



Covanta Projects, Inc.
A Covanta Energy Company
14230 Hays Road
Spring Hill, Florida 34610
Telephone #: 727-856-2917
Facsimile #: 727-856-0007

*Application enclosed

Mr. Al Linero
Program Administrator
Florida Department of Environmental Protection
2600 Blairstone Road, MS 5505
Tallahassee, Florida 32399

June 8, 2007

Re: Hillsborough County Expansion Project
Alternative NOx Control Technology
Covanta LN™ Process

Dear Mr. Linero,

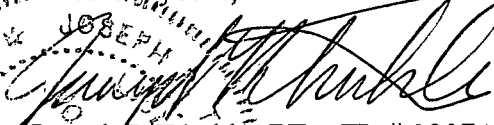
On behalf of Hillsborough County, FL and Covanta Hillsborough, Inc, I am providing the attached Supplemental Information Submittal pertaining to the Covanta LN™ process NOx Control Technology as you have suggested, as an attachment to the first 6 pages of DEP Form No. 62-210.900(1). I have signed and sealed these documents as the responsible professional with the understanding that the certification that I am providing on page 6, Section 5 of this Supplemental Application Form:

1. Does nothing to supersede information previously submitted on behalf of the Owner by CDM – the Owner's Engineer.
2. Does not suggest or imply that Covanta Hillsborough, Inc. is replacing CDM as the Owner's Professional Engineer for the proposed project.
3. Is specifically related to the information provided pertaining to the Covanta LN process for NOx emission control.

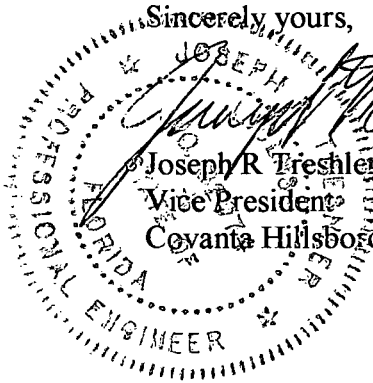
Further, I believe that it is also important for me to convey to you that Hillsborough County as the project Owner is seeking the department's approval to utilize the Covanta LN™ process for NOx control as an approved alternative to the Advanced SNCR with FGR system presented in the original application and not as a replacement for it. The Hillsborough County Board of County Commissioners will be making the final decision on this important issue in the very near future.

Following review of this information we would be glad to discuss further with you any questions you may have about Covanta's NOx control technology. Please feel free to contact me, Brian Bahor (973-882-7236), or Steve Goff (973-882-4192) our Covanta LN™ process expert directly.

Sincerely yours,



Joseph R. Treshler PE – FL # 32074
Vice President
Covanta Hillsborough, Inc.



cc.	Thomas Smith	Hillsborough County
	Dan Strobridge	CDM
	Brian Bahor	Covanta Energy
	Steve Goff	Covanta Energy
	Peter Young	Covanta Energy

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9. Covanta LN Process Presentation Slides

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

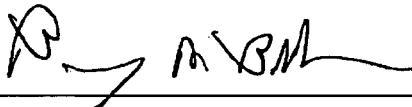
Application Comment

This submittal of supplemental information is being done by Covanta Hillsborough, Inc. at the request of the Owner – Hillsborough County, FL in response to guidance provided by the department. This submittal does not supersede information previously submitted on behalf of the Owner by CDM – the Owner’s Engineer or does it suggest or imply that Covanta Hillsborough, Inc. is replacing CDM as the Owner’s Professional Engineer for the proposed project. The Professional Engineering Certification provided on pg 6, Section 5 of this Supplemental Application is specifically related to the information provided pertaining to the Covanta LN process for NOx emission control only.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

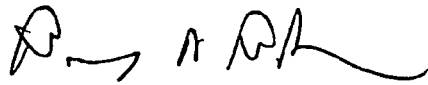
Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : Barry M. Boldissar
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Hillsborough County Solid Waste Street Address: 601 E. Kennedy Blvd City: Tampa State: FL Zip Code: 33602
3. Owner/Authorized Representative Telephone Numbers... Telephone: (813) 272 - 5680 ext. Fax: () -
4. Owner/Authorized Representative Email Address:
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i> Signature  Date 6/2/07

APPLICATION INFORMATION

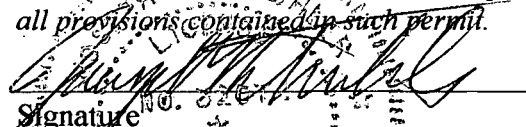
Application Responsible Official Certification

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

1. Application Responsible Official Name: Barry M. Boldissar
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input checked="" type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. The designated representative at an Acid Rain source.
3. Application Responsible Official Mailing Address... Organization/Firm: Hillsborough County Solid Waste Street Address: 601 E. Kennedy Blvd City: Tampa State: FL Zip Code: 33602
4. Application Responsible Official Telephone Numbers... Telephone: (813) - 272 - 5680 ext. Fax: () -
5. Application Responsible Official Email Address: BoldissarB@hillsboroughcounty.org
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i> Signature  Date 6/1/05

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Joseph R Treshler, P.E Registration Number: 32074
2. Professional Engineer Mailing Address... Organization/Firm: Covanta Hillsborough, Inc. Street Address: 350 N. Falkenburg Road City: Tampa State: FL Zip Code: 33619
3. Professional Engineer Telephone Numbers... Telephone: (727) - 919 - 7721 cell ext. Fax: (727) - 856 - 0007
4. Professional Engineer Email Address: jtreshler@covantaenergy.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> (1) <i>To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> (2) <i>To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> (3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> (4) <i>If the purpose of this application is to obtain an air construction permit (check here <input type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input checked="" type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> (5) <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input checked="" type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature No. 016 (seal) STATE OF FLORIDA PROFESSIONAL ENGINEER Date 6/8/07

* Attach any exception to certification statement



*Covanta Projects, Inc.
A Covanta Energy Company
14230 Hays Road
Spring Hill, Florida 34610
Telephone #: 727-856-2917
Facsimile #: 727-856-0007*

Mr. Al Linero
Program Administrator
Florida Department of Environmental Protection
2600 Blairstone Road, MS 5505
Tallahassee, Florida 32399

May 30, 2007

Re: Hillsborough County Expansion Project
Alternative NOx Control Technology
Covanta LN™ Process

Dear Mr. Linero,

On behalf of Hillsborough County and Covanta Energy Corporation, I want to thank you for your time to discuss the alternative NOx control strategy for Hillsborough County's Expansion Project. The primary purpose of the call was to provide Covanta with an opportunity to explain recent (within the last 12 months) achievements in NOx control technology for modern municipal waste combustors. This information, and the associated technology, was not available to Covanta or the County during the permit application process, however we collectively believe that the proposed alternative approach is a better solution than the technology presently defined in the PSD application, the BACT determination and the resulting PSD permit.

Covanta is proposing to use our newly introduced Covanta LN™ process, which is patent pending, to achieve compliance with the NOx and NH3 emission limits. The Expansion Project, inclusive of all other combustion and air pollution control technology, will be able to fully comply with all emission limits in the final permit.

The Covanta LN™ process involves modifications to the combustion air system of the municipal waste combustor (MWC), combined with modifications to the combustion monitoring and controls systems, to achieve substantial reductions in NOx formation. The Covanta LN™ process when combined with an SNCR system can achieve the lower NOx emissions required by the PSD permit issued for Hillsborough County's Expansion Project. The Facility's existing SNCR control system will be integrated with the LN™ combustion air system controls to maximize the NOx reduction and minimize ammonia slip.

To assist you in your review of the Covanta LN™ process I have provided as attachments to this transmittal letter the following information.

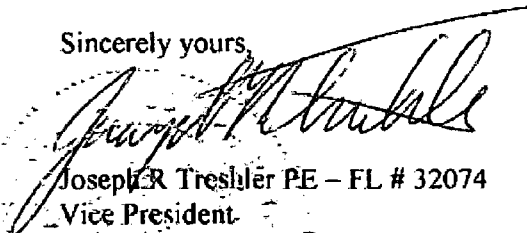
- (1) A Technical Description of the Covanta LN™ process including:
 - a. A general description of how the system reduces NOx (i.e., the chemical or other processes that result in a reduction in NOx);
 - b. Commercial Performance Data that illustrates the systems ability to achieve the level of control required by the PSD permit issued,
 - c. A confirmation that Unit 4, with the LN system will comply with the NOx emissions limits contained in the PSD permit for Unit 4;
 - d. A confirmation that Unit 4, with the LN system will comply with the other emission limits contained in the PSD permit;
 - e. A confirmation that the use of the LN system will not cause an increase in the emissions from Unit 4 of any regulated air pollutant;
- (2) Daily test data from our Bristol, Conn. Facility that supports the Commercial Performance Data contained within the Technical description.
- (3) A P&ID diagram that depicts the Covanta LN™ process;
- (4) A Cross Sectional Drawing of the Unit #4 Furnace illustrating where and how each component of the system is to be located.
- (5) A "Redline" of the existing Technical Evaluation and Preliminary Determination for the Hillsborough Expansion Project with suggested revisions to reflect inclusion of the Covanta LN™ process NOx Control Technology in this technology assessment.
- (6) A "Redline" of the existing Air Pollution Construction Permit for the Hillsborough Expansion Project with suggested revisions to reflect inclusion of the Covanta LN™ process NOx Control Technology in this technology assessment.
- (7) A PowerPoint slide that depicts the Covanta LN™ process per your request.

The Covanta LN™ process negates the need to install on the HCRRF Unit #4 any part of the previously envisioned Urea based Fuel Tech NOX control system with Flue Gas Recirculation (FGR). The Covanta LN™ process will utilize aqueous ammonia as its reagent from the Facility's existing aqueous ammonia storage system.

I am hereby placing my seal upon this letter of transmittal as an officer of Covanta Hillsborough, Inc., fully aware of the technical scope of the Hillsborough Expansion Project, and, as a Profession Engineer duly registered and recognized by the State of Florida Board of Professional Regulation, as confirmation to you that I have reviewed the information being provided herein concerning Covanta's LN™ process with each of our requisite technical and environmental staff such that Covanta is hereby providing to you in your role as the Program Administrator for the Florida Department of Environmental Protection reasonable assurance that the Covanta LN™ process for can achieve the level of NOx control performance required by the PSD permit issued by FDEP for Hillsborough County's Expansion Project (HCRRF Unit 4).

Following review of this information we would be glad to discuss further with you any questions you may have about Covanta's NOx control technology. Please feel free to contact me, Brian Bahor (973-882-7236), or Steve Goff (973-882-4192) our Covanta LN™ process expert directly.

Sincerely yours,



Joseph R Treshler PE - FL # 32074
Vice President
Covanta Hillsborough, Inc.

cc.	Thomas Smith	Hillsborough County
	Dan Strobridge	CDM
	Brian Bahor	Covanta Energy
	Steve Goff	Covanta Energy
	Peter Young	Covanta Energy

Covanta's Low-NO_x (LNTM) Technology Description for the Hillsborough Expansion

A. Overview

The Covanta LNTM process, which is patent pending, involves modifications to the combustion air system of the municipal waste combustor (MWC), combined with modifications to the combustion monitoring and controls systems, to achieve substantial reductions in NO_x formation. The Covanta LNTM process when combined with an SNCR system can achieve the lower NO_x emissions required by the PSD permit issued for Hillsborough County's Expansion Project. The Facility's existing SNCR control system will be integrated with the LNTM combustion air system controls to maximize the NO_x reduction and minimize ammonia slip.

B. Process Description

MWCs typically employ a moving grate with two major sources of combustion air. Primary air (also called underfire air) is supplied through plenums located under the grate, and is forced through the grate to dry and combust the waste. The quantity of primary air is typically adjusted to minimize excess air during the combustion of the waste on the grate, while maximizing burnout of carbonaceous materials in the waste bed. Secondary air (also called overfire air) is injected through nozzles located in the furnace waterwalls immediately above the grate, and provides turbulent mixing to complete the combustion process. Secondary air provides the majority of the excess air to the combustion process.

With the Covanta LNTM process, the secondary air stream is reduced, and a tertiary air stream is introduced through a new series of nozzles, installed in the MWC furnace waterwalls at a higher elevation in the furnace. The distribution of air between the primary, secondary and tertiary streams is controlled to yield the optimal gas composition and temperature to minimize NO_x and control combustion. The control takes into account the heating value of the waste and the fouling condition of the furnace. The combination of these combustion changes yields a slight increase in furnace efficiency (more steam per ton of MSW fired).

The design of the tertiary air nozzles and their positioning in the furnace is important to the Covanta LNTM process performance. For the Hillsborough expansion unit, the new tertiary air nozzles will be located on the right, left, and front waterwalls of the furnace. The rear waterwall could not be used without substantial modifications to the furnace design. The tertiary air achieves complete coverage of the furnace cross-section to ensure good mixing with the combustion gases. The tertiary air completes the combustion process, and yields uniform flue gas temperature and velocity profiles, which improves the performance and reliability of downstream boiler equipment.

Covanta utilizes computational fluid dynamic (CFD) modeling to determine the size and position of the new nozzles. CFD modeling is an advanced design tool based on fundamental

Covanta's Low-NO_x (LNTM) Technology Description for the Hillsborough Expansion

calculations of mass and energy balances, fluid flow, and chemical reactions. Over the last decade CFD modeling has become more widespread in the energy industry, although it has primarily been applied to homogeneous fuel and gas phase systems. The complex, highly heterogeneous nature of waste combustion requires the most advanced, sophisticated modeling techniques. Covanta has been developing CFD models of MWC systems for over five years, and are the world's leader in this area.

The Covanta LNTM process will be combined with the Facility's existing aqueous ammonia SNCR system. Combining SNCR with the Covanta LNTM process yields a number of synergistic effects which enhances the performance of the SNCR system. These enhancements minimize the number of SNCR nozzles required, reduce the amount of carrier water needed with the ammonia, and reduce the amount of unreacted ammonia that exits the boiler, which is commonly called "ammonia slip." The SNCR control system will also be integrated with the LNTM combustion controls to maximize the NO_x reduction and minimize the ammonia slip.

After installation of the Covanta LNTM process equipment, field optimization of the system will be done to set up the new combustion controls and confirm the tertiary air distribution. Advanced instrumentation to measure temperatures in the furnace, view refractory condition on-line, and continuously measure ammonia slip, will be employed during the start-up optimization period.

The attached Process and Instrumentation Diagram reflects further details on the boiler air and gas systems with the proposed LNTM process.

C. Commercial Performance Data

The Covanta LNTM process was developed and demonstrated in two commercial installations in the U.S. At the Bristol WTE facility (in Bristol, CT), equipment was installed on one unit in April 2006 to enable testing of the Covanta LNTM technology. The Bristol unit employs a Martin grate, similar to that being designed for Hillsborough. This work was done in collaboration with our technology partners, Martin GmbH. In November 2006, one unit at the Hempstead WTE facility (in Hempstead, NY) was retrofitted with the Covanta LNTM technology. The Hempstead unit employs a 900 TPD Deutsch Babcock Anlagen (DBA) Roller Grate, which is another mass-burn technology for combusting MSW.

For the Hillsborough Expansion, Covanta proposes to install an aqueous ammonia SNCR system with the LNTM process. This is the same design approach that was tested at Bristol. Between the Bristol and Hempstead facilities, Covanta has accumulated over 1500 hours of operation with the

Covanta's Low-NO_x (LNTM) Technology Description for the Hillsborough Expansion

LNTM process. At Bristol the LNTM process was extensively tested. During May, June and July of last year, the Bristol unit the LNTM process was operated for a total of 19 days. More recently, in May 2007, the unit ran using the LNTM process for 14 days. The results of these operating periods demonstrate the system capabilities, and are summarized in the following table:

Bristol LNTM System Performance Summary (Average Values)

Month	Days	Steam Flow (Klb/hr)	Aqueous NH ₃ (gph)	NO _x (ppm 7% O ₂)	CO (ppm 7% O ₂)	NH ₃ Slip (ppm 7% O ₂)
May 2006	4	78	9.3	62	24	1.2
June 2006	10	78	12.6	62	19	2.4
July 2006	5	74	8.6	72	25	1.4
May 2007	14	76	13.0	59	30	4.8

At Hempstead, the LNTM unit was tested in December 2006 and January 2007, and is currently operating with this process. The following table presents representative data from the Hempstead LNTM unit with the SNCR system in operation.

Hempstead LNTM System Performance Summary (Average Values)

Test	Steam Flow (Klb/hr)	Urea (gph)	NO _x (ppm 12% CO ₂)	NH ₃ Slip (ppm 12% CO ₂)
1	235	12	90	n/a
2	235	15	65	n/a

The SNCR system at Hempstead uses urea as the NO_x reduction reagent. Covanta operates all types of SNCR systems, including those using aqueous ammonia, anhydrous ammonia, and urea. We have found that the type of reagent is not the major factor in the performance of the system to maximize NO_x reduction and minimize ammonia slip. The most important parameters are the location of the injection nozzles in the furnace, the design of the nozzles to ensure good mixing of the reagent with the flue gas, and the design of the control system. In combination with the LNTM system, Covanta integrates the SNCR system design and controls to maximize mixing of the reagent with the flue gas in the optimum temperature window for NO_x reduction. We are

Covanta's Low-NOx (LN™) Technology Description for the Hillsborough Expansion

recommending the use of aqueous ammonia because it is safer than anhydrous ammonia, lower cost than a urea system, and the existing Facility already includes an aqueous ammonia system for SNCR that can be extended to the Expansion with supplemental scope.

D. Compliance with Existing PSD Permit Requirement

The Hillsborough Expansion Project will comply with the NOx and NH3 emission limits contained in the PSD permit when using the Covanta LN™ system with the balance of facility operations.

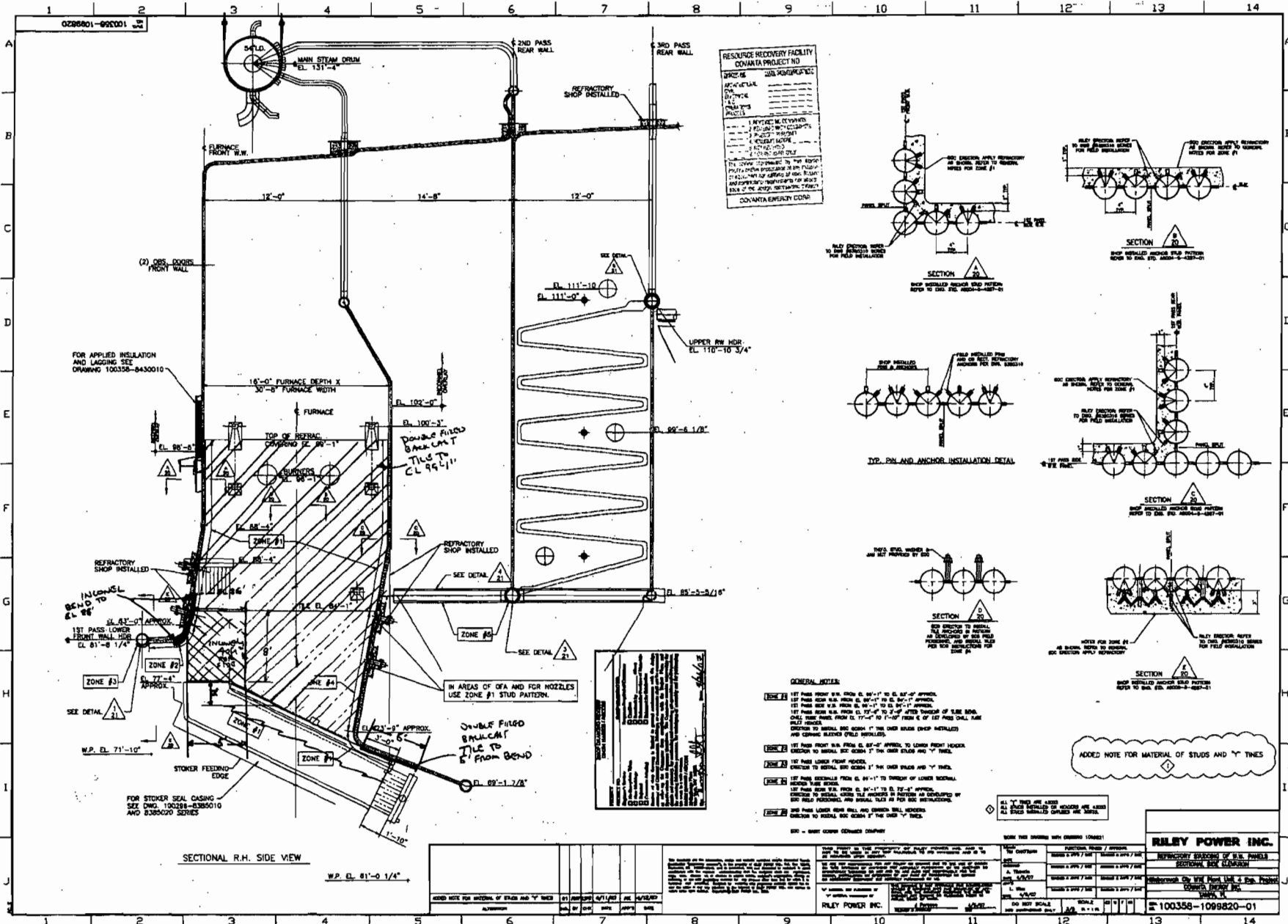
E. Effect on Other Regulated Pollutants

The Hillsborough Expansion Project will comply with the other emission limits contained in the PSD permit and the Covanta LN™ system will not cause an increase in the emissions of any regulated air pollutant.

Bristol LN™ System Performance (Daily Average Data)

	Steam Flow (KLb/hr)	Total Air (KSCFM)	Ammonia Flow (gph)	NOX (ppm 7%O2)	CO (ppm 7%O2)	Ammonia Slip (ppm 7%O2)
5/11/2006	77	24.70	10.3	54	23	1.1
5/12/2006	78	23.16	8.9	64	36	1.3
5/13/2006	78	23.16	8.9	64	16	1.3
5/14/2006	78	23.16	8.9	64	19	1.3
Average	78	23.55	9.3	62	24	1.2
6/16/2006	78	25.20	13.1	50	16	3.3
6/17/2006	78	25.20	12.7	50	18	3.7
6/18/2006	78	26.48	15.3	50	21	4.1
6/21/2006	79	27.06	13.3	61	16	1.2
6/22/2006	79	26.27	13.2	64	19	1.2
6/23/2006	80	25.46	13.1	46	12	1.3
6/24/2006	79	25.70	13.1	58	19	1.3
6/25/2006	79	25.80	10.2	82	20	2.6
6/26/2006	77	28.73	12.6	97	22	2.4
6/28/2006	74	25.18	9.8	64	26	3.0
Average	78	26.11	12.6	62	19	2.4
7/3/2006	78	28.08	9.0	67	21	0.9
7/4/2006	76	28.59	9.0	72	24	1.7
7/5/2006	76	27.97	8.3	78	21	1.2
7/6/2006	73	29.33	8.4	82	24	1.0
7/7/2006	67	24.02	8.1	62	34	2.0
Average	74	27.60	8.6	72	25	1.4
5/9/2007	77	26.38	12.8	59	34	4.1
5/10/2007	74	25.78	13.7	57	39	3.6
5/11/2007	77	27.20	14.8	60	37	4.5
5/12/2007	76	26.40	12.4	59	31	4.5
5/13/2007	76	26.04	12.4	59	40	9.3
5/14/2007	76	26.01	12.2	60	33	7.6
5/15/2007	77	25.88	10.9	69	30	5.1
5/16/2007	79	26.00	12.0	60	27	3.6
5/17/2007	78	25.89	13.4	60	29	5.1
5/18/2007	78	25.73	12.8	60	26	2.9
5/19/2007	78	26.00	14.0	60	28	3.6
5/20/2007	79	26.21	14.2	60	29	5.5
5/21/2007	79	26.60	13.8	59	20	4.5
5/22/2007	66	22.74	12.3	51	21	4.1
Average	76	25.92	13.0	59	30	4.8

Best Available Copy



**RESOURCE RECOVERY FACILITY
CONANTA PROJECT NO.**

CONANTA EMERGENCY CORP.

GENERAL NOTES:

- NOTE #1: 1ST PASS FRONT W.P. FROM EL. 80'-11" TO EL. 82'-0" APPROX.
- NOTE #2: 1ST PASS REAR W.P. FROM EL. 80'-11" TO EL. 82'-0" APPROX.
- NOTE #3: 1ST PASS REAR W.P. FROM EL. 80'-11" TO EL. 82'-0" APPROX. ONLY THE TUBES FROM EL. 77'-4" TO 7'-0" FROM EL. 82' PASS CALL FOR FIELD POSITIONING AND BRASS TIE AS PER SEE RESTRICTIONS.
- NOTE #4: 1ST PASS REAR W.P. FROM EL. 80'-11" TO EL. 82'-0" APPROX. CHECK FOR BRASS TIE AND BRASS TIE AS PER SEE RESTRICTIONS.
- NOTE #5: 1ST PASS REAR W.P. FROM EL. 80'-11" TO EL. 82'-0" APPROX. CHECK FOR BRASS TIE AND BRASS TIE AS PER SEE RESTRICTIONS.
- NOTE #6: 1ST PASS REAR W.P. FROM EL. 80'-11" TO EL. 82'-0" APPROX. CHECK FOR BRASS TIE AND BRASS TIE AS PER SEE RESTRICTIONS.

ADDED NOTE FOR MATERIAL OF STUDS AND TUBES

REVISIONS		DATE		BY		CHECKED		APPROVED	

<p>ALL TUBES ARE AS PER SEE RESTRICTIONS AND BRASS TIE AS PER SEE RESTRICTIONS.</p> <p>DO NOT SCALE UNLESS OTHERWISE NOTED.</p>	<p>RILEY POWER INC.</p> <p>100358-1098820-01</p>
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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.¹ 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.

Combustion Management

The quantity of excess air for combustion and where it is used in a combustion process are both known to have an impact on the amount of fuel NO_x and thermal NO_x. The strategic management of the combustion process is a known method to reduce NO_x emissions.

Conventional mass burn combustion uses between 80 and 100 % excess air with the majority of this excess air being supplied as underfire air (introduced below the grate). Overfire air is typically introduced immediately above the grate to promote combustion of volatile gases. This approach provides good combustion efficiency as indicated by low carbon monoxide levels however NO_x is relatively high due to elevated fuel NO_x and thermal NO_x.

A combustion management system that uses less excess air in strategic locations can reduce both fuel NO_x and thermal NO_x. Less underfire air can promote effective conversion of carbon to volatile gases that are the source of energy for the combustion process while also minimizing the conversion of fuel nitrogen to NO_x. Chemical intermediates such as cyanide and ammonia are formed instead of NO_x. The introduction of overfire air at an elevated location can avoid the direct formation of thermal NO_x while also enabling the potential of these chemical intermediates to either convert to nitrogen or to even promote NO_x reduction.

A combustion management system that uses both mechanical components and an automated combustion control system is recognized as a technically proven NO_x management system that can reduce the amount of NO_x from the combustion process. This approach has an inherent advantage in achieving both low NO_x and NH₃ stack emissions because less reagent (urea or ammonia) is needed.

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 N₂ and CO₂) 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.¹¹

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.

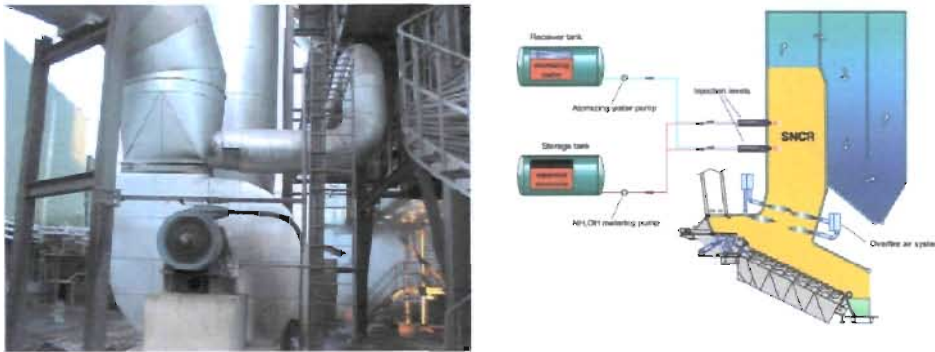
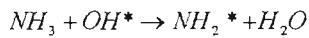


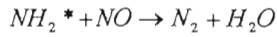
Figure 6. FGR System, Orebro, Sweden.¹¹¹ Martin GmbH Basic Ammonia SNCR System

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:

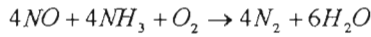
Equation 1. Ammonia reacts with available hydroxyl radicals to form amine radicals and water per the following theoretical equation:



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

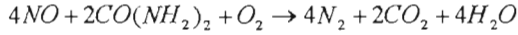


Equation 3. The two steps are typically expressed as a single “global reaction”.

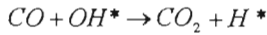


The simplified equation does not convey the kinetics. But it suggests that, theoretically, SNCR will function best in an oxidizing atmosphere.

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



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



Because of the balancing of temperature, CO, and O₂, 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 an ammonia based SNCR sytem. Reagent injection will be available at three levels with the amount of reagent and location being dependent on actual conditions. The following table was prepared by Covanta for the County to represent proximate NOx and NH3 conditions for two operating points.

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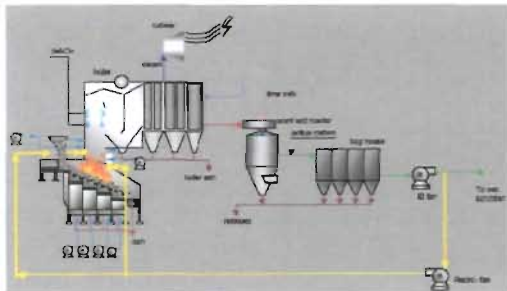
Table 3. SNCR NO_xOUT[®] System Process Design Table for Two Heat Input Levels

Parameter @ Maximum Heat Input	@260 mmBtu	@195 mmBtu
Uncontrolled NO _x (ppmd @7% O ₂)	170	170
Uncontrolled NO _x (lb/hr)	68	51
Percent NO _x Reduction (%)	35	35
Controlled NO _x (ppmd @7% O ₂)	110	110
Controlled NO _x (lb/hr)	44	33
NO _x Removed (lb/hr)	24	18
Expected Reagent Flow (gph)	▼	▼
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	

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Either a urea or ammonia based SNCR system is compatible with the combustion management system.

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.^{vii} 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/Nm ³	ppm
	Dry, 11% O ₂	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% O₂ is for all practical purposed the same as given for the nearly identical Lee and Hillsborough County RRF projects (200-350 ppmvd

Deleted: 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. 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.

Deleted: 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.

@7% O₂). For reference, the Orebro facility reported ammonia slip (exiting the boiler, not the final wet scrubber) of 11 ppm @7% O₂. (From this point on all ppm value presumes 7% O₂)

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."^{viii}

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 <u>Ammonia</u> 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.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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).^{ix} According to the required declaration of compliance published in the local newspaper:^x

*"Tutti i valori sono nella norma e l'NO_x (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.^{xi}

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.^{xii} The County also provided information from 2003 showing concurrently low NO_x and high NH₃ emissions of 48 and 53 ppmvd, respectively.^{xiii} 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* NH₃ 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/Nm³ (~ 50 ppmvd)) with low ammonia slip in the flue gas upstream of the flue gas cleaning system."^{xiv} (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 Ammoniacca	
	Valore limite* 50 mg/Nm ³ media giornaliera 20 mg/Nm ³ media oraria		Valore limite* 100 mg/Nm ³ media giornaliera 200 mg/Nm ³ media oraria		Valore limite* 200 mg/Nm ³ media giornaliera 400 mg/Nm ³ media oraria		Valore limite* 0,05 mg/Nm ³ media oraria		mg/Nm ³ **	
	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	-	0,6	-	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	-	49,5	-	-	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	0,0006	-	-	-
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 sta italiana che Europea non stabilisce alcun valore limite.

- i Worldwide Web. EPA Clean Air Markets. www.epa.gov/airmarkets/emissions/prelimarp/index.html Accessed May 14, 2006.
- ii 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.
- iii 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.
- vii Reference 5.
- viii Brochure. VonRollINOVA DENO_x Processes. Available at VonRollINOVA webpage: www.vonrollinova.ch/site/english/dokumentation/pdf/vri_entstickung_e.pdf
- ix Lecture/Presentation. Bonomo, A., ASM Brescia S.p.a. Waste-to-Energy Advances: The Brescia Experience. Second Meeting of WTER Council, Tampa, Florida April, 28-30, 2003
- x Public Notice. Termoutilizzatore: Emissioni in Regola. Giornale Di Brescia. Thursday October 19, 2000.
- xi L'Osservatorio, *Rapporto Dell'Osservatorio Sul Funzionamento del Termoutilizzatore di Brescia Relativo agli Anni 2002 e 2003*. Brescia, Italy. September 2004.
- xii Meeting. Hillsborough County Solid Waste Department and Florida DEP. Hillsborough County RRF Unit 4 Permit Status. May 11, 2006.
- xiii Letter. Gorrie, J., CDM to Linero, A., Florida DEP. Supplemental Information Hillsborough County Resource Recovery Facility Expansion. Site Certification Application. January 17, 2006.
- xiv Worldwide Web. Martin GmbH Website: www.martingmbh.de/englisch/index2.htm Technology and SNCR links. Accessed May 11, 2006.

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

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 170,790 pounds per hour (maximum 200,000 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).

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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 combustion controls or 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.

Section 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.

SECTION I. FACILITY INFORMATION (FINAL)

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/PM₁₀), sulfur dioxide (SO₂), 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.

SECTION II. ADMINISTRATIVE REQUIREMENTS (FINAL)

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.]

SECTION II. ADMINISTRATIVE REQUIREMENTS (FINAL)

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.]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

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.]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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; an ammonia or 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 200,000 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; strategic management of combustion air or 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 NOx 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 NOx, CO, SO2, and Hg as well as instrumentation to monitor steam flow, flue gas flow rate, oxygen, temperature, and opacity.

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APPLICABLE STANDARDS AND REGULATIONS

- BACT Determinations:** The emission unit addressed in this section is subject to a Best Available Control Technology (BACT) determination for nitrogen oxides (NOx), carbon monoxide (CO), MWC acid gases (SO2+HCl); SO2 as an individual pollutant, and MWC organics (dioxin/furan). [Rule 62-212.400, F.A.C.]
- 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

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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.

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

(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: Combustion air management system or a flue gas recirculation system (FGR) will be used to limit NO_x formation. An ammonia or 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 adsorb 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/PM₁₀): 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]

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SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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;

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

- 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.}

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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:
- well mixed with MSW in the refuse pit; or
 - 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:
- comply with good combustion operating practices in accordance with 40 CFR 60.53b;
 - 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
 - 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.**

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

Pollutant	Emission Standard/Limit ¹	Lb/hour	Basis
Nitrogen Oxides (NO _x)	<u>1st year of operation:</u>		
	150 ppmvd - 24 hour block average and 110 ppmvd- 30 day rolling average	79.8 58.5	Subpart Eb Limit PTE
	<u>Thereafter:</u>		
	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.	25.9	BACT
	100 ppmvd - 4 hr block average	32.4	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 x 10 ⁻⁶	BACT/Eb
Opacity	10 % - 6 minute average	NA	BACT/Eb
Ammonia Slip	@ 195 MMBtu/hr: 10 ppmvd	NA	PM, Opacity.
	@ 260 MMBtu/hr: 15 ppmvd		

¹ All concentration values are corrected to 7% O₂.
 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 SO₂ 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

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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 (SO₂): Emissions of SO₂ 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 x 10⁻⁶ lb/hr.
21. Particulate Matter (PM/PM₁₀): Emissions of PM shall exceed neither 12.0 mg/dscm nor 3.3 lb/hr. This will simultaneously demonstrate compliance with the PM₁₀ limits.

{Permitting note: Compliance with this condition will also demonstrate that emissions are less than the 15 TPY PSD thresholds for PM₁₀ 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).

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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	<p>Procedure for Collection and Analysis of Ammonia in Stationary Source</p> <ul style="list-style-type: none"> 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]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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, SO₂, HCl, PM/PM₁₀, 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, SO₂, HCl, PM/PM₁₀, 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 SO₂ 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 first 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 SO₂ 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.
- 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.
 - 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.

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

- 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)]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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 SO₂ 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 SO₂ 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 SO₂ 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.

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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.]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

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:
- 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.
 - 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.
 - 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.

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

B. Municipal Waste Combustor & Auxiliary Burners - Unit 4

[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.]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

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

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EQUIPMENT AND CONTROL TECHNOLOGY

- 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.
- 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

- 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.]
- Emissions Limits: The following standards apply to each emissions point of this unit:
 - Visible emissions are limited to 5% opacity from each of the above listed emissions points controlled by a baghouse.
 - 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/PM₁₀ for all emission points in this emission unit system will be less than 0.5 TPY.}

[Rules 62-4.070(3), F.A.C.]
- 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.]
- 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.

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

C. Lime and Carbon Storage Silos

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.]

SECTION III. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

D. Cooling Tower

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/PM₁₀ 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 PM₁₀ per year. Actual emissions are expected to be lower than these rates.}

SECTION IV. APPENDICES

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.

SECTION IV. APPENDICES
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	58.5	BACT
	90 ppmvd - 12 month rolling average	47.9	BACT
Carbon Monoxide (CO)	80 ppmvd – 30-day rolling avg.	25.9	BACT
	100 ppmvd - 4 hr block average	32.4	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 x 10 ⁻⁶	BACT/Eb
Opacity	10 % - 6 minute average	NA	BACT/Eb

¹ All concentration values are corrected to 7% O₂.
 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 SO₂ 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

- 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.
- 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.
- Sulfur Dioxide (SO₂):** Emissions of SO₂ 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.
- 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.
- Dioxins/Furans:** Emissions of dioxins/furans shall exceed neither 13.0 ng/dscm nor 3.61 x 10⁻⁶ lb/hr.
{Permitting note: Compliance with this condition will also demonstrate that emissions are less than the 15 TPY PSD thresholds for PM₁₀ and MWC-Metals}
- 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.]

SECTION IV. Appendices (FINAL)

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, SO₂, 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>

SECTION IV. Appendices (FINAL)

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

SECTION IV. Appendices (FINAL)

Appendix GC - General Conditions

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.

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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 permittee 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) and 62-210.200(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

Hillsborough County
Municipal Waste Combustor (Unit 4)

Hillsborough County Resource Recovery Facility
File No. 0570261-007-AC and PSD-FL-369

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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.]

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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,

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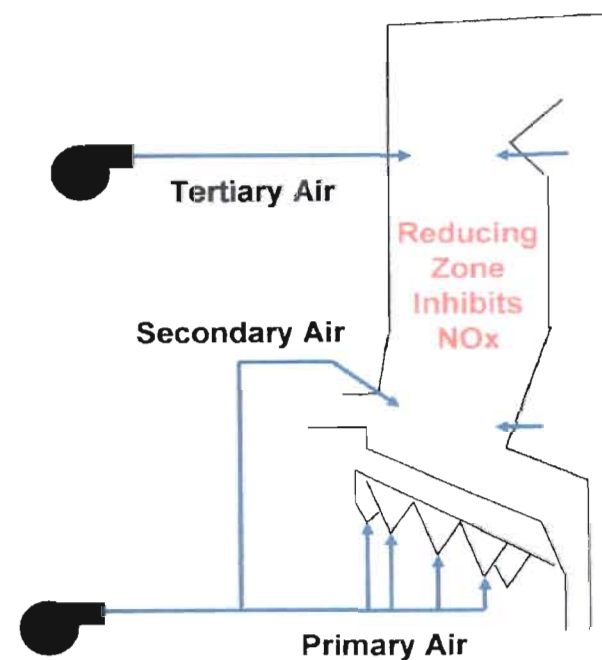
records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

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

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