MALCOLM PIRNIE

INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS AND CONSULTANTS

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June 30, 2009

Ms. Trina Vielhauer
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: North County Resource Recovery Facility;
FDEP Project No. 0990234-015 AC/PSD-FL-108H;
Response to FDEP's RAI for the Refurbishment Project

Dear Ms. Vielhauer,

On March 9, 2009, the Solid Waste Authority of Palm Beach County ("Authority") submitted an application for an air construction permit ("Application") to the Florida Department of Environmental Protection ("Department" or "FDEP") for the refurbishment of the Authority's North County Resource Recovery Facility ("Facility"). An Addendum to the permit application was submitted to FDEP on March 26, 2009. On April 8, 2009, the Department issued a Request for Additional Information ("RAI") concerning the Application. On behalf of the Authority, Malcolm Pirnie, Inc. ("Malcolm Pirnie") is submitting the following responses to the Department's RAI. The FDEP's requests for additional information are quoted in the numbered paragraphs set forth below, and the RAIs are followed by the Authority's responses ("Responses").

Authority's Responses to FDEP's RAI

1. *Provide the calculations and methodology for the baseline and projected actual emissions in accordance with Rules 62-210.200(36)(a) and 62-210.370, F.A.C. Provide all calculations, data used, source of the data and assumptions to derive these emissions. Also update and resubmit any appropriate application pages, appendices and tables.*

   Section E of the Authority's Application has been revised and now includes all of the information requested in the FDEP's RAI No. 1. The Facility's Baseline Actual and Projected Actual Emissions have been calculated in accordance with the methodologies described in Rules 62-210.200(36)(a) and 62-210.370, F.A.C. Section E of the Application now includes all of the calculations, data used, sources of the data, and assumptions used to derive the Facility's emissions. The appropriate pages of the

Application, appendices and tables have been updated in Sections A, B, E, and G of the Application, which are being resubmitted with these Responses.

2. *As an existing electric utility steam generating unit and pursuant to the definitions at Rule 62-210.200(36)(a), F.A.C. for "Baseline Actual Emissions", the consecutive 24-month period must be between the years 2004 and 2008. Therefore, for particulate matter, MSWC metals, volatile organic compounds, hydrogen fluoride, mercury and MSWC organics, a different 24-month period will need to be selected since you used the year 2003 as part of the 24-month period.*

   As requested, the Baseline Actual Emissions were recalculated, based upon the emissions data for the most recent five (5) calendar years (2004 to 2008). Baseline Actual Emissions were developed by using annual data on a calendar-year basis.

3. *The supplemental information received on March 26th included revised baseline emissions, but did not include projected actual emissions. You must include projected actual emissions based on your expected operation of these units in the future. Please use the methods contained in Rules 62-210.200(250) and 62-210.370, F.A.C. to determine the activity factor and the projected actual emissions. Provide all calculations, data used, source of the data and assumptions to derive these emissions. Also, update and resubmit any appropriate application pages, appendices and tables.*

   As requested, the Facility's Projected Actual Emissions have been calculated in accordance with Rules 62-210.200(250) and 62-210.370, F.A.C. Section E of the Application now includes all of the calculations, the data used, the sources of the data, and the assumptions used to derive the Projected Actual Emissions. The appropriate pages of the Application, appendices, and tables have been revised in Sections A, B, E, and G of the Application, which are being resubmitted with these Responses.

4. *For the proposed baghouse control system, what is the design flowrate and outlet grain loading (gr/dscf)?*

   The proposed baghouse air pollution control system will be a Pulse Jet Fabric Filter with six compartments. The system has been designed for a maximum flowrate of 115,000 dscfm and an outlet particulate loading of 16 mg/dscm, which is equivalent to an outlet grain loading of 0.0070 gr/dscf.

5. *For the proposed SNCR control system, what are the approximate number of injectors, number of levels of injectors, approximate location of the injectors and the approximate temperature at these locations?*

The SNCR injection system will consist of up to three (3) elevation levels of injectors and up to 10 injection nozzles per elevation, up to a total of 30 injection ports. The final location, quantity, and elevation of injection points will be determined by the SNCR equipment supplier by Computational Fluid Dynamic ("CFD") modeling of the combustion and temperature profiling of the furnace prior to start-up. The CFD modeling will be used to determine the temperature zone for ideal introduction of the urea mixture for varying fuel conditions. The ideal injection temperature is in the range of 760°C to 870°C.

6. *For the proposed activated carbon injection control system, what is the approximate maximum expected carbon injection rate at baseload? Will there be a baghouse control system associated with the activated carbon silo? If so, please provide the outlet grain loading and flowrate. How will the carbon injection rate be controlled?*

The approximate maximum expected powdered activated carbon ("PAC") injection rate at baseload is in the range of 0.3 to 1.5 lbs per ton of refuse combusted. The optimum PAC injection rate will be determined during initial performance testing and will be verified during compliance stack testing. The rate of PAC injection will be controlled using a rotary valve feeder, which will meter a specific volume of PAC into the blower and injection piping. The controls and feedback signals from the PAC injection system will be integrated into the Facility's Distributed Control System ("DCS") and the Continuous Emission Monitoring System ("CEMS").

The carbon silo will be fitted with a baghouse particulate control system. This baghouse will provide particulate control during the silo filling process, to remove entrained carbon from the air displaced during loading. The inlet grain loading to the baghouse is based on uncontrolled silo loading, so the flowrate will be the rate of displacement of the air within the silo. A control efficiency of 99.9+% is expected from the baghouse; however, filling operations will be halted if any fugitive emissions are observed during the filling operation. The vendor guaranteed outlet grain loading is 0.01 grains/dscf.

7. *For the proposed combustion control system, please explain how the transport air will be separated from the RDF before charging.*

The existing RDF fuel feed system uses overfire air to deliver the RDF from the fuel metering stations into the furnace via air swept spouts. Varying overfire air distribution in the current configuration alters the flow and distribution characteristics of the RDF leading to rapid changes in combustion.

The new transport air system is a booster fan dedicated for the transporting of the RDF into the furnace through the air swept spouts. This independent transport air control

system is designed to help stabilize combustion by providing a consistent feed and providing better control of the stoker fuel bed and better ash burnout.

8. *Some comments were provided by the Palm Beach County Health Department. They have been attached, not restated. Please address their comments.*

The Authority's responses to the Palm Beach County Health Department's questions are set forth below.

Authority's Responses to Palm Beach County Health Department's RAI

1. *It appears that the emissions increase may be below significant emission increase (at worst case scenario) to escape PSD review. However, any increase in the pollutant emitted by the MWC will trigger modification according to NSPS.*

The definition of "modification" under NSPS in 40 CFR 60.51b states that *"increases in the amount of any air pollutant emitted by the municipal waste combustor unit are determined at 100 percent physical load capability and downstream of all air pollution control devices."* The boiler capacity is unchanged and at 100 percent physical load, downstream of all air pollution control devices, the maximum actual short-term emissions rates of these regulated pollutants will not increase. Therefore, the Project is not considered a "modification" under NSPS.

The determination of PSD applicability is based on annual emissions (rather than short term emissions). The annual Projected Actual Emissions ("PAE") are compared to the annual Baseline Actual Emissions ("BAE") with the Significant Emissions Increase for each regulated pollutant to determine PSD applicability. The Baseline Actual Emissions and PAE emissions are presented in the PSD Applicability analysis, Section A and the calculations are presented in Section E.

2. *Facility must maintain the record of actual emissions for next 5 years. Does any increase trigger NSPS retroactively?*

This Project will not change the capacity of the Facility in terms of either the steam output or throughput of the boilers, nor change the permitted allowable emissions or short term maximum emissions, and is not considered a "modification" under NSPS. Once a determination is made that the Project is a not a modification based upon the data submitted with the Application there is no monitoring requirement for NSPS.

The actual annual emissions will be monitored for five (5) years after Project completion to confirm PSD non-applicability by demonstrating that the actual annual emissions do

not represent a significant net increase above the Baseline Actual Emissions of any regulated pollutant. It is not anticipated that the significant net emission increase threshold will be exceeded following the Project due to the installation of air pollution control equipment.

3. *It appears that the vendor estimates result in an increase of expected actual emission. Does this trigger NSPS? What are the factors guaranteed by the vendors? What are the detailed calculations for expected actual emissions?*

   NSPS would be triggered if the Project is considered a "modification." As there is no increase in the short term emission rates of any pollutant at 100 percent load and downstream of any air pollution control equipment, this Project does not trigger NSPS.

   In response to FDEP comments, the emissions for this Project have been recalculated as the Baseline Actual and Projected Actual Emissions in accordance with methodologies described in Rules 62-210.200(36)(a), 62-210.200(250), and 62-210.370, F.A.C. The detailed calculations for the Baseline Actual and Projected Actual emission are provided in the revised Section E. The Facility's Projected Actual Emissions replace the expected actual emissions in the earlier submission, and are based upon Malcolm Pirnie's professional judgment concerning the emissions reductions that will be achieved as a result of installing new air pollution and combustion control systems at the Facility.

4. *Can the facility calculate the future emissions at 100-percent physical load without considering any permit limits?*

   The Facility's future emissions are the "Projected Actual Emissions" that were estimated using the methodology in Rule 62-210.370, F.A.C., and represent the projected maximum annual rate, in tons per year, of a PSD pollutant in any one of the 5 years after completion of the Project. The Facility's Projected Actual Emissions were estimated in a conservative manner, which was designed to predict the maximum emission rate, under the permitted operating conditions, that may reasonably be expected to occur after the completion of the Authority's Project. For example, the Facility's Projected Actual Emissions were estimated at 100 percent physical load by conservatively assuming an activity factor of 93.5%. This value is equal to the highest activity factor that was achieved by the Facility in the previous five years (2004-2008) of operations.

5. *The facility has two allowable emissions per most pollutants (section F2 of the application). One is based on the NSPS limit, and the other is based upon the projected actual emissions. How does the facility demonstrate compliance with the latter, and does it include the emissions from startup/shutdown/malfunction?*

In response to FDEP comments, the permit application forms have been revised and are resubmitted as Section B. As the Authority is not requesting any changes to the existing permit for the Facility, the revised Section B does not include the forms (Form F2) that show the allowable emissions per pollutant. The Projected Actual Emissions are not enforceable limits and are not used for compliance purposes. The actual annual emissions will be monitored for five (5) years following the Project completion to demonstrate PSD non-applicability. The actual annual emissions will be calculated following the methodology in Rule 62-210.370, F.A.C., which specifies that emissions from start up and shutdown are included. Any emissions associated with malfunctions will continue to be reported in the quarterly Excess Emissions Reports.

6. *For SO2, projected actual emission shown are > allowable emissions.*

The Baseline Actual and Projected Actual Emissions were recalculated following the methodology specified by Rule 62-210.370, F.A.C., and can be found in the revised Section E. The Authority is not requesting any changes to the existing permit for the Facility and the Projected Actual Emissions are not greater than the allowable emissions.

Revisions to the Authority's Application

As noted above, several parts of the Authority's Application have been revised and are being resubmitted in response to the FDEP's RAI. Accordingly, the following sections/pages of the original Application (submitted March 9, 2009) should be replaced with the revised sections/pages of the Application, which are attached hereto:

- Section A: NSPS and PSD Applicability Review Report – Please replace the cover page, Table of Contents, pages 5-01, 5-02, 5-03, and remove Attachment D.

- Section B: Air Construction Permit Application Form – Please replace this complete section.

- Section E: Emissions – Please replace this complete section. As revised, Section E now includes the Baseline Actual and Projected Actual emissions, which have been calculated in compliance with the methodologies described in Rules 62-210.200(36)(a) and 62-210.370, F.A.C.

- Section G: Supporting Documentation – Please replace pages G-3, G-4, G-5, G-6, G-7 and G-8 with the revised pages G-3, G-4, and G-5.

All other pages and sections of the original Application are unchanged.

Boiler Steam Generation Rate

In its Application, the Authority has requested that the boiler steam generation rate be used to monitor the performance of the Facility. The steam generation rate is measured continuously and it is an accurate measure of the operating performance of the Facility's boilers. The current FDEP permits for the Facility limit the steam generation rate for each boiler to 324,000 lbs/hour (4-hour block average). The Authority is not requesting any increase in this limit. However, the Authority believes that the permit for the refurbishment project should use this steam generation rate (324,000 lbs/hour; 4-hour block average) to determine compliance with the FDEP's permit conditions.

The total heat input to the Facility's boilers is limited by the steam generation rate. The steam generation rate of 324,000 lbs/hour is based on a heat input rate of 450.8 MMBtu/hour and the use of refuse-derived fuel ("RDF") with a reference heating value of 5,700 Btu/lb. However, the heating value of municipal solid waste ("MSW") and RDF is inherently variable. The heating value of the Facility's RDF fluctuates significantly due to rainfall, seasonal changes in the makeup of the MSW, and other factors. When the heating value of the RDF fluctuates, the amount of RDF processed by the Facility will fluctuate, because the Facility will need to burn more or less RDF in order to maintain a consistent steam generation rate. The heat input rate and the reference heating value are provided for informational purposes and should not be used to establish a not-to-exceed permit limit.

In light of these facts, the Authority believes the permit conditions for the refurbishment project should not establish limits on the heat input rate or the RDF processing capacity of the Facility. The Facility has a nominal design capacity of 2,000 tons per day of MSW (approximately 1,800 tons per day of RDF) and the refurbishment project will not increase the Facility's nominal design capacity. The Facility's nominal design processing capacity may be identified in the permit for informational purposes, but the nominal design capacity should not be used to establish a not-to-exceed limit on the quantity of RDF processed by the Facility.

In conclusion, we believe the Authority's Responses provide all of the information requested by the Department in its RAI. Should you require any clarification, please contact me at 239-332-1300.

We appreciate the FDEP guidance and timely feedback on our responses, and thank you for your assistance.

Sincerely,

Christopher C. Tilman, P.E.
Senior Consultant
Malcolm Pirnie, Inc.

Attachments

C: M. Halpin (FDEP – Siting Office)
M. Hammond (SWA)
M. Bruner (SWA)
R. Schauer (SWA)
B. Worobel (SWA)
M. Morrison (SWA)
D. Dee (Young van Assenderp)
D. Elias (RTP Environmental)
L. Richter (Malcolm Pirnie, Inc.)
K. Liang (Malcolm Pirnie, Inc.)

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Application for Air Construction Permit

Section A

NSPS and PSD Applicability Review Report

June 2009

3582052 / FTL

MALCOLM PIRNIE

Solid Waste Authority of Palm Beach County

7501 North Jog Road • West Palm Beach, FL 33412

NSPS and PSD Applicability Review for the Refurbishment of the North County Resource Recovery Facility (NCRRF)

June 2009

Report Prepared By:

Malcolm Pirnie, Inc.

8201 Peters Road, Suite 3400
Plantation, FL 33324
954-761-3460

3582052

Contents

1. Introduction 1-1

2. Facility Background Information 2-1

3. The Refurbishment Project 3-1

4. NSPS Considerations 4-1

4.1. NSPS Definitions 4-1
4.2. NSPS Applicability Determination Concerning Potential Reconstruction 4-2
4.3. NSPS Applicability Determination Concerning Potential Modification 4-3
4.4. Conclusions Concerning NSPS 4-3

5. PSD Considerations 5-1

5.1. PSD Applicability to Major Modifications 5-1
5.2. Baseline Actual Emissions and Projected Actual Emissions 5-1
5.3. PSD Applicability Determination for Major Modification 5-4
5.4. Other Conclusions 5-4

List of Tables

Table 5-1. North County Resource Recovery Facility Project Net Emissions PSD Applicability Determination (Total of Units 1 and 2) 5-3

Attachments

A. NCRRF Refurbishment Project Summary
B. MWC Cost Comparison
C. Proposed MWC Refurbishment Cost Estimate

5. PSD Considerations

5.1. PSD Applicability to Major Modifications

Under Florida's PSD program, the Facility is classified as a "*major stationary source*" because the Facility is a "*municipal incinerator capable of charging more than 250 tons of refuse per day*" and it has the potential to emit 100 tons per year or more of a PSD pollutant [See Rule 62-210.200(195), F.A.C]. A PSD permit must be obtained pursuant to Rule 62-212.400(1), F.A.C., prior to the commencement of construction of any "*major modification*" of an existing major stationary source. A major modification is defined in Rule 62-210.200(192), F.A.C., as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a PSD pollutant and a significant net emissions increase of that pollutant from the major stationary source.*"

Since the Project will involve the installation of new air pollution control equipment and other physical changes to the Facility, Malcolm Pirnie evaluated the Project to determine whether it will cause a significant net emissions increase of a PSD pollutant and thus constitute a major modification. Malcolm Pirnie's evaluation was conducted in compliance with Rule 62-212.400(2)(a)1, F.A.C., which establishes a "*Baseline Actual-to-Projected Actual Applicability Test for Modifications at Existing Emissions Units.*" Under this rule, "*a significant emissions increase of a PSD pollutant will occur if the difference between the Projected Actual Emissions and the Baseline Actual Emissions equals or exceeds the significant emissions rate for that pollutant.*" Accordingly, Malcolm Pirnie: (1) determined the Facility's Baseline Actual Emissions; (2) determined the Facility's Projected Actual Emissions; (3) subtracted the Baseline Actual Emissions from the Projected Actual Emissions; and (4) compared the difference to the significant emissions rate. This analysis was performed for each PSD pollutant emitted by the Facility.

5.2. Baseline Actual Emissions and Projected Actual Emissions

Rule 62-210.200(36)(a), F.A.C., defines "*Baseline Actual Emissions*" for an existing emissions unit classified as an electric utility steam generating, such as the Facility, to mean "*the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the [preceding] 5-year period.*" In this case, the Facility's actual emissions data from the most recent five years (calendar years 2004 to 2008) were evaluated and the average of each two calendar year period (24 consecutive months) was calculated for

each PSD pollutant. As allowed in Rule 62-210.200(36)(b)4, F.A.C., a different consecutive 24-month period can be used for each PSD pollutant. The Facility's Baseline Actual Emissions were calculated in compliance with the methodology set forth in Rule 62-210.370, F.A.C. These emission calculations can be found in Section E of this Application.

The Facility's "Projected Actual Emissions" also were estimated by following the methodology in Rule 62-210.370, F.A.C. "Projected Actual Emissions" is defined in Rule 62.210.200, F.A.C., to mean the "maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a PSD pollutant in any one of the 5 years following the date the unit resumes regular operation after the project." In this case, the Facility's Projected Actual Emissions were estimated in a conservative manner, which was designed to predict the maximum emission rate that may reasonably be expected to occur after the completion of the Authority's project. For example, the Facility's Projected Actual Emissions were estimated by conservatively assuming an activity factor of 93.5%. This value is equal to the highest activity factor that was achieved by the Facility in the previous five years (2004-2008) of operations. These emission calculations can also be found in Section E of this Application.

The Facility's projected actual emission are based upon Malcolm Pirnie's professional judgment concerning the emissions reductions that will be achieved as a result of installing the new air pollution control systems and the new combustion control systems at the Facility. However, the Authority does not have contractual guarantees concerning the actual emission reductions that will be achieved after the Project is completed. Since the Facility's Projected Actual Emissions are not based upon guaranteed values, these estimates of the Facility's future performance should not be used as permit limits. The Facility's actual emissions may be different than the current projections.

The Facility's Projected Actual Emissions, the Facility's Baseline Actual Emissions, the significant emissions rates in Rule 62-210.200(280), F.A.C., and the net emissions increase or decrease for each PSD pollutant, are presented in Table 5-1, below. As shown in Table 5-1, the Project will not cause a net emissions increase for any pollutant in an amount that is equal to or greater than the significant emissions rate for that pollutant.

After the Project is completed, the Facility's actual annual emissions of all PSD pollutants are expected to be less than the Baseline Actual Emissions because the Facility will be equipped with new air pollution control systems and improved combustion control systems. Although Table 5-1 indicates that the Facility's projected actual emissions are greater than the Baseline Actual Emissions for hydrogen fluoride ("HF") and volatile organic compounds ("VOC"), we believe that it is more likely than not that

the actual annual emissions of HF and VOC after the Project will be less than the Baseline Actual Emissions.

Table 5-1.
North County Resource Recovery Facility Project Net Emissions PSD Applicability Determination (Total of Units 1 and 2)

	Tons per Year (TPY)				Subject to PSD?
	Baseline Actual Emissions [1]	Projected Actual Emissions[5]	Net Emissions Increase	PSD Significant Emissions Rate	
Particulate, PM	29.1	28.5	<0	25	No
PM10/MWC Metals [2]	29.1	28.5	<0	15	No
Nitrogen Oxides, NO_x	1304.8	971.9	<0	40	No
Carbon Monoxide, CO	336.4	329.7	<0	100	No
Lead, Pb	8.80 E-01	7.88E-01	<0	0.6	No
Mercury, Hg	2.62E-02	2.39E-02	<0	0.1	No
Hydrogen Fluoride, HF	1.9E+00	2.1E+00	0.2	3	No
Volatile Organic Compounds, VOC	16.5	17.3	0.8	40	No
Sulfur Dioxide, SO_2	225.0	196.5	<0	40	No
MWC Organics, D/F	5.06E-05	4.27E-05	<0	3.5E-06	No
MWC Acid Gases (as SO_2+HCl) [3]	290.0	262.7	<0	40	No
Beryllium, Be [4]	2.87E-04	2.56E-04	<0	N/A	N/A
Cadmium, Cd [4]	2.96E-02	2.65E-02	<0	N/A	N/A

Notes:

1. Baseline Actual Emissions, defined as *"the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the [preceding] 5-year period,"* were developed using the methodology specified in Rule 62-210.370.
2. The Facility does not have historical data for PM10 emissions. For this analysis, it has been assumed that PM10 emissions are equal to PM emissions.
3. A significant emissions rate (SER) has not been established in Rule 62-210.200(280) for HCl. However, the SER for MWC acid gases is based on the total of HCl and SO_2 emissions.
4. Beryllium and Cadmium are not PSD regulated pollutants and the PAE are provided for information only.
5. Projected Actual Emissions (PAE) were developed by using the methodology specified in Rule 62-210.370, F.A.C., and professional engineering judgment. The PAE are intended to be conservative estimates of the Facility's maximum emissions after the completion of the Project, but the PAE are not based on vendor guarantees and should not be used as permit limits. The Facility's actual annual emission may be different than the projected values shown in this table.

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Application for Air Construction Permit

Section B

Air Construction Permit Application Form

June 2009

3582052 / FTL

MALCOLM PIRNIE

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Solid Waste Authority of Palm Beach County**	
2. Site Name: **North County Resource Recovery Facility (NCRRF)**	
3. Facility Identification Number: **0990234**	
4. Facility Location... Street Address or Other Locator: **7501 North Jog Road** City: **West Palm Beach** County: **Palm Beach** Zip Code: **33412**	
5. Relocatable Facility? ☐ Yes ☑ No	6. Existing Title V Permitted Facility? ☑ Yes ☐ No

Application Contact

1. Application Contact Name: **Christopher Tilman, P.E.**
2. Application Contact Mailing Address... Organization/Firm: **Malcolm Pirnie, Inc.** Street Address: **4315 Metro Parkway, Suite 520** City: **Fort Myers** State: **Florida** Zip Code: **33916**
3. Application Contact Telephone Numbers... Telephone: **(239) 332 - 1300** ext. Fax: **(239) 332 - 1789**
4. Application Contact E-mail Address: **ctilman@pirnie.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being 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 is an Air Construction Permit application for the Solid Waste Authority of Palm Beach County's (Authority) NCRRF Refurbishment Project (Project). The Facility receives municipal solid waste (MSW) which is processed into refuse-derived fuel (RDF). The RDF is combusted in the Facility's two municipal waste combustor units which create steam for the generation of electricity.

This Project includes installation of several new air pollution control systems at the Facility, as well as maintenance, repair, and the in-kind replacement of other components of the Facility. The Project will not change the basic design parameters of the Facility's municipal waste combustor units.

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
1	Municipal Waste Combustor (Boiler) #1	AC1B	
2	Municipal Waste Combustor (Boiler) #2	AC1B	
	Carbon Silo (Insignificant Emission Source)	AC1F	

Application Processing Fee

Check one: ☐ Attached - Amount: $_ ☑ Not Applicable

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name :
   Mark Hammond, Executive Director
2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Solid Waste Authority of Palm Beach County**
   Street Address: **7501 North Jog Road**
   City: **West Palm Beach** State: **FL** Zip Code: **33412**
3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(561) 640 - 4000** ext. Fax: **(561) 640 - 3400**
4. Owner/Authorized Representative E-mail Address: **mhammond@swa.org**
5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.

   Signature

   6/29/09
   Date

Application Responsible Official Certification

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

1. Application Responsible Official Name:
   Mark Hammond, Executive Director

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.

   ☑ 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, CAIR source, or Hg Budget source.

3. Application Responsible Official Mailing Address...
   Organization/Firm: **Mark Hammond, Executive Director**
   Street Address: **Solid Waste Authority of Palm Beach County**
   City: **7501 North Jog Road** State: **FL** Zip Code: **33412**

4. Application Responsible Official Telephone Numbers...
   Telephone: **(561) 640 - 4000** ext. Fax: **(561) 640 - 3400**

5. Application Responsible Official E-mail Address: **mhammond@swa.org**

6. Application Responsible Official Certification:

   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.

   Signature Date: 6/29/09

Professional Engineer Certification

1. Professional Engineer Name: **Christopher Tilman**
   Registration Number: **61903**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Malcolm Pirnie, Inc.**
   Street Address: **4315 Metro Parkway, Suite 520**
   City: **Fort Myers** State: **Florida** Zip Code: **33916**
3. Professional Engineer Telephone Numbers...
   Telephone: **(239) 332 - 1300** ext. Fax: **(239) 332 - 1789**
4. Professional Engineer E-mail Address: **ctilman@pirnie.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, 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.

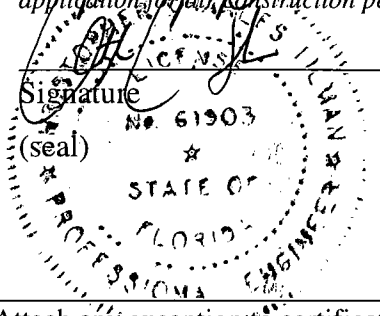
(4) If the purpose of this application is to obtain an air construction permit (check here ☑, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further 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.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, 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.

Signature

6-30-09
Date

(seal)



* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **585.82** North (km) **2960.474**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **26^0 45' 53" N** Longitude (DD/MM/SS) **80^0 08' 12" W**	
3. Governmental Facility Code: **(3) County**	4. Facility Status Code: **(A) Active**	5. Facility Major Group SIC Code: **(49) Electric, Gas and Sanitary Services**	6. Facility SIC(s): **Primary: 4953**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Mark Hammond, Executive Director**
2. Facility Contact Mailing Address... Organization/Firm: **Solid Waste Authority of Palm Beach County** Street Address: **7501 North Jog Road** City: **West Palm Beach** State: **FL** Zip Code: **33412**
3. Facility Contact Telephone Numbers: Telephone: **(561) 640 - 4000** ext. Fax: **(561) 640 - 3400**
4. Facility Contact E-mail Address: **mhammond@swa.org**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name: **Mark Hammond, Executive Director**
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: **Solid Waste Authority of Palm Beach County** Street Address: **7501 North Jog Road** City: **West Palm Beach** State: **FL** Zip Code: **33412**
3. Facility Primary Responsible Official Telephone Numbers... Telephone: **(561) 640 - 4000** ext. Fax: **(561) 640 - 4000**
4. Facility Primary Responsible Official E-mail Address: **mhammond@swa.org**

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☑ Title V Source	
4. ☑ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☑ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☐ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☑ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☐ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	
The selected classifications apply to the NCRRF municipal waste combustor units and the upgrade to the Facility's air pollution control systems. Emissions are limited by Permit PSD-FL-108A.	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]
PM10	(A) Major Pollutant	N
NO_X	(A) Major Pollutant	N
CO	(A) Major Pollutant	N
PM	(A) Major Pollutant	N
SO_2	(A) Major Pollutant	N
H114	(B) Facility-regulated pollutant, not major or synthetic minor	N
H027	(B) Facility-regulated pollutant, not major or synthetic minor	N
H021	(B) Facility-regulated pollutant, not major or synthetic minor	N
D/F	(B) Facility-regulated pollutant, not major or synthetic minor	N
H106	(A) Major Pollutant	N
FL	(B) Facility-regulated pollutant, not major or synthetic minor	N
PB	(B) Facility-regulated pollutant, not major or synthetic minor	N
VOC	(B) Facility-regulated pollutant, not major or synthetic minor	N
PM/MWC Metals	(A) Major Pollutant	N
SO_2/ H106	(A) Major Pollutant	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

Not Applicable

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section C** [ ] Previously Submitted, Date:_____
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section C** [ ] Previously Submitted, Date:_____
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section I** [ ] Previously Submitted, Date:_____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   [ ] Attached, Document ID:_____ [√] Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   [√] Attached, Document ID: **Sections A & D**
3. Rule Applicability Analysis:
   [√] Attached, Document ID: **Section H**
4. List of Exempt Emissions Units:
   [ ] Attached, Document ID:_____ [√] Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification:
   [ ] Attached, Document ID:_____ [√] Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   [ ] Attached, Document ID:_____ [√] Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   [ ] Attached, Document ID:_____ [√] Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   [ ] Attached, Document ID:_____ [√] Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   [ ] Attached, Document ID:_____ [√] Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    [ ] Attached, Document ID:_____ [√] Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☑ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities: (Required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☑ Not Applicable (revision application)

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)
   ☐ Attached, Document ID:_____
   ☑ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)
   ☐ Attached, Document ID:_____ **N/A**
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities Onsite but Not Required to be Individually Listed
   ☑ Not Applicable

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☑ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☑ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

1. Acid Rain Program Forms:

   Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☑ Not Applicable (not an Acid Rain source)

   Phase II NO_X Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☑ Not Applicable

   New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☑ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☑ Not Applicable (not a CAIR source)

3. Hg Budget Part (DEP Form No. 62-210.900(1)(c)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☑ Not Applicable (not a Hg Budget unit)

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.) **NOT APPLICABLE**

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☑ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

Municipal Waste Combustor (Boiler) #1

3. Emissions Unit Identification Number: **1**

4. Emissions Unit Status Code: **A**	5. Commence Construction Date:	6. Initial Startup Date: **November 15, 1989**	7. Emissions Unit Major Group SIC Code: **49**

8. Federal Program Applicability: (Check all that apply)

☐ Acid Rain Unit

☐ CAIR Unit **NOT APPLICABLE**

☐ Hg Budget Unit

9. Package Unit: Manufacturer: **Babcock and Wilcox** Model Number:

10. Generator Nameplate Rating: **62 MW**

11. Emissions Unit Comment:

Emissions Unit Control Equipment/Method: Control 1 of 4

1. Control Equipment/Method Description: **Gas Scrubber, General – Spray Dryer Absorbers**
2. Control Device or Method Code: **013**

Emissions Unit Control Equipment/Method: Control 2 of 4

1. Control Equipment/Method Description: **Fabric Filter (Baghouse)**
2. Control Device or Method Code: **016**

Emissions Unit Control Equipment/Method: Control 3 of 4

1. Control Equipment/Method Description: **Activated Carbon Injection System – Activated Carbon Adsorption**
2. Control Device or Method Code: **048**

Emissions Unit Control Equipment/Method: Control 4 of 4

1. Control Equipment/Method Description: **Selective Non-catalytic Reduction for NO_X**
2. Control Device or Method Code: **107**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: **324,000 lb/hr steam**	
3. Maximum Heat Input Rate: **450.8 million Btu/hr @ 5700 Btu/lb RDF (for informational purposes only)**	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year

6. Operating Capacity/Schedule Comment:

The Authority is requesting that the boiler steam generation rate be used to monitor the performance of the Facility. The steam generation rate is measured continuously and it is an accurate measure of the operating performance of the Facility's boilers. The current FDEP permits for the Facility limit the steam generation rate for each boiler to 324,000 lbs/hour (4-hr block average). The Authority is not requesting any increase in this limit. However, the Authority believes that the permit for the refurbishment project should use this steam generation rate (324,000 lbs/hour; 4 hour block average) to determine compliance with the FDEP's permit conditions.

Additional Permitting Note:

The total heat input to the Facility's boilers is limited by the steam generation rate. The steam generation rate of 324,000 lbs/hr is based on a heat input rate of 450.8 MMBtu/hr and the use of refuse-derived fuel ("RDF") with a reference heating value of 5,700 Btu/lb. The heating value of municipal solid waste ("MSW") and RDF is inherently variable and fluctuates significantly due to rainfall, seasonal changes in the makeup of the MSW, and other factors. When the heating value of the RDF fluctuates, the amount of RDF processed by the Facility will fluctuate, because the Facility will need to burn more or less RDF in order to maintain a consistent steam generation rate. The heat input rate and the reference heating value are provided for informational purposes and should not be used to establish a not-to-exceed permit limit.

In light of these facts, the Authority believes the permit conditions for the refurbishment project should not establish limits on the RDF processing capacity of the Facility. The Facility has a nominal design capacity of 2,000 tons per day of MSW (approximately 1,800 tons per day of RDF) and the refurbishment project will not increase the Facility's nominal design capacity. The Facility's nominal design processing capacity may be identified in the permit for informational purposes, but the nominal design capacity should not be used to establish a not-to-exceed limit on the quantity of RDF processed by the Facility.

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: [*] **See Section C, Process Flow Diagram for Emission Point Location: Emission ID Number E001**	2. Emission Point Type Code: **(2) An emission point serving two or more emission units capable of simultaneous operation (i.e. a single stack serves two boilers).**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **Municipal Waste Combustor (Boiler) #1 and Municipal Waste Combustor (Boiler) #2.**	

5. Discharge Type Code: **(V) A stack with an unobstructed opening discharging in a vertical or nearly vertical direction.**	6. Stack Height: **250 feet**	7. Exit Diameter: **8 feet**
8. Exit Temperature: **310 °F* (varies)**	9. Actual Volumetric Flow Rate: **172,340 acfm (varies)**	10. Water Vapor: **16.5 %**

11. Maximum Dry Standard Flow Rate: **118,174 dscfm @ 7 % O_2**	12. Nonstack Emission Point Height: Feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **585.82** North (km): **2960.474**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **26^0 45′ 53″ N** Longitude (DD/MM/SS) **80^0 08′ 12″ W**

15. Emission Point Comment:

1 of 3 individual flues surrounded by a stack shell. Exit temperature used is measured downstream of SDA.
The exit temperature indicated in item 8 is an estimate and may fluctuate. It is requested that the absolute temperature limit in the Facility's current PSD permit (300^0F) be replaced with the temperature limiting language in NSPS CFR 60 Subpart Cb.
*Higher temperature will allow for increased longevity of baghouse, duct work, fans, and also reduces moisture content in the flue gas.

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type): **Natural Gas is used during startup/shutdown of unit and during combustion of low BTU waste to maintain combustor temperature. The SCC corresponds to combustion of natural gas in a boiler for electric generation.**		
2. Source Classification Code (SCC): **10100601**	3. SCC Units: **Million cubic feet natural gas burned**	
4. Maximum Hourly Rate: **0.21**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1050**
10. Segment Comment: **Auxiliary burner firing natural gas during startup/shutdown.**		

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type): **Refuse derived fuel (RDF) used in the boiler (emission related to tons of RDF burned).**		
2. Source Classification Code (SCC): **10101202**	3. SCC Units: **Tons of refuse derived fuel burned**	
4. Maximum Hourly Rate: **37.5**	5. Maximum Annual Rate: **307150**	6. Estimated Annual Activity Factor: **0.935**
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **11.4**
10. Segment Comment: **The Facility is designed to process 2,000 TPD of mixed MSW with an annual throughput of 624,000 tons of RDF for the two boilers. Heat input is based on 5700 Btu/lb RDF. The Facility's nominal design processing capacity may be identified in the permit for informational purposes, but the nominal design capacity should not be used to establish a not-to-exceed limit on the quantity of RDF processed by the Facility.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			EL
D/F	013	016	EL
FL	013	016	EL
H021	016		EL
H027	016		EL
H106	013	016	EL
H114	048	016	EL
NO_X	107		EL
PB	016		EL
PM	016		EL
PM/MWC Metals	016		EL
SO_2	013	016	EL
VOC	048		EL
SO_2/H106	013		EL

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **CO – Carbon Monoxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☑ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **168.2** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **164.9** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **D/F – Dioxin/Furan (MWC Organics)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **2.53E-05** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **2.14E-05** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **FL – Fluorides Total (including elemental fluorine and all fluoride compounds)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **9.50E-01** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **10.5E-01** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H021 – Beryllium Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **1.44E-04** tons/year	8.b. Baseline 24-month Period: From:2006 To:2007
9.a. Projected Actual Emissions (if required): **1.28E-04** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H027 Cadmium Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **1.48E-02** tons/year	8.b. Baseline 24-month Period: From:2006 To:2007
9.a. Projected Actual Emissions (if required): **1.33E-02** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H106 – Hydrochloric Acid**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **32.5** tons/year	8.b. Baseline 24-month Period: From: 2007 To:2008
9.a. Projected Actual Emissions (if required): **33.1** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H114 – Mercury Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **1.31E-02** tons/year	8.b. Baseline 24-month Period: From: **2006** To: **2007**
9.a. Projected Actual Emissions (if required): **1.20E-02** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **NO_X – Nitrogen Oxides**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **652.4** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **486.0** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PB – Lead – Total (including elemental lead and all lead compounds expressed as lead)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **4.40E-01** tons/year	8.b. Baseline 24-month Period: From: **2006** To: **2007**
9.a. Projected Actual Emissions (if required): **3.94E-01** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM – Particulate Matter – Total**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **14.55** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **14.25** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM – Municipal Waste Combustor Metals (MWC Metals)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **14.55** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **14.25** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **SO_2 – Sulfur Dioxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **112.5** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **98.25** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **SO_2/H106 – Municipal Waste Combustor Acid Gases**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **145.0** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **131.4** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC – Volatile Organic Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **8.25** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **8.65** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: ***Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.***	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity:
VE10 – Visible Emissions – 10% Normal	☑ Rule ☐ Other

3. Allowable Opacity:
Normal Conditions: % Exceptional Conditions: **10** %
Maximum Period of Excess Opacity Allowed: **6** min/hour

4. Method of Compliance:
EPA Method 9.

5. Visible Emissions Comment:

Basis for opacity limit: PSD-FL-108A Permit. The opacity for each unit shall not exceed 10 percent, 6-minute average.

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 6

1. Parameter Code: **CO_2**	2. Pollutant(s): **Carbon dioxide**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Milton Roy** Model Number: **3300**	Serial Number: **N2C2522T**
5. Installation Date: **05/09/01**	6. Performance Specification Test Date: **05/10/01**
7. Continuous Monitor Comment: **Monitor for Stack 1.**	

Continuous Monitoring System: Continuous Monitor 2 of 6

1. Parameter Code: **EM - Emissions**	2. Pollutant(s): **SO_2**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo Electron** Model Number: **43A Serial Number**	Serial Number: **43A-33581-245**
5. Installation Date: **July 1, 1989**	6. Performance Specification Test Date: **October 1989**
7. Continuous Monitor Comment: **SO_2 outlet monitor for stack 1.**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Continuous Monitoring System: Continuous Monitor 3 of 6

1. Parameter Code: **EM – Emissions**	2. Pollutant(s): **Carbon monoxide**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo Electron** Model Number: **48C**	Serial Number: **48C-67137-356**
5. Installation Date: **03/06/07**	6. Performance Specification Test Date: **03/13/07**
7. Continuous Monitor Comment: **CO monitor for flue gas – Unit 1.**	

Continuous Monitoring System: Continuous Monitor 4 of 6

1. Parameter Code: **VE**	2. Pollutant(s): **Visible Emissions (opacity)**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Durag** Model Number: **DR-290**	Serial Number: **1204288**
5. Installation Date: **11/09/08**	6. Performance Specification Test Date: **11/26/08**
7. Continuous Monitor Comment: **Opacity monitor for flue gas – Unit 1.**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Continuous Monitoring System: Continuous Monitor 5 of 6

1. Parameter Code: **EM – Emissions**	2. Pollutant(s): **NO_x**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo Electron** Model Number: **42C**	Serial Number: **42C-74785-377**
5. Installation Date: **02/06/03**	6. Performance Specification Test Date: **06/17/03**
7. Continuous Monitor Comment: **NO_X monitor for flue gas Unit-1.**	

Continuous Monitoring System: Continuous Monitor 6 of 6

1. Parameter Code: **EM – Emissions**	2. Pollutant(s): **SO_2**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo EnvironM** Model Number: **43A**	Serial Number: **43A-23370-210**
5. Installation Date: **12/09/06**	6. Performance Specification Test Date: **12/21/06**
7. Continuous Monitor Comment: **SO_2 inlet monitor for flue gas for Unit 1.**	

EMISSIONS UNIT INFORMATION
Section [1] of [2]

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section C** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [√] Previously Submitted, Date **May 2, 2005**

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section D** [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [√] Previously Submitted, Date **May 2, 2005**
   [ ] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [√] Previously Submitted, Date **May 2, 2005**
   [ ] Not Applicable **Updates to the O&M Plan will be submitted after construction.**

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [√] To be Submitted, Date (if known): Performance and compliance tests will be conducted and submitted to the FDEP in accordance with the Facility's Title V Air Operation Permit.
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [√] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☑ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☑ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☑ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☑ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☑ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☑ Not Applicable

Not Applicable

Additional Requirements Comment

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.) **NOT APPLICABLE**

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☑ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

Municipal Waste Combustor (Boiler) #2

3. Emissions Unit Identification Number: **2**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A		**November 15, 1989**	**49**

8. Federal Program Applicability: (Check all that apply)

☐ Acid Rain Unit

☐ CAIR Unit **NOT APPLICABLE**

☐ Hg Budget Unit

9. Package Unit: Manufacturer: **Babcock and Wilcox** Model Number:

10. Generator Nameplate Rating: **62 MW**

11. Emissions Unit Comment:

Emissions Unit Control Equipment/Method: Control 1 of 4

1. Control Equipment/Method Description: **Gas Scrubber, General – Spray Dryer Absorbers**
2. Control Device or Method Code: **013**

Emissions Unit Control Equipment/Method: Control 2 of 4

1. Control Equipment/Method Description: **Fabric Filter (Baghouse)**
2. Control Device or Method Code: **016**

Emissions Unit Control Equipment/Method: Control 3 of 4

1. Control Equipment/Method Description: **Activated Carbon Injection System – Activated Carbon Adsorption**
2. Control Device or Method Code: **048**

Emissions Unit Control Equipment/Method: Control 4 of 4

1. Control Equipment/Method Description: **Selective Non-catalytic Reduction for NO_X**
2. Control Device or Method Code: **107**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: **324,000 lb/hr steam**	
3. Maximum Heat Input Rate: **450.8 million Btu/hr with 5700 Btu/lb RDF for informational purposes only.**	
4. Maximum Incineration Rate: pounds/hr	tons/day
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year

6. Operating Capacity/Schedule Comment:

The Authority is requesting that the boiler steam generation rate be used to monitor the performance of the Facility. The steam generation rate is measured continuously and it is an accurate measure of the operating performance of the Facility's boilers. The current FDEP permits for the Facility limit the steam generation rate for each boiler to 324,000 lbs/hour (4-hr block average). The Authority is not requesting any increase in this limit. However, the Authority believes that the permit for the refurbishment project should use this steam generation rate (324,000 lbs/hr; 4 hr block average) to determine compliance with the FDEP's permit conditions.

Additional Permitting Note:
The total heat input to the Facility's boilers is limited by the steam generation rate. The steam generation rate of 324,000 lbs/hr is based on a heat input rate of 450.8 MMBtu/hr and the use of refuse-derived fuel ("RDF") with a reference heating value of 5,700 Btu/lb. The heating value of municipal solid waste ("MSW") and RDF is inherently variable and fluctuates significantly due to rainfall, seasonal changes in the makeup of the MSW, and other factors. When the heating value of the RDF fluctuates, the amount of RDF processed by the Facility will fluctuate, because the Facility will need to burn more or less RDF in order to maintain a consistent steam generation rate. The heat input rate and the reference heating value are provided for informational purposes and should not be used to establish a not-to-exceed permit limit.

In light of these facts, the Authority believes the permit conditions for the refurbishment project should not establish limits on the RDF processing capacity of the Facility. The Facility has a nominal design capacity of 2,000 tons per day of MSW (approximately 1,800 tons per day of RDF) and the refurbishment project will not increase the Facility's nominal design capacity. The Facility's nominal design processing capacity may be identified in the permit for informational purposes, but the nominal design capacity should not be used to establish a not-to-exceed limit on the quantity of RDF processed by the Facility.

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: [*] **See Section C, Process Flow Diagram for Emission Point Location: Emission ID Number E002**	2. Emission Point Type Code: **(2) An emission point serving two or more emission units capable of simultaneous operation (i.e. a single stack serves two boilers).**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **Municipal Waste Combustor (Boiler) #1 and Municipal Waste Combustor (Boiler) #2.**		
5. Discharge Type Code: **(V) A stack with an unobstructed opening discharging in a vertical or nearly vertical direction.**	6. Stack Height: **250 feet**	7. Exit Diameter: **8 feet**
8. Exit Temperature: **310 °F* (varies)**	9. Actual Volumetric Flow Rate: **172,340acfm (varies)**	10. Water Vapor: **16.5 %**
11. Maximum Dry Standard Flow Rate: **118,174 dscfm @ 7 % O_2**	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: **17** East (km): **585.82** North (km): **2960.474**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **26^0 45' 53" N** Longitude (DD/MM/SS) **80^0 08' 12" W**	
15. Emission Point Comment: **1 of 3 individual flues surrounded by a stack shell. Exit temperature used is measured downstream of SDA. The exit temperature indicated in item 8 is an estimation and may fluctuate. It is requested that the absolute temperature limit in the Facility's current PSD permit (300^0F) be replaced with the temperature limit language consistent with NSPS CFR 60 Subpart Cb.** *Higher temperature will allow for increased longevity of baghouse, duct work, fans, and also reduces moisture content in the flue gas.		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type): **Natural Gas is used during startup/shutdown of unit and during combustion of low BTU waste to maintain combustor temperature. The SCC corresponds to combustion of natural gas in a boiler for electric generation.**		
2. Source Classification Code (SCC): **10100601**	3. SCC Units: **Million cubic feet natural gas burned**	
4. Maximum Hourly Rate: **0.21**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1050**
10. Segment Comment: **Auxiliary burner firing natural gas during startup/shutdown.**		

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type): **Refuse derived fuel (RDF) used in the boiler (emission related to tons of RDF burned).**		
2. Source Classification Code (SCC): **10101202**	3. SCC Units: **Tons of refuse derived fuel burned**	
4. Maximum Hourly Rate: **37.5**	5. Maximum Annual Rate: **307150**	6. Estimated Annual Activity Factor: **0.935**
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **11.4**
10. Segment Comment: **The Facility is designed to process 2,000 TPD of mixed MSW with an annual throughput of 624,000 tons of RDF for two boilers. Heat input is based upon 5700 Btu/lb RDF. The Facility's nominal design processing capacity may be identified in the permit for informational purposes, but the nominal design capacity should not be used to establish a not-to-exceed limit on the quantity of RDF processed by the Facility.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			**EL**
D/F	**013**	**016**	**EL**
FL	**013**	**016**	**EL**
H021	**016**		**EL**
H027	**016**		**EL**
H106	**013**	**016**	**EL**
H114	**048**	**016**	**EL**
NO_X	**107**		**EL**
PB	**016**		**EL**
PM	**016**		**EL**
PM/MWC Metals	**016**		**EL**
SO_2	**013**	**016**	**EL**
VOC	**048**		**EL**
SO_2/H106	**013**		**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **CO – Carbon Monoxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **168.2** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **164.9** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions..**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **D/F – Dioxin/Furan (MWC Organics)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **2.53E-05** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **2.14E-05** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **FL – Fluorides Total (including elemental fluorine and all fluoride compounds)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **9.50E-01** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **10.5E-01** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H021 – Beryllium Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **1.44E-04** tons/year	8.b. Baseline 24-month Period: From:2006 To:2007
9.a. Projected Actual Emissions (if required): **1.28E-04** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H027 Cadmium Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **1.48E-02** tons/year	8.b. Baseline 24-month Period: From:2006 To:2007
9.a. Projected Actual Emissions (if required): **1.33E-02** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions..**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H106 – Hydrochloric Acid**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **32.5** tons/year	8.b. Baseline 24-month Period: From: 2007 To:2008
9.a. Projected Actual Emissions (if required): **33.1** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **H114 – Mercury Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **1.31E-02** tons/year	8.b. Baseline 24-month Period: From: **2006** To: **2007**
9.a. Projected Actual Emissions (if required): **1.20E-02** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – *POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS*

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **NO_X – Nitrogen Oxides**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **652.4** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **486.0** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PB – Lead – Total (including elemental lead and all lead compounds expressed as lead)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **4.40E-01** tons/year	8.b. Baseline 24-month Period: From: **2006** To: **2007**
9.a. Projected Actual Emissions (if required): **3.94E-01** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM – Particulate Matter – Total**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **14.55** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **14.25** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions..**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM – Municipal Waste Combustor Metals (MWC Metals)**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **14.55** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **14.25** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **SO_2 – Sulfur Dioxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **112.5** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **98.25** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **SO_2/H106 – Municipal Waste Combustor Acid Gases**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **145.0** tons/year	8.b. Baseline 24-month Period: From: **2007** To: **2008**
9.a. Projected Actual Emissions (if required): **131.4** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC – Volatile Organic Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **8.25** tons/year	8.b. Baseline 24-month Period: From: **2004** To: **2005**
9.a. Projected Actual Emissions (if required): **8.65** tons/year	9.b. Projected Monitoring Period: ☑ 5 years ☐ 10 years
10. Calculation of Emissions: **Refer Section E**	
11. Potential, Fugitive, and Actual Emissions Comment: **Baseline emissions per boiler are calculated as one half of the total Baseline Emissions.**	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity:
VE10 – Visible Emissions – 10% Normal	[√] Rule [ ] Other

3. Allowable Opacity:
Normal Conditions: % Exceptional Conditions: **10** %
Maximum Period of Excess Opacity Allowed: **6** min/hour

4. Method of Compliance:
EPA Method 9.

5. Visible Emissions Comment:

Basis for opacity limit: PSD-FL-108A Permit. The opacity for each unit shall not exceed 10 percent, 6-minute average.

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 6

1. Parameter Code: **CO_2**	2. Pollutant(s): **Carbon dioxide**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Milton Roy** Model Number: **3300**	Serial Number: **N3A2463T**
5. Installation Date: **July 1989**	6. Performance Specification Test Date: **October 1989**
7. Continuous Monitor Comment: **CO_2 monitor for Stack 2.**	

Continuous Monitoring System: Continuous Monitor 2 of 6

1. Parameter Code: **EM - Emissions**	2. Pollutant(s): **SO_2**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo Electron** Model Number: **43A Serial Number**	Serial Number: **43A-41812-266**
5. Installation Date: **July 1, 1989**	6. Performance Specification Test Date: **October 1989**
7. Continuous Monitor Comment: **SO_2 outlet monitor for stack 2.**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Continuous Monitoring System: Continuous Monitor 3 of 6

1. Parameter Code: **EM – Emissions**	2. Pollutant(s): **Carbon monoxide**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo Electron** Model Number: **48**	Serial Number: **48-23414-210**
5. Installation Date: **05/08/08**	6. Performance Specification Test Date: **05/13/08**
7. Continuous Monitor Comment: **CO monitor for flue gas – Unit 2.**	

Continuous Monitoring System: Continuous Monitor 4 of 6

1. Parameter Code: **VE**	2. Pollutant(s): **Visible Emissions (opacity)**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Durag** Model Number: **DR-290**	Serial Number: **1204283**
5. Installation Date: **11/08/08**	6. Performance Specification Test Date: **11/26/08**
7. Continuous Monitor Comment: **Opacity monitor for Unit 2.**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Continuous Monitoring System: Continuous Monitor 5 of 6

1. Parameter Code: **EM – Emissions**	2. Pollutant(s): **NO_x**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo Electron** Model Number: **42C**	Serial Number: **42C0402204741**
5. Installation Date: **03/05/04**	6. Performance Specification Test Date: **03/23/04**
7. Continuous Monitor Comment: **NO_X monitor for stack 2.**	

Continuous Monitoring System: Continuous Monitor 6 of 6

1. Parameter Code: **EM – Emissions**	2. Pollutant(s): **SO_2**
3. CMS Requirement:	☑ Rule ☐ Other
4. Monitor Information... Manufacturer: **Thermo EnvironM** Model Number: **43A**	Serial Number: **43A-41813-266**
5. Installation Date: **July 1989**	6. Performance Specification Test Date: **October 1989**
7. Continuous Monitor Comment: **SO_2 inlet monitor for flue gas for Unit 2.**	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section C** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [√] Previously Submitted, Date **May 2, 2005**

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [√] Attached, Document ID: **Section D** [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [√] Previously Submitted, Date **May 2, 2005**
   [ ] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [√] Previously Submitted, Date **May 2, 2005**
   [ ] Not Applicable **Updates to the O&M Plan will be submitted after construction.**

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [√] To be Submitted, Date (if known): Performance and compliance tests will be conducted and submitted to the FDEP in accordance with the Facility's Title V Air Operation Permit.
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [√] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)):
   ☐ Attached, Document ID: _____ ☑ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.):
   ☐ Attached, Document ID: _____ ☑ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: _____ ☑ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements:
   ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring:
   ☐ Attached, Document ID: _____ ☑ Not Applicable
3. Alternative Methods of Operation:
   ☐ Attached, Document ID: _____ ☑ Not Applicable
4. Alternative Modes of Operation (Emissions Trading):
   ☐ Attached, Document ID: _____ ☑ Not Applicable

Not Applicable

Additional Requirements Comment

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Application for Air Construction Permit

Section E

Emissions Calculations

June 2009

MALCOLM PIRNIE

E. Emissions Calculations

This section presents tables showing the Baseline Actual Emissions (BAE) and the Projected Actual Emissions (PAE), together with the historical flowrates, operating hours, heat inputs, CEMS monitoring data and calculated emission factors based upon stack test data.

Detailed calculations are also provided showing how the Baseline Actual Emissions values were calculated for each of the following pollutants for the 2–year period selected.

- Particulates, PM
- Particulates, PM10/MWC Metals
- Lead, Pb
- Mercury, Hg
- Beryllium, Be
- Hydrogen Fluoride, HF
- Volatile Organic Compound, VOC
- MWC Organics
- Cadmium, Cd
- MWC Acid Gas (as SO_2 + HCl)
- Nitrogen Oxides, NO_x
- Carbon Monoxide, CO
- Sulfur Dioxide, SO_2

Detailed calculations are provided showing how the Projected Actual Emissions values were calculated for those pollutants subject to PSD applicability review. In addition PAE emissions are provided for Beryllium (Be) and Cadmium (Cd) for information only as these are not PSD regulated pollutants.

Facility Historical Operating Data
Hours of Operation, RDF Burned, and Steam Produced
Years 2004 - 2008

Year	Total RDF Burned Tons	Unit 1 hrs/yr	Unit 1 steamflow (Klbs/yr)	Unit 2 hrs/yr	Unit 2 steamflow (Klbs/yr)	Annual Heat Input based on RDF Burned Total MMBtu/yr	Unit 1 MMBtu/yr	Unit 2 MMBtu/yr
2004	567,814	7,998	2,419,915	8,129	2,454,818	6,473,080	3,213,366	3,259,714
2005	538,080	7,306	2,261,472	7,391	2,293,742	6,134,112	3,045,328	3,088,784
2006	598,205	8,249	2,514,010	8,132	2,497,652	6,819,537	3,420,898	3,398,639
2007	614,296	8,280	2,507,059	8,218	2,474,712	7,002,974	3,524,222	3,478,752
2008	592,297	8,092	2,460,982	8,104	2,465,556	6,752,186	3,372,958	3,379,228

RDF Heating Value 5700 Btu/lb

Notes:
1. Source: SWA NCRRF Monthly Performance and Tonnage Reports
2. A heating value of 5,700 Btu/lb was used to be representative of RDF.
   This information was developed from a review of data from 2000 to 2008.
3. Annual Heat Input estimated using RDF Burned and Heating Value of RDF of 5700 Btu/lb

Facility Historical Operating Data
Annual Flowrate Data from Stack Testing
Years 2004-2008

	BOILER 1						BOILER 2					
Year	Reference	Date	% O2	DSCFM	DSCFM @7% O2	Annual Avg DSCFM @ 7% O2	Reference	Date	% O2	DSCFM	DSCFM @7% O2	Annual Avg DSCFM @ 7% O2
2004	1-M23-R1	2/27/2004	7.9	140,919	131,795		2-M23-R1	2/23/2004	9.1	127,555	108,284	
	1-M23-R2	2/27/2004	8	131,824	122,340		2-M23-R2	2/24/2004	9.6	129,469	105,252	
	1-M23-R3	2/27/2004	10.3	130,670	99,648		2-M23-R3	2/25/2004	9	133,325	114,142	
	1-M29-R1	3/1/2004	10.3	133,104	101,504		2-M29-R1	2/24/2004	9.9	130,115	102,969	
	1-M29-R2	3/1/2004	10.4	125,070	94,477		2-M29-R2	2/24/2004	9.3	129,060	107,705	
	1-M29-R3	3/1/2004	10	125,715	98,582		2-M29-R3	2/24/2004	9.5	129,786	106,443	
	1M5-1	2/26/2004	9.4	125,925	104,183		2M5-1	2/24/2004	9.4	130,858	108,264	
	1M5-2	2/26/2004	9.4	126,124	104,347		2M5-2	2/25/2004	9.3	129,252	107,865	
	1M5-3	2/26/2004	10.4	127,965	96,664	105,949	2M5-3	2/25/2004	9	120,949	103,546	107,163
	Average		9.6	129,702	105,949		Average		9.3	128,930	107,163	
2005	U1-M23-R1	2/2/2005	11	134,076	95,493		U2-M23-R1	1/28/2005	9.2	131,403	110,605	
	U1-M23-R2	2/2/2005	10.9	131,623	94,693		U2-M23-R2	1/28/2005	9.2	126,718	106,662	
	U1-M23-R3	2/3/2005	10.6	139,179	103,133		U2-M23-R3	1/28/2005	9	128,688	110,172	
	U1-M29-R1	2/2/2005	11	134,099	95,509		U2-M29-R1	1/31/2005	8.7	128,182	112,505	
	U1-M29-R2	2/2/2005	10.7	134,832	98,941		U2-M29-R2	1/31/2005	8.8	124,857	108,688	
	U1-M29-R3	2/2/2005	10.8	134,691	97,869		U2-M29-R3	1/31/2005	8.9	124,940	107,862	
	U1-M5-1	2/3/2005	10.8	136,188	98,957		U2-M5-1	1/28/2005	8.8	123,201	107,247	
	U1-M5-2	2/3/2005	10.7	139,473	102,347		U2-M5-2	1/28/2005	9.3	127,222	106,171	
	U1-M5-3	2/3/2005	9	139,988	119,846	100,754	U2-M5-3	1/28/2005	9.1	124,360	105,572	108,387
	Average		10.6	136,017	100,754		Average		9.0	126,619	108,387	
2006	U1-M23-R1	1/26/2006	9.4	125,451	103,790		U2-M23-R1	1/31/2006	9.1	136,455	115,839	
	U1-M23-R2	1/26/2006	9.2	118,498	99,743		U2-M23-R2	2/1/2006	9.6	130,830	106,358	
	U1-M23-R3	1/26/2006	9.1	120,437	102,241		U2-M23-R3	2/1/2006	9.1	120,685	102,452	
	U1-M29-R1	1/27/2006	9.7	119,929	96,633		U2-M29-R1	2/2/2006	11.6	130,337	87,204	
	U1-M29-R2	1/27/2006	9.1	114,566	97,257		U2-M29-R2	2/2/2006	11.8	134,284	87,913	
	U1-M29-R3	1/27/2006	8.9	120,630	104,141		U2-M29-R3	2/2/2006	11.4	130,893	89,459	
	U1-M5-1	1/26/2006	10.9	126,406	90,940		U2-M5-1	1/31/2006	9.2	132,025	111,129	
	U1-M5-2	1/26/2006	9.1	128,869	109,400		U2-M5-2	1/31/2006	9.1	129,404	109,854	
	U1-M5-3	1/26/2006	9.1	133,838	113,618	101,974	U2-M5-3	1/31/2006	9.7	134,453	108,336	102,060
	Average		9.39	123,180	101,974		Average		10.07	131,041	102,060	
2007	B1-M23-R1	1/24/2007	8.6	122,064	108,013		B2-M23-R1	1/29/2007	8.6	138,063	122,171	
	B1-M23-R2	1/24/2007	8.6	126,612	112,038		B2-M23-R2	1/29/2007	8.6	138,221	122,311	
	B1-M23-R3	1/25/2007	8.7	119,680	105,043		B2-M23-R3	1/30/2007	8.7	132,983	116,719	
	B1-M29-R1	1/26/2007	9.3	123,618	103,163		B2-M29-R1	1/31/2007	9.4	138,328	114,444	
	B1-M29-R2	1/26/2007	9.3	118,370	98,784		B2-M29-R2	1/31/2007	9.3	136,804	114,167	
	B1-M29-R3	1/26/2007	9.3	118,004	98,478		B2-M29-R3	1/31/2007	9.1	133,217	113,091	
	B1-M5-R1	1/24/2007	8.3	124,469	112,828		B2-M5-R1	1/30/2007	8.3	136,938	124,131	
	B1-M5-R2	1/24/2007	9.2	126,845	106,769		B2-M5-R2	1/30/2007	9.2	128,657	108,294	
	B1-M5-R3	1/24/2007	8.9	122,294	105,578	105,633	B2-M5-R3	1/30/2007	8.9	133,548	115,293	116,736
2008	B1-M23-R1	1/22/2008	9.8	134,682	107,552		B2-M23-R1	1/25/2008	8.6	144,899	128,220	
	B1-M23-R2	1/23/2008	10.2	140,846	108,421		B2-M23-R2	1/25/2008	8.6	144,022	127,444	
	B1-M23-R3	1/23/2008	11.1	141,148	99,514		B2-M23-R3	1/29/2008	8.7	131,078	115,047	
	B1-M29-R1	1/24/2008	10.7	145,842	107,021		B2-M29-R1	1/28/2008	9.4	138,513	114,597	
	B1-M29-R2	1/24/2008	10.5	146,437	109,564		B2-M29-R2	1/28/2008	9.3	137,071	114,390	
	B1-M29-R3	1/24/2008	11.2	145,536	101,561		B2-M29-R3	1/28/2008	9.1	132,739	112,685	
	B1-M5-R1	1/22/2008	10.5	144,130	107,838		B2-M5-R1	1/28/2008	8.3	134,635	122,043	
	B1-M5-R2	1/22/2008	9.9	137,976	109,190		B2-M5-R2	1/28/2008	9.2	136,746	115,103	
	B1-M5-R3	1/22/2008	10.1	133,642	103,837	106,055	B2-M5-R3	1/28/2008	8.9	132,088	114,033	118,174
	Boiler 1						Boiler 2					
	5 Year Average Flowrate (2004 - 2008)					104,073						110,504
	5 Year Maximum Flowrate (2004 - 2008)					106,055	5 Year Maximum Flowrate (2004 - 2008)					118,174

Annual NOx, CO, and SOx Emission Calculations (from CEMS data)
Year 2004 - 2008

Vol Flowrate Unit 1	104,073 dscf/min @ 7% O2	Based on 5-yr (2004-2008) average of all valid stack testing data.
Vol Flowrate Unit 2	110,504 dscf/min @ 7% O2	Based on 5-yr (2004-2008) average of all valid stack testing data.
Std Temp (R)	528	
NO2 MW	46 lb/lbmole	
CO	28 lb/lbmole	
SO2	64 lb/lbmole	
Gas Constant-R	0.7302 ft3 atm/R-lbmol	

Year	Pollutant	Conc.					Conc.					Total
		ppmvd	lb-deg R/cf	lb/hr	hr/yr	Tons/yr	ppmvd	lb-deg R/cf	lb/hr	hr/yr	TPY	Unit 1 &2
2004	NOx	205.5	0.01295	153.2	7998	612.65	209.3	0.01319	165.6	8129	673.08	1285.7
	CO	75.3	0.00289	34.2	7998	136.77	66.7	0.00256	32.1	8129	130.47	267.2
	SOx	24.3	0.00213	25.2	7998	100.77	24.1	0.00211	26.5	8129	107.71	208.5
2005	NOx	198.8	0.01252	148.1	7306	541.01	211.8	0.01334	167.5	7391	619.00	1160.0
	CO	81.5	0.00313	37.0	7306	135.16	54.2	0.00208	26.1	7391	96.45	231.6
	SOx	22.4	0.00196	23.2	7306	84.75	22.3	0.00195	24.5	7391	90.54	175.3
2006	NOx	201.6	0.01270	150.2	8249	619.50	206.2	0.01299	163.1	8132	663.16	1282.7
	CO	65.8	0.00252	29.8	8249	122.91	65.1	0.00250	31.4	8132	127.67	250.6
	SOx	24.6	0.00216	25.5	8249	105.17	24.6	0.00216	27.1	8132	110.19	215.4
2007	NOx	210.5	0.01326	156.8	8280	649.15	202.0	0.01273	159.9	8218	657.03	1306.2
	CO	71.1	0.00273	32.3	8280	133.72	90.7	0.00348	43.7	8218	179.56	313.3
	SOx	25.5	0.00224	26.5	8280	109.71	25.4	0.00223	28.0	8218	115.05	224.8
2008	NOx	209.9	0.01322	156.3	8092	632.39	209.4	0.01319	165.6	8104	671.01	1303.4
	CO	99.3	0.00381	45.1	8092	182.47	90.7	0.00348	43.7	8104	177.07	359.5
	SOx	26.2	0.00230	27.2	8092	110.05	25.8	0.00226	28.4	8104	115.08	225.1

Notes:

1. Nox, CO, and Sox Concentrations (ppmvd) are obtained from the certified CEMS monitor and corrected for 7% O2 Concentrations are the average annual concentrations.
2. Flowrate data obtained from an average of 5 years of data from 2004 to 2008. No continuous flow meter .

Baseline Actual Emissions

2-year Avg		Total
2004/2005	NOx	1222.9
	CO	249.4
	SOx	191.9
2005/2006	NOx	1221.4
	CO	241.1
	SOx	195.4
2006/2007	NOx	1294.5
	CO	282.0
	SOx	220.1
2007/2008	NOx	1304.8
	CO	336.4
	SOx	225.0

Baseline Actual Emission Calculations (from Stack Testing Data)
Boiler 1
Year 2004 - 2008

Pollutant	Annual Source Testing Data (lb/MMBtu)								Unit 1 (Lb/MMBtu) - 5 Year Average				Unit 1 Baseline Actual Emissions (TPY)					2 yr	Selected
	2001	2002	2003	2004	2005	2006	2007	2008	01 - 05	02 - 06	03 - 07	04 - 08	2004	2005	2006	2007	2008	Baseline	5 yr Avg EF
Particulates, PM[1]	1.10E-02	7.33E-03	7.33E-03	4.67E-03	4.33E-03	4.33E-03	3.67E-03	6.67E-03	6.93E-03	5.60E-03	4.87E-03	4.73E-03	11.13	10.55	9.58	8.58	7.98	04/05	01 to 05
Lead, Pb[2]	1.13E-04	1.53E-04	1.25E-04	1.21E-04	3.80E-04	1.30E-04	1.30E-04	1.40E-04	1.784E-04	1.818E-04	1.772E-04	1.80E-04	2.92E-01	2.77E-01	3.03E-01	3.12E-01	3.04E-01	06/07	03 to 07
Mercury, Hg[2]	5.96E-06	3.76E-06	8.52E-06	1.40E-05	6.40E-06	4.40E-06	5.90E-06	6.50E-06	7.73E-06	7.42E-06	7.84E-06	7.44E-06	1.24E-02	1.18E-02	1.34E-02	1.38E-02	1.25E-02	06/07	03 to 07
Beryllium, Be[2]	8.17E-08	NT	NT	NT	NT	8.50E-08	NT	NT	8.17E-08	8.50E-08	8.50E-08	8.50E-08	1.37E-04	1.29E-04	1.45E-04	1.50E-04	1.43E-04	06/07	03 to 07
Hydrogen Fluoride, HF [2]	5.50E-04	NT	NT	NT	NT	3.70E-04	NT	NT	5.50E-04	3.70E-04	3.70E-04	3.70E-04	8.84E-01	8.37E-01	6.33E-01	6.52E-01	6.24E-01	04/05	01 to 05
Volatile Organic Compounds, VOC[2]	3.80E-03	4.70E-03	9.00E-03	8.60E-03	5.00E-04	1.10E-03	4.00E-04	1.27E-05	5.32E-03	4.78E-03	3.92E-03	2.12E-03	8.55	8.10	8.18	6.91	3.58	04/05	01 to 05
Hydrogen Chloride, HCl[3]	6.15E-03	5.28E-03	9.27E-03	2.37E-02	6.96E-03	2.36E-02	1.60E-02	3.80E-02	1.03E-02	1.38E-02	1.59E-02	2.17E-02	34.87	33.04	37.12	38.24	36.60	07/08	04 to 08
MWC Organics[4]	2.50E-08	1.12E-08	1.75E-08	2.11E-08	1.75E-08	6.37E-09	5.51E-09	1.01E-08	1.85E-08	1.47E-08	1.36E-08	1.21E-08	2.97E-05	2.82E-05	2.51E-05	2.40E-05	2.04E-05	04/05	01 to 05
Cadmium, Cd[5]	4.10E-06	2.58E-06	2.89E-06	1.84E-06	6.43E-06	1.64E-05	4.59E-06	3.04E-06	3.57E-06	6.03E-06	6.43E-06	6.46E-06	1.04E-02	9.84E-03	1.10E-02	1.13E-02	1.09E-02	06/07	03 to 07
F Factor Fd (dscf/MMBtu)@ 0% O2 [6]	9416	9666	9788	9790	9788	9697	9784	10791	9690	9746	9769	9970							
F Factor Fd (dscf/MMBtu)@ 7% O2 [6]	14158	14534	14717	14720	14717	14580	14711	16225	14570	14654	14689	14991							
Annual Heat Input MMBtu/yr (Using annual tons of RDF burned and heating value of 5700 Btu/lb of RDF)													3,213,366	3,045,328	3,420,898	3,524,222	3,372,958		

Notes: The data are taken from the Annual Stack Test Reports:

1. Emission Factor from the detailed PM stack test data and is the average of three stack test runs in lb/MMBtu.
2. Emission Factor is that presented in Stack Test Summary and is an average of three stack test runs in units of lb/MMBtu.
3. Emission Factor developed from an average of three stack test runs in units of ppmvd. The units were converted to lb/MMBtu by implementation of the ideal gas law formula and the F Factor. (See note 6 for F Factor.)
4. Emission Factor developed from an average of three stack test runs in units of ng/dscm. The units were converted to lb/MMBtu by multiplication with the F Factor. (See note 6 for F Factor.)
5. Emission Factor developed from an average of three stack test runs in units of mg/dscm. The units were converted to lb/MMBtu by multiplication with the F Factor. (See note 6 for F Factor.)
6. Fd Factor was developed using a average of seven fuel sample analyses, in units of dscf/MMBtu.

Baseline Actual Emission Calculations (from Stack Testing Data)
Boiler 2
Year 2004 - 2008

Pollutant	Annual Source Testing Data (lb/MMBtu)								Unit 2 (Lb/MMBtu) - 5 Year Average				Unit 2 Baseline Actual Emissions (TPY)				
	2001	2002	2003	2004	2005	2006	2007	2008	01 - 05	02 - 06	03 - 07	04 - 08	2004	2005	2006	2007	2008
Particulates, PM[1]	9.00E-03	1.63E-02	2.23E-02	5.00E-03	4.67E-03	3.33E-03	7.33E-03	1.53E-02	1.15E-02	1.03E-02	8.53E-03	7.13E-03	18.74	17.76	17.50	14.84	12.05
Lead, Pb[2]	6.67E-05	3.95E-04	3.48E-04	1.55E-04	5.83E-04	2.30E-04	3.50E-04	3.20E-04	3.095E-04	3.422E-04	3.332E-04	3.276E-04	5.58E-01	5.28E-01	5.66E-01	5.80E-01	5.54E-01
Mercury, Hg[2]	1.37E-05	3.64E-06	1.08E-05	7.00E-06	8.00E-06	7.20E-06	3.60E-06	6.90E-06	8.63E-06	7.33E-06	7.32E-06	6.54E-06	1.41E-02	1.33E-02	1.24E-02	1.27E-02	1.11E-02
Beryllium, Be[2]	7.80E-08	NT	NT	NT	NT	8.10E-08	NT	NT	7.80E-08	8.10E-08	8.10E-08	8.10E-08	1.32E-04	1.25E-04	1.38E-04	1.41E-04	1.37E-04
Hydrogen Fluoride, HF [2]	6.29E-04	NT	NT	NT	NT	1.40E-04	NT	NT	6.29E-04	1.40E-04	1.40E-04	1.40E-04	1.03E+00	9.71E-01	2.38E-01	2.44E-01	2.37E-01
Volatile Organic Compounds, VOC[2]	3.00E-03	5.00E-03	9.50E-03	7.60E-03	4.00E-04	6.00E-04	3.00E-04	1.00E-03	5.10E-03	4.62E-03	3.68E-03	1.98E-03	8.31	7.88	7.85	6.40	3.35
Hydrogen Chloride, HCl[3]	1.34E-02	1.55E-03	1.24E-02	2.78E-02	2.78E-03	2.40E-02	1.28E-02	1.30E-02	1.16E-02	1.37E-02	1.60E-02	1.61E-02	26.24	24.86	27.36	28.00	27.20
MWC Organics[4]	5.0203E-09	1.67765E-08	1.48148E-08	2.02167E-08	1.1025E-08	4.551E-09	6.42864E-09	5.06447E-09	1.36E-08	1.35E-08	1.14E-08	9.46E-09	2.22E-05	2.10E-05	2.29E-05	1.98E-05	1.60E-05
Cadmium, Cd[5]	4.20E-06	6.70737E-06	6.21077E-06	1.92977E-06	9.6469E-06	2.7306E-05	8.2654E-06	5.06447E-06	5.74E-06	1.04E-05	1.07E-05	1.04E-05	1.74E-02	1.65E-02	1.82E-02	1.86E-02	1.76E-02
F Factor Fd (dscf/MMBtu)@ 0% O2 [6]	9416	9666	9788	9790	9788	9697	9784	10791									
F Factor Fd (dscf/MMBtu)@ 7% O2 [6]	14158	14534	14717	14720	14717	14580	14711	16225									
Annual Heat Input MMBtu/yr (Using annual tons of RDF burned and heating value of 5700 Btu/lb of RDF)													3,259,714	3,088,784	3,398,639	3,478,752	3,379,228

Notes: The data are taken from the Annual Stack Test Reports:

1. Emission Factor from the detailed PM stack test data and is the average of three stack test runs in lb/MMBtu.
2. Emission Factor is that presented in Stack Test Summary and is an average of three stack test runs in units of lb/MMBtu.
3. Emission Factor developed from an average of three stack test runs in units of ppmvd. The units were converted to lb/MMBtu by implementation of the ideal gas law formula and the F Factor. (See note 6 for F Factor.)
4. Emission Factor developed from an average of three stack test runs in units of ng/dscm. The units were converted to lb/MMBtu by multiplication with the F Factor. (See note 6 for F Factor.)
5. Emission Factor developed from an average of three stack test runs in units of mg/dscm. The units were converted to lb/MMBtu by multiplication with the F Factor. (See note 6 for F Factor.)
6. Fd Factor was developed using a average of seven fuel sample analyses, in units of dscf/MMBtu.

Baseline Actual Emission Calculations (from Stack Testing Data) Summary
Total of Boiler 1 and Boiler 2
Year 2004 - 2008

Pollutant	Unit 1 Baseline Actual Emissions (TPY)					Unit 2 Baseline Actual Emissions (TPY)					Total of 2 Units Baseline Actual Emissions (TPY)					2 Yr Avg -Baseline Actual Emissions (TPY)				2 yr	Selected
	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008	04/05	05/06	06/07	07/08	Baseline	5 yr Avg EF
Particulates, PM	11.13	10.55	9.58	8.58	7.98	18.74	17.76	17.50	14.84	12.05	29.9	28.3	27.1	23.4	20.0	29.1	27.7	25.3	21.7	04/05	01 to 05
Lead, Pb	0.29	0.28	0.30	0.31	0.30	0.56	0.53	0.57	0.58	0.55	8.50E-01	8.10E-01	8.70E-01	8.90E-01	8.50E-01	8.30E-01	8.40E-01	8.80E-01	8.70E-01	06/07	03 to 07
Mercury, Hg	1.24E-02	1.18E-02	1.34E-02	1.38E-02	1.25E-02	1.41E-02	1.33E-02	1.24E-02	1.27E-02	1.11E-02	2.65E-02	2.51E-02	2.58E-02	2.65E-02	2.36E-02	2.58E-02	2.55E-02	2.62E-02	2.51E-02	06/07	03 to 07
Beryllium, Be	1.37E-04	1.29E-04	1.45E-04	1.50E-04	1.43E-04	1.32E-04	1.25E-04	1.38E-04	1.41E-04	1.37E-04	2.69E-04	2.54E-04	2.83E-04	2.91E-04	2.80E-04	2.62E-04	2.69E-04	2.87E-04	2.86E-04	06/07	03 to 07
Hydrogen Fluoride, HF	0.88	0.84	0.63	0.65	0.62	1.03	0.97	0.24	0.24	0.24	1.91E+00	1.81E+00	8.70E-01	8.90E-01	8.60E-01	1.9E+00	1.3E+00	8.8E-01	8.8E-01	04/05	01 to 05
Volatile Organic Compounds, VOC	8.55	8.10	8.18	6.91	3.58	8.31	7.88	7.85	6.40	3.35	16.9	16.0	16.0	13.3	6.9	16.5	16.0	14.7	10.1	04/05	01 to 05
Hydrogen Chloride, HCl	34.87	33.04	37.12	38.24	36.60	26.24	24.86	27.36	28.00	27.20	61.1	57.9	64.5	66.2	63.8	59.5	61.2	65.4	65.0	07/08	04 to 08
MWC Organics	2.97E-05	2.82E-05	2.51E-05	2.40E-05	2.04E-05	2.22E-05	2.10E-05	2.29E-05	1.98E-05	1.60E-05	5.19E-05	4.92E-05	4.80E-05	4.38E-05	3.64E-05	5.06E-05	4.86E-05	4.59E-05	4.01E-05	04/05	01 to 05
Cadmium, Cd	1.04E-02	9.84E-03	1.10E-02	1.13E-02	1.09E-02	1.74E-02	1.65E-02	1.82E-02	1.86E-02	1.76E-02	2.78E-02	2.63E-02	2.92E-02	2.99E-02	2.85E-02	2.71E-02	2.78E-02	2.96E-02	2.92E-02	06/07	03 to 07
MWC Acid Gas (as SO2+HCl)											269.6	233.2	279.9	291.0	288.9	251.4	256.6	285.5	290.0	07/08	04 to 08
NOx	612.65	541.01	619.50	649.15	632.39	673.08	619.00	663.16	657.03	671.01	1285.7	1160.0	1282.7	1306.2	1303.4	1222.9	1221.4	1294.5	1304.8	07/08	
CO	136.77	135.16	122.91	133.72	182.47	130.47	96.45	127.67	179.56	177.07	267.2	231.6	250.6	313.3	359.5	249.4	241.1	282.0	336.4	07/08	
SOx	100.77	84.75	105.17	109.71	110.05	107.71	90.54	110.19	115.05	115.08	208.5	175.3	215.4	224.8	225.1	191.9	195.4	220.1	225.0	07/08	

Note:
The shaded highlight represents the data selected for establishing the Baseline Actual Emissions.

Projected Actual Emissions

	Baseline Actual Emissions TPY	SER Tons	PAE TPY that Triggers PSD	PAE Emission Factor	Projected Actual Emissions (PAE) TPY at 93.5% Activity
				lbs/MMBtu	tons/yr
Particulates, PM	29.1	25	54.1	8.13E-03	28.5
Particulates, PM10 (MWC Metals)	29.1	15	44.1	8.13E-03	28.5
Lead, Pb	8.80E-01	0.6	1.5	2.25E-04	7.88E-01
Mercury, Hg	2.62E-02	0.1	1.26E-01	6.82E-06	2.39E-02
Beryllium, Be	2.87E-04	-	N/A	7.32E-08	2.56E-04
Hydrogen Fluoride, HF	1.9E+00	3.0	4.90E+00	5.90E-04	2.1E+00
Volatile Organic Compounds, VOC	16.5	40.0	56.5	4.95E-03	17.3
Hydrogen Chloride, HCl	65.0	-	N/A	1.89E-02	66.2
MWC Organics	5.06E-05	3.50E-06	5.41E-05	1.22E-08	4.27E-05
Cadmium, Cd	2.96E-02	-	N/A	7.56E-06	2.65E-02
MWC Acid Gas (as SO2+HCl)	290.0	40	330	-	262.7
				ppm	
NOx	1304.8	40	1344.8	150.0	971.9
CO	336.4	100	436.4	83.6	329.7
SO2	225.0	40	265.0	21.8	196.5

Notes:
1. *The Projected Actual Emissions (PAE) for future operating conditions are calculated using an activity factor of* 93.5% (the maximum activity factor during the years 2004 - 2008).
2. The activity factor is determines as the percentage of Potential to Emit.
3. The Potential to Emit (PTE) is determined as maximum boiler operation for 8760 hours per year.
4. The activity factor for the baseline years of 2004-2008 ranged from 82% to 93.5% with an average of 88.7%.
5. Projected Actual Emissions (PAE) were developed by using the methodology specified in Rule 62-210.370, F.A.C., and professional engineering judgment. The PAE are intended to be conservative estimates of the Facility's *maximum emissions after the completion of the Project, but the PAE are not based on vendor guarantees and* should not be used as permit limits. The Facility's actual annual emission may be different than the projected values shown in this table.

Estimating Baseline Actual Emissions for Particulate for Years 2004 and 2005

Stack Test Data - Average of 5 years from 2001-2005

	Unit 1	Unit 2	
2001	1.10E-02	9.00E-03	lbs/MMBtu
2002	7.33E-03	1.63E-02	lbs/MMBtu
2003	7.33E-03	2.23E-02	lbs/MMBtu
2004	4.67E-03	5.00E-03	lbs/MMBtu
2005	4.33E-03	4.67E-03	lbs/MMBtu
Average 2001-2005	6.93E-03	1.15E-02	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2004	3,213,366	3,259,714	MMBtu/yr
2005	3,045,328	3,088,784	MMBtu/yr

Calculation of Particulate Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2004

Unit 1: 6.93E-03 lb/MMBtu x 3,213,366 MMBtu/year x 1 ton/2000 lbs = 11.13 tons/year

Unit 2: 1.15E-02 lb/MMBtu x 3,259,714 MMBtu/year x 1 ton/2000 lbs = 18.74 tons/year

2004 TOTAL = 29.9 tons/year

Calculation of Particulate Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2005

Unit 1: 6.93E-03 lb/MMBtu x 3,045,328 MMBtu/year x 1 ton/2000 lbs = 10.55 tons/year

Unit 2: 1.15E-02 lb/MMBtu x 3,088,784 MMBtu/year x 1 ton/2000 lbs = 17.76 tons/year

2005 TOTAL = 28.3 tons/year

Calculation of Average Particulate Baseline Emission (tons/year) for years 2004 and 2005

[29.9 tons/year + 28.3 tons/year] x 1/2 = 29.1 tons/year

Estimating Baseline Actual Emissions for Particulates, PM10/MWC Metals for Years 2004 and 2005

Stack Test Data - Average of 5 years from 2001-2005

	Unit 1	Unit 2	
2001	1.10E-02	9.00E-03	lbs/MMBtu
2002	7.33E-03	1.63E-02	lbs/MMBtu
2003	7.33E-03	2.23E-02	lbs/MMBtu
2004	4.67E-03	5.00E-03	lbs/MMBtu
2005	4.33E-03	4.67E-03	lbs/MMBtu
Average 2001-2005	6.93E-03	1.15E-02	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2004	3,213,366	3,259,714	MMBtu/yr
2005	3,045,328	3,088,784	MMBtu/yr

Calculation of Particulate Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2004

Unit 1: 6.93E-03 lb/MMBtu × 3,213,366 MMBtu/year × 1 ton/2000 lbs = 11.13 tons/year

Unit 2: 1.15E-02 lb/MMBtu × 3,259,714 MMBtu/year × 1 ton/2000 lbs = 18.74 tons/year

2004 TOTAL = 29.9 tons/year

Calculation of Particulate Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2005

Unit 1: 6.93E-03 lb/MMBtu × 3,045,328 MMBtu/year × 1 ton/2000 lbs = 10.55 tons/year

Unit 2: 1.15E-02 lb/MMBtu × 3,088,784 MMBtu/year × 1 ton/2000 lbs = 17.76 tons/year

2005 TOTAL = 28.3 tons/year

Calculation of Average Particulate Baseline Emission (tons/year) for years 2004 and 2005

[29.9 tons/year + 28.3 tons/year] × 1/2 = 29.1 tons/year

Estimating Baseline Actual Emissions for Lead for Years 2006 and 2007

Stack Test Data - Average of 5 years from 2003-2007

	Unit 1	Unit 2	
2003	1.25E-04	3.48E-04	lbs/MMBtu
2004	1.21E-04	1.55E-04	lbs/MMBtu
2005	3.80E-04	5.83E-04	lbs/MMBtu
2006	1.30E-04	2.30E-04	lbs/MMBtu
2007	1.30E-04	3.50E-04	lbs/MMBtu
Average 2003-2007	1.77E-04	3.33E-04	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2006	3,420,898	3,398,639	MMBtu/yr
2007	3,524,222	3,478,752	MMBtu/yr

Calculation of Lead Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2006

Unit 1	1.77E-04 lb/MMBtu	x	3,420,898 MMBtu/year	x	1 ton / 2000 lbs	=	3.03E-01 tons/year
Unit 2	3.33E-04 lb/MMBtu	x	3,398,639 MMBtu/year	x	1 ton / 2000 lbs	=	5.66E-01 tons/year
2006 TOTAL						=	8.69E-01 tons/year

Calculation of Lead Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2007

Unit 1	1.77E-04 lb/MMBtu	x	3,524,222 MMBtu/year	x	1 ton / 2000 lbs	=	3.12E-01 tons/year
Unit 2	3.33E-04 lb/MMBtu	x	3,478,752 MMBtu/year	x	1 ton / 2000 lbs	=	5.79E-01 tons/year
2007 TOTAL						=	8.91E-01 tons/year

Calculation of Average Lead Baseline Emission (tons/year) for years 2006 and 2007

$$\left(8.69\text{E-}01 \frac{\text{tons}}{\text{year}} + 8.91\text{E-}01 \frac{\text{tons}}{\text{year}}\right) \times \frac{1}{2} = 8.80\text{E-}01 \frac{\text{tons}}{\text{year}}$$

Estimating Baseline Actual Emissions for Mercury for Years 2004 and 2005

Stack Test Data - Average of 5 years from 2001-2005

	Unit 1	Unit 2	
2001	5.96E-06	1.37E-05	lbs/MMBtu
2002	3.76E-06	3.64E-06	lbs/MMBtu
2003	8.52E-06	1.08E-05	lbs/MMBtu
2004	1.40E-05	7.00E-06	lbs/MMBtu
2005	6.40E-06	8.00E-06	lbs/MMBtu
Average 2001-2005	7.73E-06	8.63E-06	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2004	3,213,366	3,259,714	MMBtu/yr
2005	3,045,328	3,088,784	MMBtu/yr

Calculation of Mercury Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2004

Unit 1	7.73E-06	lb/MMBtu	x	3,213,366	MMBtu/year	x	1 ton / 2000 lbs	=	1.24E-02 tons/year
Unit 2	8.63E-06	lb/MMBtu	x	3,259,714	MMBtu/year	x	1 ton / 2000 lbs	=	1.41E-02 tons/year
2004 TOTAL								=	2.65E-02 tons/year

Calculation of Mercury Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2005

Unit 1	7.73E-06	lb/MMBtu	x	3,045,328	MMBtu/year	x	1 ton / 2000 lbs	=	1.18E-02 tons/year
Unit 2	8.63E-06	lb/MMBtu	x	3,088,784	MMBtu/year	x	1 ton / 2000 lbs	=	1.33E-02 tons/year
2005 TOTAL								=	2.51E-02 tons/year

Calculation of Average Mercury Baseline Emission (tons/year) for years 2004 and 2005

$$\left[\frac{2.65\text{E-}02 \text{ tons}}{\text{year}} + \frac{2.51\text{E-}02 \text{ tons}}{\text{year}}\right] \times \frac{1}{2} = 2.58\text{E-}02 \text{ tons/year}$$

Estimating Baseline Actual Emissions for Beryllium for Years 2006 and 2007

Stack Test Data - Average of 5 years from 2003-2007

	Unit 1	Unit 2	
2003	NT	NT	lbs/MMBtu
2004	NT	NT	lbs/MMBtu
2005	NT	NT	lbs/MMBtu
2006	8.50E-08	8.10E-08	lbs/MMBtu
2007	NT	NT	lbs/MMBtu
Average 2003-2007	8.50E-08	8.10E-08	lbs/MMBtu

NT = Not Tested

Annual Heat Input

	Unit 1	Unit 2	
2006	3,420,898	3,398,639	MMBtu/yr
2007	3,524,222	3,478,752	MMBtu/yr

Calculation of Beryllium Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2006

Unit 1: 8.50E-08 lb/MMBtu x 3,420,898 MMBtu/year x 1 ton/2000 lbs = 1.45E-04 tons/year

Unit 2: 8.10E-08 lb/MMBtu x 3,398,639 MMBtu/year x 1 ton/2000 lbs = 1.38E-04 tons/year

2006 TOTAL = 2.83E-04 tons/year

Calculation of Beryllium Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2007

Unit 1: 8.50E-08 lb/MMBtu x 3,524,222 MMBtu/year x 1 ton/2000 lbs = 1.50E-04 tons/year

Unit 2: 8.10E-08 lb/MMBtu x 3,478,752 MMBtu/year x 1 ton/2000 lbs = 1.41E-04 tons/year

2007 TOTAL = 2.91E-04 tons/year

Calculation of Average Beryllium Baseline Emission (tons/year) for years 2006 and 2007

(2.83E-04 tons/year + 2.91E-04 tons/year) x 1/2 = 2.87E-04 tons/year

Estimating Baseline Actual Emissions for Hydrogen Fluoride for Years 2004 and 2005

Stack Test Data - Average of 5 years from 2001-2005

	Unit 1	Unit 2	
2001	5.50E-04	6.29E-04	lbs/MMBtu
2002	NT	NT	lbs/MMBtu
2003	NT	NT	lbs/MMBtu
2004	NT	NT	lbs/MMBtu
2005	NT	NT	lbs/MMBtu
Average 2001-2005	5.50E-04	6.29E-04	lbs/MMBtu

NT = Not Tested

Annual Heat Input

	Unit 1	Unit 2	
2004	3,213,366	3,259,714	MMBtu/yr
2005	3,045,328	3,088,784	MMBtu/yr

Calculation of Hydrogen Fluoride Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2004

Unit 1	5.50E-04	lb/MMBtu	x	3,213,366	MMBtu/year	x	1 ton / 2000 lbs	=	8.8E-01 tons/year
Unit 2	6.29E-04	lb/MMBtu	x	3,259,714	MMBtu/year	x	1 ton / 2000 lbs	=	1.0E+00 tons/year
2004 TOTAL								=	1.9E+00 tons/year

Calculation of Hydrogen Fluoride Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2005

Unit 1	5.50E-04	lb/MMBtu	x	3,045,328	MMBtu/year	x	1 ton / 2000 lbs	=	8.4E-01 tons/year
Unit 2	6.29E-04	lb/MMBtu	x	3,088,784	MMBtu/year	x	1 ton / 2000 lbs	=	9.7E-01 tons/year
2005 TOTAL								=	1.8E+00 tons/year

Calculation of Average Hydrogen Fluoride Baseline Emission (tons/year) for years 2004 and 2005

$$\left[\frac{1.9E+00\ \text{tons}}{\text{year}} + \frac{1.8E+00\ \text{tons}}{\text{year}}\right] \times \frac{1}{2} = \frac{1.9E+00\ \text{tons}}{\text{year}}$$

Estimating Baseline Actual Emissions for Volatile Organic Compounds for Years 2004 and 2005

Stack Test Data - Average of 5 years from 2001-2005

	Unit 1	Unit 2	
2001	3.80E-03	3.00E-03	lbs/MMBtu
2002	4.70E-03	5.00E-03	lbs/MMBtu
2003	9.00E-03	9.50E-03	lbs/MMBtu
2004	8.60E-03	7.60E-03	lbs/MMBtu
2005	5.00E-04	4.00E-04	lbs/MMBtu
Average 2001-2005	5.32E-03	5.10E-03	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2004	3,213,366	3,259,714	MMBtu/yr
2005	3,045,328	3,088,784	MMBtu/yr

Calculation of Volatile Organic Compounds Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2004

Unit 1	5.32E-03 lb/MMBtu	x	3,213,366 MMBtu/year	x	1 ton / 2000 lbs	=	8.55 tons/year
Unit 2	5.10E-03 lb/MMBtu	x	3,259,714 MMBtu/year	x	1 ton / 2000 lbs	=	8.31 tons/year
2004 TOTAL						=	16.9 tons/year

Calculation of Volatile Organic Compounds Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2005

Unit 1	5.32E-03 lb/MMBtu	x	3,045,328 MMBtu/year	x	1 ton / 2000 lbs	=	8.10 tons/year
Unit 2	5.10E-03 lb/MMBtu	x	3,088,784 MMBtu/year	x	1 ton / 2000 lbs	=	7.88 tons/year
2005 TOTAL						=	16.0 tons/year

Calculation of Average Volatile Organic Compounds Baseline Emission (tons/year) for years 2004 and 2005

$$\left[\frac{16.9 \text{ tons}}{\text{year}} + \frac{16.0 \text{ tons}}{\text{year}}\right] \times \frac{1}{2} = \frac{16.5 \text{ tons}}{\text{year}}$$

Estimating Baseline Actual Emissions for Hydrogen Chloride for Years 2007 and 2008

Stack Test Data - Average of 5 years from 2004-2008

	Unit 1	Unit 2	
2004	2.37E-02	2.78E-02	lbs/MMBtu
2005	6.96E-03	2.78E-03	lbs/MMBtu
2006	2.36E-02	2.40E-02	lbs/MMBtu
2007	1.60E-02	1.28E-02	lbs/MMBtu
2008	3.80E-02	1.30E-02	lbs/MMBtu
Average 2004-2008	2.17E-02	1.61E-02	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2007	3,524,222	3,478,752	MMBtu/yr
2008	3,372,958	3,379,228	MMBtu/yr

Calculation of Hydrogen Chloride Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2007

Unit 1: 2.17E-02 lb/MMBtu x 3,524,222 MMBtu/year x 1 ton/2000 lbs = 38.24 tons/year

Unit 2: 1.61E-02 lb/MMBtu x 3,478,752 MMBtu/year x 1 ton/2000 lbs = 28.00 tons/year

2007 TOTAL = 66.2 tons/year

Calculation of Hydrogen Chloride Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2008

Unit 1: 2.17E-02 lb/MMBtu x 3,372,958 MMBtu/year x 1 ton/2000 lbs = 36.60 tons/year

Unit 2: 1.61E-02 lb/MMBtu x 3,379,228 MMBtu/year x 1 ton/2000 lbs = 27.20 tons/year

2008 TOTAL = 63.8 tons/year

Calculation of Average Hydrogen Chloride Baseline Emission (tons/year) for years 2007 and 2008

(66.2 tons/year + 63.8 tons/year) x 1/2 = 65.0 tons/year

Estimating Baseline Actual Emissions for MWC Organics for Years 2004 and 2005

Stack Test Data - Average of 5 years from 2001-2005

	Unit 1	Unit 2	
2001	2.50E-08	5.02E-09	lbs/MMBtu
2002	1.12E-08	1.68E-08	lbs/MMBtu
2003	1.75E-08	1.48E-08	lbs/MMBtu
2004	2.11E-08	2.02E-08	lbs/MMBtu
2005	1.75E-08	1.10E-08	lbs/MMBtu
Average 2001-2005	1.85E-08	1.36E-08	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2004	3,213,366	3,259,714	MMBtu/yr
2005	3,045,328	3,088,784	MMBtu/yr

Calculation of MWC Organics Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2004

Unit 1	1.85E-08	lb/MMBtu	x	3,213,366	MMBtu/year	x	1 ton / 2000 lbs	=	2.97E-05 tons/year
Unit 2	1.36E-08	lb/MMBtu	x	3,259,714	MMBtu/year	x	1 ton / 2000 lbs	=	2.22E-05 tons/year
2004 TOTAL								=	5.19E-05 tons/year

Calculation of MWC Organics Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2005

Unit 1	1.85E-08	lb/MMBtu	x	3,045,328	MMBtu/year	x	1 ton / 2000 lbs	=	2.82E-05 tons/year
Unit 2	1.36E-08	lb/MMBtu	x	3,088,784	MMBtu/year	x	1 ton / 2000 lbs	=	2.10E-05 tons/year
2005 TOTAL								=	4.92E-05 tons/year

Calculation of Average MWC Organics Baseline Emission (tons/year) for years 2004 and 2005

$$\left(5.19\text{E-}05 \frac{\text{tons}}{\text{year}} + 4.92\text{E-}05 \frac{\text{tons}}{\text{year}}\right) \times \frac{1}{2} = 5.06\text{E-}05 \text{ tons/year}$$

Estimating Baseline Actual Emissions for Cadmium for Years 2006 and 2007

Stack Test Data - Average of 5 years from 2003-2007

	Unit 1	Unit 2	
2003	2.89E-06	6.21E-06	lbs/MMBtu
2004	1.84E-06	1.93E-06	lbs/MMBtu
2005	6.43E-06	9.65E-06	lbs/MMBtu
2006	1.64E-05	2.73E-05	lbs/MMBtu
2007	4.59E-06	8.27E-06	lbs/MMBtu
Average 2003-2007	6.43E-06	1.07E-05	lbs/MMBtu

Annual Heat Input

	Unit 1	Unit 2	
2006	3,420,898	3,398,639	MMBtu/yr
2007	3,524,222	3,478,752	MMBtu/yr

Calculation of Cadmium Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2006

Unit 1: 6.43E-06 lb/MMBtu x 3,420,898 MMBtu/year x 1 ton/2000 lbs = 1.10E-02 tons/year

Unit 2: 1.07E-05 lb/MMBtu x 3,398,639 MMBtu/year x 1 ton/2000 lbs = 1.82E-02 tons/year

2006 TOTAL = 2.92E-02 tons/year

Calculation of Cadmium Annual Emission (tons/year) from Emission Factor (lb/MMBtu) for 2007

Unit 1: 6.43E-06 lb/MMBtu x 3,524,222 MMBtu/year x 1 ton/2000 lbs = 1.13E-02 tons/year

Unit 2: 1.07E-05 lb/MMBtu x 3,478,752 MMBtu/year x 1 ton/2000 lbs = 1.86E-02 tons/year

2007 TOTAL = 2.99E-02 tons/year

Calculation of Average Cadmium Baseline Emission (tons/year) for years 2006 and 2007

[2.92E-02 tons/year + 2.99E-02 tons/year] x 1/2 = 2.96E-02 tons/year

Estimating Baseline Actual Emissions for NOx for Years 2007 and 2008

Estimating Emissions of NOx for year 2007 - Unit 1

Average CEMS conc.	210.5 ppm vd
Flowrate	104073 dscfm @7% O2
Annual Operating hour:	8280 hours/year
Standard Temp	528 R
NOx Molecular weight	46 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

$$210.5\ \frac{ppm}{} \times \frac{1\ part}{1{,}000{,}000\ million} \times \frac{R - lbmol}{0.7302\ ft\ 3 - atm} \times \frac{1\ atm}{} \times \frac{46\ lb}{lbmol} = \boxed{0.01326\ \frac{R - lbmol}{ft\ 3}}$$

Step 2

$$0.01326\ \frac{R - lbmol}{ft\ 3} \times \frac{104073\ dscf}{min} \times \frac{60\ min}{hour} \times \frac{}{528\ R} = \boxed{156.8\ \frac{lb}{hr}}$$

Step 3

$$156.8\ \frac{lb}{hr} \times \frac{8280\ hours}{year} \times \frac{tons}{2000\ lbs} = \boxed{649.15\ \frac{tons}{year}}$$

Estimating Emissions of NOx for year 2007 - Unit 2

Average CEMS conc.	202 ppm vd
Flowrate	110504 dscfm @7% O2
Annual Operating hour:	8218 hours/year
Standard Temp	528 R
NOx Molecular weight	46 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

$$202.0\ \frac{ppm}{} \times \frac{1\ part}{1{,}000{,}000\ million} \times \frac{R - lbmol}{0.7302\ ft\ 3 - atm} \times \frac{1\ atm}{} \times \frac{46\ lb}{lbmol} = \boxed{0.01273\ \frac{R - lbmol}{ft\ 3}}$$

Step 2

$$0.01273\ \frac{R - lbmol}{ft\ 3} \times \frac{110504\ dscf}{min} \times \frac{60\ min}{hour} \times \frac{}{528\ R} = \boxed{159.9\ \frac{lb}{hr}}$$

Step 3

$$159.9\ \frac{lb}{hr} \times \frac{8218\ hours}{year} \times \frac{tons}{2000\ lbs} = \boxed{657.03\ \frac{tons}{year}}$$

Estimating Baseline Actual Emissions for NOx for Years 2007 and 2008

Estimating Emissions of NOx for year 2007 - Total

649.15 tons/year + 657.03 tons/year = **1306.2 tons/year**

Estimating Emissions of NOx for year 2008 - Unit 1

Average CEMS conc.	209.9 ppm vd
Flowrate	104073 dscfm @7% O2
Annual Operating hour	8092 hours/year
Standard Temp	528 R
NOx Molecular weight	46 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

209.9 ppm x 1 part / 1,000,000 million x 0.7302 R - lbmol / ft 3 - atm x 1 atm x 46 lb/lbmol = **0.01322 R - lbmol / ft 3**

Step 2

0.01322 R - lbmol/ft 3 x 104073 dscf/min x 60 min/hour x 1/528 R = **156.3 lb/hr**

Step 3

156.3 lb/hr x 8092 hours/year x 1 ton/2000 lbs = **632.39 tons/year**

Estimating Emissions of NOx for year 2008 - Unit 2

Average CEMS conc.	209.4 ppm vd
Flowrate	110504 dscfm @7% O2
Annual Operating hour	8104 hours/year
Standard Temp	528 R
NOx Molecular weight	46 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

209.4 ppm x 1 part / 1,000,000 million x 0.7302 R - lbmol / ft 3 - atm x 1 atm x 46 lb/lbmol = **0.01319 R - lbmol / ft 3**

Step 2

0.01319 R - lbmol/ft 3 x 110504 dscf/min x 60 min/hour x 1/528 R = **165.6 lb/hr**

Step 3

165.6 lb/hr x 8104 hours/year x 1 ton/2000 lbs = **671.01 tons/year**

Estimating Baseline Actual Emissions for NOx for Years 2007 and 2008

Estimating Emissions of NOx for year 2008 - Total

$$632.39 \frac{\text{tons}}{\text{year}} + 671.01 \frac{\text{tons}}{\text{year}} = \boxed{1303.4 \frac{\text{tons}}{\text{year}}}$$

Calculation of Average NOx Baseline Emission (tons/year) for years 2007 and 2008

$$\left[1306.2 \frac{\text{tons}}{\text{year}} + 1303.4 \frac{\text{tons}}{\text{year}}\right] \times \frac{1}{2} = \boxed{1304.8 \frac{\text{tons}}{\text{year}}}$$

Estimating Baseline Actual Emissions for CO for Years 2007 and 2008

Estimating Emissions of CO for year 2007 - Unit 1

Average CEMS conc.	71.1 ppm vd
Flowrate	104073 dscfm @7% O2
Annual Operating hour:	8280 hours/year
Standard Temp	528 R
CO Molecular weight	28 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

$$71.1\ \frac{ppm}{} \times \frac{1\ part}{1{,}000{,}000\ million} \times \frac{R - lbmol}{0.7302\ ft\ 3 - atm} \times \frac{1\ atm}{} \times \frac{28\ lb}{lbmol} = \boxed{\frac{0.00273\ R - lbmol}{ft\ 3}}$$

Step 2

$$\frac{0.00273\ R - lbmol}{ft\ 3} \times \frac{104073\ dscf}{min} \times \frac{60\ min}{hour} \times \frac{}{528\ R} = \boxed{\frac{32.3\ lb}{hr}}$$

Step 3

$$\frac{32.3\ lb}{hr} \times \frac{8280\ hours}{year} \times \frac{tons}{2000\ lbs} = \boxed{\frac{133.72\ tons}{year}}$$

Estimating Emissions of CO for year 2007 - Unit 2

Average CEMS conc.	90.7 ppm vd
Flowrate	110504 dscfm @7% O2
Annual Operating hour:	8218 hours/year
Standard Temp	528 R
CO Molecular weight	28 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

$$90.7\ \frac{ppm}{} \times \frac{1\ part}{1{,}000{,}000\ million} \times \frac{R - lbmol}{0.7302\ ft\ 3 - atm} \times \frac{1\ atm}{} \times \frac{28\ lb}{lbmol} = \boxed{\frac{0.00348\ R - lbmol}{ft\ 3}}$$

Step 2

$$\frac{0.00348\ R - lbmol}{ft\ 3} \times \frac{110504\ dscf}{min} \times \frac{60\ min}{hour} \times \frac{}{528\ R} = \boxed{\frac{43.7\ lb}{hr}}$$

Step 3

$$\frac{43.7\ lb}{hr} \times \frac{8218\ hours}{year} \times \frac{tons}{2000\ lbs} = \boxed{\frac{179.56\ tons}{year}}$$

Estimating Baseline Actual Emissions for CO for Years 2007 and 2008

Estimating Emissions of CO for year 2007 - Total

133.72 tons/year + 179.56 tons/year = **313.3 tons/year**

Estimating Emissions of CO for year 2008 - Unit 1

Average CEMS conc.	99.3 ppm vd
Flowrate	104073 dscfm @7% O2
Annual Operating hour	8092 hours/year
Standard Temp	528 R
CO Molecular weight	28 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

99.3 ppm x 1 part / 1,000,000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 28 lb/lbmol = **0.00381 R - lbmol/ft 3**

Step 2

0.00381 R - lbmc/ft 3 x 104073 dscf/min x 60 min/hour x 528 R = **45.1 lb/hr**

Step 3

45.1 lb/hr x 8092 hours/year x tons/2000 lbs = **182.47 tons/year**

Estimating Emissions of CO for year 2008 - Unit 2

Average CEMS conc.	90.7 ppm vd
Flowrate	110504 dscfm @7% O2
Annual Operating hour	8104 hours/year
Standard Temp	528 R
CO Molecular weight	28 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

90.7 ppm x 1 part / 1,000,000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 28 lb/lbmol = **0.00348 R - lbmol/ft 3**

Step 2

0.00348 R - lbmc/ft 3 x 110504 dscf/min x 60 min/hour x 528 R = **43.7 lb/hr**

Step 3

43.7 lb/hr x 8104 hours/year x tons/2000 lbs = **177.07 tons/year**

Estimating Baseline Actual Emissions for CO for Years 2007 and 2008

Estimating Emissions of CO for year 2008 - Total

$$182.47 \frac{\text{tons}}{\text{year}} + 177.07 \frac{\text{tons}}{\text{year}} = \boxed{359.5 \frac{\text{tons}}{\text{year}}}$$

Calculation of Average CO Baseline Emission (tons/year) for years 2007 and 2008

$$\left[313.3 \frac{\text{tons}}{\text{year}} + 359.5 \frac{\text{tons}}{\text{year}}\right] \times \frac{1}{2} = \boxed{336.4 \frac{\text{tons}}{\text{year}}}$$

Estimating Baseline Actual Emissions for SO2 for Years 2007 and 2008

Estimating Emissions of SO2 for year 2007 - Unit 1

Average CEMS conc.	25.5	ppm vd
Flowrate	104073	dscfm @7% O2
Annual Operating hour:	8280	hours/year
Standard Temp	528	R
SO2 Molecular weight	64	lbs/lb mole
Universal Gas Const.	0.7302	ft3 - atm / R - lbmol

Step 1

$$\frac{25.5\ ppm}{} \times \frac{1\ part}{1{,}000{,}000\ million} \times \frac{R - lbmol}{0.7302\ ft\ 3 - atm} \times \frac{1\ atm}{} \times \frac{64\ lb}{lbmol} = \boxed{\frac{0.00224\ R - lbmol}{ft\ 3}}$$

Step 2

$$\frac{0.00224\ R - lbmol}{ft\ 3} \times \frac{104073\ dscf}{min} \times \frac{60\ min}{hour} \times \frac{}{528\ R} = \boxed{\frac{26.5\ lb}{hr}}$$

Step 3

$$\frac{26.5\ lb}{hr} \times \frac{8280\ hours}{year} \times \frac{tons}{2000\ lbs} = \boxed{\frac{109.71\ tons}{year}}$$

Estimating Emissions of SO2 for year 2007 - Unit 2

Average CEMS conc.	25.4	ppm vd
Flowrate	110504	dscfm @7% O2
Annual Operating hour:	8218	hours/year
Standard Temp	528	R
SO2 Molecular weight	64	lbs/lb mole
Universal Gas Const.	0.7302	ft3 - atm / R - lbmol

Step 1

$$\frac{25.4\ ppm}{} \times \frac{1\ part}{1{,}000{,}000\ million} \times \frac{R - lbmol}{0.7302\ ft\ 3 - atm} \times \frac{1\ atm}{} \times \frac{64\ lb}{lbmol} = \boxed{\frac{0.00223\ R - lbmol}{ft\ 3}}$$

Step 2

$$\frac{0.00223\ R - lbmol}{ft\ 3} \times \frac{110504\ dscf}{min} \times \frac{60\ min}{hour} \times \frac{}{528\ R} = \boxed{\frac{28.0\ lb}{hr}}$$

Step 3

$$\frac{28.0\ lb}{hr} \times \frac{8218\ hours}{year} \times \frac{tons}{2000\ lbs} = \boxed{\frac{115.05\ tons}{year}}$$

Estimating Baseline Actual Emissions for SO2 for Years 2007 and 2008

Estimating Emissions of SO2 for year 2007 - Total

109.71 tons/year + 115.05 tons/year = **224.8 tons/year**

Estimating Emissions of SO2 for year 2008 - Unit 1

Average CEMS conc.	26.2 ppm vd
Flowrate	104073 dscfm @7% O2
Annual Operating hour	8092 hours/year
Standard Temp	528 R
SO2 Molecular weight	64 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

26.2 ppm x 1 part / 1,000,000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 64 lb/lbmol = **0.00230 R - lbmol/ft 3**

Step 2

0.00230 R - lbmol/ft 3 x 104073 dscf/min x 60 min/hour x 1 atm / 528 R = **27.2 lb/hr**

Step 3

27.2 lb/hr x 8092 hours/year x tons/2000 lbs = **110.05 tons/year**

Estimating Emissions of SO2 for year 2008 - Unit 2

Average CEMS conc.	25.8 ppm vd
Flowrate	110504 dscfm @7% O2
Annual Operating hour	8104 hours/year
Standard Temp	528 R
SO2 Molecular weight	64 lbs/lb mole
Universal Gas Const.	0.7302 ft3 - atm / R - lbmol

Step 1

25.8 ppm x 1 part / 1,000,000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 64 lb/lbmol = **0.00226 R - lbmol/ft 3**

Step 2

0.00226 R - lbmol/ft 3 x 110504 dscf/min x 60 min/hour x 1 atm / 528 R = **28.4 lb/hr**

Step 3

28.4 lb/hr x 8104 hours/year x tons/2000 lbs = **115.08 tons/year**

Estimating Baseline Actual Emissions for SO2 for Years 2007 and 2008

Estimating Emissions of SO2 for year 2008 - Total

$$110.05 \frac{\text{tons}}{\text{year}} + 115.08 \frac{\text{tons}}{\text{year}} = \boxed{225.1 \frac{\text{tons}}{\text{year}}}$$

Calculation of Average SO2 Baseline Emission (tons/year) for years 2007 and 2008

$$\left[224.8 \frac{\text{tons}}{\text{year}} + 225.1 \frac{\text{tons}}{\text{year}} \right] \times \frac{1}{2} = \boxed{225.0 \frac{\text{tons}}{\text{year}}}$$

Estimating Projected Actual Emissions for CEMS Monitored Pollutants

Projected Actual Emissions - NOx

150.0 ppm x 1 part / 1000000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 46 lb / lbmol x 110504 dscf / min x 60 min / hour x ___ / 528 R = 118.66 lb / hr

118.66 lb / hr x 8760 hours / year x tons / 2000 lbs x 93.5 Activity / 100 = 485.95 tons / year

485.95 tons / year x 2 boilers = 971.9 tons / year

Projected Actual Emissions - CO

83.6 ppm x 1 part / 1000000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 28 lb / lbmol x 110504 dscf / min x 60 min / hour x ___ / 528 R = 40.25 lb / hr

40.25 lb / hr x 8760 hours / year x tons / 2000 lbs x 93.5 Activity / 100 = 164.84 tons / year

164.84 tons / year x 2 boilers = 329.7 tons / year

Projected Actual Emissions - SO2

21.8 ppm x 1 part / 1000000 million x R - lbmol / 0.7302 ft 3 - atm x 1 atm x 64 lb / lbmol x 110504 dscf / min x 60 min / hour x ___ / 528 R = 23.99 lb / hr

23.99 lb / hr x 8760 hours / year x tons / 2000 lbs x 93.5 Activity / 100 = 98.25 tons / year

98.25 tons / year x 2 boilers = 196.5 tons / year

NOTE: Projected Actual Emissions are calculated based upon engineering judgement of the expected in-stack concentration of the pollutant (not vendor guarantees) and an activity factor of 93.5%.

Estimating Projected Actual Emissions for Stack Test Monitored Pollutants

Future Annual Heat Input

Maximum heat input = 900 ton/day x 5700 Btu/lb x 2000 lbs/ton x 365 days/year x 1000000 Btu/MMBtu = **3,744,900 MMBtu/year**

Expected Future Heat input = 3,744,900 MMBtu/year x 93.5 Activity / 100 = **3,501,482 MMBtu/year**

Projected Actual Emissions - Particulates, PM

Emission Factor = 8.13E-03 lbs/MMBtu

Per Boiler Emissions = 8.13E-03 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = **14.23 tons/year**

Total = 14.23 tons/year x 2 = **28.5 tons/year**

Projected Actual Emissions - Particulates, PM10/MWC Metals

Emission Factor = 8.13E-03 lbs/MMBtu

Per Boiler Emissions = 8.13E-03 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = **14.23 tons/year**

Total = 14.23 tons/year x 2 = **28.5 tons/year**

NOTE: Projected Actual Emissions are calculated based upon engineering judgement of the expected in-stack concentration of the pollutant (not vendor guarantees) and an activity factor of 93.5%.

Estimating Projected Actual Emissions for Stack Test Monitored Pollutants

Projected Actual Emissions - Lead, Pb

Emission Factor = 2.25E-04 lbs/MMBtu

Per Boiler Emissions = 2.25E-04 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 3.94E-01 tons/year

Total = 3.94E-01 tons/year x 2 = 7.88E-01 tons/year

Projected Actual Emissions - Mercury, Hg

Emission Factor = 6.82E-06 lbs/MMBtu

Per Boiler Emissions = 6.82E-06 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 1.194E-02 tons/year

Total = 1.194E-02 tons/year x 2 = 2.39E-02 tons/year

Projected Actual Emissions - Hydrogen Fluoride, HF

Emission Factor = 5.90E-04 lbs/MMBtu

Per Boiler Emissions = 5.90E-04 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 1.03E+00 tons/year

Total = 1.03E+00 tons/year x 2 = 2.1E+00 tons/year

NOTE: Projected Actual Emissions are calculated based upon engineering judgement of the expected in-stack concentration of the pollutant (not vendor guarantees) and an activity factor of 93.5

Estimating Projected Actual Emissions for Stack Test Monitored Pollutants

Projected Actual Emissions - Volatile Organic Compounds, VOC

Emission Factor = 4.95E-03 lbs/MMBtu

Per Boiler Emissions = 4.95E-03 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 8.67 tons/year

Total = 8.67 tons/year x 2 = 17.3 tons/year

Projected Actual Emissions - MWC Organics, D/F

Emission Factor = 1.22E-08 lbs/MMBtu

Per Boiler Emissions = 1.22E-08 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 2.136E-05 tons/year

Total = 2.136E-05 tons/year x 2 = 4.27E-05 tons/year

Projected Actual Emissions - Beryllium, Be

Emission Factor = 7.32E-08 lbs/MMBtu

Per Boiler Emissions = 7.32E-08 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 1.28E-04 tons/year

Total = 1.28E-04 tons/year x 2 = 2.56E-04 tons/year

NOTE: Projected Actual Emissions are calculated based upon engineering judgement of the expected in-stack concentration of the pollutant (not vendor guarantees) and an activity factor of 93.5%.

Estimating Projected Actual Emissions for Stack Test Monitored Pollutants

Projected Actual Emissions - Cadmium, Cd

Emission Factor = 7.56E-06 lbs/MMBtu

Per Boiler Emissions = 7.56E-06 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 1.324E-02 tons/year

Total = 1.324E-02 tons/year x 2 = 2.65E-02 tons/year

Projected Actual Emissions - MWC Acid Gases (as SO2 + HCl)

SO2 Total = 196.5 tons/year

HCl Emission Factor = 1.89E-02 lbs/MMBtu

Per Boiler HCl Emissions = 1.89E-02 lbs/MMBtu x 3,501,482 MMBtu/year x ton/2000 lbs = 33.1 tons/year

HCl Total = 33.1 tons/year x 2 = 66.2 tons/year

MWC Acid Gases Total = 196.5 tons/year + 66.2 tons/year = 262.7 tons/year

NOTE: Projected Actual Emissions are calculated based upon engineering judgement of the expected in-stack concentration of the pollutant (not vendor guarantees) and an activity factor of 93.5%.

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Application for Air Construction Permit

Section G

Supporting Documentation for Modification of Existing Permit Conditions

June 2009

3582052 / FTL

MALCOLM PIRNIE

described in the *Intent to Permit, Technical Evaluation and Preliminary Determination, BACT,* issued by the FDEP in May 1991. This document indicates that the temperature limitation was added by the FDEP as a way to ensure the control of heavy metal (mercury and lead) emissions by promoting condensation.

Excerpt from Technical Evaluation and Preliminary Determination for NCRFF, May 1991

Heavy Metals (Lead, Mercury)

Heavy metals such as lead and mercury are controlled by using high efficiency particulate control devices and taking measures to ensure that metals condensation is maximized. The applicant has requested that the emission limitations for lead and mercury be increased from the present values of 0.004 lb/MMBtu and 3,200 grams per day (equivalent to 0.00036 lb/MMBtu), respectively.

A review of the stack testing at the Palm Beach RRF indicates that the maximum lead and mercury levels measured were 7.12×10^{-5} lb/MMBtu and 6.56×10^{-5} lb/MMBtu, respectively. These levels are well below what is currently permitted. Although the emissions of these heavy metals can fluctuate widely depending upon the waste stream, it is not expected that the current limitations will be exceeded based on the test results.

To further enhance the control of heavy metals, recent permits for RRF facilities have established maximum temperatures at the outlet of the scrubber to promote condensation. In each case the temperature at the exit of the scrubber has been limited to 300°F. This temperature limitation along with the current emission limitations for lead and mercury is judged to represent BACT for the Palm Beach RRF.

D. Authority's Proposal

Fabric filters will be installed as part of the Project. These filters will have operating advantages and a potential prolonged life by operating at a higher exhaust gas temperature than the current 300°F limit.

The proposed Project will add fabric filters (replacing the Facility's current electrostatic precipitators) and activated carbon injection (ACI) systems as control technologies that will remove heavy metals from the Facility's exhaust gas stream. Therefore, the 300°F temperature limit to promote condensation to remove heavy metals is no longer necessary. The Authority requests that the 300°F temperature limit be removed as a permit condition. The Facility will continue to be limited to the maximum temperature

specified in permit condition O.2., which is consistent with the applicable Subpart Cb regulation and with recently issued permits for other MWC facilities.

III. Existing and Proposed Control Technology Summary

The following Table 1 summarizes the controls to be installed as part of the refurbishment project and their anticipated effect on the emissions for each pollutant.

Table 1.
NCRRF Refurbishment Control Technologies

Pollutant	Existing Controls	Controls after Proposed Refurbishment Project
Particulates /PM10	Emissions controlled using an ESP	• Emissions will be controlled with a Fabric Filter which is designed with a higher removal efficiency than the existing ESP to enhance particulate control. • The use of lime injection with the Spray Dryer Absorber will result in additional particulate control due to caking on the surface of the fabric filter. • Installation of this Air Pollution Control (APC) equipment combination will ensure that short term emission rates are not increased due to the project.
NOx	Furnace Design includes Staged air Combustion	• Enhanced furnace design with staged air and the addition of Non-Selective Catalytic Reduction. • Installation of this APC equipment will ensure that short term emission rates are not increased due to the project.
CO	Good Combustion Practices	• The proposed project will install up-to date combustion equipment and more complete combustion is anticipated. • Installation of this new combustion together with Good Combustion Practices will ensure that short term emission rates are not increased due to the project
VOC	Good Combustion Practices	• The proposed project will install up-to date combustion equipment and more complete combustion is anticipated. • Installation of this new combustion together with Good Combustion Practices will ensure that short term emission rates are not increased due to the project
Lead	ESP	• Emissions controlled with a Fabric Filter, the use of lime injection with the Spray Dryer Absorber will result in enhanced particulate control due to caking on the surface of the fabric filter. • Installation of this APC equipment combination will ensure that short term emission rates are not increased due to the project.
Mercury	ESP	• Emissions controlled by the use of Activated Carbon injection together with the use of a Fabric Filter. The use of lime injection with the Spray Dryer Absorber will result in enhanced particulate control due to caking on the surface of the fabric

Pollutant	Existing Controls	Controls after Proposed Refurbishment Project
		filter. • Installation of this APC equipment combination will ensure that short term emission rates are not increased due to the project.
HFl	Spray Dryer Absorber	• Emissions controlled with a Fabric Filter, the use of lime injection with the Spray Dryer Absorber will result in enhanced particulate and acid gas control due to caking on the surface of the fabric filter. • Installation of this APC equipment combination will ensure that short term emission rates are not increased due to the project.
SO2	Spray Dryer Absorber	• Emissions will continue to be controlled by the Spray Dryer absorber as now. The use of the fabric filter with the Spray Dryer Absorber may result in enhanced SO2 control due to caking on the surface of the fabric filter. • There is no change to the control equipment or exhaust flowrate and therefore short term emission rates are not increased due to the project.
MWC Organics	Good Combustion Practices	• The refurbishment will provide more uniform temperature in the boiler and repair any leakage in the ductwork to improve overall combustion efficiency. • The installation of up-to-date combustion equipment including over fire control in addition to Good Combustion Practices will ensure that short term emission rates are not increased due to the project.
MWC Acids	Spray Dryer Absorber	• Emissions will continue to be controlled by the Spray Dryer absorber. The use of the Fabric Filter with the Spray Dryer Absorber may result in enhanced MWC Acids control due to caking on the surface of the fabric filter. • There is no change to the control equipment or exhaust flowrate and therefore short term emission rates are not increased due to the project.
Beryllium	ESP	• Emissions controlled with a Fabric Filter, the use of lime injection with the Spray Dryer Absorber will result in enhanced particulate control due to caking on the surface of the fabric filter. • Installation of this APC equipment combination will ensure that short term emission rates are not increased due to the project.
Cadmium	ESP	• Emissions controlled with a Fabric Filter, use of lime injection with the Spray Dryer Absorber will result in enhanced particulate control due to caking on the fabric filter surface. • Installation of this APC equipment combination will ensure that short term emission rates are not increased due to the project.

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LETTER OF TRANSMITTAL

To: Bureau of Air Regulation
Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Attention: Ms. Trina Vielhauer

RECEIVED
JUL 06 2009
BUREAU OF AIR REGULATION

Date: July 1, 2009
Re: FDEP Project No. 0990234-015
AC/PSD-FL-108H
NCRRF RAI Response

We are sending you √ Enclosed Under separate cover via Mail Messenger, the following items:

shop drawings prints data sheets _____

specifications sketches brochures _____

Our action relative to items submitted for approval has been noted on the drawings.

COPIES	PREPARED BY	REFERENCE NO.	DESCRIPTION
4	Christopher C. Tilman, P.E.	3582-052	Response to FDEP's RAI for the North County Resource Recovery Facility Refurbishment Project (FDEP Project No. 0990234-015 AC/PSD-FL-108H)

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4315 Metro Parkway
Suite 520
Fort Myers, FL 33916

Very truly yours,

Christopher C. Tilman, P.E.
Senior Consultant

Copies: File