 20 ppmdv, which is double that stated in the specification.

Technical exceptions and clarifications are listed in Attachment 1. Fuel Tech, Inc has requested that the ammonia slip's measurement location be clarified. Therefore the Ammonia Slip Guarantee will be "as measured at the stack". The acceptance of the proposed submittal of ladder and PLC program files instead of the requested logic control diagrams is acceptable.

PRICING EVALUATION

The base price of the proposal is $1,070,000.00 (one million seventy thousand) dollars. This price is FOB to the jobsite. This price includes:

- Engineering
- Modeling
- (1) 15,000 Reagent Tank
- (1) Circulation Module
- (1) Redundant Metering Module
- (3) Distribution Modules
- (21) Wall Injector Assemblies
- (1) Furnace Temperature Monitor
- (1) Control Room Interface
- Freight to Jobsite
- On Site Field Technical Assistance during Installation
- On Site Training and Start-up Assistance.

Also included in the proposal is a list of recommended spare parts. It is separated into Electrical and Mechanical Spare Parts. Some items on the Mechanical Spare Parts list are flagged for possible 6-month replacement frequency.

Items flagged for 6-month replacement frequency total a cost of $16,519.00 dollars.

RECOMMENDATION

The proposal has been deemed technically acceptable.

ATTACHMENT 1

Technical Comments and Clairificaitons

Technical Comment, Clairificaiton, or Exception	BRE Response
Page 1, Para 1.2.1 Engineering: Ladder and PLC Program File will be provided instead of Logic Control Diagrams.	Acceptable
Pages 9, 10 & 11: Ammonia Slip Guarantee is: "as measured at the stack"	Acceptable

E-Mail Correspondence:

From: Alexander Dainoff <ADainoff@fueltechnv.com>
To: "Steve Stuhrke (sstuhrke@roe.com)" <sstuhrke@roe.com>
Date: 6/20/2005 1:10:33 PM
Subject: Covanta Lee County Proposal, Ref 2661-M-310

Steve,

As you requested, I have modified the following Technical data in Table 3:

Service air required: 60 to 80 psi

Instrument air required: 80 to 105 psi

Required Carrier Water: 1260 gph, max

840 gph expected

Sorry for the confusion. Let me know if you need additional information.

Thanks,

Alexander S. Dainoff

Regional Manager

Fuel Tech, Inc.

Financial Centre

695 East Main Street

Stamford, CT 06901

Phone: 203-323-8401, Ext 151

FAX: 203-967-2366

Mobile: 201-970-4044

E-Mail: ADainoff@fueltechnv.com

CC: Erik Parks <EParks@fueltechnv.com>, William Cummings <WCummings@fueltechnv.com>

Sampson, Lindsey J.

From: Peter Young [pyoung@CovantaEnergy.com]
Sent: Friday, September 02, 2005 10:24 AM
To: Sampson, Lindsey J.; Don D'Amico; Dennis Iavarone
Cc: Dennis Anacker; Glenn Fontana; Steve Stuhrke
Subject: SNCR - Selection & Recommendation

Attachments: T-M-096.TIF; TC's & Guarantees.doc; Nondisclosure Agreement.pdf


T-M-096.TIF (45 KB)


TC's & rantees.doc (115 KB


Nondisclosure Agreement.pdf (5...

Based on B&R's SNCR Bid Evaluation, dated August 4, 2005, Covanta concurs with B&R's selection and recommendation to purchase the subject package from Fuel-Tech. The following comments are for your consideration and guidance:

1. Commercial Terms & Conditions - Vendor has several exception/changes to the RFP Services/Goods Purchase Conditions as reflected in the attached "TC's..." document. The attached document also reflects Covanta's suggested changes to the terms & conditions and included are our recommended Performance Guarantees for the County's consideration.

The most significant change Covanta made to the Performance Guarantees is the addition of a carrier water guarantee of 14 gpm or a maximum of two rows of nozzles in operation required to meet the guarantees. In the evaluation correspondence Fuel Tech quoted an expected carrier water requirement of 840 gph (14 gpm) and maximum requirement of 1260 gph (21 gpm). Should the SNCR system require more than 14 gpm (7,000 lb/hr) carrier water, more heat input will be required to make MCR steam flow negatively affecting the Project's energy output.

In parallel with this email, Covanta will forward the attached Word document for Fuel-Tech's acceptance (but with the understanding that the County may have additional comments and all subject to the County's final negotiations with Fuel-Tech.

Also attached is Appendix A which is Fuel-Tech's requested Nondisclosure Agreement. Covanta already has a similar agreement with Fuel-Tech, therefore the County will need to agree on its own with Fuel-Tech subject to the County's applicable conditions.

2. Price: Covanta concurs with B&R's recommended award Price of $1,070,000, except Covanta suggests that the County include the cost of a bond as discussed in Item 4 below.

3. Project Estimate: $1,168,258.

4. Bond: Bond cost of $11,000 is excluded from the above price. County has not require a bond for an equipment delivery only order. Since it is critical that Fuel-Tech performs to achieve its environmental guarantees, before and after its final payments, it is suggested that the County exercise the offered performance bond.

5. Payment Terms: Progress payments up to 90% upon delivery to site. Last 10% upon successful initial acceptance testing. See attached Appendix B for details. Net 30 days.

6. Schedule: The proposed delivery date of June 15, 2006 is not consistent with our June 5, 2006 delivery we had scheduled. B&R should request a June 5, 2006 delivery. If Fuel-Tech objects, a June 15, 2006 date may be accepted.

B&R should proceed immediately with the following:
1) confirm the Price validity for an award by September 23, 2006.

2) confirm a delivery date of June 5, 2006 is acceptable to Fuel-Tech.

3) confirm clarification of the controls scope per Covanta's questions that we had previously forwarded to Burns and Roe. At present we do not expect any scope changes which will result in additional costs beyond those identified in the bid evaluation, but this requires confirmation.

4)issue the County a purchase order term sheet that reflects the final agreements and understandings to be incorporated into the purchase order, and

5) issue the conformed specification, with all data sheet data filled-in, for inclusion in the purchase order.

County should proceed immediately with finalizing commercial terms with the vendor.

B&R's original and current schedule for issuing this PO was May 9, 2005 and August 16, 2005, respectively. Covanta recommends that the County have this award approved by the BOCC by the September 20, 2005 BOCC Meeting. Note that this order release is very critical relative to provide nozzle locations to Riley to minimize impacts to Riley's progress.

Peter

-----Original Message-----
From: Serrette,Pat
Sent: Thursday, August 04, 2005 4:55 PM
To: ekhalikar@aaesengineering.com; Sagar,Amrit; Anacker,Dennis; Gounaris,Demetrios; Holmes,Jack; Howard,Jody; Duff,Michael; Fulco,Nilma; Young,Peter; Harbison,Russell; Libertell,Trish; don.castro@hdrinc.com; AvogliMS@leegov.com; sampsolj@leegov.com; Andrew Preisler; D'Amico,Don; Dennis Iavarone; Rubin,Ira; Joseph Craven; John Ferrari; Justin Mathew; Cole,Kevin; Patel,Manu; Stuhrke,Steve; jkelly1119@verizon.net
Subject: Transmittal T-M-096 Bid Evaluation - SNCR System

A notification for transmittal T-M-096 entitled SC-319 Water and Steam Sampling Panel was forwarded to the Lee County Distribution team on Friday, July 29, 2005. Please note that the transmittal was incorrectly categorized (i.e. discipline type) and the above subject transmittal number is being reused to represent the appropriate discipline grouping (T-M-096 Bid Evaluation - SNCR System). Please discard the previous T-M-096 transmittal and replace with the attached.

On a further note, I&C Document SC-319 Water and Steam Sampling Panel will now appear as Transmittal T-I&C-012 (to follow).

Additionally, please note the following:
Transmittal T-M-098 - SC-302 (forwarded 8-2-05) will now appear as Transmittal T-I&C-013 (to follow) Transmittal T-M-099 - SC-322 (forwarded 8-2-05) will now appear as Transmittal T-I&C-014 (to follow)

T-M-098 and T-M-099 will be reused accordingly.

Please accept my apologies for any inconvenience.

The document(s) list in the attached transmittal has/have been issued and posted to the project website. You will find them under webprojects\vaults\02661-001-Lee County WTE Expansion\BREI Released Documents\Bid Evaluations\and then the applicable sub-vault.

Patricia F. Serrette
Burns & Roe Enterprises
800 Kinderkamack Road
Oradell, NJ 07649
(201) 986-4098

Covanta Projects, Inc.
A Covanta Energy Company
14230 Hays Road
Spring Hill, Florida 34610
Telephone #: 727-856-2917
Facsimile #: 727-856-0007

COVANTA ENERGY

Mr. Michael Sole
Assistant Secretary
Florida Department of Environmental Protection
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000

July 12, 2006

Reference: Hillsborough County Resource Recovery Facility Expansion Project
DEP File No. 0570261-007-AC (PSD-FL-369, PA 82-19A)

Dear Mike,

On behalf of all of us at Covanta, I would like to thank you and the other members of the Department that participated in the Friday afternoon conference call (June 30, 2006) for taking the time to discuss with us the current status of the above referenced permit application filed by our Client Community, Hillsborough County, FL.

We understand that any requested changes at this time would require re-noticing the upcoming hearings, and would potentially delay issuance of the permit into 2007. As was stated during the call it is not our intent to challenge the permit conditions set forth by the Department in the draft permit, our goal was to open a dialogue with the Department by which we could express to you our serious concerns about the NOX and Ammonia slip limits suggested by the Department for this, and by default, all future WTE Facility Expansion Projects. The Department has suggested limits that have not been demonstrated to be coincidently achievable at any existing WTE facility based on the technical data available to us in contrast to the well supported limits suggested in the County's Application and BACT Analysis.

We and our Client Community, Hillsborough County agree with you that it is imperative that we meet directly with you and members of the Department Air Section once the Hillsborough permit is issued to share and discuss Covanta's NOX control technical experience base. Such a meeting is important and appropriate to discuss how relevant evolving emissions data and operating experiences can best support the new permit limits.
We feel that this meeting would be most appropriate to convene once operating data becomes available from the Lee County WTE Facility Expansion Project that is currently in construction. The current project schedule anticipates construction completion and performance testing of the Lee WTE Expansion Project to occur during mid 2007. We will keep you posted on the construction progress of the Lee Project, and would welcome input from the Department as to the overall agenda for this meeting so that we all can be well prepared once a date is finally set.

Once again, thank you for making time for us to discuss our concerns.

Sincerely yours,

Joseph R Treshler

Vice President
Covanta Hillsborough, Inc.

Cc:	Tom Smith	Hillsborough County, FL
	Jason Gorrie	CDM
	Joe Kahn	FDEP
	Trina Vielhauer	FDEP
	Patricia Kolmer	FDEP
	Scott Sheplak	FDEP
	Mary Smallwood	Ruden & McClosky
	Brian Bahor	Covanta Energy

Sheplak, Scott

file

From: Treshler,Joseph [Joseph_Treshler@CovantaEnergy.com]
Sent: Friday, June 23, 2006 3:40 PM
To: Sheplak, Scott
Cc: Strobridge, Daniel; Gorrie, Jason
Subject: RE: Hillsborough Unit 4
Importance: High
Attachments: FDEP comment letter confrimation 6-23-06.pdf

Please see attached letter

Covanta Energy Corporation
40 Lane Rd, CN 2615
Fairfield, NJ 07004-2615
Telephone #: 973-882-9000
Facsimile #: 973-882-7375

June 23, 2006

Mr. Scott Sheplak, P.E.
Air Permitting Section
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Reference : DEP File No. 0570261-007-AC (PSD-FL-369, PA 82-19A)

Dear Mr. Sheplak:

We understand that Hillsborough County (the Applicant) yesterday submitted comments to you which included a cover letter and 8 page attachment of comments prepared by Covanta as the Applicant's operator.

We would be pleased to respond to any questions you may have concerning our comments by phone or email, at your convenience.

Sincerely,

Joseph R. Treshler
Vice President
Covanta Hillsborough, Inc.
727-856-2917
jtreshler@covantaenergy.com

cc: Jason Gorrie CDM
Brian Bahor Covanta Energy

Covanta Energy Corporation
40 Lane Rd, CN 2615
Fairfield, NJ 07004-2615
Telephone #: 973-882-9000
Facsimile #: 973-882-7375

COVANTA
ENERGY

June 23, 2006

Mr. Scott Sheplak, P.E.
Air Permitting Section
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Reference : DEP File No. 0570261-007-AC (PSD-FL-369, PA 82-19A)

Dear Mr. Sheplak:

We understand that Hillsborough County (the Applicant) yesterday submitted comments to you which included a cover letter and 8 page attachment of comments prepared by Covanta as the Applicant's operator.

We would be pleased to respond to any questions you may have concerning our comments by phone or email, at your convenience.

Sincerely,

Joseph R Treshler
Vice President
Covanta Hillsborough, Inc.
727-856-2917
jtreshler@covantaenergy.com

cc. Jason Gorrie CDM
Brian Bahor Covanta Energy

Sheplak, Scott

copy to Al Sutt 4/28

From: Gorrie, Jason [GorrieJM@CDM.com]
Sent: Friday, June 23, 2006 3:11 PM
To: Sheplak, Scott
Cc: Treshler,Joseph; David Dee; Jay LaVia; Strobridge, Daniel
Subject: Hillsborough Unit 4
Attachments: Comments on p2 5 6-23-06.pdf

Scott:

We overnighted additional comments to your attention yesterday. An integral part of those comments is an 8 page letter prepared by Covanta which is addressed to Tom Smith and appended to our letter. When you get a chance, please confirm that you received our additional comments as well as Covanta's comments that were appended to our letter.

On a related matter, the attached letter contains additional comments prepared by Covanta that address the issues raised in EPA's comments dated 6/20/06. Thanks for all of your help on this.

Jason

<<Comments on p2 5 6-23-06.pdf>>

Covanta Energy Corporation
40 Lane Rd, CN 2615
Fairfield, NJ 07004-2615
Telephone #: 973-882-9000
Facsimile #: 973-882-7375

June 23, 2006

Mr. Thomas Smith, Manager
Hillsborough County
Department of Solid Waste
PO Box 1110
Tampa, FL 33601

Reference : DEP File No. 0570261-007-AC (PSD-FL-369, PA 82-19A)

Dear Tom:

Yesterday afternoon we received an electronic copy of a fax from FLDEP advancing EPA's comments on the FLDEP Draft Permit for the Hillsborough Resource Recovery Facility Expansion Project. This EPA letter includes several significant statements regarding PM 10, PM 2.5 and condensibles.

This is an evolving issue nationwide due to EPA having recently created a new National Ambient Air Quality Standard (NAAQS) for Fine Particulate (PM 2.5). The issue is so new that the EPA has not finalized an implementation rule that would enable affected states to create individual State Implementation Plan for such. Since Florida does not currently have any non-attainment areas for PM 2.5 we do not believe Florida will be directly affected.

We are attaching a set of brief comments to meet the deadline for comments on the Draft Permit. We believe these comments are best submitted by the County.

Please call with any questions so that we can meet this tight schedule.

Sincerely,

Joseph R Treshler
Vice President
Covanta Hillsborough, Inc.

cc. Jason Gorrie CDM
Dan Strobridge CDM
Brian Bahor Covanta Energy

Comments on the EPA Letter Dated June 20, 2006
To FLDEP Regarding the Hillsborough Draft Permit

There are a variety of reasons why the Final Permit for the Hillsborough Expansion should not include an enforceable limit for fine particulate (PM 2.5) including;

- Per the EPA letter – there is not an existing set of NSR implementation rules for PM 2.5.
- No the test method for PM 2.5 has been validated at a municipal waste combustor, a regulatory requirement set forth in Section 129 of the CAAA of 1990.
- In addition to the current EPA method for determining condensable particulate (EPA Method 202) not being validated at a MWC – the EPA's own report ((EPA 450/4-90-012) concludes that "the method may not be applicable at sources that contain high levels of ammonia (e.g. when ammonia is used as a control technique).
- The test method promotes double counting of certain pollutants and its accuracy and reliability with others is uncertain due to the above point about ammonia interference.

Additional information on these issues is provide below however we respectfully request the department to recognize that the scope and detail of these comments is limited due to the limited comment time.

Validation requirement of Section 129
Section 129 Solid Waste Combustion, Article (c) (3), requires that test methods and procedures to be validated on solid waste incineration units. This has not been done to our knowledge and more specifically, it has not been done at a modern MWC equipped with SNCR where there will be ammonia slip and interference.

Double Counting of EPA Method 202
EPA Method 202 employs three impingers that absorb water soluble emissions including HCl, NH3 and SO2. Each of these three pollutant is already being regulated by the permit with HCl and SO2 being regulated at levels equal to or more stringent than EPA's recent MACT determination for large MWCs. Double counting of a pollutant in both its gas phase and also as a potential condensable is not equitable, fair or representative of what really happens in the atmosphere. These pollutants cannot exist in two phases at the same time – its one r the other. Due to the uncertainties of the method and the fact that there is not a final implementation rule – it is not appropriate to establish a limit.

Exclusions in EPA Method 202
EPA Method 202 does not require inclusion of ammonium chloride as a condensable particulate. This exclusion appears to be due to several reasons including; i) ammonia is being used to reduce NOx, a primary precursor to ambient PM 2.5 whereas the resulting ammonia slip is present in relative minor amounts compared to the amount of NOx removed, ii) the double counting of NH3 and HCl. In either case – there is an exclusion that would apply.

Pseudo Particulate
EPA Method 202 includes provisions for nitrogen purging to prevent the formation of artificial condensable particulate matter such as ammonium sulfate. We are not aware of any verification testing at a MWC where the effectiveness of this purging has been demonstrated. If it is not effective – the test would yield significant false positive amounts of condensable particulate matter.

-file-

CDM
1715 North Westshore Boulevard, Suite 875
Tampa, Florida 33607
tel: 813 281-2900
fax: 813 288-8787

June 22, 2006

Mr. Scott Sheplak, P.E.
Air Permitting Section
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

Subject: Hillsborough County Resource Recovery Facility
DEP File No. 0570261-007-AC
Supplemental Comments to Draft Permit

Dear Mr. Sheplak:

On behalf of Hillsborough County ("County"), CDM is submitting the following additional comments about the draft PSD permit ("Draft Permit") that the Department of Environmental Protection ("Department of DEP") prepared for Unit 4 of the County's Resource Recovery Facility ("Facility")

Steamflow Limitation

Section III, Item 7 of the Draft Permit states that "the maximum steam production rate shall not exceed 164,000 pounds steam per hour (on a 4-hour block arithmetic average)." The County's application evaluated capacity of the new Unit 4 on an MMBtu/hr basis, not on a steam production rate basis. Relating steam production rate (in pounds per hour) to heat release rate (in MMBtu) is difficult given the varying heat content of the fuel (MSW) and the relatively wider operating window that municipal waste combustors operate within. This is recognized by the USEPA in that Subpart Eb establishes the maximum steam load as 110% of the maximum demonstrated steam load during the most recent dioxin/furan performance test.

The County is not opposed to establishing a never to be exceeded value for steamflow, however, the preliminary specifications provided by the boiler vendors suggest that 164,000 lbs/hr is too low. The maximum steamflow should be 190,000 lb/hr. This is equivalent to the 288 MMBtu per hour input used in our air quality analyses.

Mass Emission Limitations

Specific Conditions 14 through 21 of the Draft Permit establish lb/hr limitations for many of the regulated pollutants emitted from Unit 4. The emission limitations established as BACT and imposed through NSPS standards are expressed on a concentration basis (either mg/dscm or ppmdv). Past Department practice has been to establish "equivalent emissions" (in ton/yr) based on the requisite concentration limitation. However, this Draft Permit establishes an actual mass limitation rather than an equivalent emission.

From discussions with you, it is our understanding that the EPA requires a mass emission limitation to be imposed when a PSD threshold is triggered. As you know, the concentration limitations have varying averaging periods associated with them. For instance, SO2 concentration is regulated on a 24-hr geometric mean average and CO concentration is regulated on a 4-hr block arithmetic average. In order to avoid confusion over differing averaging periods, and to satisfy EPA's mass emission limitation requirements, we suggest that the Department establish a ton/year limitation rather than a lb/hour limitation. Such an approach will preserve operating flexibility, avoid confusion, and embody EPA's PPSD increment-consumption requirements. With the flow CEM it will be possible to accurately determine compliance with an annual mass emission limitation.

Miscellaneous

Specific Condition No. 29)a. authorized three hours in any 24-hur period of excess emissions. Specific Condition No. 29)c. provisionally allows up to 15 hours for certain types of malfunctions resulting in CO emissions. For clarity, we suggest that the language in 28)a. reference the special provisions of 29)c.

Thank you for your consideration of these additional comments. If you would like to discuss these further, please do not hesitate to contact me at (813) 281-2900.

Very truly yours,

Jason M. Gorrie, P.E.
Principal
Camp Dresser & McKee Inc.

c: Tom Smith, Hillsborough County
David Dee, Young Van Assenderp, P.A.

Covanta Energy Corporation
40 Lane Rd, CN 2615
Fairfield, NJ 07004-2615
Telephone #: 973-882-9000
Facsimile #: 973-882-7375

June 22, 2006

Mr. Thomas Smith, Manager
Hillsborough County
Department of Solid Waste
PO Box 1110
Tampa, FL 33601

Reference : DEP File No. 0570261-007-AC (PSD-FL-369, PA 82-19A)

Dear Tom:

Attached are Covanta's comments as the County's operator for the Hillsborough County Resource Recovery Facility Expansion Project. It is our understanding that these comments will be submitted to FDEP along with the County's in a timely manner relative to the date of publication of the Proposed Notice.

Thank you for the ability to participate.

Sincerely,

Joseph R. Treshler

Vice President
Covanta Hillsborough, Inc.

Cc.	Jason Gorrie	CDM
	Dan Strobridge	CDM
	Brian Bahor	Covanta Energy, Inc.
	John Phillips	Covanta Energy, Inc.

6/22/2006
Covanta Energy

Comments on Draft Permit PSD-Fl-339

Executive Summary

The following sections provide detailed comments on Draft Permit PSD-FL-339. There are two key points to be highlighted: 1) the Draft Permit cites an incorrect maximum steam rate that must be changed to enable the facility to operate at full load as presented in the Applicant's permit applications, and 2) the Draft Permit contains NOx and ammonia (NH3) emission limits that are (a) significantly more stringent than those in the Applicant's NOx BACT analysis and (b) not supported by technical data from any waste-to-energy (WTE) facility in the world.

The steam rate is a major issue because the Draft Permit mistakenly provides for a maximum steam production rate of 164,000 pounds per hour (4 hour block) in a variety of conditions. The correct maximum steam production rate is 190,000 pounds per hour (4 hour block). This change is necessary for the facility to operate at its rated capacity as identified in the permit application. It is important to note that the Applicant's environmental impact analysis was premised on the operation of a municipal waste combustor with the ability to generate steam at a rate of 190,000 pound per hour (4 hour block average), thus the correction requires no additional analysis by the Applicant or Department.

The Applicant's NOx BACT analysis was based on factual information (CEM and stack test data) which recognized that the removal of NOx emissions with selective noncatalytic reduction (SNCR) creates ammonia slip which can subsequently form ammonium chloride. The inter-relationship between these three constituents was considered in the environmental impact component of the Applicant's NOx BACT analysis which yielded a set of emission limits that could all be met on a continuous and simultaneous basis. The Department's evaluation was based on general information gleaned from a variety of sources (vendor literature, internet references, etc.) not of sufficient caliber to establish an enforceable emission limit... and none of these sources considered the requirement for continuous compliance of NOx and NH3 on a simultaneous basis.

Covanta, which operates 31 WTE facilities, operates a variety or NOx control systems at its U.S. facilities and also monitors the performance of NOx control systems at WTE facilities overseas designed by our technology partner Martin, GmbH, including the Brescia, Italy WTE facility cited by the Department as the basis of its findings. A full accounting of the NOx and NH3 data from Brescia (and not just the NOx data, as was the exclusive focus of the Department's analysis) directly refutes the Department's basis for the proposed NOx and NH3 emission limits in the Draft Permit and indicates that the proposed limits can not be met under all conditions at all times from the outset, and further, that one or both will likely be periodically exceeded as proposed, despite best operating practices and optimum performance of selective non-catalytic reduction of NOx . It is not in the interests of the operator, the County or the Department to be exposed to the immediate potential for dispute despite optimum performance of the

operator and the NOx reduction controls, simply due to, in our view, incomplete review of available data.

In conclusion, the analysis performed by the Applicant was based on good science and facts that yielded a set of emission limits than can be met on a continuous basis, whereas the Department's analysis did not provide any factual evidence that its new and more stringent limits could be met on a continuous basis. Covanta has always guaranteed compliance with key environmental permit conditions and provided technical assurances by contract to its Florida WTE client communities that emissions limits based on demonstrated performance can and will be met. However, the unprecedentedly low and unsupportable NOx and NH3 limits proposed for the Hillsborough County Expansion, means that for the first time in our history and in Florida history, proposed NOx/NH3 emission limits will not be guaranteed by either Covanta or the NOx control equipment provider. These limits will also have an unintended chilling effect on the consideration of new WTE capacity as a proven renewable energy source and alternate to land filling. The result will be increased landfill greenhouse gas emissions and continued higher dependents on other fossil fuel generated electricity – both contrary to the State environmental and energy goals.

Therefore, in the view of the most experienced WTE operator in both the State of Florida and the United States, the Department should reconsider the coincident limits of NOx and NH3 set forth in the Draft Permit and issue a final permit that reflects such limits in a manner consistent with the Applicant's BACT Analysis. Doing so will help to assure that the Hillsborough Expansion is capable of achieving the most stringent NOx permit limit for a WTE facility in the United States.

General Comments

1. The following comments are provided on Draft Permit PSD-Fl-339 issued to the Hillsborough County Department of Solid Waste, herein referred to as the Applicant.
2. Pollutant concentrations identified as parts per million, dry gas basis, referenced to 7 % O_2, are abbreviated herein as ppmdv7.

1.0 Section I Facility Information

The second paragraph of the "Project" section incorrectly cites a maximum steam production of 163,780 lbs/hour at 288 MMBtu/hour. The correct value is 190,000 lbs / hour at 288 MMBtu/hour.

It is important to recognize the need to modify the Draft Permit language. The revised condition in Section I Facility Information should read "The nominal design rate capacity is 600 tons MSW per day, with a nominal heat input of 288 MMBtu per hour and maximum steam generating production of 190,000 pounds per hour".

A similar correction occurs in a number of sections of the Draft Permit and we are submitting correction where appropriate, however in the event that an error is not

identified – please note that the correct proportion is 190,000 pound of steam per hour (4 hour block) at 288 MMBtu per hour of nominal heat input.

2.0 Section II Administrative Requirements

Item 2. Compliance Authority.
We agree that the FDEP Southwest District is the appropriate compliance authority for Permit Number PSD-FL-369 however, for the purpose of clarifying this point, we are requesting that the Hillsborough County Environmental Protection Commission be removed from the Power Plant Site Certification to make the PSD and PPSA consistent with each other.

3.0 Section III Emissions Unit Specific Conditions

3.1 Emissions Unit 107 – Steam Capacity
This table mistakenly identifies the Steam Capacity as follows "The maximum steam production rate is 164,000 pounds per hour (4-hour block average). The nominal heat input to achieve this load is approximately 288 MMBtu/hour". The correct maximum steam production rate at a nominal heat input of 288 MMBtu/hour is 190,000 lbs/hour (4 hour block average).

Therefore, the language in the table should be revised to read "The maximum steam production rate is 190,000 pounds per hour (4-hour block average). The nominal heat input to achieve this load is approximately 288 MMBtu/hour."

3.2 Emissions Unit 107 - Continuous Monitors
The equipment scope listed in under Continuous Monitors includes a continuous flue gas flow rate monitor. Continuous flue gas flow rate monitors have been applied to 40 CFR Part 75 sources; however, they have not been required or applied to large municipal waste combustors because EPA Method 19 has met all of the RATA requirements without introducing additional capital and O&M costs.

If the Department is interested in monitoring long-term mass emission rates, EPA method 19 is recommended because of its successful history and because it does not introduce additional cost.

Given their incremental cost without the provision of any net environmental benefit, Covanta recommends that the requirement for flue gas flow rate monitors be amended to allow the Applicant the opportunity to select either a flue gas monitor or to use EPA Method 19. In either case, the mass emission rate will be subject to the same data quality as determined by the Relative Accuracy Test Audit.

3.3. Condition 7 – Permitted Capacity
The Permitted Capacity is incorrectly reflected in the statement "The maximum steam production rate shall not exceed 164,000 pounds steam per hour (on a 4-hour block

arithmetic average)." As stated previously, the correct maximum steam production rate is 190,000 lbs/hour (4 hour block average) at a nominal heat input of 288 MMBtu per hour.

This condition should be revised to read as "The maximum steam production rate shall not exceed 190,000 pounds steam per hour (on a 4-hour block arithmetic average)."

3.4 Condition 14 - Emission Standards

The following comments focus on the NOx and NH3 emission limits of Condition 14 in light of the Department having established new and more stringent NOx and NH3 emission limits than those identified by the Applicant's BACT analysis. These comments analyze the Department's BACT Evaluation, and the new NOx and NH3 emission limits, pursuant to the same standards that the Applicant had to meet – particularly in the context of a technology being demonstrated and that emission limits must be continuously achievable within the known and expected variations of a process. In brief – the Applicant's NOx BACT analysis considered CEM and stack test data on an international basis, when considering continuous compliance with three separate but related environmental conditions (NOx, NH3 and ammonium chloride). The Department's BACT Evaluation did not address simultaneous compliance but instead focused on NOx information available in general literature (no coincident stack or CEM data was provided by the Department to support its conclusion). Unfortunately, the Department's BACT Evaluation did not meet standard regulatory criteria in that it did not consider whether a proposed emission limit was continuously achievable within known variations, and further, it failed to consider ammonia slip and ammonium chloride within the context of the requisite environmental impact analysis.

Despite the Department having determined that the Applicants BACT NOX analysis was correct relative to the proposed daily limit of 110 ppmdv7, the Department has also decided that there is "overwhelming evidence that suggests that a long-term value of 90 ppmdv7 can be met with the planned design and minimal visible emissions" (See page 26, Section 4.3 of the Technical Evaluation and Preliminary Determination). That evidence has never been shared with either Covanta or the Applicant. At the same time that the Departments BACT Evaluation did not directly consider ammonia slip in the BACT analysis (because it is not a PSD regulated pollutant) it nevertheless assigned a not-to-exceed ammonia slip limit of 15 ppmdv7. This determination was flawed because the NOx BACT analysis did not, but should have considered two environmental impacts associated with a new and lower NOx limit; 1) ammonia slip as an absolute value, and, 2) its potential to form ammonium chloride.

Covanta's operating experience has demonstrated that the Applicant's NOx BACT determination of 110 ppmdv7 is achievable on a daily basis. Fuel Tech, a leading international supplier of SNCR systems also believes that 110 pmdv7 is achievable, largely due to operating experience at the Babylon Waste-to-Energy facility, a modern large municipal waste combustor facility operated by Covanta. While Fuel Tech has provided guarantees for the NOx limit of 110 ppmdv7, neither Covanta nor Fuel Tech has guaranteed simultaneous compliance with both the proposed NOx and NH3 limits (NOx of 90 ppmdv7 and NH3 at 15 ppmdv7) at a new MWC unit.

The Department's BACT evaluation was dependent upon various sources of information; however, it has not provided any certified data (CEM or stack data) to support its NOx and NH3 related conclusions. Information used by the Department includes 1) vendor guarantees from other projects, 2) technical brochures and papers by vendors and 3) selected citations from internet sources. Despite the fact that each of these sources must be considered relative to the critical BACT requirements, and that a technology must be demonstrated and that the proposed limit must be continuously achievable, none were.

As to the vendor guarantee information cited by the Department, it was provided by Burns and Roe for the Lee County project. EPA's NSR procedures do not consider a vendor guarantee alone to be sufficient justification that a control option will work, and in any case – there has never been any type of guarantee provided for 90 ppmdv7 NOx and 15 ppmdv7 NH3.

With respect to technical brochures, general literature and internet data – this information is less credible than a vendor guarantee because it does not provide any real, quantifiable information that the Applicant can use in making a decision on what can be continuously achievable. This is especially true when considering the need for coincident compliance with three related emissions. Specific examples of where and how vendor literature was erroneously used are cited below;

Page	Department Position	Covanta Comment
12	FGR gives around 20 % NOX reduction but has given 25 to 35 % when combined with computational fluid dynamics	No reference is cited and there is no NOx or NH3 data provided.
15	A 2003 presentation by a vendor, Seghers, is used as the technical basis for determining the effectiveness of FGR in controlling NOx and NH3 slip.	This information was not long-term, it was not a guarantee from a vendor, and it did not present any NOx results below 90 ppmdv7 or NH3 data.
17	Martin Gmbh has successfully installed SNCR systems in Europe and attained guaranteed NOx values ~ 50 ppmdv7 with low ammonia slip **upstream** of the flue gas cleaning system. (1)	No guarantee values for NH3 were provided and Martin Gmbh has not offered a guarantee for this project and would not guarantee the Draft permit conditions.

(1) Emphasis added by FLDEP.

It is apparent from these and other citations that the Department has taken technical information on NOx and NH3 from varied sources and generated a hypothetical scenario in which the best NOx and NH3 could occur. However the Department has not presented in its analysis specific examples or sets of operating data from any waste-to-energy facility where low NOx and NH3 data was available on a simultaneous and continuous basis. It is hard to believe that the Department would accept a similarly flawed analysis from an applicant as support for any permit condition. The Department's own statement of "overwhelming evidence suggests that a long-term value of 90 ppmdv can be attained"

is in itself vague and contradictory relative to the ability to meet a permit condition. "Overwhelming" and "suggests" are absolutely inconsistent terms when considering a continuously achievable condition.

The Department's selective use of operating data from Brescia is also troublesome. On page 17, the Department touts the advanced "smart system" and that according to a page taken from a local report, typical stack NOx values are "roughly 20 to 30 ppmdv7". However when the Applicant presented actual coincident stack data for NOx and NH3 from this same facility that demonstrates NH3 slip above the proposed limits – this data was dismissed by the Department as an over use of ammonia.

The Brescia operating data provided by the Applicant to the Department is evidence that the combination of flue gas recirculation and SNCR can reduce NOx to 90 ppmdv. But of paramount importance, the stack NH3 slip from this same facility was well above 15 ppmdv (see below). The Applicant has presented a significant amount of data to demonstrate this very point; however, the Department has simply dismissed it without any legitimate technical justification.

While we agree that a 12-month rolling average is more appropriate than a daily average, it does not truly provide any material flexibility. That is because typical daily operations to enable compliance with the 12-month rolling NOx average of 90 ppmdv7 would be;

Daily Limit	: 90 ppmdv7
Compliance margin	: 10 ppmdv7
Typical Operations	: 80 ppmdv7

For example, if a situation develops that requires a reduction in urea reagent so that the stack limit approaches 110 ppmdv7, an offsetting day of 60 to 70 ppmdv7 would be required to maintain the long-term (90 ppmdv7) average. The Brescia data provided by the Applicant to the Department included 44 daily averages over a 3-month period in 2003. NOx ranged from 45 to 60 ppmdv7 while NH3 slip varied from 30 to 80 ppmdv7 with several days at or above 100 ppmdv7. It is important to mention that the Department did not consider this ammonia slip data in its environmental impact analysis regarding the potential formation of an ammonium chloride plume. Despite the fact that this phenomenon is well documented by the EPA in its studies and has been discussed at length between the Applicant and the Department, it seems to have been ignored by the Department in its environmental impact analysis.

As previously stated, the Brescia stack data supports the Department's determination that the appropriate NOx limit is 90 ppmdv7. However, contrary to the Department's position, that very same data indicates that the appropriate NH3 limit should be well above 15 ppmdv7. As to ammonium chloride, there is no process data available to our knowledge at Brescia... so we have no information regarding the Department's assessment of this parameter in its environmental impact analysis.

In conclusion, the BACT evaluation provided by the Department and its associated derivation of alternative NOx and NH3 limits was purportedly based on "overwhelming evidence that suggests a long-term value of 90 ppmdv" yet no data were provided. Therefore, we suggest that absent such evidence the Department be requested to reconsider the Draft Permit limits for NOx and NH3 and re-establish them in a manner consistent with the Applicants BACT analysis. Further, the Department is respectfully requested to provide the following;

1. Stack CEM data where both the NOx and NH3 limits were simultaneously met.
2. Analysis of ammonium chloride formation
3. The environmental impact analysis that considered the net difference of lower NOx (110 – 90 = 20 ppmdv7) with higher NH3 slip (50 – 15 = 35 ppmdv7) and any potential ammonium chloride formation.

3.5 Condition 15 - Nitrogen Oxides
The condition as written does not provide a clear time-weighted average for the mass emission rate of 79.8 lbs/hr. The following language is proposed to avoid any misunderstanding;

"During the first year of operation, emissions of NOx in the stack exhaust gas as measured by the required CEMS shall not exceed 150 ppmvd as a daily average and shall not exceed 110 ppmvd on a 30-day rolling average. The mass emission rate shall be reported as an annual value.

Thereafter, emissions of NOx in the stack exhaust gas as measured by the CEMS shall exceed neither 110 ppmvd as a 24 hour daily average and shall not exceed 90 ppmvd or on a 12-month rolling average. All mass emission rates are as an annual average."

3.6 Condition 16 - Carbon Monoxide
The condition as written does not provide a clear time-weighted average for the mass emission rate of 79.8 lbs/hr. The following language is proposed to avoid any misunderstanding;

"Emissions of CO in the stack exhaust gas as measured by the required CEMS shall not exceed 100 ppmvd on a 4-hour block average and shall not exceed 80 ppmvd lb/hour, both on a 30-day rolling average. All mass emission rates shall be reported as an annual average."

3.7 Condition 19
In order to establish consistency in permit averaging period between Condition 19 and Condition 35, the following is proposed for the third paragraph of Condition 19;

Thereafter, the owner or operator may demonstrate compliance with all Hg limit sin this permit with data collected from the required Hg-CEMS as described in Specific Condition 26 *with Hg-CEMS data being reported as a quarterly average*. Otherwise the required quarterly testing for mercury shall continue.

3.8 Condition 28 Department Regulations
In order to facilitate clarity in this condition, the following is proposed for the underlined sentence in the first paragraph; "The Department authorizes 3 hours in any 24 hour period for this emission unit *and allows for the special provisions cited in condition 29.b.c.*"

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FACSIMILE TRANSMITTAL SHEET

To	Scott Sheplak - FDEP
Fax Number	(850) 921-9533
From	Jim Little Air Planning Branch, Air Permits Section Phone: (404) 562-9118 Fax: (404) 562-9019 E-mail: little.james@epa.gov
Subject	Hillsborough County RRF
Date	June 20, 2006
Pages	3 (including this sheet)

We will mail the original signed letter. I will send an electronic copy by e-mail.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 20 2006

Ms. Trina L. Vielhauer, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Ms. Vielhauer:

Thank you for your letter dated May 24, 2006, and the accompanying prevention of significant deterioration (PSD) preliminary determination and draft PSD permit for a proposed modification of the Hillsborough County Resource Recovery Facility. The proposed modification consists of adding a fourth municipal waste combustor (Unit 4).

We first wish to commend the Florida Department of Environmental Protection (FDEP) on the thoroughness of its technical evaluation for this project. Our comments on the draft permit package are as follows. The word "we" in these comments refers to the Region 4 office of the U.S. Environmental Protection Agency (EPA).

1. The preliminary determination does not contain a specific acknowledgement of fine particulate matter ($PM_{2.5}$) as a pollutant that will be emitted from Unit 4. Although EPA has not yet issued $PM_{2.5}$ new source review (NSR) implementation rules, $PM_{2.5}$ is a regulated NSR pollutant because it is subject to national ambient air quality standards. We recommend that FDEP acknowledge $PM_{2.5}$ as a regulated NSR pollutant in the final determination. As part of this acknowledgement, you could comment that PM_{10} is being used as a surrogate for $PM_{2.5}$ and that the particulate matter emissions controls proposed for this project are appropriate for control of fine particles.

2. We are unable to tell if consideration was given to the possibility of condensible particle emissions from Unit 4. The test method specified for particulate matter emissions in Condition 23 of the draft permit is EPA Method 5 which does not measure condensibles. Since the project narrowly avoided PSD review for PM_{10}, any particulate component not included in the PM_{10} emissions estimate could be important. We suggest that the final permit include a requirement for a one-time test of condensible emissions to assess whether such emissions need to be considered further for Unit 4.

3. The tabular emissions limits summary in Condition 14 of the draft permit for sulfur dioxide and hydrogen chloride includes limits in terms of parts per million or percent reduction, with the following footnote: "Whichever standard is less stringent." Similarly, the emissions limits for mercury include limits in micrograms per dry standard cubic meter with the same footnote. The footnote is not assigned, however, to the listed pounds-per-hour emissions rates for these three pollutants. Furthermore, the text description of the limits is not altogether consistent with the tabular listings. For example, the text description of the sulfur dioxide limits in Condition 17 is "shall exceed neither 26 ppmvd nor19.2 lb/hr on a 24-hr daily geometric mean, or an emissions reduction of 80 percent shall be achieved." Please provide an explanation of how the emissions limits for sulfur dioxide, hydrogen chloride, and mercury are to be interpreted. Specifically, does compliance with the percent reduction requirements supersede compliance with all other limits?

If you have any questions concerning the comments in this letter, please call Jim Little at 404-562-9118.

Sincerely,

Gregg M. Worley

Gregg M. Worley
Chief
Air Permits Section

-file-

CDM
1715 North Westshore Boulevard, Suite 875
Tampa, Florida 33607
tel: 813 281-2900
fax: 813 288-8787

June 8, 2006

Ms. Trina Vielhauer
Bureau Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399

Subject: Hillsborough County Resource Recovery Facility
DEP File No. 0570261-007-AC;
Permit No. PSD-FL-369

Dear Ms. Vielhauer:

On behalf of Hillsborough County ("County"), CDM is submitting the following comments about certain aspects of the draft PSD permit ("Draft Permit") that the Department of Environmental Protection ("Department" or "DEP") prepared for Unit 4 of the County's Resource Recovery Facility ("Facility"). We are submitting these comments now because we want to promptly address and resolve these larger issues with the Department. We may submit additional comments about other issues within the 30 day period for public comments.

SNCR Operating Characteristics vis a vis NOx and NH3 emission limits

The County agrees with the Department's goal to minimize NOx and NH3 emissions from the Facility and is prepared to work with the Department to achieve the lowest practical NOx and NH3 emission limits in the USA. The emission limits we applied for in our application would have been the lowest emission limits in the USA. We are very concerned that the limits imposed in the Draft Permit may promote undesirable secondary effects. These are briefly described below.

The County will need to inject urea at an aggressive rate if the Facility is to comply with the Department's proposed 90 ppmvd emission limit for NOx. Increasing the urea injection rate is likely to result in increased levels of ammonia slip, which may exceed 10 ppmvd.[1] Under certain operating and atmospheric conditions, the ammonia slip may produce a highly opaque plume of ammonium chloride, which may violate the 10% opacity limit. Even if the plume

[1] The emissions data for the MWC facility in Brescia, Italy, show that there can be significant levels of ammonia slip when facilities try to reduce NOx emissions to extremely low levels. The data for the Brescia facility were provided to the Department on February 28, 2006, in the County's response to the Department's Notice of Insufficiency.

does not constitute a permit violation, the plume is likely to generate negative publicity and ill will for the Facility, the County, and the Department. Other operating experience with SNCR to produce NOx levels as low as that contemplated by the Draft Permit indicates that there will be other undesirable side effects such as plume formation and / or ammonia vapors in the workplace.

The County will properly design, construct, and operate its Facility to minimize the potential for these undesirable secondary effects. However, the Department should note that the Facility expansion constructor/operator does not guarantee these emission limits under the present construction and service agreements. Equally important is our understanding that FuelTech, a leading international supplier of SNCR systems, will not guarantee simultaneous compliance with the draft permit limits for NOx and NH3 for the Facility expansion. Further, it is our understanding that FuelTech will not guarantee the absence of an ammonium chloride plume because such plume is dependent, in part, upon local atmospheric conditions. If undesirable secondary effects occur during the initial operations of the Facility, the County will try to eliminate them by optimizing the Facility's operations. However, if the County uses its best efforts at every step of the process and still cannot prevent plumes or other undesirable effects from occurring on a persistent or regular basis, the County will need to obtain relief from the conditions in the Draft Permit without mandating the installation of additional air pollution control equipment.[2]

We recognize that the Department is not overly concerned about the potential for plumes or other undesirable secondary effects to occur because the Department is confident the County can simultaneously comply with all of the emissions limits and other conditions in the Draft Permit. Given the Department's confidence, the Department should grant the County's request for relief, because there presumably will be little risk for the Department that the relief mechanism will actually be used in the future. The Department also should grant the County's request for relief because, even if the likelihood of a problem is small, the County and the Department could experience significant difficulties and headaches if the Facility actually experiences problems with plumes.

In order to advance this project and the joint interest in having the lowest emissions from a new municipal waste combustor, the County proposes that if compliance with the Draft Permit limits for NOx and NH3 in Specific Condition 14 and 15 (NOX: 110 ppmdv as a daily average and 90 ppmdv as a 12 month rolling average, and NH3 10 and 15 ppmdv) creates

[2] An ammonia scrubber could be installed to reduce the ammonia slip, but the County's analyses demonstrate that an ammonia scrubber is not cost-effective or appropriate in this case.

unacceptable downstream effects (such as ammonia slip above permit limits, an ammonium chloride plume, ammonia vapor from ash management, etc.), then these NOx and NH3 limits should be subject to change up to maximum values of 110 ppmdv7 for NOx and 50 ppmdv7 for NH3, and the appropriate time-weighted average (for NOx) should be established based on field experience. This approach would enable the Facility to aggressively pursue the lowest possible NOx emission limit while also having the ability to avoid an adverse operating condition.

The rationale for this proposed change includes:

- The Department's BACT Technical Evaluation relied heavily on SNCR operating data from Brescia. While these data demonstrate that lower NOx emissions (90 ppmdv or less) can be achieved, the coincident ammonia slip is greater than that allowed by the Draft Permit and equally as important, other secondary effects such as a visible stack plume, workplace vapors, and NH3 emissions above the proposed limit were apparently not considered by the Department.

- A 12-month rolling average of 90 ppmdv7 does not provide true operating flexibility as suggested in the Department's "Technical Evaluation and Preliminary Determination". If we consider a basic situation (where the facility average is 90 ppmdv7), any day the Facility operates at 110 ppmdv7 would require an offsetting day's operation at 70 ppmdv7 just to average 90 ppmdv7. In its application the County mentioned the issues of simultaneous compliance with NOx, NH3 and ambient phenomena when operating to meet low NOx emission limits. These issues are compounded by operating at 70 ppmdv7 NOx. This situation is further complicated by the prudent need to have a compliance margin (approximately 10 ppmdv7) below the not-to-exceed permit limit.

- The PSD increments used throughout the County's application yielded results in full compliance with State and Federal standards. Therefore, Facility operation at or below these increments would have a smaller impact than that predicted in the application and as a result, a permit modification would not be required. Naturally, the resulting NOx emissions would also be the lowest in the USA.

Accordingly, the County respectfully requests the Department to amend the Draft Permit by adding the following language to the end of Specific Condition B.15:

> The County may request relief from the requirements in this Specific Condition B.15 if: (a) the County demonstrates that it has taken reasonable measures to optimize the

operation of Unit 4; and (b) notwithstanding the County's efforts, compliance with the 90 ppmdv NOx emission limit (12 month rolling average) results in the creation of unacceptable downstream affects such as ammonia vapors in the workplace from ash, a detached plume or other undesirable secondary conditions or effects. The maximum relief available from the Department is defined by the PSD increments (as TPY) in the County's application and the associated concentration as ppmdv7. The Department will grant relief in appropriate cases, but the Department reserves its exclusive right to determine whether any request for relief should be granted, granted subject to conditions, or denied.

Ammonia Slip

Specific Condition B.14 limits ammonia slip to 10 ppmvd when Unit 4 is operated at 195 MMBtu/hr and 15 ppmvd when Unit 4 is operated at 260 MMBtu/hr. It is our understanding that the Department derived these emission levels from the preliminary SNCR equipment specifications prepared by FuelTech.

The FuelTech specifications should not be used as permit limits in this case because the specifications were based on a NOx emission rate of 110 ppmvd. Since the Department has imposed a NOx emission limit of 90 ppmvd, the Facility will need to inject more urea than FuelTech anticipated and the SNCR specifications will need to be revised. Increasing the urea injection rate is likely to cause increased ammonia slip.

We respectfully request the Department to reconsider the proposed ammonia slip limitations and adjust them in light of the proposed 90 ppmvd NOX emission level. Please recognize that, to achieve an annual average of 90 ppmvd, it will be necessary to operate at even lower levels to offset the emissions at times when the NOx levels are above 90 ppmvd.

Quarterly Stack Testing for Mercury

During our meeting on May 11, 2006, the County agreed to install a continuous emissions monitor (CEM) for mercury within two years after Unit 4 becomes operational. However, the County was surprised to see in the Draft Permit that the Department also wants the County to conduct quarterly stack tests for mercury until such time as the mercury CEM is utilized for compliance purposes (see Specific Condition B.19). We believe the quarterly testing is not necessary or appropriate in this case.

Mercury emissions data from several municipal waste combustors were provided to the Department in our February 28, 2006 Response to the Department's Notice of Insufficiency.

The data show that mercury emissions from municipal waste combustors routinely are controlled to levels less than 28 ug/dscm. Indeed, the stack test data for the three existing units at the County's Facility during 2000 through 2002 ranged from 5.41 to 9.70 ug/dscm. Given the existing stack test data, there is no reason to believe mercury emissions from Unit 4 will exceed 200 lbs/year (i.e., the PSD threshold).

The County's application for a PSD permit contains an extremely conservative analysis, which is intended to over-estimate the potential emissions and impacts from Unit 4. This worst case analysis shows that, theoretically, the mercury emissions from Unit 4 could exceed the PSD threshold. As a practical matter, however, the actual emissions from Unit 4 are not expected to be nearly as large as the hypothetical numbers that were used in the County's worst-case analysis. As noted on page 4-1 of the PSD application, the "estimated emissions rates for Unit 4 were based on 115 percent of design heat release rate (287.5 MMBtu per hour) firing 660 tons per day (tpd) of waste at 5, 227 Btu per pound and operations of 24 hours, 365 days per year." Thus, the calculated emissions rates in the PSD application for all pollutants are based on a hypothetical scenario in which Unit 4 is operated on a continuous basis, year-round, at its maximum capacity. The calculated emission rates for mercury also are extremely conservative. As shown on page 4-8 of the PSD application and Table A-2 of Appendix A, the emission rates for mercury were derived by calculating a maximum inlet concentration (0.89 mg/dscm) and then assuming that the outlet concentration will reflect an 85% reduction in the inlet mercury levels. This calculation is appropriate for a PSD applicability determination and an estimation of potential impacts, but the results should be used with caution. This conservative calculation implies that the mercury emissions from Unit 4 will continuously be in the range of 134 ug/dscm, but the stack test data show that the actual emissions are likely to be less than 10 ug/dscm during most, if not all, conditions.

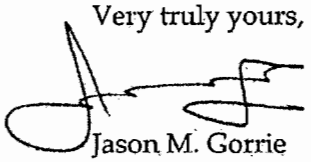
In any event, quarterly stack tests for mercury should not be required in this case. The County has agreed to incur the expense associated with the installation and operation of a CEMS for mercury. The County should not be required to incur the additional expense of conducting quarterly stack tests for mercury on a permanent basis. Accordingly, the County respectfully requests the Department to eliminate the requirement in the Draft Permit for quarterly stack testing. If this proposal is unacceptable to the Department, the Department should amend the Draft Permit to state that the quarterly stack testing can be eliminated when the County installs and begins to operate the CEMS for mercury.

CDM

Conclusion

Thank you for your prompt consideration of these issues. We look forward to working with the Department and resolving these issues in a mutually acceptable manner. Please call me at (813) 281-2900 if you have any questions.

Very truly yours,



Jason M. Gorrie
Principal
Camp Dresser & McKee Inc.

STATE OF FLORIDA
SITING BOARD

IN RE: HILLSBOROUGH COUNTY RESOURCE RECOVERY FACILITY EXPANSION POWER PLANT SITING APPLICATION NO. PA 83-19A	))))	**OGC CASE NO.: 05-2692** **DOAH CASE NO.: 05-4347EPP**

/

CONSOLIDATED SITING BOARD FINAL ORDER
ON LAND USE AND SITE CERTIFICATION

On August 2, 2006, an administrative law judge with the Division of Administrative Hearings ("DOAH") submitted to the State of Florida, Department of Environmental Protection ("DEP"), a Land Use Recommended Order and a Site Certification Recommended Order in this administrative proceeding. These Recommended Orders indicate that copies were served upon counsel for the Applicant, Hillsborough County (the "County"), DEP, and other designated agencies. Copies of the two Recommended Orders are attached hereto as Exhibits A and B. The matter is now before the Governor and Cabinet, sitting as the "Siting Board," for final agency action under the Florida Electrical Power Plant Siting Act ("PPSA") embodied in §§ 403.501-403.518, Florida Statutes.

BACKGROUND

The County owns the Hillsborough County Resource Recovery Facility (the "Facility"), an existing electrical power plant that burns municipal solid waste to generate electricity. The Facility is located in an unincorporated area of the County southeast of the City of Tampa, west of Interstate 75 ("I-75"), and north of the Crosstown Expressway and State Road 60. The Facility was built on a 50.4-acre site ("Site") in the southern portion of a 353-acre tract of land owned by the County. The Facility currently consists of three municipal waste combustor

("MWC") units, each having a nominal design capacity of 400 tons per day ("tpd") of municipal solid waste. The three existing MWC units have been in commercial operation since 1987.

The Project involves the construction and operation of a fourth MWC unit at the Facility ("Unit No. 4"). Unit No. 4 will be substantially the same as the three existing MWC units, but larger, and will have the capacity to process 600 tpd (nominal) of municipal solid waste. A new turbine generator will also be installed, which will increase the Facility's net electrical generating capacity by approximately 18 megawatts, thus increasing the Facility's total generating capacity to approximately 47 megawatts. The construction and operation of the Project will occur in disturbed upland areas that are already used for industrial operations, and only about 0.3 acres of open space will be used for a building or similar purpose. The Facility will process more solid waste and generate more electricity after the expansion Project is completed, but the basic operation of the Facility will not change.

LAND USE AND SITE CERTIFICATION PROCEEDINGS

DEP transmitted the County's Project application to DOAH for appropriate proceedings under the PPSA. On June 30, 2006, a "Prehearing Stipulation for Land Use and Certification Hearings" ("Prehearing Stipulation") was filed by the County, DEP, the Florida Department of Community Affairs, the Florida Department of Transportation, the Florida Public Service Commission, the Florida Fish and Wildlife Conservation Commission, the Southwest Florida Water Management District, and the Tampa Bay Regional Planning Council. In the Prehearing Stipulation, all of the signatories either agreed with, did not dispute, or took no position concerning the County's assertion that the site of the proposed Project is consistent and in compliance with existing land use plans and zoning ordinances. In addition, all of these signatories either recommended certification of the Project or took no position concerning

certification of the Project, provided the Project is built and operated in compliance with the Conditions of Certification.

In compliance with §§ 403.508(1) and 403.508(3), Florida Statutes, a land use hearing and a site certification hearing were held consecutively in this case before Administrative Law Judge, J. Lawrence Johnston (the "ALJ"), in Tampa on July 12, 2006. At the land use hearing and at the site certification hearing, the County and DEP presented the unopposed testimony of several expert witnesses, and in excess of 50 exhibits were admitted into evidence. The County and DEP were the only signatories to the Prehearing Stipulation who participated at this hearing; and no one from the public testified.

The ALJ entered his Land Use and Site Certification Recommended Orders on August 2, 2006. In the Land Use Recommended Order, the ALJ found that the uncontested evidence presented at the land use hearing demonstrated that the Site and Project are consistent and in compliance with the County's Comprehensive Plan and zoning ordinances. The ALJ also found that the Project is compatible with adjacent and surrounding land uses. The ALJ thus recommended that the Siting Board enter an order determining that "the Site and the proposed expansion of Hillsborough County's resource recovery facility are consistent and in compliance with the existing land use and zoning ordinances."

In his Site Certification Recommended Order, the ALJ concluded that the uncontested evidence presented by the County and DEP at the site certification hearing demonstrated that the Project has met all of the criteria required in order to obtain site certification under the PPSA. The ALJ also concluded that:

> In the PPSA review process and the Conditions of Certification for the Project, the State of Florida has ensured through available and reasonable methods that the location, construction, and operation of the Project will produce minimal adverse effects on human

> health, the environment, the ecology of the land and its wildlife, and the ecology of State waters and their aquatic life. . . The Conditions of Certification establish safeguards that are technically sufficient for the protection and welfare of Florida's citizens, and . . . ensure that the potential adverse effects of the Project will be minimized.

The ALJ ultimately recommended that the Siting Board enter a Final Order granting a site certification for construction and operation of Unit No. 4 at the Facility, in accordance with the Conditions of Certification contained in DEP Exhibit 2.

CONCLUSION

The record in this proceeding does not contain any land use objections to the proposed Project by any governmental agencies or members of the general public or any requests from any agency or person that site certification of the Project be denied. Moreover, no Exceptions were filed by any party to this administrative proceeding objecting to any factual findings, legal conclusions, or recommendations of the ALJ in the two Recommended Orders now on review before the Siting Board.

Having reviewed the matters of record and being otherwise duly advised, the Siting Board concludes that, if constructed and operated in accordance with the evidence presented at the land use and site certification hearings and the Conditions of Certification, the Project will serve and protect the broad interests of the public and should be approved.

It is therefore ORDERED:

A. The two Recommended Orders attached hereto as Exhibits A and B are adopted in their entireties and incorporated by reference herein.

B. The site of the proposed Project, if constructed and operated in accordance with the evidence presented at the land use and site certification hearings and the Conditions of

Certification, is determined to be consistent and in compliance with existing land use plans and zoning ordinances of Hillsborough County.

C. Site Certification of Unit No. 4 at the Facility, as described in the County's Power Plant Site Certification Application and the evidence presented at the land use and site certification hearings, is hereby APPROVED, subject to the Conditions of Certification in DEP Exhibit 2 incorporated by reference herein.

D. Authority to assure and enforce compliance by Hillsborough County and its agents with all the Conditions of Certification imposed by this Final Order is hereby delegated to DEP.

DONE AND ORDERED this 19th day of September, 2006, in Tallahassee, Florida, pursuant to a vote of the Governor and Cabinet, sitting as the Siting Board, at a duly noticed and constituted Cabinet meeting held on September 19th, 2006.

THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

THE HONORABLE JEB BUSH
GOVERNOR

FILING IS ACKNOWLEDGED ON THIS DATE,
PURSUANT TO § 120.52 FLORIDA STATUTES,
WITH THE DESIGNATED DEPARTMENT CLERK,
RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED

Lea Crandall
CLERK

9/27/06
DATE

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing Consolidated Final Order has been sent by United States Postal Service to:

David Jordan, Interim General Counsel
Department of Community Affairs
2555 Shumard Oak Boulevard
Suite 325
Tallahassee, Florida 32399-7018

David S. Dee, Esquire
Young van Assenderp, P.A.
225 South Adams Street, Suite 200
Tallahassee, Florida 32301-1720

James V. Antista, Esquire
General Counsel
Florida Fish & Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

Roger Tucker, Esquire
Tampa Bay Regional Planning Council
4000 Gateway Centre Blvd., Suite 100
Pinellas Park, Florida 33782

Mary Anne Helton, Esquire
Florida Public Service Commission
Gerald Gunter Building
2450 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Kelly A. Martinson, Esquire
Assistant General Counsel
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Sheauching Yu, Esquire
Assistant General Counsel
Florida Department of Transportation
605 Suwannee Street, MS 58
Tallahassee, Florida 32399-0450

Martha A. Moore, Esquire
Senior Attorney
Southwest Florida Water Management District
2379 Broad Street
Brooksville, Florida 34604-6899

Hank Ennis, Esquire
Sr. Assistant County Attorney
Hillsborough County
County Center, 27th Floor
P.O. Box 1110
Tampa, Florida 33602-1110

Ann Cole, Clerk and
J. Lawrence Johnston, ALJ
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, FL 32399-1550

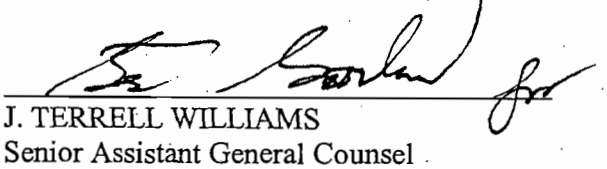
and by hand delivery to:

Scott A. Goorland, Esquire
Department of Environmental Protection
3900 Commonwealth Blvd.
Mail Station 35
Tallahassee, FL 32399-3000

Steven Palmer
Siting Coordination Office
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-3000

this 27th day of September, 2006.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



J. TERRELL WILLIAMS
Senior Assistant General Counsel
3900 Commonwealth Blvd., M.S. 35
Tallahassee, FL 32399-3000
Telephone 850/245-2242

8/2/06

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE: HILLSBOROUGH COUNTY RESOURCE RECOVERY FACILITY EXPANSION POWER PLANT SITING APPLICATION NO. PA 83-19A	)	Case No. 05-4347EPP

SITE CERTIFICATION RECOMMENDED ORDER

Pursuant to notice, the Division of Administrative Hearings, by its Administrative Law Judge, J. Lawrence Johnston, held a certification hearing in the above-styled case on July 12, 2006, in Hillsborough County, Florida.

APPEARANCES

For Petitioner Hillsborough County (the "County")

David S. Dee, Esquire
Young van Assenderp, P.A.
225 South Adams Street, Suite 200
Tallahassee, Florida 32301-1720

For the Florida Department of Environmental Protection ("Department" or "DEP")

Scott A. Goorland, Esquire
Department of Environmental Protection
3900 Commonwealth Boulevard, M.S. 35
Tallahassee, Florida 32399-300

STATEMENT OF THE ISSUE

The issue to be determined in this case is whether a site certification should be issued to Hillsborough County for the construction and operation of a fourth municipal waste combustor unit ("Unit No. 4") at Hillsborough County's Resource Recovery

Facility, in accordance with the provisions of the Florida Electrical Power Plant Siting Act.

PRELIMINARY STATEMENT

Hillsborough County owns the Hillsborough County Resource Recovery Facility ("Facility"), an existing electrical power plant that burns municipal solid waste ("MSW") to generate electricity. The Facility currently consists of three municipal waste combustor ("MWC") units. On November 21, 2005, the County filed an application with DEP for certification to authorize the construction and operation of an additional MWC unit at the Facility (the "Project").

The County's application is subject to review under the Florida Electrical Power Plant Siting Act ("PPSA"), Sections 403.501-.518, Florida Statutes.[1] The Department transmitted the County's application to the Division of Administrative Hearings (DOAH) for appropriate proceedings under the PPSA.

On May 26, 2006, the DEP issued its written Staff Analysis Report ("Staff Analysis") concerning the Project, in compliance with Section 403.507(4), Florida Statutes (see p. 21, e.g.). The DEP's Staff Analysis included reports from other agencies and proposed conditions of certification ("Conditions of Certification") for the Project.

DEP subsequently issued a revised Staff Analysis and Conditions of Certification (dated July 7, 2006).[2]

On June 30, 2006, a "Prehearing Stipulation for Land Use and Certification Hearings" ("Prehearing Stipulation") was filed by the County, DEP, the Florida Department of Community Affairs ("DCA"), the Florida Department of Transportation ("DOT"), the Florida Public Service Commission ("PSC"), the Florida Fish and Wildlife Conservation Commission, the Southwest Florida Water Management District ("SWFWMD"), and the Tampa Bay Regional Planning Council ("TBRPC"). In the Prehearing Stipulation, all of the signatories either recommended certification of the Project or took no position concerning certification of the Project, provided the Project is built and operated in compliance with the Conditions of Certification.

On July 12, 2006, a certification hearing (the "Certification Hearing") was conducted in compliance with Section 403.508(3), Florida Statutes. At the Certification Hearing, the County called three witnesses: Jason M. Gorrie (accepted as an expert concerning solid waste management systems and resource recovery facilities); Donald F. Elias (accepted as an expert concerning air pollution and air pollution control systems); and Paul C. Chrostowski (accepted as an expert concerning environmental science and engineering, including the

health and ecological impacts resulting from the operation of resource recovery facilities). The County introduced Exhibits 1-8 (A, B, C, and D), 9, 10 (A and B), 11-50, and 52-60, into evidence, without objection.

By Order dated July 6, 2006, the Administrative Law Judge granted the County's request to take official notice of various documents. These documents were included with the County's exhibits and were introduced into evidence at the Certification Hearing.

No one contested the evidence presented by the County and DEP at the Certification Hearing. None of the signatories to the Prehearing Stipulation participated at the Certification Hearing, except the County and DEP. Except for the County and DEP, the parties to this proceeding did not call any witnesses or proffer any exhibits at the Certification Hearing. No one from the general public attended, testified, or proffered any exhibits during the Certification Hearing.

The transcript of the Certification Hearing was filed with DOAH on July 18, 2006, and the parties were allowed until July 21, 2006, to submit proposed recommended orders. The County and DEP timely filed a Joint Proposed Recommended Order on July 21, 2006. No other party filed a proposed recommended order.

Based on all of the evidence of record, the following findings of fact are determined:

FINDINGS OF FACT

The Applicant

1. The Applicant, Hillsborough County, is a political subdivision of the State of Florida. The County owns the existing Facility and will own the proposed Project. The Facility was designed, built, and is operated by a private company pursuant to a long-term contract with the County. It is anticipated that a private company will design, construct, and operate the Project for the County.

Hillsborough County's Existing Solid Waste System

2. The County has adopted a solid waste Comprehensive Master Plan (the "Master Plan") in conjunction with the Cities of Tampa, Temple Terrace, and Plant City. The Master Plan provides for state-of-the-art technology and innovative approaches to recycling, waste reduction, and waste disposal. In accordance with the Master Plan, the County has developed: (a) an aggressive recycling program that significantly reduces the quantity of materials requiring disposal; (b) a resource recovery facility for waste reduction and energy recovery from those materials that are not recycled; and (c) a landfill for the disposal of ash and by-pass waste (i.e., materials that are

not recycled or processed in the Facility). Hillsborough County and the three cities have used a cooperative, regional approach to solid waste management issues, while providing environmentally protective, cost-efficient programs for local residents.

3. Despite the County's comprehensive recycling program, the amount of solid waste generated in the County has increased each year since the Facility began operation, primarily due to population growth. The amount of solid waste generated in the County now significantly exceeds the Facility's design capacity. Consequently, large quantities of solid waste currently are being diverted from the Facility to the County landfill.

4. In 2005, the Board of County Commissioners decided to expand the Facility, consistent with the County's long-standing Master Plan, rather than dispose of ever-increasing amounts of solid waste in a landfill. The Board's decision was based on a thorough evaluation of the County's solid waste disposal options.

5. For these reasons, on November 21, 2005, the County filed an application with DEP for the construction and operation of Unit No. 4.

The Site

6. The Facility is located next to Falkenburg Road in an

unincorporated area in the County. The Facility is southeast of the City of Tampa, west of Interstate 75 ("I-75"), and north of the Crosstown Expressway and State Road 60.

7. The Facility was built on a 50.4-acre site ("Site"), which is in the southern portion of a 353-acre tract of land owned by Hillsborough County.

The Surrounding Area

8. The Facility is surrounded by a variety of governmental and industrial land uses. The Facility is bounded: on the south by the County's Falkenburg Road Wastewater Treatment Plant and a railroad track that is owned by the CSX railroad company; on the west by a 230 kilovolt transmission line corridor and easement owned by Tampa Electric Company ("TECO"); on the north by vacant improved pasture land, the Falkenburg Road Jail, the Hillsborough County Department of Animal Services, and the Hillsborough County Sheriff's Office (District 2); and on the east by Falkenburg Road and vacant land. The Facility is compatible with the adjacent and surrounding land uses.

9. The nearest residential area is approximately 1 mile away from the Facility. It is located on the opposite (east) side of I-75.

Zoning and Land Use

10. In 1984, the Siting Board determined that the Site and

Facility were consistent and in compliance with the applicable land use plans and zoning ordinances. The Siting Board's determination was based on the County's plans for the construction and operation of four MWC units at the Facility. The Site is currently zoned "Planned Development", and is designated "Public/Quasi-Public" under the County's comprehensive land use plan, specifically to allow the Facility and the Project to be built and operated on the Site.

The Existing Facility

11. The Facility currently has three MWC units. Each MWC unit has a nominal design capacity of 400 tons per day ("tpd") of municipal solid waste (440 tpd when burning a reference fuel with a higher heating value of 4500 British thermal units ("Btu") per pound). The three MWC units are located inside a fully enclosed building, which also contains the air pollution control systems for the MWC units, the "tipping floor," the refuse storage pit, and a turbine generator. The Facility also includes an ash management building, cooling tower, stack, stormwater management ponds, water treatment system, transformer yard, electrical transmission lines, and ancillary equipment and facilities.

12. Municipal solid waste (e.g., household and commercial garbage) is delivered to the Site in trucks, which drive inside

the refuse storage building to the tipping floor, where the trucks dump the MSW into the refuse storage pit. Two overhead cranes mix the waste in the refuse storage pit and then load the waste into the charging hoppers that feed the three MWC units. The combustion of the municipal solid waste produces heat, which is used to produce steam. The steam is used in a turbine generator to produce approximately 29.5 megawatts ("MW") of electricity.

The Project

13. The Project involves the construction and operation of a fourth MWC unit at the Facility. The new unit will be substantially the same as the three existing MWC units, but larger. The new unit will be designed to process approximately 600 tpd of municipal solid waste (660 tpd @ 5000 Btu/lb). A new turbine generator also will be installed, which will increase the Facility's electrical generating capacity by approximately 18 MW, thus increasing the Facility's total net generating capacity to approximately 47 MW. In addition, the Facility's cooling tower will be expanded, the refuse and ash management buildings will be expanded, two lime silos and a carbon silo will be installed, a new settling basin will be installed, and other related improvements will be made.

Construction of Unit No. 4

14. The Facility was designed and built to accommodate the addition of a fourth MWC unit, thus making the construction of Unit No. 4 relatively simple, without disrupting large areas of the Site. Unit No. 4 will be located adjacent to the three existing MWC units. The construction of the other Facility improvements also will occur adjacent to the existing components of the Facility. Only about 0.3 acres of the Site will be converted from open space to a building or similar use.

15. Construction of Unit No. 4 will occur in previously disturbed upland areas on the Site that are already used for industrial operations. Construction of Unit No. 4 will not affect any wetlands or environmentally sensitive areas.

16. No new electrical transmission lines will need to be built to accommodate the additional electrical power generated by Unit No. 4. No new pipelines or other linear facilities will need to be built for the Project.

17. The construction of Unit No. 4 will not expand the Facility beyond the boundaries of the Site that was certified by the Siting Board in 1984.

Operation of Unit No. 4

18. The basic operation of the Facility will not change when Unit No. 4 becomes operational. Municipal solid waste will

be processed at the Facility in the same way it is currently processed.

19. The Facility has operated since 1987 and has an excellent track record for compliance with all applicable regulations, including regulations concerning noise, dust, and odors. All of the activities involving solid waste and ash occur inside enclosed buildings. The tipping floor and refuse storage pit are maintained under negative air pressure, thus ensuring that dust and odors are controlled within the building. Since the operations at the Facility will remain the same after Unit No. 4 becomes operational, no problems are anticipated in the future due to noise, dust, or odors.

20. The Facility's basic water supply and management system will remain the same after Unit No. 4 becomes operational. Treated wastewater from the County's co-located Falkenburg Road Wastewater Treatment Plant ("WWTP") will be provided via an existing pipeline to satisfy the Facility's need for cooling water. Potable water will be provided to the Facility via an existing pipeline from the City of Tampa's water supply plant. The Facility does not use groundwater or surface water for any of its operations.

21. The Facility will not discharge any industrial or domestic wastewater to any surface water or groundwater. Most

of the Facility's wastewater will be recycled and reused in the Facility. Any excess wastewater will be discharged to the Falkenburg Road WWTP.

22. Stormwater runoff from the Project will be collected and treated in the existing system of swales and ponds on the Site. The County will modify two existing outfall weirs to provide improved treatment of stormwater and to ensure compliance with water quality standards.

23. A traffic analysis was performed to evaluate the potential traffic impacts associated with the operation of the Facility, after the Project is completed. The analysis demonstrated the Facility will not have any significant impacts on the surrounding roadway network, even when Unit No. 4 is operational.

Air Quality Regulations

24. The County must comply with federal and state New Source Performance Standards ("NSPS") and Best Available Control Technology ("BACT") requirements, both of which impose strict limits on the Facility's airborne emissions. The County also must comply with Ambient Air Quality Standards ("AAQS") and Prevention of Significant Deterioration ("PSD") standards, which establish criteria for the protection of ambient air quality.

Best Available Control Technology

25. BACT is a pollutant-specific emission limit that provides the maximum degree of emission reduction, after taking into account the energy, environmental, and economic impacts and other costs. As part of the BACT determination, all available and feasible pollution control technologies being used worldwide are evaluated.

26. The Department performed a BACT determination for the Project. As part of its BACT analyses, DEP determined that (a) a flue gas recirculation system and a selective non-catalytic reduction system ("SNCR") will control NOx; (b) a spray dryer with lime injection will control MWC acid gas; (c) an activated carbon injection system ("ACI") will control MWC organic compounds; (d) a fabric filter baghouse will control particulate matter and MWC metals; and (e) proper facility design and operating methods will control other pollutants.

27. These air pollution control technologies (except flue gas recirculation) and methods are currently used in the three existing MWC units and they have performed extremely well. Unit No. 4 will have better, more modern, and more sophisticated versions of these air pollution control systems, plus a flue gas recirculation system.

28. In its analysis of the Project, DEP determined the

emission limits for the Project that represent BACT. All of the emission limits determined by DEP for Unit No. 4 are as low as or lower than the emission limits established in 2006 by the U.S. Environmental Protection Agency ("EPA") in the NSPS (40 CFR 60, Subpart Eb) for new MWC units. The NSPS are based on the use of Maximum Achievable Control Technology ("MACT"). Unit No. 4 will be subject to the lowest NOx emission limits imposed on any MWC unit in the United States.

29. The Facility will use an array of continuous emissions monitors to help ensure that the Facility is continuously in compliance with the DEP's emission limits. Indeed, Unit No. 4 will be the first MWC unit in the United States to be equipped with a continuous emissions monitor for mercury.

Protection of Ambient Air Quality

30. The EPA has adopted "primary" and "secondary" National Ambient Air Quality Standards ("NAAQS"). The primary NAAQS were promulgated to protect the health of the general public, including the most susceptible groups (e.g., children, the elderly, and those with respiratory ailments), with an adequate margin of safety. The secondary NAAQS were promulgated to protect the public welfare, including vegetation, soils, visibility, and other factors, from any known or anticipated adverse effects associated with the presence of pollutants in

the ambient air. Florida has adopted EPA's primary and secondary NAAQS, and has adopted some Florida AAQS ("FAAQS") that are more stringent than EPA's NAAQS.

31. The County analyzed the Project's potential impacts on ambient air quality, using conservative assumptions that were intended to over-estimate the Project's impacts by a wide margin. These analyses demonstrate that the maximum impacts from Unit No. 4 will be less than one percent of the amount allowed by the ambient air quality standards. The maximum impact from the Facility (i.e., all four units) will be less than 2.5 percent of the amount allowed by the FAAQS and NAAQS. For these reasons, the emissions from Unit No. 4 and the Facility are not expected to cause adverse impacts on human health or the environment. The maximum impacts of Unit No. 4 and the Facility, when operating under worst case conditions, will be immeasurably small and will be indistinguishable from ambient background conditions.

Human Health and Ecological Risk Assessments

32. The County performed a human health and ecological impact assessment of the risks associated with the Facility's airborne emissions. The County's risk assessment evaluated the impacts of the entire Facility, with all four MWC units in

operation. The risk assessment was designed to over-estimate the potential impacts of the Facility.

33. The County's risk assessment was conducted in compliance with current EPA guidance. The risk assessment considered hypothetical human receptors (e.g., infants, children, and adults) that were engaged in different types of behavior (e.g., a typical resident; a beef farmer; a subsistence fisherman) and were exposed through multiple pathways (e.g., inhalation; ingestion of soil; ingestion of local produce, beef, and/or fish) to chronic long term impacts from the Facility. The risk assessment also considered the Facility's potential impacts on sensitive environmental receptors, including aquatic life (benthic dwelling aquatic organisms), wood storks, and river otters.

34. The County's risk assessment demonstrates that the potential risks associated with the Facility's emissions will not exceed, and in most cases will be much less than, the risks that are deemed acceptable by the EPA and DEP for the protection of human health and the environment.

35. The County's assessment is consistent with the findings in environmental monitoring studies, epidemiological studies, and risk assessments that have been performed for other modern waste-to-energy ("WTE") facilities in the United States.

The County's findings also are consistent with the determinations made by the EPA, which has concluded that WTE facilities equipped with modern pollution control systems are a "clean, reliable, renewable source of energy."

36. The evidence presented by the County in this case demonstrates that the Facility is not likely to have any adverse effect on human health or the environment, even when all four MWC units are operational, if the Facility is built and operated in compliance with the Conditions of Certification.

Potential Impacts on Water Quality

37. The Facility's emissions of nitrogen oxides (i.e., NOx) will not cause or contribute to violations of any water quality standards in any surface waterbody.

Environmental Benefits of the Project

38. The addition of Unit No. 4 will provide significant environmental benefits to the County. Unit No. 4 will reduce the volume of processible solid waste by approximately 90 percent. By reducing the volume of processible waste, Unit No. 4 and the Facility will greatly extend the useful life of the County's landfill, thus postponing the need to build a new landfill. The Facility also will convert putrescible waste into a relatively inert ash, which poses less threat to groundwater resources.

39. The Project will also provide environmental benefits to the State of Florida. For example, the Facility will produce electricity from discarded materials. In this manner, Unit No. 4 will reduce the need to use fossil fuels to generate electricity at traditional power plants. Unit No. 4 will eliminate the need to use approximately 4 million barrels of oil and thus will save approximately $200 million in oil purchases over the next 20 years.

Socioeconomic Benefits of the Project

40. The local economy and labor market will benefit from approximately $100 million that the County will spend to construct the Project. A significant amount of construction supplies, goods, and services are anticipated to be purchased from local businesses.

41. The Project will provide jobs for construction workers. The daily workforce is expected to average between 25 and 75 people over a period of approximately 21 months. The addition of Unit No. 4 will also provide approximately 8 new permanent jobs at the Facility.

WTE Criteria in Section 403.7061

42. Section 403.7061, Florida Statutes, establishes several criteria that must be satisfied before an existing waste-to-energy facility may be expanded. The County has

provided reasonable assurance that the Project will satisfy all of the standards and criteria in Section 403.7061, Florida Statutes. Among other things, the County has demonstrated that the County's waste reduction rate has consistently exceeded the State's 30 percent recycling goal.

Consistency With Land Use Plans and Zoning Ordinances

43. As required by Section 403.508(2), Florida Statutes, the County demonstrated that the Site is consistent and in compliance with the Hillsborough County comprehensive land use plan and Hillsborough County's applicable zoning ordinances.

Compliance with Environmental Standards

44. The Department has concluded and the evidence demonstrates that the County has provided reasonable assurance the Project will comply with all of the nonprocedural land use and environmental statutes, rules, policies, and requirements that apply to the Project, including but not limited to those requirements governing the Project's impacts on air quality, water consumption, stormwater, and wetlands. The County has used all reasonable and available methods to minimize the impacts associated with the construction and operation of the Facility. The location, construction, and operation of the Project will have minimal adverse effects on human health, the environment, the ecology of the State's lands and wildlife, and

the ecology of the State's waters and aquatic life. The Project will not unduly conflict with any of the goals or other provisions of any applicable local, regional, or state comprehensive plan. The Conditions of Certification establish operational safeguards for the Project that are technically sufficient for the protection of the public health and welfare, with a wide margin of safety.

Agency Positions Concerning Certification of the Project

45. On May 4, 2006, the PSC issued a report concluding that the Project was exempt from the PSC's need determination process, pursuant to Section 377.709(6), Florida Statutes.

46. The DEP, DOT, and SWFWMD recommend certification of the Project, subject to the Conditions of Certification. The other agencies involved in this proceeding did not object to the certification of the Project. The County has accepted, and has provided reasonable assurance that it will comply with, the Conditions of Certification.

Public Notice of the Certification Hearing

47. On December 19, 2005, the County published a "Notice of Filing of Application for Electrical Power Plant Site Certification" in the Tampa Tribune, which is a newspaper of general circulation published in Hillsborough County, Florida.

48. On May 25, 2006, the County published notice of the Certification Hearing in the Tampa Tribune.

49. On December 23 and December 30, 2005, the Department electronically published "Notice of Filing of Application for Power Plant Certification."

50. On May 26, 2006, the Department electronically published notice of the Certification Hearing.

51. The public notices for the Certification Hearing satisfy the informational and other requirements set forth in Section 403.5115, Florida Statutes, and Florida Administrative Code Rules 62-17.280 and 62-17.281(4).

CONCLUSIONS OF LAW

52. The Division of Administrative Hearings has jurisdiction over the parties to and subject matter of this proceeding pursuant to Sections 120.569, 120.57(1), 403.508, and 403.517, Florida Statutes.

53. The County and DEP provided timely public notices concerning the Project and the Certification Hearing, which satisfied the notice requirements contained in the PPSA, Chapter 120, Florida Statutes, and Florida Administrative Code Rule Chapter 62-17. All necessary and required governmental agencies participated in the certification process, and the required

reports and studies were issued by the DEP and the other agencies, in accordance with their statutory duties.

54. Pursuant to Section 377.709, Florida Statutes, the Project is a "solid waste facility" and is exempt from the requirement that the PSC issue a determination of need under Section 403.519, Florida Statutes.

55. The issue for determination in this case is whether site certification should be granted to the County to construct and operate Unit No. 4 at Hillsborough County's Resource Recovery Facility. Under Section 403.502, Florida Statutes, the following criteria are to be considered when determining whether an electrical power plant should be certified under the PPSA:

> the state shall ensure through available and reasonable methods that the location and operation of electrical power plants will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of state waters and their aquatic life and will not unduly conflict with the goals established by the applicable local comprehensive plans. It is the intent to seek courses of action that will fully balance the increasing demands for electrical power plant location and operation with the broad interests of the public. Such action will be based on these premises:
>
> (1) To assure the citizens of Florida that operation safeguards are technically sufficient for their welfare and protection.

> (2) To effect a reasonable balance between the need for the facility and the environmental impact resulting from construction and operation of the facility, including air and water quality, fish and wildlife, and the water resources and other natural resources of the state.
>
> (3) To meet the need for electrical energy as established pursuant to s. 403.519.

The competent, substantial, and uncontested evidence presented by the County and DEP at the Certification Hearing demonstrates that the Project has met all of the criteria required to obtain certification under the PPSA. The County has provided reasonable assurance that the Project, if constructed and operated in accordance with the Conditions of Certification, will comply with all of the non-procedural requirements that are applicable to the Project. The County has also provided reasonable assurance that the Project will satisfy all of the criteria and standards in Section 403.7061, Florida Statutes. Certification of the Project will serve and protect the broad interests of the public, and the benefits of the Project will outweigh the negative impacts. The County has accepted, and demonstrated that it will comply with, the Conditions of Certification.

56. In the PPSA review process and the Conditions of Certification for the Project, the State of Florida has ensured through available and reasonable methods that the location,

construction, and operation of the Project will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of State waters and their aquatic life. If the Project is built and operated in accordance with the Conditions of Certification, the Project will not unduly conflict with the goals in any applicable local, regional or state comprehensive plan. The Conditions of Certification establish safeguards that are technically sufficient for the protection and welfare of Florida's citizens, and the Conditions of Certification ensure that the potential adverse effects of the Project will be minimized.

57. Certification of the Project is consistent with the legislative intent to balance the demand for electrical power with the broad interests of the public. Certification of the Project reasonably balances the need for the Project with the environmental and other impacts resulting from the construction and operation of the Project.

RECOMMENDATION

Based on the foregoing Findings of Facts and Conclusions of Law, it is RECOMMENDED that the Governor and Cabinet, sitting as the Siting Board, enter a Final Order granting a site certification for the construction and operation of Unit No. 4 at the Hillsborough County Resource Recovery Facility, in

accordance with the Conditions of Certification contained in DEP Exhibit 2.

DONE AND ENTERED this 2nd day of August, 2006, in Tallahassee, Leon County, Florida.

S

J. LAWRENCE JOHNSTON
Administrative Law Judge
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-3060
(850) 488-9675 SUNCOM 278-9675
Fax Filing (850) 921-6847
www.doah.state.fl.us

Filed with the Clerk of the
Division of Administrative Hearings
this 2nd day of August, 2006.

ENDNOTES

[1]/ All of the citations herein refer to the 2005 Florida Statutes. The PPSA was amended during the 2006 Session of the Florida Legislature, but the 2006 amendments do not apply to the County's application. The 2006 PPSA amendments provide that any application filed under the PPSA "shall be processed under the provisions of the law applicable at the time the application was filed", subject to certain exceptions that are not relevant in this case. See Ch. 2006-230, Laws of Fla. (Fla. SB 888, § 42). Since the County's PPSA application was filed in 2005, the 2005 version of the PPSA governs this case.

[2]/ Conditions of Certification were previously issued under the PPSA for Units No. 1, 2, and 3. The Conditions of Certification for Units No. 1, 2, and 3 were supplemented and updated by the Department to address Unit No. 4. The Department's proposed changes to the Conditions of Certification are indicated by

underlining (additions) and striking through (deletions) the existing text.

COPIES FURNISHED:

Lea Crandall, Agency Clerk
Department of Environmental Protection
The Douglas Building, Mail Station 35
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Greg Munson, General Counsel
Department of Environmental Protection
The Douglas Building, Mail Station 35
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David Jordan, Interim General Counsel
Department of Community Affairs
2555 Shumard Oak Boulevard
Suite 325
Tallahassee, Florida 32399-7018

David S. Dee, Esquire
Young van Assenderp, P.A.
225 South Adams Street, Suite 200
Tallahassee, Florida 32301-1720

Scott A. Goorland, Esquire
Senior Assistant General Counsel
Department of Environmental Protection
3900 Commonwealth Blvd., MS 35
Tallahassee, Florida 32399-3000

James V. Antista, Esquire
General Counsel
Florida Fish & Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

Roger Tucker, Esquire
Tampa Bay Regional Planning Council
4000 Gateway Centre Blvd., Suite 100
Pinellas Park, Florida 33782

Mary Anne Helton, Esquire
Florida Public Service Commission
Gerald Gunter Building
2450 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Kelly A. Martinson, Esquire
Assistant General Counsel
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Sheauching Yu, Esquire
Assistant General Counsel
Florida Department of Transportation
605 Suwannee Street, MS 58
Tallahassee, Florida 32399-0450

Martha A. Moore, Esquire
Senior Attorney
Southwest Florida Water Management District
2379 Broad Street
Brooksville, Florida 34604-6899

Hank Ennis, Esquire
Sr. Assistant County Attorney
Hillsborough County
County Center, 27th Floor
P.O. Box 1110
Tampa, Florida 33602-1110

Steven Palmer
Siting Coordination Office
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-3000

NOTICE OF RIGHT TO SUBMIT EXCEPTIONS

All parties have the right to submit written exceptions within 15 days from the date of this Recommended Order. Any exceptions to this Recommended Order should be filed with the agency that will issue the Final Order in this case.

Sheplak, Scott -file-

From: Vielhauer, Trina
Sent: Friday, June 23, 2006 12:23 PM
To: Comer, Patricia
Cc: Miskelley, Valerie; Gibson, Victoria; Linero, Alvaro; Sheplak, Scott
Subject: RE: Hillsborough PSD OGC # 06-1226

Great. Thank you!

From: Comer, Patricia
Sent: Friday, June 23, 2006 12:20 PM
To: Vielhauer, Trina
Cc: Miskelley, Valerie; Gibson, Victoria
Subject: Hillsborough PSD OGC # 06-1226

Trina
We did not get any petition on the PSD permit (we had denied the extension request and provided June 21 as the date for filing) so we are closing the litigation file on this.
Pat

Scott

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

HILLSBOROUGH COUNTY,

Petitioner,

vs.

OGC Case No. 06-1226
DEP File No. 0570261-007-AC
DEP Draft Permit No. PSD-FL-369

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Respondent.

_____/

ORDER DENYING REQUEST FOR EXTENSION OF TIME TO FILE PETITION FOR HEARING

This cause has come before the Florida Department of Environmental Protection (Department) upon receipt of a request made by the Petitioner, Hillsborough County, to grant an extension of time to file a petition for administrative hearing concerning the Department's draft permit number PSD-FL-369 for the County's Resource Recovery Facility located in Hillsborough County, Florida. This permit is associated with Siting Certification case number 05-2692 (DOAH case No. 05-4347EPP). The applicant has requested an expedited Siting Certification hearing date and one has been set for July 12-13, 2006. To prevent delay of the expedited Site Certification hearing,

IT IS ORDERED:

The request for an extension of time to file a petition for administrative proceeding is DENIED. The Petitioner shall have until **June 21, 2006**, to file a petition in this matter. Filing shall be complete upon receipt by the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

DONE and ORDERED this 7th day of June, 2006, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

JACK CHISOLM, Deputy General Counsel
3900 Commonwealth Boulevard. MS - 35
Tallahassee, Florida 32399-3000
850/245-2242 facsimile 850/245-2302

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via _ U. S. Mail ✓ facsimile ✓ **only**, this 7th day of June, 2006, to:

David S. Dee, Esquire
Young van Assenderp, P.A.
Post Office Box 1833
Tallahassee, FL 32302-1833

facsimile: 850/561-6834

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

PATRICIA E. COMER
Assistant General Counsel
3900 Commonwealth Boulevard – MS 35
Tallahassee, Florida 32399-3000
850/245-2242 facsimile: 850/245-2302

with a courtesy copy to:

Trina L. Vielhauer, Chief
Bureau of Air Regulation

facsimile: 850/921-9533

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

HILLSBOROUGH COUNTY,

Petitioner,

v.

DEP File No. 0570261-007-AC
DEP Draft Permit No. PSD-FL-369

DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Respondent.
_____/

HILLSBOROUGH COUNTY'S REQUEST FOR EXTENSION OF TIME TO FILE PETITION

Petitioner, Hillsborough County ("County"), pursuant to Rule 28-106.111(3), Florida Administrative Code, respectfully requests the Department of Environmental Protection ("Department") to grant the County an extension of time to file a petition for a formal administrative hearing concerning the Department's draft permit for the County's Resource Recovery Facility (DEP Permit No. PSD-FL-369) (the "Draft Permit"). In support of this request, the County says:

1. On November 21, 2005, the County filed an application with the Department for a Prevention of Significant Deterioration ("PSD") permit for the installation of an additional municipal waste combustor at the County's existing Resource Recovery Facility, which is located at 350 North Falkenburg Road, Tampa, Florida.

2. On May 22, 2006, the County received an advance electronic copy of the Department's "Public Notice of Intent to Issue PSD Permit."

3. On May 24, 2006, the Department distributed its "Public Notice of Intent to Issue PSD Permit", Intent to Issue PSD Permit, Technical Evaluation, Preliminary Determination and the Draft Permit.

4. As the applicant for the Draft Permit, the County is affected by the Department's proposed action.

5. The Draft Permit contains several provisions that should be clarified or revised. The County has addressed these issues with the Department's staff (Mrs. Trina Vielhauer) and believe these issues can be resolved amiably. Although the County does not expect to file a petition for a formal administrative hearing concerning the Draft Permit at this time, the County respectfully requests a 30-day extension of time to allow the County resolve its concerns with the Department.

6. The County's counsel has discussed this request with the Department's staff (Mrs. Vielhauer) and she has indicated that she does not object to the County's request.

WHEREFORE, the County respectfully requests that the Department grant a 30-day extension of time for filing a petition for a formal administrative hearing concerning the County's Draft Permit.

Respectfully submitted this 5th day of June, 2006.

YOUNG VAN ASSENDERP, P.A.

David S. Dee, Esq.
Florida Bar No. 281999
John T. LaVia, III
Florida Bar No. 853666
Gallie's Hall
225 South Adams Street
Suite 200
P.O. Box 1833 (32302-1833)
Tallahassee, Florida 32301
Phone: 850/222-7206
Fax: 850/561-6834

Attorneys for Hillsborough County

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that an original and one copy of the foregoing was furnished by hand-delivery to the CLERK'S OFFICE, Department of Environmental Protection, Office of General Counsel, 3900 Commonwealth Boulevard, Room 659, Tallahassee, Florida 32399; and to Brian Cross, Department of Environmental Protection, Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-2400, on this 5th day of June, 2006.

ATTORNEY

Sheplak, Scott

From: Crandall, Lea
Sent: Tuesday, June 06, 2006 8:40 AM
To: Chisolm, Jack; Light, Lisa; Gibson, Victoria; Sheplak, Scott
Subject: Request for Extension of Time rec'd. - 0570261-007-AC - Hillsborough County

FYI, a Request for Extension of Time was rec'd. re: 0570261-007-AC - Hillsborough County.

Thanks,
Lea

Lea Crandall
Agency Clerk
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 35
Tallahassee, FL 32399-3000
Phone: (850) 245-2212 SC: 205-2212
Fax: (850) 245-2303

Best Available Copy

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared C. Pugh, who on oath says that she is the Advertising Billing Supervisor of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE IN THE TAMPA TRIBUNE

in the matter of PUBLIC NOTICE OF INTENT

was published in said newspaper in the issues of

*MAY 25, 2006

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, this advertisement for publication in the said newspaper.

Sworn to and subscribed by me, this 25 day of MAY, A.D. 2006

Personally Known ✓ or Produced Identification_____ Type of Identification Produced_____

#1725137

Ana Maria Hodel
Commission #DD551367
Expires: MAY 11, 2010
www.AaronNotary.com

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Hillsborough County Resource Recovery Facility Unit 4

DEP File No. 0570261-007-AC (PSD-FL-369, PA83-19A)

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to Hillsborough County. The permit is one of several authorizations needed to construct a nominal 600 tons per day (TPD) municipal waste combustor (MWC) at the existing Hillsborough County Resource Recovery Facility southeast of Tampa, west of I-75 and near Brandon. A PSD applicability analysis and a determination of Best Available Control Technology (BACT) were required pursuant to Rule 62-212.400(2)(a) and 10(b), Florida Administrative Code (FAC) for emissions of nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), MWC acid gases, and MWC organics. The applicant's address is Hillsborough County Department of Solid Waste Management, 601 East Kennedy Boulevard, Tampa, Florida 33602.

The applicant proposes to construct a new MWC Unit 4. The primary components are: a new nominal 600 TPD MWC; a new nominal 17 megawatt (MW) steam turbine-electrical generator; expansion of the ash handling and refuse building; a new transformer yard; a new lime silo; and a new settling basin. When the project is completed, the facility will be able to process approximately 1,800 TPD of solid waste and generate approximately 47 MW (net) of electricity.

The general area is in attainment with respect to all State and National Ambient Air Quality Standards. There have been approximately 200,000 tons per year (TPY) of SO_2 and NO_X reductions since 1998 from stationary sources in the Tampa Bay area due to the natural gas repowering of the coal-fired TECO Gannon (Bayside) Station and addition of a scrubber and Low NO_X burners at the TECO Big Bend Station. Dispersion modeling indicates that the proposed project will not cause or contribute to a violation of the ambient air quality standards or allowable increases (increments). All of the modeled ground-level pollutant impacts are less than the respective significant impact levels that would otherwise require applications of more involved multiple-source dispersion models.

The proposed project is subject to 40CFR60, Subpart Eb-Standards of Performance for New Stationary Sources and Emission Guidelines (including hazardous air pollutants) for Existing Sources Municipal Waste Combustors as revised and published by the Environmental Protection Agency (EPA) on May 10, 2006.

To meet the requirements of Subpart Eb and BACT, the applicant will install: a spray dryer (SD) with lime injection to absorb MWC acid gases; an activated carbon injection (ACI) system to adsorb MWC organics and mercury (Hg) a fabric filter (FF) baghouse to remove particulate matter, including absorption/adsorption reagent; a flue gas recirculation (FGR) to limit NO_X formation; and a urea-based selective non-catalytic reduction (SNCR) system to destroy NO_X. Continuous emissions monitoring systems (CEMS) are required for CO, NO_X, SO_2 and Hg are required as well as a continuous opacity monitoring system (COMS).

The Department has determined that emissions for several key pollutants, particularly those that are affected by reagent use, can be lower than required by Subpart Eb. The Department has determined that BACT for NO_X is 110 parts per million by volume, dry corrected to 7 percent oxygen (ppmvd @7% O_2) of NO_X on a 24-hour average and 90 ppmvd @7% O_2 on a 12-month average, rolled monthly. This is the most stringent BACT for NO_X issued for a large MWC in the United States.

Mercury (Hg) emissions will be limited to 28 micrograms per dry standard cubic meter (µg/dscm). Compliance will be determined in accordance with the existing procedures in 40CFR60, Subpart Eb. However, the Department has determined that by the second year of operation, reliable Hg-CEMS will be available and requires that one be installed to measure actual emissions. This instrument represents the first Hg-CEMS required on an MWC in the United States. This instrument will provide much better information on short term and long term Hg emissions and insure that annual emissions are less than the threshold requiring a BACT determination pursuant to PSD.

The following table summarizes the estimated annual emissions and pollutant concentration limits in accordance with the Department's BACT determination, Subpart Eb, or to avoid PSD. Because of the degree of control, some pollutants are emitted at levels less than the thresholds requiring emissions limits.

Pollutant	Emissions TPY	Emission Limit	Measurement Basis	Limit Basis
NO	210	110/90 ppmvd	24-hr/12-month CEMS	BACT

insure that annual emissions are less than the threshold requiring a BACT determination pursuant to PSD.

The following table summarizes the estimated annual emissions and pollutant concentration limits in accordance with the Department's BACT determination, Subpart Eb, or to avoid PSD. Because of the degree of control, some pollutants are emitted at levels less than the thresholds requiring emissions limits.

Pollutant	Emissions TPY	Emission Limit	Measurement Basis	Limit Basis
NO_X	210	110/90 ppmvd	24-hr/12-month CEMS	BACT
CO	113	100/80 mg/dscm	4-hr/30-day CEMS	BACT/Eb
MWC Acid Gases (SO_2+HCl)	84+111=195	26/25 ppmvd*	24-hr CEMS/Stack Test	BACT/Eb
MWC Metals/PM/PM_{10}	14.6	12 mg/dscm	Stack Test	Avoid PSD
Ozone as VOC	12	NA	NA	NA
Sulfuric Acid Mist	<<7	NA	NA	NA
Fluorides (F)	<<3	NA	NA	NA
Lead (Pb)	0.17	140 µg/dscm	Stack Test	Subpart Eb
Mercury (Hg)	<0.10	28 µg/dscm*	Stack Test	Avoid PSD
Cadmium (Cd)	0.01	10 µg/dscm	Stack Test	Subpart Eb
MWC Organics (dioxin/furan)	$1.6x10^{-6}$	13.0 ng/dscm	Stack Test	BACT/Eb
Opacity	NA	10 percent	6-minute COMS	BACT/Eb
Ammonia (NH_3)	<15	15/10 ppmv	Stack Tests based on load	PM, Opacity

* Alternative percent (%) removal requirements apply if values exceeded. SO_2 (80%), HCl (95%), Hg (85%)

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit, unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue PSD Permit. Written comments or requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400 or the e-mail address provided below. Any written comments filed shall be made available for public inspection. If comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. This PSD permitting action is being coordinated with a certification under the Power Plant Siting Act (Sections 403.501-518, F.S.). If a petition for an administrative hearing on the Department's Intent to Issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing (if one is held), as provided under Section 403.507(3). Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32399-2400
Telephone: 850/488-0114
Fax: 850/921-9533

Dept. of Environmental Protection
Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926
Telephone: 813/632-7600
Fax: 813/744-6458

Hillsborough County Environmental Protection Commission
3629 Queen Palm Drive
Tampa, Florida 33619-1309
Telephone: 813/627-2600
Fax: 813-627-2660

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the authorized representative, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Scott Sheplak or Debbie Nelson of the Bureau of Air Regulation at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114 for additional information. Key correspondence, draft permit and technical evaluation can be accessed by clicking on "Hillsborough County Resource Recovery Facility" under the "Waste-to-Energy" tab at the following web page:
www.dep.state.fl.us/Air/permitting/construction/hillsborough.htm

BEST AVAILABLE COPY

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared C. Pugh, who on oath says that she is the Advertising Billing Supervisor of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE IN THE TAMPA TRIBUNE

in the matter of NOTICE OF PUBLIC MEETING

was published in said newspaper in the issues of *MAY 25, 2006

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, this advertisement for publication in the said newspaper.

C Pug

Sworn to and subscribed by me, this 25 day of MAY, A.D. 2006

Personally Known V or Produced Identification_____ Type of Identification Produced_____

Ana Hodel

#1725167

Ana Maria Hodel
Commission #DD551367
Expires: MAY 11, 2010
www.AaronNotary.com

PUBLIC NOTICE OF INTENT TO
STATE OF FLORIDA DEPARTMENT OF EN
Hillsborough County Resource Re
DEP File No. 0570261-007-AC (PS

Department of Environmental Protection (Department) give
irements for the Prevention of Significant Deterioration (PS
nit is one of several authorizations needed to construct a non
bustor (MWC) at the existing Hillsborough County Resourc
nd near Brandon. A PSD applicability analysis and a determ
CT) were required pursuant to Rule 62-212.400(2)(a) and 1(
sions of nitrogen oxides (NO_X), carbon monoxide (CO), sul
nics. The applicant's address is Hillsborough County Depa
nedy Boulevard, Tampa, Florida 33602.

applicant proposes to construct a new MWC Unit 4. The pr
C; a new nominal 17 megawatt (MW) steam turbine-electric
e building; a new transformer yard; a new lime silo; and a n
acility will be able to process approximately 1,800 TPD of s
of electricity.

general area is in attainment with respect to all State and Na
approximately 200,000 tons per year (TPY) of SO_2 and NO
ampa Bay area due to the natural gas repowering of the coa
ion of a scrubber and Low NO_X burners at the TECO Big B
osed project will not cause or contribute to a violation of the
ases (increments). All of the modeled ground-level polluta
ct levels that would otherwise require applications of more

proposed project is subject to 40CFR60, Subpart Eb-Standa
ssion Guidelines (including hazardous air pollutants) for Exi
ed and published by the Environmental Protection Agency (

eet the requirements of Subpart Eb and BACT, the applican
sorb MWC acid gases; an activated carbon injection (ACI) s
ric filter (FF) baghouse to remove particulate matter, includi
culation (FGR) to limit NO_X formation; and a urea-based sel
oy NO_X. Continuous emissions monitoring systems (CEMS
ired as well as a continuous opacity monitoring system (CO

Department has determined that emissions for several key po
ent use, can be lower than required by Subpart Eb. The Dep
per million by volume, dry corrected to 7 percent oxygen (
pmvd @7% O_2 on a 12-month average, rolled monthly. This
MWC in the United States.

ury (Hg) emissions will be limited to 28 micrograms per dry
etermined in accordance with the existing procedures in 40C
mined that by the second year of operation, reliable Hg-CEM
lled to measure actual emissions. This instrument represents
ed States. This instrument will provide much better informa
e that annual emissions are less than the threshold requiring

following table summarizes the estimated annual emissions a
the Department's BACT determination, Subpart Eb, or to av
itants are emitted at levels less than the thresholds requiring

lutant	Emissions TPY	Emission Lin

BEST AVAILABLE COPY

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared C. Pugh, who on oath says that she is the Advertising Billing Supervisor of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE IN THE TAMPA TRIBUNE

in the matter of PUBLIC NOTICE OF INTENT

was published in said newspaper in the issues of
*MAY 25, 2006

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, this advertisement for publication in the said newspaper.

Sworn to and subscribed by me, this 25 day of MAY, A.D. 2006

Personally Known ✓ or Produced Identification _____ Type of Identification Produced _____

#1725137

Ana Maria Hodel
Commission #DD551367
Expires: MAY 11, 2010
www.AaronNotary.com

The Tampa Tribune • TBO.com

NOTICE OF A PUBLIC M
THE EXPANSION OF HILL
RESOURCE REC(

The

The Hillsborough County Board c
ioners) and the Solid Waste Manage
iat a public meeting will be held on
osed expansion of Hillsborough Cou
lity). The meeting will begin at 2 p.m
hich is located at 601 E. Kennedy Bc

The Facility currently consists of
/WC) units and each unit burns app
unicipal solid waste (MSW). The Co
urth MWC unit, which will process
icrease the Facility's total MSW proce

The County has prepared an analy
e expansion of the Facility (Facility) (
nd vegetation. The County also has p
Plan), which describes the County's i
trategy for the use of waste reduction,
he Siting Analysis and the Plan have
he requirements of 40 Code of Fede
art of the County's efforts to obtain
rovals for the expansion of the Facili
ritten and oral comments from the
nd Plan at the public meeting.

genda for the Public Meeting

. Introduction.

. The proposed expansion of Hillsbc
Facility.

BEST AVAILABLE COPY

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared C. Pugh, who on oath says that she is the Advertising Billing Supervisor of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE IN THE TAMPA TRIBUNE

in the matter of NOTICE OF LAND USE

was published in said newspaper in the issues of

*MAY 25, 2006

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, this advertisement for publication in the said newspaper.

Sworn to and subscribed by me, this 25 day of MAY, A.D. 2006

Personally Known ✓ or Produced Identification _____ Type of Identification Produced _____

#1723605

Ana Maria Hodel
Commission #DD551367
Expires: MAY 11, 2010
www.AaronNotary.com

NFL OVERTURE

Continued From Page 1

han anything else, he would bring a work ethic and leadership qualities to the job that would benefit any organization," said Tilley, now head of a Tallahassee public relations and government communications firm.

Executive recruiter Steve McMahan said corporate America typically opts for a square-peg-in-a-square-hole succession strategy — one company's chief executive vacancy might be filled by someone in that same role at a similar company.

But "what's the square peg equivalent of commissioner of the NFL?" asked McMahan, chief sales officer at Kforce Professional Staffing in Tampa. "There isn't one. You end up looking at some unconventional candidates."

The state constitution limits Bush to two terms, and his eight-year tenure ends with the swearing-in of a new governor in January. Publicly, he has said only that he intends to return to his Miami home. Speculation about his future has been intense.

Bush acknowledged to the South Florida Sun-Sentinel on Tuesday that he had a meeting with Patrick Rooney Sr., owner of the Palm Beach Kennel Club racetrack and brother of Pittsburgh Steelers owner Dan Rooney.

Dan Rooney heads the NFL's selection committee searching for a successor to Paul Tagliabue, who is stepping down as commissioner this summer. Patrick Rooney

other than
til I finish,"
Wednesday
tended to "
What if
modates Bu
"A day d
someone d
idea for wh
in 2007 an
not enterta
sion about
said, chang
As far as
ered, "I do
about it," s
NFL's vice p
relations. T
candidates,
not going to
might or mi
date at this
The posit
plenty of all
of State Co
made overt
Bush is a
and was a
investors ir
Jaguars fran
lic office, B
coaster tra
business wo
South Floric
estate devel
It's his cu
vious ones,
strong cand
job, accordi
cruiter McM
have to deal
powerful p
egos" in NF
han said.
"What do
do all day l
he said.
John Chal
Chicago-ba
Gray and Ci
ment firm, a
natural fit.
The comm
ten takes so
diplomatic
skills," he s

COVANTA ENERGY

Covanta Hillsborough, Inc.
A Covanta Energy Company
350 Falkenburg Road N.
Tampa FL 33619-0903
Telephone #: 813-684-5688
Facsimile #: 813-684-7964

FACSIMILE TRANSMITTAL SHEET

DATE: 5/17/06

FAX NUMBER: (850) 921-9533

TO: Al Linero

FROM: Becky Macionski

Number of Pages (including cover sheet): 2

SPECIAL INSTRUCTIONS/COMMENTS:

Attached please find the facility's flouride (total) information that Cindy requested on a 16/hr basis. Let me know if I can be of any further assistance.

IF YOU EXPERIENCE PROBLEMS WITH THIS TRANSMISSION PLEASE CONTACT SENDER.

fax.frm

Thanks

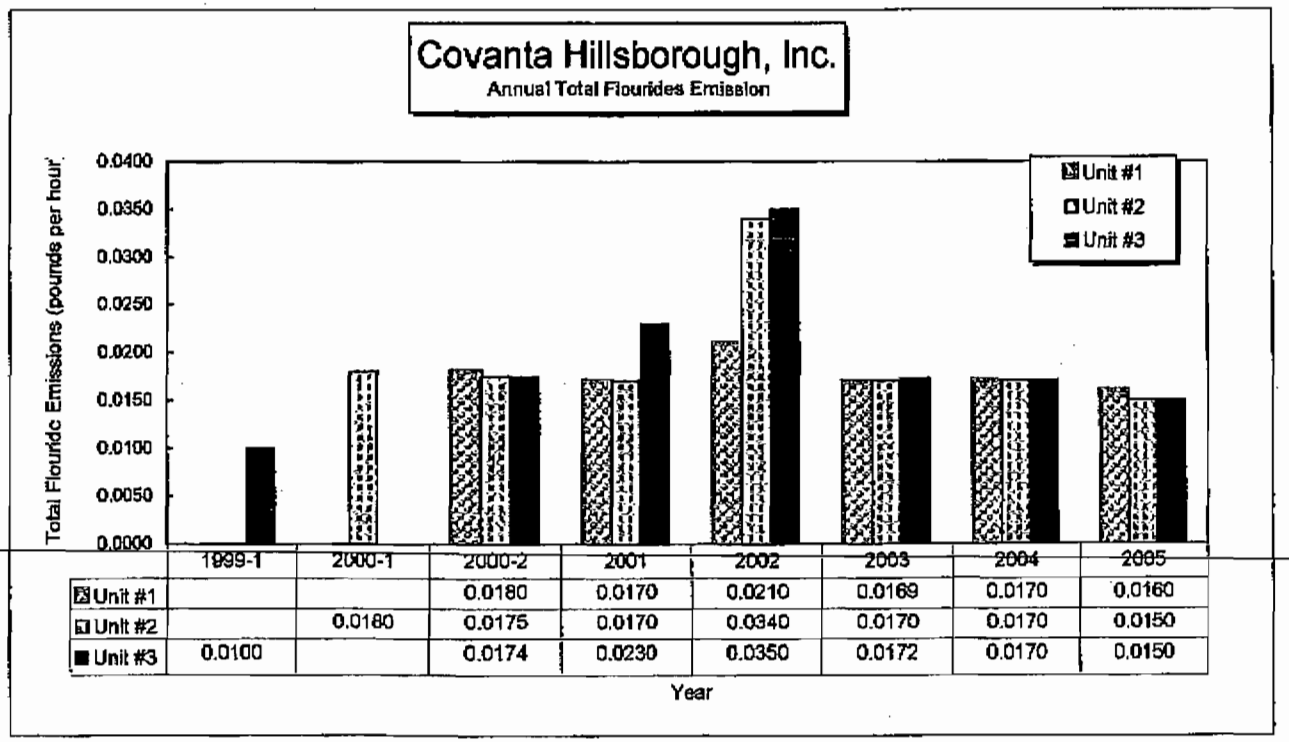
Becky

Hillsborough County Resource Recovery Facilty

Historical Total Flouride Emissions Outlet

Year	Unit #1	Unit#2	Unit #3	
1999-1			0.0100	*lbs/hr*
2000-1		0.0180		*lbs/hr*
2000-2	0.0180	0.0175	0.0174	*lbs/hr*
2001	0.0170	0.0170	0.0230	*lbs/hr*
2002	0.0210	0.0340	0.0350	*lbs/hr*
2003	0.0169	0.0170	0.0172	*lbs/hr*
2004	0.0170	0.0170	0.0170	*lbs/hr*
2005	0.0160	0.0150	0.0150	*lbs/hr*

Note: The average emissions were calculated using non-detect values at the detection limit.



Sheplak, Scott -file-

PSD-FL-369; 0570261-007-AC

From: Linero, Alvaro
Sent: Monday, May 08, 2006 10:13 AM
To: 'Gorrie, Jason'
Cc: Sheplak, Scott
Subject: RE: Applicability of New NSPS

Jason: You wrote:

We concur - the revised Eb standards will apply (Hillsborough County has not begun construction). In speaking with EPA last week at NAWTEC, they anticipate a lawsuit on the final standards. Regardless, we agree that the new Eb standards will apply.

When would you like to get together to finalize the NOx limitation?

Response:

Very soon! DEP staff report date is May 24, 2006 so Our draft PSD action will occur on or before that date. We would have to sort out NOx almost right now!

What did you have in-mind regarding getting together?

Thanks.

Al Linero.

Sheplak, Scott

From: Linero, Alvaro
Sent: Sunday, May 07, 2006 6:05 PM
To: Gorrie, Jason
Cc: Sheplak, Scott
Subject: RE: Applicability of New NSPS

Jason:

We plan to include a requirement that the revised NSPS Subpart Eb for units that begin construction AFTER December 19, 2005 APPLIES to this project based on the outcome of the final rule.

I'm just trying to clarify that Hillsborough County doesn't claim to have begun construction (in the NSPS meaning of the word) prior to that date.

Thank you.

Al Linero.

CDM
1715 North Westshore Boulevard, Suite 875
Tampa, Florida 33607
tel: 813 281-2900
fax: 813 288-8787

February 28, 2006

Mr. Hamilton S. Oven, Jr., P.E.
Administrator, Office of Siting Coordination
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399

Subject: Hillsborough County Resource Recovery Facility Expansion
Response to Notice of Insufficiency

Dear Mr. Oven:

Enclosed, please find Hillsborough County's responses to the Department's Notice of Insufficiency related to the recently submitted Application for Power Plant Certification for expansion of the Hillsborough County Resource Recovery Facility. To assist in your review of our responses, we have restated each item of insufficiency and formatted them in ***bold italics***, with our response immediately following. Further, we have compiled the responses into individual sections related to the agency/division generating the question (i.e. Section 1 – SWFWMD, Section 2 – FDEP Southwest District Air Program, etc.). As always, should you have any questions or require additional information, please do not hesitate to contact us at (813) 281-2900

Very truly yours,

Daniel E. Strobridge, QEP
Vice President
Camp Dresser & McKee Inc.

Jason M. Gorrie, P.E.
Sr. Project Manager
Camp Dresser & McKee, Inc.

c: Thomas G. Smith, HCSWMD

3/28/06

S:\HILLS_SW\PPSA\Responses\HCRRE Comments_Ltr.doc

Contents

Section 6
FDEP Tallahassee Air Program 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.

RESPONSE: Comment is noted. Hillsborough County hereby withdraws its request to revise its Title V permit. Instead, the County will pursue revising the Title V permit 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?

RESPONSE: Mr. Boldissar is the Director of the Solid Waste Management Department for Hillsborough County.

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_2 and HCl [See 70 Federal Register 75347]. No changes were proposed to the existing federal NO_x 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?

RESPONSE: A side-by-side comparison of the County's proposed BACT emissions limits and the EPA's proposed NSPS/EG standards are included in Appendix M. Please note that the proposed EPA standards were published after the County concluded its BACT analysis. Accordingly, the County did not have the benefit of reviewing the proposed EPA limitations and factoring them into the County's analysis.

It should be recognized that the EPA's new NSPS emission limits have only been proposed; they have not been adopted as final standards. Moreover, like any emission limit proposed by EPA, it is impossible to know precisely what the final standards will be or when the final standards will take effect. Indeed, the Integrated Waste Services Association (IWSA) and many others have asked the EPA to reconsider and revise the proposed emissions limits for MWCs. Given the uncertainty about the final standards, it would be premature to revise the County's BACT analysis before EPA issues its final standards.

With respect to early compliance, the expansion project will constitute a "new" municipal waste combustor and will be regulated pursuant to the NSPS, rather than the Emission Guidelines, when it commences operations. Accordingly, there is no compliance deadline for the new unit; it must be in compliance upon completion of construction. Hillsborough County is willing to consider early compliance for the three existing units at the Facility, but until the final standards are promulgated, the County cannot determine what it must do to come into compliance. For example, the County cannot accurately predict at this time whether it will need to make any capital improvements to the Facility. The County also cannot determine whether, or the extent to which, the County will need to renegotiate its contract with Covanta to obtain a guarantee that Covanta will operate the Facility in continuous compliance with the new EPA standards. Consequently, the County cannot commit to early compliance at this time.

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, multimetal CEMs and dioxin/furan semi-continuous monitoring system/CEMs. Has the facility considered any of these CEMs?

RESPONSE: The EPA's CEMs proposals have been questioned by the IWSA and others. It is impossible to know whether, or the extent to which, EPA's proposals will be changed before EPA adopts its final rules.

EPA's proposed changes to the NSPS would allow, but not require, the use of PM CEMs. The County understands that the rule would allow the installation and use of PM CEMs at any time. Under the provisions of the proposed rule, the County would have to notify DEP one month before starting use of the system, and notify DEP one month before stopping use of the system. The County is not currently considering installing PM CEMs, but may at a future date. The decision to install the CEMs would be based on a cost/benefit analysis. If the cost of installing and maintaining the CEMs could be offset by removing the continuous opacity monitor (COMs), discontinuing the monitoring of flue gas parameters, MWC load and/or activated carbon injection rate, along with the discontinuation of Method 5 stack testing, the County may consider it. However, the PM CEM methods available appear to require substantial Method 5 testing to develop the correlation curves required by

Performance Specification 11 in Appendix B of 40 CFR 60. The County may also consider the advantages of PM CEMs in having compliance be based on a 24-hour average, rather than on the average of three 1-hour stack tests (Method 5) or on a 6-minute average (opacity).

The County considers the possible use of HCl CEMs, multi-metal CEMs, and semi—continuous dioxin/furan sampling more speculative at this time. These are emerging technologies for which EPA has not yet written performance specifications. The preamble to the proposed rule states, "The EPA has not included such provisions in the proposed rules because it appears the current practice of continuous monitoring of SO_2 and PM in combination with the continuous monitoring of operating parameters (boiler load, fuel gas temperature and ACI rate) give a good indication of acid gas, metals and organics emissions from MWC units." The possible use of mercury (Hg) CEMs is discussed in response to the specific comment about Hg CEMs, below.

Proposed NOx BACT Emission Standard

A NOx emission limitation of 110 ppmvd @ 7% O_2 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 NO_x standard than the new Lee County unit resulting in a 27% reduction. However, the Department believes a lower NO_x standard is technically achievable and cost effective.

RESPONSE: In response to DEP's comments on both the proposed NOx BACT emission limit, and on the proposed ammonia slip concentration, Hillsborough County has conducted additional investigations. The County has evaluated the following:

A) Whether the proposed NOx emission limit of 110 ppmdv @ 7% O2 on a 24-hour block arithmetic mean basis and with enhanced SNCR could be lower with a longer averaging period, specifically a one-month averaging period;

B) The lower NOx exhaust concentrations achieved by enhanced SNCR at the Brescia, Italy, Waste-to-Energy Facility; and

C) The trade-off between ammonia slip and NOx removal, and the feasibility of adding an ammonia scrubber to the proposed air pollution control equipment train.

Each of these is discussed below. The County's overall conclusion, after very careful consideration of each of the above and a strong interest in doing everything practically possible to lower the NOx concentration, is that the proposed limit of 110 ppmdv @ 7% O2 on a 24-hour basis is BACT.

Longer Averaging Period

The County understands that the longest averaging period that would be acceptable to DEP and consistent with EPA's federal enforceability guidance would be a one-month block arithmetic average. The County evaluated the possibility of a lower

NOx limit for this averaging period, based on the conclusion of the BACT analysis that enhanced SNCR can achieve approximately 60% NOx removal efficiency on a continuous basis. Based on the available data for NOx inlet concentrations for Units 1-3, it appears that the inlet NOx concentrations at the Facility average approximately 300 ppmdvc, but vary significantly from 280 to 345 ppmdvc, as shown in **Appendix N**. Given the variable nature of the inlet concentrations, a lower outlet concentration is unlikely to be achieved on a continuous basis, even if a longer averaging period is used.

Evaluation of NOx and Ammonia Slip Data from the Brescia Waste-to-Energy Facility

The MWC facility in Brescia, Italy, has NOx control equipment similar to that determined to be BACT for the Facility's Unit 4: Flue Gas Recirculation, Enhanced SNCR, Spray Dryer, and Baghouse. Based on information provided by DEP for the Brescia facility, it appears that the Brescia Facility can control NOx using enhanced SNCR to approximately 70 ppmdvc (parts per million by dry volume corrected to 7% oxygen). Data from the Brescia Facility for 44 days of combined NOx and ammonia slip monitoring (sent to DEP on January 17, 2006), show that over this 44-day period, the NOx concentration averaged 48 ppmdvc. However, for the same period, the ammonia exhaust concentrations averaged 53 ppmdvc, with a range of 15 to 107 ppmdvc. These data suggest that, although lower concentrations of NOx are achievable with enhanced SNCR, relatively high ammonia slip is necessary to obtain these results. These higher amounts of ammonia slip are likely to produce an opaque ammonium chloride plume from the stack on a routine basis.

A recurring, opaque plume at the Facility would be unacceptable to the public, the County, and the Department. In addition to the environmental impacts associated with the ammonia slip, the aesthetic impacts of the plume would be significant. Given the extensive efforts that are being taken at the Facility to minimize all potential emissions, it would be very inappropriate to operate a part of the APC system in a manner that produces an unattractive, visible plume.

Ammonia Scrubber Evaluation

Based on a review of the Brescia facility data described above, NOx outlet concentrations lower than 110 ppmdv @ 7% O2 are achievable if the associated ammonia slip could be controlled. Consequently, an ammonia scrubber would be necessary on the APC train to control ammonia slip (i.e., 50 ppmdv) that would be associated with a lower NOx limit.

The County has contacted various suppliers of ammonia scrubber technology and obtained budgetary cost estimates for this technology. **Table 1** shows a summary of the estimated costs for ammonia scrubbing equipment. The total annualized cost for the ammonia scrubber is estimated to be approximately $730,000 per year. This equates to an approximate cost to treat 61 tons of ammonia per year of $24,000/ton of ammonia removed.

Table 1 A Summary of Mercury Stack Testing Results	
Description	**Wet Scrubber**
Estimated Capital Costs	$3,000,000
Estimated Annualize Capital (7%,20 yrs, cf = 0.09439)	$300,000
Estimated Annual O&M Costs (15% of Capital)	$450,000
Total Annual Cost	$730,0000
Ton of Ammonia Remove per Year	61
Total Cost Per Ton of Ammonia Removed	$24,000

The installation of ammonia scrubbing technology at the Facility will create significant operational problems. The wastewater generated by the scrubber, like the other wastewater generated at the Facility, will be discharged to the adjacent WWTP. The Hillsborough County Water Department has expressed concern about the resultant ammonia loading to its WWPT, which may require costly wastewater pre-treatment technology to be installed. Additionally, because the ammonia scrubber relies on wet scrubbing technology, a significant vapor plume would be created.

CDM is continuing to work with Martin GMBH to explore SNCR control strategies that may be viable for optimizing urea injection (i.e., "Smart SNCR").

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_x emission rate of 150 ppmvd corrected to 7 percent O_2 on a 24-hour block arithmetic mean as well as 110 ppmvd corrected to 7 percent O_2 on a 12-month rolling average and designed to meet a 15 ppmvd @7% O_2 ammonia slip on a 24-hour average. You proposed an ammonia slip of 50 ppmvd @ 7% O_2. The lower ammonia slip permitted at Lee appears to be achievable. Please comment as to why a higher ammonia slip is being proposed.

RESPONSE: The County acknowledges that an ammonia slip limit of 20 ppmdv @ 7% O_2 is likely achievable at NO_x levels of 110 ppmdv @ 7% O_2. See response to comment above.

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 µg/dscm, while you proposed a limit of 70 µg/dscm. Please comment as to why a higher limit is being proposed.

RESPONSE: As discussed with the Department in December, the County wishes to revise its application as it relates to the proposed emission limitation for mercury. On Page 2-7, Table 2-3, and on Page 3-54, the proposed BACT emission limit for Hg is hereby revised to 28 µg/dscm or 85% control.

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?

RESPONSE: The County will follow the development of mercury CEMs, and will consider installing them in the future, but the County is not currently planning to include mercury CEMs for Unit 4. EPA has conducted a study of mercury CEMs that suggests that more development is needed before they can be reliably applied to MWCs (Midwest Research Institute, 2003, Mercury CEMs Field Observations: September – December, 2002). Among other things, this study concluded:

- Operating experience for mercury CEMs is based on their use at European power plants, which have much more extensive air pollution control systems than U.S. power plants, and much lower SO2 and NOx emissions. The European power plants present a very different gas matrix to the mercury CEMs than U.S. plants.

- Mercury CEMs are adversely affected by SO2 exposure, and by build-up of ammonia salts from ammonia slip. All of the analyzers evaluated also showed some precipitate build-up of reddish-colored deposits believed to be selenium, which appear to adsorb elemental mercury and thus affect the reliability of the CEMs.

Hillsborough County recognizes that significant research is being conducted on Hg CEMs in conjunction with the implementation of the recently promulgated Clean Air Mercury Rule (CAMR). The County believes it is prudent to wait until the reliability of mercury CEMs is demonstrated for MWCs and the MWC flue gas environment, before the County adopts the use of this technology.

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.

RESPONSE: Table 2 shows a summary of the mercury stack testing for 2001 through 2005 for each unit at Hillsborough County, Pasco County, and Lee County.

Table 2
A Summary of Mercury Stack Testing Results

Date	Unit	Lee County			Pasco County			Hillsborough County		
		In	Out	%	In	Out	%	In	Out	%
2001	1	198	23	87	674	13	96	226	9.4	96
	2	119	28	76	219	12	95	145	5.8	96
	3	-	-	-	190	6	97	243	9.2	96
2002	1	240	12	95	109	12	88	142	6.5	95
	2	130	11	92	149	10	94	149	8.1	95
	3	-	-	-	144	3	96	149	8.1	95
2003	1	127	26	79	118	3	97	221	20.9	90
	2	257	31	87	143	5	96	156	8.01	95
	3	-	-	-	247	4	97	130	14.1	89
2004	1	173	23	87	127	13	87	145	14.5	90
	2	94	15	84	96	12	87	187	18.1	90
	3	-	-	-	116	7	93	106	18.9	82
2005	1	166	36	77	160	4	96	141	23	82
	2	183	14	91	101	8	92	77	21	72
	3	-	-	-	88	5	94	155	18	86

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.

RESPONSE: Please refer to **Appendix C** and **Appendix D** for general information related to the proposed APC equipment.

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.

RESPONSE: As indicated earlier, a list of preliminary drawings and specifications have been developed to estimate the cost of the project. The specifications for the APC equipment in Unit 4 were prepared as part of the preliminary design. The APC equipment that will be provided for the proposed Unit 4 is described in **Appendices C and D**. The proposed expansion will not proceed to the final design phase until the PPSA certification is issued.

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 cannot 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?

RESPONSE: The Application does not contain a request to lower the existing allowable emissions limits for Units 1, 2 and 3, and no reductions for these units were included in the dispersion modeling. This issue was discussed, however, during the County's meeting with DEP on December 19, 2005. The context of the discussion related to the NOx BACT evaluation for Unit 4. DEP pointed out at the meeting that NOx reductions at the existing units could not be considered as part of the BACT determination for Unit 4, so this idea was not pursued any further.

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.***

   RESPONSE: No sensitive plant or animal species will be adversely affected by the operation of the Facility. The impacts to wildlife due to the Facility project were evaluated in Appendix 14 of Volume III of the Application, in a report entitled Human Health and Ecological Impact Analysis. The analysis evaluated the potential impacts to the natural communities of the Palm River and freshwater ponds. The assessment focused on three indicator species (i.e., aquatic life, the wood stork, and the river otter) that were considered to be at greatest risk based on habitat use, exposure potential and population status. These indicator species were selected because they represent three broad classes of wildlife (i.e., aquatic life, piscivorous birds and piscivorous mammals). The ecological risk assessment showed that the hazard quotients for aquatic life and

the selected terrestrial species were all less than the target level of 1.0, by at least a factor of 25. These results indicate that aquatic and terrestrial wildlife are not expected to be at risk from adverse effects of exposures to chemicals released during the operation of the Facility.

2. ***In Section 6.2.5 of the application, it states that "FDEP guidance for calculating the PM_{10} 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 be used to determine compliance with the PM_{10} 24-hour NAAQS, the 24-hour PM_{10} Significant Impact Analysis is compared to the highest second-high concentration. Please confirm that the resultant concentrations of the PM_{10} 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.***

   RESPONSE: The PM10 24-hour concentrations presented in Table 6-10 for comparison with the PSD Class II levels were incorrectly based on high sixth-high concentrations rather the high second-high. However, the difference between the two values for Unit 4 only was less 0.1 $\mu g/m^3$ (0.58 $\mu g/m^3$ compared to 0.59 $\mu g/ m^3$) and less than 0.01 $\mu g/ m^3$ for the entire Facility. Thus, Unit 4 and the Facility will comply with the applicable PSD Class II increments

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?***

   RESPONSE: Fugitive sources (i.e., storage silos, material processing) are expected to have insignificant emissions of PM (less than 1 ton/yr), as discussed above. It is not expected that there will be any fugitive sources of other criteria pollutants. Vehicular traffic is considered a mobile source, and is not addressed as part of the facility. Because fugitive emissions are required to be kept at minimum levels by 40 CFR 50.55b, they will be *de minimus*.

4. ***The application states that PM originates from three sources with regard to the processes of the facility. Are all sources of PM accounted for in the modeling?***

   RESPONSE: Other sources of PM (i.e., storage silo's, material handling) are addressed in the text as insignificant sources and not included 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."***

   RESPONSE: "ISCSILs-Revised 0905" contains all of the modeling for SIL using a first attempt coarse grid. The folder titled "ISCSILs-Revised 0905-25m" contains the identical modeling with a further refined 25-meter-spaced receptor grid

placed over the maxima found in the original modeling to further attempt to hone the maximum predicted concentrations.

Under this heading, modeling was divided into ALL (for all units), and New (for the new boiler unit). Under each of the aforementioned folders, modeling was further subdivided into PM (for particulates) and Others (for all other criteria pollutants).

Modeling included in the "Bay Dep" folder was undertaken to identify NOx loading to ocean water in the greater Tampa Bay area. Only the new boiler was modeled, and NOx was the only pollutant of interest.

Modeling included in the "HRA Dep" folder was performed for the human health risk analyses, and performed as requested by the risk assessor using applicable guidance. Modeling was divided into ALL units and the new unit alone. For all units, runs were performed using inputs specifically to account for either particulate deposition or gaseous deposition.

6. *Please verify the "Source" inputs with the "Description" statements in the modeling. For example, in the file named "ISCSILs-Revised0905\New\PM\U4PM1991.isc," one of the two sources is described as "MWC Stack All Units" when the source inputs are for Unit 4 only.*

   RESPONSE: The Label to which the comment refers is a result of a manual entry in the LAKES environmental software. This source comment was not removed by the software during revisions to the modeling.

   Sources included accurately reflect the model I/O filename. For example, "U4....inp" are inputs modeling only the new boiler unit. "ALL-....inp" are inputs modeling all boilers combined. Where PM is modeled, the cooling towers are also included.

7. *In the application, Table 6-3 lists twelve buildings for BPIP. In the modeling, eleven buildings are included. Please correct the modeling.*

   RESPONSE: A previous version of the BPIP files was inadvertently forwarded with the application. The correct BPIP I/O files (showing 12 buildings) are provided as Appendix O.

8. *Please submit a plot plan. The UTM coordinates for Unit 4 used in the modeling cannot be verified without a plot plan.*

   RESPONSE: The Plot Plan showing the survey coordinates is included in Appendix P.

-file-

CDM

One Cambridge Place, 50 Hampshire Street
Cambridge, Massachusetts 02139
tel: 617 452-6000
fax: 617 452-8000

January 17, 2006

Mr. A.A. Linero, P.E.
Administrator, South Permitting Section
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road, MS#5505
Tallahassee, FL 32399-2400

Subject: Supplemental Information
Hillsborough County Resource Recovery Facility Expansion
Application for Power Plant Site Certification, dated November 18, 2005

Dear Mr. Linero:

Thank you for taking the time to meet with us in December to discuss our application for expansion of the Hillsborough County Resource Recovery Facility. The discussion was quite useful for us; we trust that it was for you and your staff as well.

At our meeting, you supplied us with additional information related to the Brescia Waste-to-Energy Facility in Italy. We have reviewed this information and have obtained additional data from Brescia which we would like to share with you. As you stated at the meeting, the Brescia facility does indeed have a proven track record at controlling NOx using SNCR technology to approximately 70 ppmdvc (part per million by dry volume corrected to 7% oxygen). We will continue studying the operational practices at Brescia and other SNCR facilities to gain further insight into how low the Hillsborough facility can consistently operate.

The attached two data sheets present information and emissions data from the Brescia Facility. As shown on the second data sheet, the NOx emissions averaged 48 ppmdvc, over 44 days of emissions testing. The NH_3 emissions averaged 53 ppmdvc with a range of 15 to 107 ppmdvc. We are concerned with the relatively high amount of NH_3 slip that these data indicate. Significant amounts of ammonia slip inevitably result in a highly opaque ammonium chloride plume that is not necessarily recorded by the opacity monitor. The Hillsborough facility's location in a coastal environment will likely accelerate the formation of ammonium chloride. Facility aesthetics are of utmost concern to Hillsborough County, and

any visible plume observed from the stack will detract from the highly successful reputation that the facility has developed since beginning operation over 20 years ago.

Significant NH_3 slip emissions may also be problematic with respect to the implementation of the USEPA's PM 2.5 rules. NH_3 has been identified as a PM 2.5 precursor. Achieving lower NOx emissions at the cost of higher NH_3 emissions (as the Brescia data suggest) may ultimately be less beneficial to the environment as a whole, especially when one considers the relatively small gains in NOx reduction that is achieved.

One option for mitigating this potential problem is the installation of an ammonia scrubber following the baghouse. We are in the process of contacting vendors and will report back to you and your staff once we have sufficient technological and cost details for such equipment. We will also evaluate the environmental impact resulting from the discharge of ammoniated wastewater from this process.

As also discussed with you in December, we would like to make a correction to our application as relates to the proposed emission limitation for mercury. On page 2-7, Table 2-3, and on page 3-54, we incorrectly state that BACT for Hg is 70 or 134 ug/dscm, respectively. Although the use of activated carbon injection to achieve 85% removal in these application sections is correct, the two outlet concentrations cited are not. BACT for Hg should be 28 ug/dscm, or 85% control, consistent with the NESCAUM guidance that has been adopted by New England and mid-Atlantic states, and that currently applies to numerous waste-to-energy facilities operating in the Northeast.

We are re-evaluating our determination of BACT for cadmium. This is necessary because the USEPA recently issued a proposed revision to the NSPS and Emissions Guidelines standards for large municipal waste combustors subsequent to our application submittal in early December. The proposed NSPS contains a Cd standard that is lower than that which we proposed as BACT. As soon as we have had an opportunity to review EPA's data set that was used as rationale for the new proposed standard, we will report back to you and your staff and re-define BACT if necessary.

Finally, we are sending you, under separate cover, a correction page for the permit application forms contained in Volume III, Appendix C, of the application. This page, page 2 of the forms, has been edited to show that the application is for an air construction permit, and not for concurrent processing of the air construction permit and Title V air operation permit.

CDM

Thank you for giving us the opportunity to discuss these very important matters with you. We look forward to working with you and your staff to determine the best available control technologies for the Hillsborough Facility.

Very truly yours,

Frank Sapienza

Frank Sapienza, P.E.
Principal, Senior Project Engineer
Camp Dresser & McKee Inc.

cc: Tom Smith, Hillsborough County
David Dee, Young van Aseenderp, P.A.
Jason Gorrie, Dan Strobridge, Cynthia Hibbard, CDM

vc: Seth Shepick
Jason Waters, SWD
Alice Harman, OPCHC
Kathleen Forney, EPA Region 4

Sheplak, Scott

From: Harman, Alice [Harman@epchc.org]
Sent: Monday, January 09, 2006 1:14 PM
To: Sheplak, Scott
Cc: Zhu, Roger
Subject: HCRR

Scott,

Attached are the comments on HCRR you request by today. Thank-you for allowing us to submit information. I will not forward a hard-copy.

Sincerely,
Alice

MEMORANDUM

DATE: January 6, 2006

TO: Scott Sheplak, P.E.

FROM: Roger Zhu **THRU**: Alice H. Harman, P.E.
Sterlin Woodard, P. E.

SUBJECT: **Co-review – Hillsborough County Resource Recovery (HCRR)**
Permit No.: 0570261-007-AC

After co-reviewing the HCRR construction permit application (0570261-007-AC) received on December 28, 2005, following comments are provided for FDEP review:

1. Volume III, Appendix C (AC application), Page 2, the facility marked that the application as an AC and a TV Revision. If so, the ARMS need to be updated so that there are two projects with two project numbers (-007-AC and -008-AV)? However, we recommend issuing the AC permit and the Title V revision (after compliance demonstration) separately with two public notice requirements in order to give the opportunities for the public to comment on.

2. According to the application, the new Unit No. 4 will have control equipment, such as SDA, FF, ACI and SNCR. However, it does not describe how they will be used. For example, will the semi-dry SDA scrubber be used in series with the fabric filter (the scrubber exhaust will feed into the fabric filter) or will the control devices be used independently. Please provide process flow diagram with detailed information about the control equipment.

3. The 40 CFR 60, Subpart Eb, was promulgated after November 15, 1990, therefore, the emission standards or limitations for any pollutant-specific emissions unit in the Subpart Eb are exempted from the CAM requirement. However, the Unit No. 4 is also subject to 40 CFR Subpart Db, which was first promulgated in Dec. 1987. Therefore, CAM should apply for the pollutants, such as SO_2, PM and NO_x. Also, two pollutants, SAM and HF, which are not covered by the Subpart Eb limitations and monitoring requirements shall be subject to the CAM requirement. A CAM plan shall be submitted with the permit application for the above pollutants.

4. Volume III, Page 3-1, indicates that the MWC has a nominal capacity of 660 tons per day. The AC 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 calculation to show the quantity of steam/heat is generated by amount of waster incinerated with specified temperature and pressure.

5. Volume III, Pages 2-20, the applicant has requested that the VOC limit cited for the existing Unit Nos. 1, 2 and 3 be deleted from the Title V permit, and that no VOC limit be set for the proposed Unit No. 4. According to Volume III, Page 4-3, the equivalent annual VOC emissions rate for the Unit No. 4 is 12 TPY, which exceeded the permit threshold. Is the estimated 12 TPY a potential to emit (PTE) VOC for the new unit? We consider that a calculation for the PTE of VOC needs to be submitted and the VOC emissions for each unit and facility-wide should be limited.

6. 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.

7. The estimated NO_x 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_x emissions are proposed to be controlled by using SNCR/FGR with a stack emission limit of 110 ppmdv. 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 ppmdv 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_x has been ranged from 50 to 90%, and a stack NO_x emission limit can be decreased to 70 ppmdv. As indicated in the application after comparing with the SNCR and SCR control technologies, the SNCR will remove 324 TPY of NO_x, and SCR will remove 405 TPY of NO_x. 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.

krz

Memorandum

Florida Department of Environmental Protection

TO: Steve Palmer, P.E., Energy Office, Siting Section, via e-mail (Steve.Palmer@dep.state.fl.us)

FROM: Scott M. Sheplak, P.E., Bureau of Air Regulation (Scott.Sheplak@dep.state.fl.us)

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

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_2 and HCl [See 70 Federal Register 75347]. No changes were proposed to the existing federal NOx 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, multimetal 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_2 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 DeDlnOx: Catalytic NOx 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 NOx 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_X emission rate of 150 ppmvd corrected to 7 percent O_2 on a 24-hour block arithmetic mean as well as 110 ppmvd corrected to 7 percent O_2 on a 12-month rolling average and designed to meet a 15 ppmvd @ 7% O_2 ammonia slip on a 24-hour average. You proposed an ammonia slip of 50 ppmvd @ 7% O_2. 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_{10} 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_{10} 24-hour NAAQS, the 24-hour PM_{10} Significant Impact Analysis is compared to the highest second-high concentration. Please confirm that the resultant concentrations of the PM_{10} 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\PM\U4PM1991.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_x 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_x emissions are proposed to be controlled by using SNCR/FGR with a stack emission limit of 110 ppmdv. 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 ppmdv 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_x has ranged from 50 to 90%, and a stack NO_x emission limit can be decreased to 70 ppmdv. As indicated in the application after comparing with the SNCR and SCR control technologies, the SNCR will remove 324 TPY of NO_x, and SCR will remove 405 TPY of NO_x. 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

Hillsborough County Resource Recovery Facility
Proposed Fourth Unit
Air Quality Pre-Permitting Meeting

Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Stone Road, Tallahassee
September 2, 2004 – 1:00 p.m.

AGENDA

I. Goal

To review the approach for and general content of the Prevention of Significant Deterioration (PSD) Air Construction Permit Application for the proposed fourth unit at the Hillsborough County Resource Recovery Facility (RRF).

II. Introduction

A. Hillsborough County / FDEP / CDM / Covanta / Landers & Parsons – Roles and Responsibilities
B. Project Description

III. Air Regulatory Issues

A. PSD Definition of Modification – potential to emit for new unit, plus contemporaneous emissions increases
B. PM RACT for proposed new minor PM sources – activated carbon and lime silos
C. NSPS (40 CFR 60, Subpart Eb) Special Analyses – Materials Separation Plan and Siting Analysis
D. $PM_{2.5}$

IV. BACT Analyses

A. Likely PSD Significant and BACT Pollutants – "Top Down" analysis will be conducted (see attached table):
    a. Nitrogen Oxides
    b. Carbon Monoxide
    c. Sulfur Dioxide
    d. Sulfuric Acid Mist
    e. Particulate Matter (PM_{10})
    f. Mercury
    g. Fluorides
    h. MWC Acid Gases
    i. MWC Metals
    j. MWC Organics (total dioxins and furans)

B. Methodology for Identifying Top Case and Emission Rates
C. Economic Infeasibility Thresholds
D. Assumed Interest Rate and Equipment Life for Capital Recovery Factor
E. Bid Requirements for Cost Analysis

V. **Ambient Monitoring Data**

A. Monitoring Stations and Years (see attached table)
B. Pre-Construction Monitoring Requirements – DeMinimis Monitoring Levels

VI. **Modeling Analyses – PSD Increments and NAAQS**

A. Impact (SILs) Evaluation for Modification (New Unit) Alone and Facility as a Whole
B. Dispersion Models – SCREEN3 for worst-case load and cavity regions; ISCST (not AERMOD) for near-range and CALPUFF for long-range (Lakes Environmental graphical user interface)
C. Chassahowitzka National Wildlife Refuge – only "Class I" Area within 200 km
D. Meteorological Data from Tampa Int'l Airport – 5 years' data for ISCST and 3 years' CALMET/MM5 data for CALPUFF being provided by FDEP; deposition parameters in the ISC met data?
E. ISCST3 Receptor Grid – Polar radii at every 10 degrees; ring distances every 100 m from 100 m to 2 km, every 200 m from 2.2 km to 4 km; every 500 m from 4.5 km to 8 km, and at 9 and 10 km; fine grids to resolve impacts in "coarse" area
F. On-Site Receptors – none, since site is fenced; property boundary receptors (no more than 50 m apart); cavity area concentrations if cavity extends offsite
G. Terrain – flat plate for SCREEN3; USGS elevations for ISCST3; NPS-assigned elevations for Chassahowitzka receptor points
H. Modeling of Minor PM Sources – new cooling tower cell, pelletized and dolomite lime silos, and activated carbon silo
I. Auer Land Use Analysis (see attached) – Rural Pasquill-Gifford dispersion coefficients
J. PM_{10} Averaging Period – highest 5-year average of the fourth highest concentrations at each receptor over 5 years of meteorological data

VII. **Modeling Analyses – Additional Impact Analyses**

A. Hazardous Air Pollutants – compare concentrations with 1995 Florida Ambient Reference Concentrations?
B. Deposition Modeling – wet and dry in ISCST3. Particle size distribution from EPA Region VI 1998 guidance document ("Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities – Vol. I (Peer Review Draft), EPA530-D-98-001A)
C. Deposition Modeling – mercury and PCDD/PCDF (dioxins/furans) only

D. Nitrogen and Sulfur Species Deposition Modeling for Class I Areas with CALPUFF (Nitrogen species deposition to Tampa Bay)
E. Visibility Impacts in Class II Area Near Site – VISCREEN first-level analysis
F. Visibility Impacts in Class I Area – CALPUFF w/ relative humidity, background concentrations, and scattering coefficients for Chassahowitzka National Wildlife Refuge from Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report, December, 2000

VIII. Schedule

A. Proposed PSD Application Submittal to FDEP – January, 2005
B. FDEP Review

IX. Interagency Coordination

A. EPA Region IV
B. National Park Service
C. U.S. Fish and Wildlife Service
D. U.S. Forest Service
E. Hillsborough EPC

Table 1
Comparison of NSPS for Municipal Waste Combustors
and Permit Limits for the Lee County Energy Recovery Facility

Pollutant	NSPS	Lee County Permit Limit
Particulate matter (PM)	24 mg/dscm, corrected to 7 % O_2	20.6 mg/dscm, corrected to 7% O_2
Sulfur dioxide (SO_2)	30 ppm by volume or 20 % of the potential sulfur dioxide emission concentration (80% reduction by weight or volume), corrected to 7 % O_2 (dry basis), whichever is less stringent	26 ppm , or 80% reduction at 7% O_2
Nitrogen oxides (NO_X)	180 ppm by volume, corrected to 7 % O_2 (dry basis) (First year). 150 ppm by volume, corrected to 7 % O_2 (dry basis) (Subsequent years).	140 ppm at 7% O_2 – Initial 12 mo. avg. 110 ppm at 7% O_2 – 12 mo. rolling avg. 150 ppm at 7% O_2 – 24-hr avg.
Carbon monoxide (CO)	100 ppm by volume, corrected to 7 % O_2 (dry basis) – 4-hour. avg.	80 ppm at 7% O_2 – 12 mo. rolling avg. 100 ppm at 7% O_2 – 4-hour avg.
Lead (Pb)	0.20 mg per dscm, corrected to 7 % O_2	0.2 mg/dscm, corrected to 7% O_2
Mercury (Hg)	0.080 mg/dscm or 15 % of the potential mercury emission concentration (85% reduction by weight), corrected to 7 % O_2, whichever is less stringent	0.028 mg/dscm, corrected to 7% O_2, or 85% reduction
Cadmium (Cd)	0.020 mg/dscm, corrected to 7 % O_2	0.02 mg/dscm, corrected to 7% O_2
Hydrogen chloride (HCl)	25 ppm by volume or 5 % of the potential hydrogen chloride emission concentration (95% reduction by weight or volume), corrected to 7 % O_2 (dry basis), whichever is less stringent	25 ppm, or 95% reduction at 7% O_2
Dioxin/Furan	13 ng per dscm (total mass), corrected to 7 % O_2	13 ng/dscm, corrected to 7% O_2
Volatile Organic Compounds (VOC)	No NSPS	N/A
Hydrogen fluoride (HF)	No NSPS	3.5 ppmvd at 7% O_2
Sulfuric Acid Mist (H_2SO_4)	No NSPS	15 ppmvd at 7% O_2
Beryllium (Be)	No NSPS	N/A
Ammonia (NH_3)	No NSPS	15 (design std)/30 ppmvd at 7% O_2 50 ppmvd at 7% O_2 (initial 12-mo period)

Table 3-3
Locations of Ambient Pollutant Monitors and Relative Distance to Stack Location at the Hillsborough County Resource Recovery Facility

Stack Location	UTME (km)	UTMN (km)		
Ganon-5012 Causeway Blvd.	368.109	3092.890		
Monitor Locations - Hillsborough County				
Address	City/Town	UTME (km)	UTMN (km)	Distance from Stack (km)
6811 East 14th Avenue	Tampa	364.317	3094.012	3.955
1700 North 66th Street	Tampa	364.009	3093.400	4.132
2929 S. Kingsway Avenue	Brandon	374.239	3094.212	6.271
5012 Causeway Blvd Tampa Florida	Tampa	362.103	3089.236	7.030
Hwy 41 (Gibsonton)	Ruskin	362.095	3086.096	9.073
1167 North Dover Road	Plant City	378.978	3093.835	10.910
Gardinier Park U S 41 & Riverview Dr.	Tampa	363.697	3082.724	11.082
900 Harbour Island Blvd. (Athletic Club)	Tampa	357.443	3090.490	10.933
6700 Whiteway Drive Tampa	Tampa	364.558	3103.335	11.032
1105 E Kennedy Blvd	Tampa	356.641	3092.070	11.497
Coast Guard Station Davis Island	Tampa	356.862	3089.913	11.634
9851 Highway 41 South	Tampa	363.764	3081.892	11.825
4702 Central Ave. Seminole Adult Day Sch	Tampa	356.994	3096.498	11.686
Ballast Point Park Interbay Blvd.	Tampa	354.181	3085.328	15.848
3910 Morrison Ave.	Tampa	351.455	3090.409	16.838
Eisenhower Jr High School	Tampa	365.195	3074.797	18.326
5121 Gandy Blvd	Tampa	348.556	3086.043	20.717
One Raider Place Plant City,Fl	Plant City	389.292	3096.710	21.525
4013 Ragg Rd., Tampa	Tampa	352.261	3109.298	22.812
14063 County Road 39	S. Lithia	385.500	3073.259	26.226
E.G. Simmons County Park	Tampa	355.574	3069.060	26.926

Table 3-4
Pollutants Monitored at
Hillsborough County Ambient Monitors (2001-2003)

Monitor Address	City	NO_2	SO_2	CO	Pb	O_3	PM_{10}	$PM_{2.5}$
6811 East 14th Avenue	Tampa				X			
1700 North 66th Street	Tampa				X			
2929 S. Kingsway Avenue	Brandon						X	
5012 Causeway Blvd	Tampa		X				X	
Hwy 41 (Gibsonton)	Ruskin						X	
Gardinier Park U S 41 & Riverview Dr.	Tampa						X	
900 Harbour Island Blvd. (Athletic Club)	Tampa						X	
6700 Whiteway Drive	Tampa							X
1105 E Kennedy Blvd	Tampa						X	
Coast Guard Station Davis Island	Tampa		X			X	X	
9851 Highway 41 South	Tampa		X					
4702 Central Ave. Seminole Adult Day Sch	Tampa			X			X	
Ballast Point Park Interbay Blvd.	Tampa		X					
3910 Morrison Ave.	Tampa						X	X
Eisenhower Jr High School	Tampa						X	
5121 Gandy Blvd	Tampa	X	X			X		
One Raider Place	Plant City		X	X		X		
4013 Ragg Rd.	Tampa						X	
14063 County Road 39	S. Lithia					X		
E.G. Simmons County Park	Tampa	X	X			X		

Table 3-5
Ambient Monitored Concentrations
at the Nearest Stations to the
Hillsborough County Solid Waste Energy Recovery Facility

		2001		2002		2003	
Pollutant	**Avg. Time**	**High**	**2nd High**	**High**	**2nd High**	**High**	**2nd High**
NO_2 (µg/m³)	Annual	21	-	21	-	19	-
SO_2 (µg/m³)	3-Hr	317	309	288	253	200	189
	24-Hr	61	59	51	48	48	32
	Annual	11	-	11	-	8	-
CO (ppm)	1-Hr	5.8	5.1	5.3	5.3	7.3	5.7
	8-Hr	3.1	3.0	4.5	3.8	3.6	3.3
Pb (µg/m³)	Qtr	0.47	-	0.41	-	0.25	-
O_3 (ppm)	1-Hr	0.110	0.094	0.091	0.087	0.108	0.107
	8-Hr	0.089	0.082	0.070	0.067	0.080	0.076
PM_{10} (µg/m³)	24-Hr	109	103	37	35	42	41
	Annual	29	-	20	-	22	-
$PM_{2.5}$ (µg/m³)	24-Hr	35	31	35	33	36	34
	Annual	13.7	-	10.8	-	11.2	-

Concentrations reflect the closest monitors to the Facility for each pollutant. Locations are shown below. See Table 5-3 for actual distances to the HCSWERF stack.

NO_x - Tampa 5121 Gandy Blvd. (348.556 km UTM Easting, 3086.043 km UTM Northing)

SO_2 - Tampa 5012 Causeway Blvd. (362.103 km UTM Easting, 3089.236 km UTM Northing)

CO - Tampa 4702 Central Ave (356.994 km UTM Easting, 3096.498 km UTM Northing)

Pb - Tampa 6811 East 14th Avenue (364.317 km UTM Easting, 3094.012 km UTM Northing)

O_3 - Tampa Coast Guard Station Davis Island (356.862 km UTM Easting, 3089.913 km UTM Northing)

PM_{10} - Brandon 2929 S. Kingsway (374.239 km UTM Easting, 3094.212 km UTM Northing)

$PM_{2.5}$ - Tampa 6700 Whiteway Drive (364.558 km UTM Easting, 3103.335 km UTM Northing)

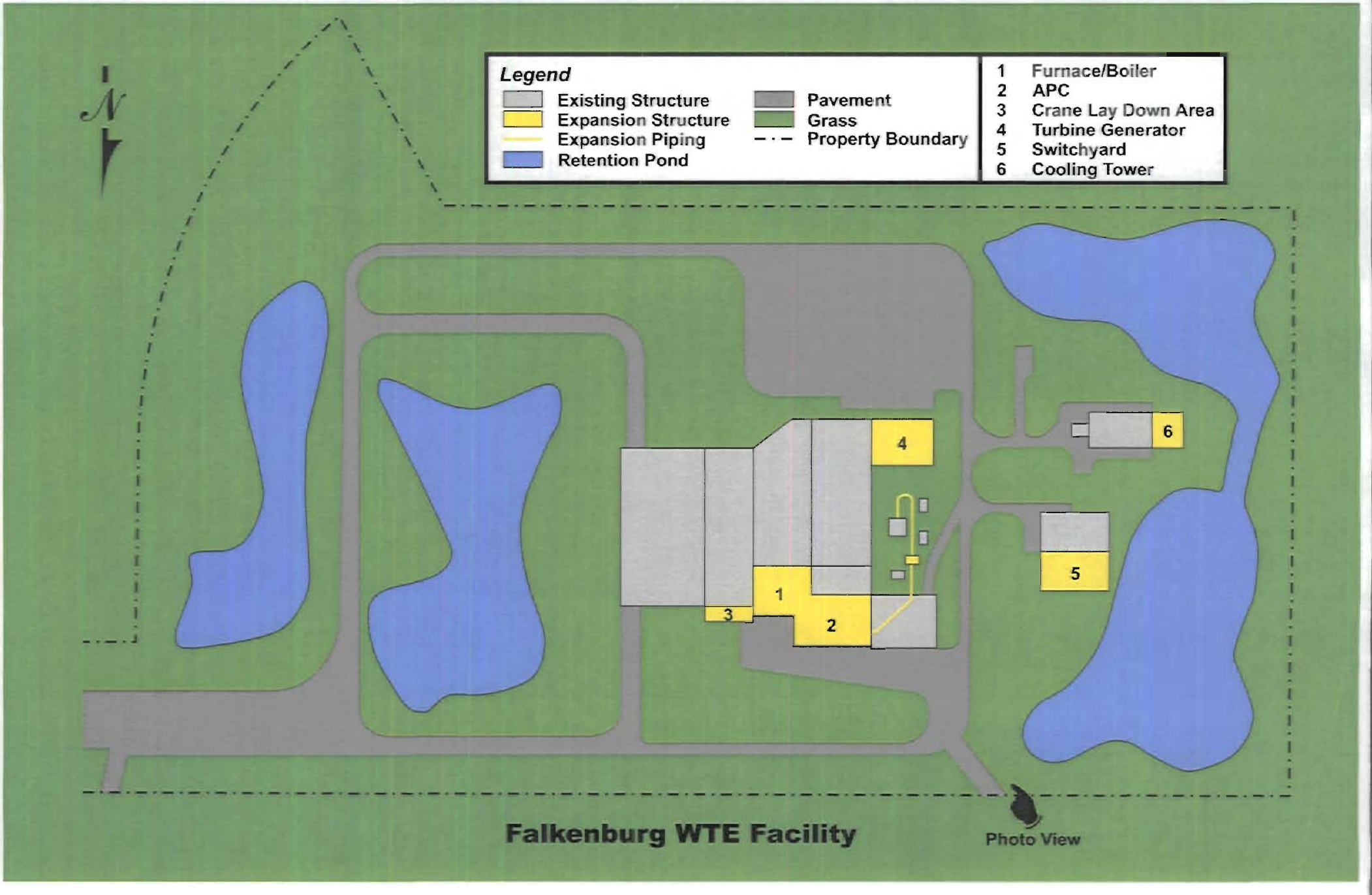
Table 4-2
Auer Land Use Classification Scheme

Type	Description	
	Use and Structures	*Vegetation*
I1	Heavy Industrial Major chemical, steel, and fabrication industries; generally 3-5 story buildings, flat roofs	Grass and tree growth extremely rare; < 5% vegetation
I2	Light-Moderate Industrial Rail yards, truck depots, warehouses, industrial parks, minor fabrications; generally 1-3 story buildings, flat roofs	Very limited grass, trees almost total absent; <5% vegetation
C1	Commercial Office and apartment buildings, hotels; >10 story heights, flat roofs	Limited grass and trees; <15% vegetation
R1	Common Residential Single family dwelling with normal easements; generally one story, pitched roof structures; frequent driveways	Abundant grass lawns and light-moderately wooded; >70% vegetation
R2	Compact Residential Single, some multiple, family dwelling with close spacing; generally < 2 story, pitched roof structures; garages via alley, no driveways	Limited lawn sizes and shade trees; <30% vegetation
R3	Compact Residential Old multi-family dwellings with close (<2 m) lateral separation; generally 2 story, flat roof structures; garages (via alley) and ashpits, no driveways	Limited lawn sizes, old established shade trees; <35% vegetation
R4	Estate Residential Expansive family dwelling on multi-acre tracts	Abundant grass lawns and lightly wooded; > 80% vegetation
A1	Metropolitan Natural Major municipal, state, or federal parks, golf courses, cemeteries, campuses; occasional single story structures	Nearly total grass and lightly wooded; >95% vegetation

A2	Agricultural Rural	Local crops (e.g. corn, soybean); >95% vegetation
A3	Undeveloped Uncultivated; wasteland	Mostly wild grasses and weeds, lightly wooded; >90% vegetation
A4	Undeveloped Rural	Heavily wooded; >95% vegetation
A5	Water Surfaces Rivers, lakes	


Falkenburg Road


Falkenburg Road


Legend
Existing Structure
Expansion Structure
Expansion Piping
Retention Pond
Pavement
Grass
Property Boundary
1 Furnace/Boiler
2 APC
3 Crane Lay Down Area
4 Turbine Generator
5 Switchyard
6 Cooling Tower
N
1
2
3
4
5
6
Falkenburg WTE Facility
Photo View