Department of Environmental Protection

Jeb Bush
Governor

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

Colleen M. Castille
Secretary

Certified Mail -- Return Receipt Requested

August 26, 2005

Mr. Lindsey J. Sampson
Lee County Solid Waste Division
10500 Buckingham Road
Fort Myers, Florida 33905

Re: DRAFT Title V Air Operation Permit Renewal No. **0710119-004-AV**
Lee County Resource Recovery Facility

Dear Mr. Sampson:

Thank you for your letter received on August 9, 2005, written in response to our letter requesting additional information concerning your Title V permit renewal application. However, we must still deem your application *incomplete*, because we need further information relative to the following items in the Compliance Assurance Monitoring (CAM) Plan submitted:

1. Particulate Matter and Lead.

As you indicated, CAM is applicable for monitoring the control of particulate matter (PM) and lead (Pb) emissions from the baghouse. However, the proposal to use the continuous opacity monitoring system (COMS) and recorded opacity as an indicator of compliance with the PM and Pb emissions limit may not be the best choice. Experience has shown that there is not a consistent and reliable correlation between opacity and actual PM emissions. It could be considered for use if a demonstration is presented that verifies a direct relationship between the COMS readings and the actual PM emission rates and Pb emission rates. Thus, please provide a table of data that documents the tested PM emission rate, the tested Pb emission rate, the simultaneous opacity reading from the COMS, the test date, the operational rate during the test, and the allowable capacity of the unit. Include the compliance test results from at least the past 5 years (i.e., 15 test runs minimum) in order to demonstrate a correlation.

If a direct correlation cannot be demonstrated between the opacity and PM and Pb readings, you should consider also using the pressure drop across the baghouse as an indicator range, instead of opacity exclusively. If this appears to be more reliable, please identify an indicator range for the pressure drop across the baghouse (maximum and minimum) and provide a table of data that documents the tested PM emission rate, the Pb emission rate, the simultaneous pressure drop across the baghouse, the test date, the operational rate during the test, and the allowable capacity of the unit. Include the compliance test results from at least the past 5 years (i.e., 15 test runs minimum) in order to demonstrate a correlation.

With this approach, indicator #1 would be the pressure drop across the baghouse, and indicator #2 would be opacity (only to show any sudden and sustained increase in average opacity).

2. Hydrogen Chloride.

As you indicated, CAM is applicable for monitoring the control of hydrogen chloride (HCl) emissions from the spray dryer absorber. You have proposed using the sulfur dioxide (SO_2) outlet concentration or the control efficiency as a surrogate parameter for HCl control efficiency. However, we recommend that you consider using scrubber parameters as alternatives (e.g., lime injection rate and slurry pH). We also note that the averaging period should be the one-hour average of the previous four previous 15-minute readings, not the 24-hour daily geometric mean.

3. Nitrogen Oxides.

Please note that if the nitrogen oxides (NOx) continuous emissions monitoring system (CEMS) is used for demonstrating compliance with the permit limits, then NOx is exempt from CAM.

When we receive this information, we will continue processing your application. If you have any questions, please contact Tom Cascio at 850-921-9526. Rule 62-4.050(3), F.A.C., requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Permit applicants are advised that Rule 62-213.420(1)(b), F.A.C., requires applicants to respond to requests for information within 90 days, unless the applicant has requested in writing, and has been granted, additional time within 90 days.

Sincerely,

A. A. Linero, P.E.
Program Administrator
Permitting South Section

Cc: Ron Blackburn, South District Office
Christopher C. Tilman, P.E., Malcolm Pirnie, Inc., 4315 Metro Parkway, Suite 520, Fort Myers, FL 33916

7005 1160 0004 3034 2895

U.S. Postal Service™

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Mr. Lindsey J. Sampson OFFICIAL USE

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Sent To
Mr. Lindsey J. Sampson

Street, Apt. No.; or PO Box No.
1520 Buckingham Road

City, State, ZIP+4
Fort Myers, Florida 33905

PS Form 3800, June 2002 See Reverse for Instructions

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS & CONSULTANTS

August 8, 2005

Mr. A.A. Linero, P.E.
Program Administrator
Permitting South Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: DRAFT Title V Air Operation Permit Renewal No. 0710119-004-AV
Lee County Resource Recovery Facility

Dear Mr. Linero:

Your letter dated May 10, 2005 indicated that the above-referenced Title V renewal was deemed incomplete because further information was needed. This letter, and its attachments, is intended to address the items identified in your letter and provide sufficient information to allow the FDEP to resume processing the application. The items requested, and our responses, are as follows:

- *It appears that the required compliance certification statement signed by the Responsible Official is missing.*

  A copy of the 2004 Compliance Certification Statement, signed by the Responsible Official, is included as Attachment 1.

- *The requested changes to the current Title V permit (Exhibit 8) would require an air construction permit (AC) to implement.*

  Lee County has decided to rescind the requested changes to the Title V renewal. Please disregard Exhibit 8 in its entirety.

- *Compliance Assurance Monitoring (CAM) exemption justification data (Exhibit 6). In the section of the Application titled "Compliance Assurance Monitoring (CAM) Plan", you state that the emissions units identified are exempt from CAM requirements, or the CAM rule does not apply, for the pollutants with emissions limited by specific conditions in the facility's current Title V permit. For reference, we have listed below specific conditions that address these pollutants. As noted in these conditions, in many cases the specified emissions limits are based on both NSPS (40 CFR 60, Subpart Cb) and PSD applicable requirements.*

  We assume that your argument is that CAM plans are not required for a number of pollutants subject to post-1990 NSPS emissions limits (40 CFR, Subpart Cb). However, if there is a BACT or SIP standard for a pollutant that is different (either more stringent or less stringent) from the one addressed by the NSPS or NESHAP, CAM may still apply

MALCOLM PIRNIE

to the emissions unit for that standard. Based on this finding, please provide the additional analysis required, and submit the necessary CAM plans if warranted.

The revised CAM plan for the Lee County facility is included as Attachment 2.

- *As part of the analysis to determine if CAM plans are required for emissions units using add-on control devices to meet an emissions limitation, you need to calculate the pre-control potential emissions (PTE) of all the pollutants with SIP-based limitations to assess if the pre-control PTE values exceed the Title V thresholds for CAM applicability.*

  PTE calculations for pollutants not exempted under 40 CFR 64, Subpart Cb are included in the CAM plan.

- *Please indicate if there are any control devices in place to limit emissions of each of the pollutants addressed by the Title V permit's specific conditions.*

  Control devices for each pollutant are listed in the CAM plan.

If you have any questions, please feel free to call me at (239) 332-1300.

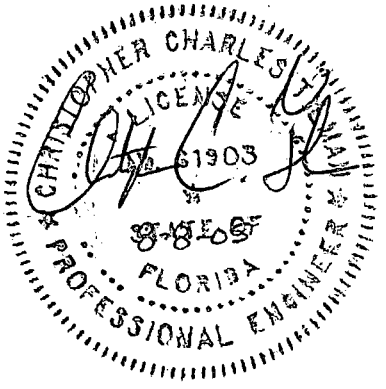
Sincerely,

MALCOLM PIRNIE, INC.

Christopher C. Tilman, P.E.
Project Engineer

C: Lindsey J. Sampson - LCSW
Robert H. French, P.E. - MPI (FTM)

1971-051



ATTACHMENT 1

2004 Compliance Certification Statement

II E 105

LEE COUNTY
SOUTHWEST FLORIDA

Writer's Direct Dial Number: (239) 338-3302

February 28, 2005

CERTIFIED MAIL 4000 0520 0016 2036 9438

Mr. Jon Iglehart
Acting District Director
Department of Environmental Protection
2295 Victoria Ave.
Ft. Myers, FL 33901

SUBJECT: Lee County Solid Waste Resource Recovery Facility
Facility ID 0710119
2004 Annual Compliance Certification

Dear Mr. Blackburn:

In accordance with 40 CFR S. 70.6(c)(5)(iv), please find attached, Lee County's Title V Annual Compliance Certification for the subject facility.

If you have any questions, please do not hesitate to call.

Sincerely,

Laura A. Gray, P.E.
Engineering Manager
Solid Waste Division

cc: U.S. EPA, Region 4 (Certified Mail 7000 0520 0016 5994 0875)
FDEP-Air Resource Mgmt, Tallahassee (Certified Mail 7000 0520 0016 0844)
Lindsey J. Sampson, PE, Solid Waste Director
Jim Lavender, Public Works Director
David Owen, County Attorney
Jody Howard, Covanta
II E 105

Department of Environmental Protection

Division of Air Resources Management

STATEMENT OF COMPLIANCE - TITLE V SOURCE

Facility Owner/Company Name: *Lee County Solid Waste Management Department*

Site Name: *Lee County Solid Waste Resource Recovery Facility* County: *Lee County*

Title V Air Operation Permit No.: *0710119-001-AV*

REPORTING PERIOD	REPORT DEADLINE*
January 1 through December 31 of 2004 (year)	March 1, 2005

*See Rule 62-213.440(3)(a)2, F.A.C.

COMPLIANCE STATEMENT (Check only one of the following three options)

____ **A.** This facility was in compliance with all terms and conditions of the Title V Air Operation Permit and, if applicable, the Acid Rain Part, and there were no reportable incidents of deviations from applicable requirements associated with any malfunction or breakdown of process, fuel burning or emission control equipment, or monitoring systems during the reporting period identified above.

X **B.** This facility was in compliance with all terms and conditions of the Title V Air Operation Permit and, if applicable, the Acid Rain Part; however, there were one or more reportable incidents of deviations from applicable requirements associated with malfunctions or breakdowns of process, fuel burning or emission control equipment, or monitoring systems during the reporting period identified above, which were reported to the Department. For each incident of deviation, the following information is included:

1. Date of report previously submitted identifying the incident of deviation.
2. Description of the incident.

____ **C.** This facility was in compliance with all terms and conditions of the Title V Air Operation Permit and, if applicable, the Acid Rain Part, EXCEPT those identified in the pages attached to this report. For each item of noncompliance, the following information is included:

1. Emissions unit identification number.
2. Specific permit condition number.
3. Description of the requirement of the permit condition.
4. Basis for the determination of noncompliance (for monitored parameters, indicate whether monitoring was continuous, i.e., recorded at least every 15 minutes, or intermittent).
5. Beginning and ending dates of periods of noncompliance.
6. Identification of the probable cause of noncompliance and description of corrective action or preventative measures implemented.
7. Dates of any reports previously submitted identifying this incident of noncompliance.

STATEMENT OF COMPLIANCE - TITLE V SOURCE

RESPONSIBLE OFFICIAL CERTIFICATION

I, the undersigned, am the responsible official as defined in Chapter 62-210.200, F.A.C., of the Title V source for which this document is being submitted. With respect to all matters other than Acid Rain program requirements, I hereby certify, based on the information and belief formed after reasonable inquiry, that the statements made and data contained in this document are true, accurate, and complete.

Lindsey J Sampson — *(Signature of Title V Source Responsible Official)*

2/28/05 — *(Date)*

Name: *Lindsey J. Sampson* Title: *Director, Solid Waste Management Department*

DESIGNATED REPRESENTATIVE CERTIFICATION (only applicable to Acid Rain source)

I, the undersigned, am authorized to make this submission on behalf of the owners and operators of the Acid Rain source or Acid Rain units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

_____ _____

(Signature of Acid Rain Source Designated Representative) *(Date)*

Name:_____ Title:_____

{Note: Attachments, if required, are created by the responsible official or the designated representative, as appropriate, and should consist of the information specified and any supporting records. Additional information may also be attached by the responsible official or designated representative when elaboration is required for clarity. This report is to be submitted to both the compliance authority (DEP district or local air program) and the U.S. EPA (U.S. EPA Region 4, Air and EPCRA Enforcement Branch, 61 Forsyth Street, Atlanta GA 30303).}

Lee County Solid Waste Resource Recovery Facility
Statement of Compliance - Title V Source
2004

In accordance with 40 CFR 60.7, the Lee County Solid Waste Resource Recovery Facility submits an excess emission and monitoring system performance report. This report includes a summary of each occurrence and the duration of time a continuously monitoring system was inoperative due to a monitoring equipment malfunction, non-monitoring system malfunction, quality assurance or calibration, and other causes.

1. The first quarter report for 2004 was submitted to the Florida Department of Environmental Protection, South District Office on April 9, 2004.

2. The second quarter report for 2004 was submitted to the Florida Department of Environmental Protection, South District Office on July 27, 2004.

3. The third quarter report for 2004 was submitted to the Florida Department of Environmental Protection, South District Office on October 20, 2004.

4. The fourth quarter report for 2004 was submitted to the Florida Department of Environmental Protection, South District Office on January 14, 2005.

(The summary tables that contain the written explanation of excess emission events during the 2004 calendar year were previously reported as part of the facility's quarterly submittal listed above.)

In accordance with 40 CFR 60.39(b)(a), the Lee County Solid Waste Resource Recovery Facility submits a Semi-annual Report that contains the applicable two-year compliance summary.

1. The 40 CFR 60, Subpart Cb report for the first half of 2004 was submitted to the Florida Department of Environmental Protection, South District Office on July 29, 2004.

2. The 40 CFR 60, Subpart Cb report 2004 was submitted to the Florida Department of Environmental Protection, South District Office on January 21, 2005.

(The written explanation of when the carbon injection rate fell below the hourly set point during calendar year 2004 and the dates identifying each day when the daily CEM data availability was not satisfied during calendar year 2004 were previously reported as part of the required semi-annual 40 CFR 60, Subpart Cb reporting listed above.)

Lee County Solid Waste Resource Recovery Facility
Statement of Compliance - Title V Source
2004

On December 27, 2004 in accordance with 40 CFR 60.54b, the Lee County Solid Waste Resource Recovery Facility provided written notice to the Florida Department of Environmental Protection South District Office. The letter indicated that on December 15, 2004 a provisionally certified control room operator, James Heffron fulfilled the requirements of a fully certified shift supervisor while such operator, Bryan Altman could no longer remain on shift due to illness.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
WRITTEN REPORT OF EXCESS EMISSIONS {40 CFR 60.7(c)}
1st QUARTER OF 2004

Date	Compliance -Reporting Period Start/End	Unit	Parameter	Actual Duration (1)	Follow - Up with Regulatory Agency	Magnitude/ Averaging Periods Exceeded	Cause	Remedy

) The actual event duration is not analogous with the compliance-averaging period.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY

1st QUARTER OF 2004
OTHER MALFUNCTION EVENTS

Date	Unit	System	Cause	Remedy
February 25, 2004	2	Stack and Economizer Train	At 1720 a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 1726 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 2248. The MWC Unit was logged offline at 2253.
February 26, 2004	1	Stack and Economizer Train	At 0855 a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 0902 the continuous emission monitoring system wa manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 1507. The MWC Unit was logged offline at 1500.
March 10, 2004	2	Stack and Economizer Train	At 1222 a tube failure occurred in the evaporator section causing a large release of moisture, but was able to maintain boiler drum level. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer train registered system alarms.	At 1233 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed the stack train back in-service at 1718 and the economizer train was retuned to service at 1748. The MWC Unit was logged offline at 1401.
March 24, 2004	2	Opacity	At 0426, the opacity analyzer recorded a full-scale value (99.9%) even though no opacity analyzer alarms registeed in the control room. Although it was evening, the shift supervisor on-duty made a visible determination of the stack that the opacity readings were erroneous.	Based upon the shift supervisor's visual determination, at 0427 the opacity monitor was placed in maintenance until a technician could address the issue. Visual checks of the stack were performed periodically while the opacity analyzer was in maintenance. A technician discovered that the blower servicing the analyzer had failed. The blower was repaired and the opacity monitor was placed back in-service at 1100.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
WRITTEN REPORT OF EXCESS EMISSIONS {40 CFR 60.7(c)}
2nd QUARTER OF 2004

Date	Compliance -Reporting Period Start/End	Unit	Parameter	Actual Duration (1)	Follow - Up with Regulatory Agency	Magnitude/ Averaging Periods Exceeded	Cause	Remedy

(1) The actual event duration is not analogous with the compliance-averaging period.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY

2nd QUARTER OF 2004
OTHER MALFUNCTION EVENTS

Date	Unit	System	Cause	Remedy
April 5, 2004	1	Economizer and Stack Train	At 1551, a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 1551, the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 2107. The MWC Unit was logged offline at 2105.
April 10, 2004	2	Carbon Dioxide Analyzer	During the scheduled daily calibration check on Unit #2, the Carbon Dioxide analyzer on the economizerregistered a value greater than 4Xs the applicable performance specification standard.	The Carbon Dioxide analyzer on the economizer had a cracked lens in the block gas chamber. Once the necessary repairs were completed, a manual calibration check wascompleted successfully. The Carbon Dioxide analyzer downtime was recorded back to the previous successful calibration on 4/9/04.
May 22, 2004	1	Nitrogen Oxide Analyzer	During the scheduled daily calibration check on Unit #1, the Nitrogen Oxide analyzer onthe stack registered a value greater than 4Xs the applicable performance specification standard.	The Nitrogen Oxide analyzer appears to drift based on the boiler operating status. The Nitrogen Oxide analyzer was calibrated, and then a manual calibration check was initiated. The Nitrogen Oxide analyzer downtime was recorded back to the previous successful calibration on 5/21/04. The downtime will differentiate between times when the boiler was operational and when it was offline.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
WRITTEN REPORT OF EXCESS EMISSIONS {40 CFR 60.7(c)}
3rd QUARTER OF 2004

Date	Compliance -Reporting Period Start/End	Unit	Parameter	Actual Duration (1)	Follow - Up with Regulatory Agency	Magnitude/ Averaging Periods Exceeded	Cause	Remedy

1) The actual event duration is not analogous with the compliance-averaging period.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY

3rd QUARTER OF 2004
OTHER MALFUNCTION EVENTS

Date	Unit	System	Cause	Remedy
September 7, 2004	2	Nitrogen Oxide Analyzer	During the scheduled daily calibration check on Unit #1, the Nitrogen Oxide analyzer on thestack registered a value greater than 4Xs the applicable performance specification standard.	The vacuum pump on the Nitrogen Oxide analyzer had to be rebuilt. The Nitrogen Oxide analyzer was calibrated, and then a manual calibration check was initiated. The Nitrogen Oxide analyzer downtime was recorded back to the previous successful calibration on 9/6/04.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
WRITTEN REPORT OF EXCESS EMISSIONS {40 CFR 60.7(c)}
4 QUARTER OF 2004

Date	Compliance -Reporting Period Start/End	Unit	Parameter	Actual Duration (1)	Follow - Up with Regulatory Agency	Magnitude/ Averaging Periods Exceeded	Cause	Remedy

1) The actual event duration is not analogous with the compliance-averaging period.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY

4th QUARTER OF 2004
OTHER MALFUNCTION EVENTS

Date	Unit	System	Cause	Remedy
November 2, 2004	1	Stack and Economizer Train	At 1828 a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 1836 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 2355. The MWC Unit was logged offline at 2348.
December 6, 2004	2	Stack and Economizer Train	At 1850 a tube failure occurred in the evaporator section causing a large release of moisture, but was able to maintain boiler drum level. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer train registered system alarms.	At 1856 the continuous emission monitoring systen was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed the stack train back in-service at 0039 on December 7, 2004. The MWC Unit was logged offline at2248 on December 6, 2004.

Unit #1 - Carbon Injection System Operating Parameter Summary

Date	Affected Period	Explanation	Corrective Action
January 4, 2004	0300-0500	The carbon mix tank agitator tripped, which caused the carbon feeder to trip.	The carbon feed rate was adjusted accordingly. The baseline carbon feed rate established during the 2003 performance test was satisfied over the 8-hour period. (1)
June 22, 2004	0200-0300; 0600-0700; 0800-0900	The carbon feed rate was adjusted during the MWC Unit's annual compliance stack testing.	Not Applicable
December 8. 2004	1000-1100	Planned shutdown of the carbon feeder .	The carbon feed rate was adjusted accordingly. The baseline carbon feed rate established during the 2004 performance test was satisfied over the 8-hour period. (1)

1) In accordance with Section 9.1 entitled Carbon Feed Rate of *The Municipal Waste Combustion: Background Information Document for the Federal Plan, Public Comments and* Responses issued by the U.S. Environmental Protection Agency on August 20, 1998.

Unit #2 - Carbon Injection System Operating Parameter Summary

Date	Affected Period	Explanation	Corrective Action
January 4, 2004	0300-0500	The carbon mix tank agitator tripped, which caused the carbon feeder to trip.	The carbon feed rate was adjusted accordingly. The baseline carbon feed rate established during the 2003 performance test was satisfied over the 8-hour period. (1)
February 18, 2004	1200-1300	During the startup of the MWC Unit, the carbon feed system was not aligned prior to charging refuse.	The carbon feed rate was adjusted accordingly. The baseline carbon feed rate established during the 2003 performance test was satisfied over the 8-hour period. (1)
June 22, 2004	0200-0300; 0800-0900	The carbon feed rate was adjusted during the MWC Unit's annual compliance stack testing.	Not Applicable

1) In accordance with Section 9.1 entitled Carbon Feed Rate of *The Municipal Waste Combustion: Background Information Document for the Federal Plan, Public Comments and* Responses issued by the U.S. Environmental Protection Agency on August 20, 1998.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
2004
Summary of CEM Data Availability

Date	Unit	System	Cause	Explanation
February 25, 2004	2	Stack and Economizer Train	At 1720 a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 1726 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 2248. The MWC Unit was logged offline at 2253.
February 26, 2004	1	Stack and Economizer Train	At 0855 a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 0902 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 1507. The MWC Unit was logged offline at 1500.
March 10, 2004	2	Stack and Economizer Train	At 1222 a tube failure occurred in the evaporator section causing a large release of moisture, but was able to maintain boiler drum level. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer train registered system alarms.	At 1233 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed the stack train back in-service at 1718 and the economizer train was retuned to service at 1748. The MWC Unit was logged offline at 1401.
April 5, 2004	1	Economizer and Stack Train	At 1551, a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 1551, the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 2107. The MWC Unit was logged offline at 2105.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
2004
Summary of CEM Data Availability

Date	Unit	System	Cause	Explanation
May 21, 2004 and May 22, 2004	1	Nitrogen Oxide Analyzer	During the scheduled daily calibration check on Unit #1, the Nitrogen Oxide analyzer on the stack registered a value greater than 4Xs the applicable performance specification standard.	The Nitrogen Oxide analyzer appears to drift based on the boiler operating status. The Nitrogen Oxide analyzer was calibrated, and then a manual calibration check was initiated. The Nitrogen Oxide analyzer downtime was recorded back to the previous successful calibration on 5/21/04. The downtime will differentiate between times when the boiler was operational and when it was offline.
September 6, 2004 and September 7, 2004	2	Nitrogen Oxide Analyzer	During the scheduled daily calibration check on Unit #1, the Nitrogen Oxide analyzer on the stack registered a value greater than 4Xs the applicable performance specification standard	The vacuum pump on the Nitrogen Oxide analyzer had to be rebuilt. The Nitrogen Oxide analyzer was calibrated, and then a manual calibration check was initiated. The Nitrogen Oxide analyzer downtime was recorded back to the previous successful calibration on 9/6/04.
November 2, 2004	1	Stack and Economizer Train	At 1828 a tube failure occurred in the evaporator section of the boiler causing the immediate loss of drum pressure. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer and stack sample trains registered system alarms.	At 1836 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed both trains back in-service at 2355. The MWC Unit was logged offline at 2348.
December 6, 2004	2	Stack and Economizer Train	At 1850 a tube failure occurred in the evaporator section causing a large release of moisture, but was able to maintain boiler drum level. The continuous emission monitoring system was unable to handle the excess moisture released in the flue gas stream. The economizer train registered system alarms.	At 1856 the continuous emission monitoring system was manually placed in maintenance request to protect the analyzers from damage due to moisture intrusion. The CEM technician placed the stack train back in-service at 0039 on December 7, 2004. The MWC Unit was logged offline at2248 on December 6, 2004.

LEE COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
2004
Summary of CEM Data Availability

ATTACHMENT 2

Revised CAM Plan

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN

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INTRODUCTION

On October 3, 1997 EPA promulgated new rules under 40 CFR Part 64 and revised 40 CFR Parts 70 and 71 to implement Compliance Assurance Monitoring (CAM) for major stationary sources of air pollution that are required to obtain permits under Title V of the Clean Air Act (the "Act"). Subject to certain exemptions, the CAM rule requires owners or operators of such sources to conduct monitoring that satisfies particular criteria provided in the rule to provide a reasonable assurance of compliance with applicable requirements under the Act. The CAM rule applies to all new and renewal Title V applications submitted after April 22, 1998.

The CAM rule is directed at large emission units that rely on control equipment to achieve compliance with the Act. The goal of CAM is to assure that the control devices for these emission units are properly operated and maintained. Monitoring is conducted to ensure that the control devices continue to maintain a level of control that complies with applicable requirements.

APPLICABILITY DETERMINATION

The first step in the CAM process is the determination of the applicability of the CAM rules in 40 CFR Part 64 to each pollutant-specific emissions unit ("unit"). Any unit subject to CAM rules must satisfy all of the criteria included in Section 64.2, which include the following:

1. The unit must be located at a major source that is required to obtain a Part 70 or 71 permit
2. The unit is subject to an emission limitation or standard for the applicable pollutant
3. The unit uses a control device to achieve compliance with the emission limitation or standard
4. Potential pre-control emissions of the applicable pollutant from the unit are at least 100% of major source amount
5. The unit is not otherwise exempt

Malcolm Pirnie completed a CAM applicability determination for each unit at the Lee County Resource Recovery Facility (the "Facility"). The rationale for the determination is presented in the sections that follow. Whenever possible, estimates of potential pre-control emissions were calculated using actual stack test data or emission factors obtained from the EPA's *Compilation of Air Emission Factors (AP-42)*. Potential pre-control emission estimates for pollutants not listed in AP-42 were calculated from stack test data and known (or assumed) control device efficiencies. Post-control estimates for pollutant subject to CAM were based on published emission factors, stack test data, or Continuous Emissions Monitoring System (CEMS) data. Emission factors calculated in the EPA's *Compilation of Air Emission Factors (AP-42)* assumed a waste HHV of 4,500 Btu/lb. and were corrected for the 5,000 Btu/lb assumption used at the Facility. A summary of the determination results is included as Table 1.

Municipal Waste Combustor Units 1 and 2

Description

The Facility is equipped with two identical Distral Termica mass-burn waterwall municipal waste combustor (MWC) units, each rated for 275 MMBtu/hr. The MWC rating is comparable to a design feed rate of approximately 27.5 tons per hour at 5,000 Btu/lb. Emissions are controlled by a dry scrubber, fabric filter baghouse, and mercury and nitrogen (SNCR) abatement systems. Using lime slurry, the scrubber neutralizes acid-forming gases such as hydrogen fluoride, sulfur dioxide, and hydrogen chloride. Activated carbon slurry is injected into the scrubber to control mercury emissions. The baghouse captures particulate matter entrained in the flue gas. Captured dry ash particles fall into hoppers where they are discharged to the ash collection system.

Both MWC units are permitted major sources under the existing Title V operations permit No. 0710119-003-AV. The pollutants regulated under that permit and their CAM applicability are as follows:

Particulate (PM/PM10)

Particulate matter generated during solid waste combustion is comprised of both unburned combustible material and inert material that was present in the solid waste. Turbulent conditions in the combustor entrain this material in the flue gas as fly ash. As the flue gas moves through the boiler and heat recovery equipment, the heavier particles settle out in areas of low gas velocity (i.e. hoppers and scrubbers) and are removed. The remaining particles are removed by the fabric filters in the baghouses.

The existing Title V operation permit limits particulate emissions from the MWC units under 40 CFR 60, Subpart Cb and permit no. PSD-FL-151B. The MWC units use a control device (baghouse) to achieve compliance with the particulate emission limitation. Potential pre- and post-control particulate emissions estimates are calculated below.

Pre-Control PM Estimate

Emission factor[1] Btu conversion
(2.51 E+01 lb./ton) x (5,000/4,500) = (2.79 E+01 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = PM emissions estimate
(2.79 E+01 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 3,359.2 tons/yr.

3,359.2 tons/yr. > 100 tons/yr. (major source threshold for PM), so CAM rules are applicable to PM for both MWC units.

[1] Uncontrolled Particulate Matter Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Table 1 – CAM Applicability Review Summary

CAM Applicability									CAM Plan Requirements					
Parameter	40 CFR 60 Subpart Cb NSPS Emission Limit	PSD-FL-151 Emission Limit	(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1)	(2) The unit uses a control device to achieve compliance with any such emission limitation or standard	(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source	CAM applicable? If Columns D,E, and F are all yes, then CAM applies.	Monitored By CEMS	Comments	Monitoring Parameters	Design Pollutant Averaging Period	The unit has the potential to emit, including the effect of control devices, the applicable regulated air pollutant in an amount equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. If yes, data collection requirements of 40 CFR 64 paragraph b(4)(ii) apply.	Monitoring Frequency	Link to CEMS?	Comments
Municipal Waste Combustor Units 1 and 2														
Particulate (PM/PM10)	27mg/dscm	0.010 gr/dscf, 5.34 lbs./hr, 21.3 tons/yr per unit	Yes - Regulated under Subpart Cb and PSD-FL-151	Yes - Baghouse	Yes - PTE >100 tpy	Yes		Pre-control PTE based on uncontrolled emission factor from AP-42, Volume 1, Chapter 2			No	1 / 24 hrs	Use opacity as surrogate in CEMS	Post-control PTE based on Title V Permit No. 0710119-003-AV.
Opacity (VE)	10%	10%	No - Regulated under Subpart Cb	Yes - Baghouse	No - Major source threshold not defined	No	X	Regulated under Subpart Cb - Exempt						
Cadmium (Cd)	0.040 mg/dscm		No - Regulated under Subpart Cb	Yes - Baghouse	No - PTE <10 tpy	No		Regulated under Subpart Cb - Exempt						
Lead (Pb)	0.44 mg/dscm	0.0006 lbs/Mbtu , 0.165 lbs/hr, and 0.66 tons/year per unit	Yes - Regulated under PSD-FL-151	Yes - Baghouse	Yes - PTE >5 tpy	Yes		Pre-control PTE based on uncontrolled emission factor from AP-42, Volume 1, Chapter 2			No	1 / 24 hrs	Use opacity as surrogate in CEMS	Post-control PTE based on Title V Permit No. 0710119-003-AV.
Mercury (Hg)	0.080mg/dscm or 15% of potential mercury emission concentration, whichever is less stringent	In no case more than 0.000138 lbs/MMBtu, 0.0379 lbs/hr and 0.166 tons/year per unit or at least 70% removal efficiency by weight.	Yes - Regulated under PSD-FL-151 and 62-496.416	Yes - Carbon System	No - PTE <10 tpy	No		Pre-control PTE based on uncontrolled emission factor from AP-42, Volume 1, Chapter 2						
Sulfur Dioxide (SO2)	29 ppm or 25% of the potential SO2 emission concentration, whichever is less stringent	30 ppmdv or minimum 80% removal efficiency. In no case more than 0.150 lbs/MMBtu, 41 lbs/hr and 163.3 tons/year per unit.	No - Regulated under Subpart Cb - the PSD permit requirements are less restrictive than the Subpart Cb requirements	Yes - Scrubber	Yes - PTE >100 tpy	No	X	Regulated under Subpart Cb - Exempt						
Hydrogen Chloride (HCl)	29 ppm or 5% of the potential HCl emission concentration, whichever is less stringent	25 ppmdv or minimum 95% removal efficiency. In no case more than 0.064 lbs/MMBtu, 17.7 lbs/hr and 70.7 tons/year per unit.	Yes - Regulated under Subpart Cb and PSD-FL-151	Yes - Scrubber	Yes - PTE >10 tpy	Yes		Pre-control PTE based on uncontrolled emission factor from AP-42, Volume 1, Chapter 2			Yes	1 / 15 min	Use SO2 as surrogate in CEMS	Post-control PTE based on emission factor from AP-42
Dioxins/Furans	For non-electrostatic precipitator controls, 30 ng/dscm	In no case more than 30 ng/dscm, 2.54x10-8 lbs/MMBtu, 7.0x10-6 lbs/hr and 2.80x10-5 tons/year per unit.	Yes - Regulated under Subpart Cb and PSD-FL-151	Yes - Carbon System	No - PTE <10 tpy	No		Pre-control PTE based on uncontrolled emission factor from AP-42, Volume 1, Chapter 2						
Nitrogen Oxides (NOx)	185 ppmv	180 ppmdv or minimum 24 daily block avg. In no case more than 0.029 lbs/MMBtu, 80 lbs/hr and 320 tons/year per	Yes - Regulated under Subpart Cb and PSD-FL-151	Yes - Thermal Denox (Ammonia)	Yes - PTE >100 tpy	Yes	X	PTE > 100 tpy based on post-control 320 tpy limit in Title V Permit No. 0710119-003-AV.			Yes	1 / 15 min	Yes	Post-control PTE based on Title V Permit No. 0710119-003-AV.
Carbon Monoxide (CO)	100 ppmv, averaging time is a 4-hour block average.	100 ppmdv or minimum 4 hr block avg. In no case more than 0.10 lbs/MMBtu, 27.2 lbs/hr and 108 tons/year per unit.	Yes - Regulated under Subpart Cb and PSD-FL-151	No	Yes - PTE >100 tpy	No	X	No control device						
VOC		37 ppmdv. In no case more than 0.021 lbs/MMBtu, 5.80 lbs/hr and 23 tons/year per unit.	Yes - Regulated under PSD-FL-151	No	No - PTE <100 tpy	No		No control device						
Sulfuric Acid Mist (SAM)		In no case more than 0.036 lbs/MMBtu, 9.85 lbs/hr and 39.3 tons/year per unit.	Yes - Regulated under PSD-FL-151	Yes - Scrubber	No - PTE < 100 tpy	No		PTE based on assumed 5% SO3 conversion from AP-42, Volume 1, Chapter 1						
Fluoride (F)		5 ppmdv. In no case more than 0.0035 lbs/MMBtu, 0.96 lbs/hr and 3.8 tons/year per unit.	Yes - Regulated under PSD-FL-151	Yes - Scrubber	No - PTE <10 tpy	No		PTE based on 2000 stack test data and assumed 90% control efficiency						
Beryllium (Be)		In no case more than 0.0000000135 lbs/MMBtu, 0.0000037 lbs/hr and 0.0000147 tons/year per unit.	Yes - Regulated under PSD-FL-151	Yes - Baghouse	No - PTE <10 tpy	No		PTE based on 2000 stack test data and assumed 99.9% control efficiency						
Arsenic (As)		In no case more than 9.10x10-6 lbs/MMBtu, 2.50x10-3 lbs/hr and 0.01 tons/year per unit.	Yes - Regulated under PSD-FL-151	Yes - Baghouse	No - PTE <10 tpy	No		Pre-control PTE based on uncontrolled emission factor from AP-42, Volume 1, Chapter 2						
Ammonia (NH3)		In no case shall ammonia slip exceed 50 ppmv.	Yes - Regulated under PSD-FL-151	No		No		Ammonia injected as NOx control						
Lime Silo														
Opacity (VE)	10%	5%	Yes - Regulated under PSD-FL-151	Yes - Baghouse	No - Major source threshold not defined	No		Lime storage and feed system for control device						
Ash Building														
Particulate (PM/PM10)	27mg/dscm	0.010 gr/dscf	Yes - Regulated under PSD-FL-151	Yes - Baghouse	No - PTE < 100 tpy	No		Pre-control PTE based on emission factor from AP-42, Volume I, Chapter 13						
Transfer Station														
Particulate (PM/PM10)	No	No	No	No	No - PTE < 100 tpy	No		No control device						
Horticultural Processing Facility														
Particulate (PM/PM10)			No	No	No - PTE < 100 tpy	No		No control device						
Portable Tire Shredder														
Particulate (PM/PM10)			No	No	No - PTE < 100 tpy	No		No control device						

The existing Title V permit limits post-control PM emissions for each unit to 21.3 tons/yr., which is below the major source threshold of 100 tons/yr. Monitoring PM emissions once every 24 hours will satisfy the requirements of 40 CFR 64(b)(4).

Opacity (VE)

Opacity is regulated under 40 CFR 60, Subpart Cb and is therefore exempt from the CAM rule.

Cadmium (Cd)

Cadmium is regulated under 40 CFR 60, Subpart Cb and is therefore exempt from the CAM rule.

Lead (Pb)

Lead is a trace metal found in most components of solid waste, and is readily volatilized during combustion. Lead vapor will solidify in the cooler areas of the heat recovery equipment by condensing on the surface of entrained particles in the flue gas or will form particulate itself. These particles are carried in the flue gas stream to the baghouse, where they settle out by gravity or are captured on the filter bag surface and removed. Therefore, the capture of particulate matter in the baghouse results in the capture of lead. A fraction of the lead remains as fine particulate and will escape capture in the control device.

The existing Title V operation permit limits lead emissions from the MWC units under permit no. PSD-FL-151B. The MWC units use a control device (baghouse) to achieve compliance with the lead emission limitation, and potential pre- and post-control particulate emissions are calculated below.

Pre-Control Pb Estimate

Emission factor[1] Btu conversion
(2.13 E-01 lb./ton) x (5,000/4,500) = (2.37 E-01 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = Pb emissions estimate
(2.37 E-01 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 28.5 tons/yr.

28.5 tons/yr. > 5 tons/yr. (major source threshold for Pb), so CAM rules are applicable to Pb for both MWC units.

[1] Uncontrolled Lead Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

The existing Title V permit limits post-control Pb emissions for each unit to 0.66 tons/yr., which is below the major source threshold of 5 tons/yr. Monitoring PM emissions once every 24 hours will satisfy the requirements of 40 CFR 64(b)(4).

Mercury (Hg)

Mercury is also a trace metal found in solid waste that is readily volatilized during combustion. Mercury vapor condenses on the surface of entrained particles in the flue gas, especially fine particulates because of the high surface area to volume ratio. Activated carbon is injected into the scrubber to provide a fine particulate surface on which the mercury vapor can adsorb or condense, which effectively removes mercury from the flue gas. The mercury-laden particles are then carried in the flue gas stream to the baghouse, where they settle out by gravity or are captured on the filter bag surface and removed. Therefore, the capture of particulate matter in the baghouse results in the capture of mercury. A very small fraction of the mercury remains as fine particulate and will escape capture in the control device.

The existing Title V operation permit limits mercury emissions from the MWC units under Chapter 62-496.416, Florida Administrative Code (FAC) and permit no. PSD-FL-151B. The MWC units use control devices (scrubber and baghouse) to achieve compliance with the lead emission limitation. However, the pre-control mercury emission estimate is below the major source threshold, so the CAM rule does not apply to the MWC units at the Facility for mercury emissions. The potential pre-control mercury emissions estimate calculation is shown below.

Pre-Control Hg Estimate

Emission factor[1] Btu conversion
(5.60 E-03 lb./ton) x (5,000/4,500) = (6.22 E-03 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = Hg emissions estimate
(6.22 E-03 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 0.75 ton/yr.

0.75 ton/yr. < 10 tons/yr. (major source threshold for Hg), so CAM rules are not applicable to Hg for both MWC units.

[1] Uncontrolled Mercury Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Sulfur Dioxide (SO_2)

Sulfur dioxide formation is a function of the chemical form and content of sulfur in the solid waste fuel. Sulfur occurs in organic and inorganic forms and usually converts to SO_2 during combustion. A small amount of SO_2 generated during solid waste combustion is further oxidized to

SO_3, which combines with water to form sulfuric acid (H_2SO_4) mist, or SAM. SAM is discussed later as a separate pollutant.

Flue gas containing sulfur dioxide enters the dry scrubbers, where it comes in contact with finely atomized alkaline (lime) slurry. The alkaline slurry chemically reacts with the sulfur dioxide in the flue gas, forming neutralized calcium compounds that settle out in the scrubber hopper or are captured on the baghouse filters.

The existing Title V operation permit limits SO_2 emissions from the MWC units under 40 CFR 60, Subpart Cb and permit no. PSD-FL-151B. The Subpart Cb requirements are more restrictive than the PSD permit requirements, so they govern the regulation of sulfur dioxide at the facility. Therefore, the facility is exempt from CAM requirements for sulfur dioxide.

Hydrogen Chloride (HCl)

Hydrogen chloride forms during the combustion of solid waste. The amount of HCl formed during combustion depends on the amount of chlorine-containing materials (i.e. salts, PVC, etc.) present in the solid waste.

Flue gas containing hydrogen chloride enters the dry scrubbers, where it comes in contact with finely atomized alkaline (lime) slurry. The alkaline slurry chemically reacts with the HCl in the flue gas, forming neutralized calcium compounds that settle out in the scrubber hopper or are captured on the baghouse filters.

The existing Title V operation permit limits HCl emissions from the MWC units under 40 CFR 60, Subpart Cb and permit no. PSD-FL-151B. The MWC units use a control device (scrubber) to achieve compliance with the HCl emission limitation. Potential pre- and post-control HCl emissions estimates are calculated below.

Pre-Control HCl Estimate

Emission factor[1] Btu conversion
(6.40 E-00 lb./ton) x (5,000/4,500) = (7.11 E-00 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = HCl emissions estimate
(7.11 E+00 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 856.5 tons/yr.

856.5 tons/yr. > 10 tons/yr. (major source threshold for HCl), so CAM rules are applicable to HCl for both MWC units.

[1] Uncontrolled Hydrogen Chloride Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Post-Control HCl Estimate

Emission factor[1] Btu conversion
(2.11 E-01 lb./ton) x (5,000/4,500) = (2.34 E-01 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = HCl emissions estimate
(2.34 E-01 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 28.2 tons/yr.

28.2 tons/yr. > 10 tons/yr. (major source threshold for HCl), so monitoring HCl emissions four times every 24 hours will satisfy the requirements of 40 CFR 64(b)(4)

[1] SD/FF Hydrogen Chloride Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

The post-control estimate above the major source threshold is supported by the most recent (2004) stack test data from the Facility, which measured post-control HCl emissions between 7.05 and 11.20 lb./hr. (30.9 and 49.1 tons/yr).

Dioxins/Furans (PCDD/PCDF)

Dioxins/furans (or MWC organics) are two groups of structurally similar compounds that contain 210 isomers. The chemical, physical, and toxicological characteristics of each isomer vary relative to its chemical structure, but some of the isomers are highly toxic.

Dioxin and furan formation can be minimized by maintaining good combustion practices in combination with scrubbers and fabric filters. The Facility uses scrubbers and fabric filters, but also injects activated carbon into the scrubber, which promotes further removal of dioxins and furans.

The existing Title V operation permit limits dioxin/furan emissions from the MWC units under 40 CFR 60, Subpart Cb and permit no. PSD-FL-151B. The MWC units use control devices (scrubber and baghouse) to achieve compliance with the lead emission limitation. However, the pre-control dioxin/furan emissions estimate is below the major source threshold, so the CAM rule does not apply to the MWC units at the Facility for dioxin/furan emissions. The potential pre-control emissions estimate calculation is shown below.

Pre-Control CDD/CDF Estimate

Emission factor[1] Btu conversion
(1.67 E-06 lb./ton) x (5,000/4,500) = (1.85 E-06 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = CDD/CDF emissions estimate
(1.85 E-06 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 0.0002 tons/yr.

0.0002 ton/yr. < 10 tons/yr. (major source threshold for CDD/CDF), so CAM rules are not applicable to CDD/CDF for both MWC units.

[1] Uncontrolled CDD/CDF Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Nitrogen Oxides (NO_x)

Nitrogen oxides are products of all conventional combustion processes. NO_x forms during the combustion of solid waste through two mechanisms, thermal NO_x and fuel NO_x. Thermal NO_x is formed by high temperature oxidation of nitrogen in the combustion air, and fuel NO_x is formed by the oxidation of nitrogen in the solid waste. Because of the temperatures at which MWC units operate, 70-80% of NO_x formed is fuel NO_x.

The Facility uses a Thermal Denox System to control NO_x concentration in the flue gas. The system injects a mixture of air and ammonia into the boiler at one of two injection zones above the stoker grate. The system is designed to reduce uncontrolled NO_x emissions by 60% and limit ammonia slip to 35 ppm or less.

The MWC units use a control device (Thermal Denox System) to achieve compliance with the NO_x emission limitation. The existing Title V operation permit limits post-control NO_x emissions from each MWC unit to 320 tons/yr., which is above the major source threshold of 100 tons/yr. Monitoring NO_x emissions four times per hour will satisfy the requirements of 40 CFR 64(b)(4).

Carbon Monoxide (CO)

Carbon Monoxide is formed by the incomplete oxidation of carbon compounds in fuel. Some carbon monoxide is formed during all combustion processes where carbon-containing fuel is used. However, the amount of carbon dioxide formed is dependent upon the combustion efficiency of the fuel –burning process. Incomplete oxidation can be caused by several factors, including:

- Fuel-rich conditions (low oxygen)
- Poor fuel-air mixing

- Low combustion temperature
- Short combustion zone residence time

Carbon monoxide formation can be effectively controlled by designing the combustor to provide an adequate supply of combustion air and maximizing combustion efficiency. The Facility's MWC units control CO through good combustion design and operational practices.

The existing Title V operation permit limits CO emissions from the MWC units under 40 CFR 60, Subpart Cb and permit no. PSD-FL-151B. The Facility does not use a control device to achieve compliance with emission limitations, so the CAM rule does not apply to the MWC units at the Facility for carbon monoxide emissions.

Volatile Organic Compounds (VOCs)

Volatile organic compounds are formed during the combustion of solid waste and may be present in the flue gas. VOCs can be effectively controlled by designing the combustor to provide an adequate supply of combustion air and maximizing combustion efficiency. The Facility's MWC units control emissions of VOCs through good combustion design and operational practices.

The existing Title V operation permit limits emissions of VOCs from the MWC units under Florida permit no. PSD-FL-151B. The Facility does not use a control device to achieve compliance with emission limitations, so the CAM rule does not apply to the MWC units at the Facility for emissions of VOCs.

Sulfuric Acid Mist (SAM)

A trace amount of SO_2 generated during solid waste combustion is further oxidized to SO_3, which combines with water to form sulfuric acid (H_2SO_4) mist, or SAM. SAM can be effectively controlled by contact with the finely atomized alkaline (lime) slurry in the dry scrubber. The alkaline slurry chemically reacts with the sulfuric acid in the flue gas, forming neutralized calcium compounds that settle out in the scrubber hopper or are captured on the baghouse filters.

The existing Title V operation permit limits SAM emissions from the MWC units under Florida permit no. PSD-FL-151B. The Facility uses a control device (scrubber) to achieve compliance with emission limitations. There is no major source threshold specifically defined for SAM in 40 CFR 60, so the limit of 100 tons/year applies. The potential pre-control SAM emissions estimate is conservatively based on the maximum 5% SO_3 conversion for fuel oil reported in AP-42. The pre-control SAM emissions estimate is below the major source threshold, so the CAM rule does not apply to the MWC units at the Facility for SAM emissions. The potential pre-control emissions estimate calculation is shown below.

Pre-Control SAM Estimate

SO_2 emission factor[1] Btu conversion
(3.46 E-00 lb./ton) x (5,000/4,500) = (3.84 E-00 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] x SAM conversion factor[4] = SAM emissions estimate
(3.84 E+00 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) x (0.05) = 23.1 tons/yr.

23.1 tons/yr. < 100 tons/yr. (major source threshold for SAM), so CAM rules are not applicable to SAM for both MWC units.

[1] Uncontrolled Sulfur Dioxide Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.
[4] Maximum 5% conversion of fuel oil sulfur to sulfur trioxide (from AP-42, Vol. 1, Chapter 1).

Fluoride (F)

Fluoride production during solid waste combustion is a function of the fluorine content of the waste (primarily in fluorinated plastics and other fluorocarbons), combustion temperature, and thermally-driven chemical reactions between the combustion air and the fluorine-containing wastes. Fluorides are highly soluble in water and can be effectively controlled by contact with the finely atomized alkaline (lime) slurry in the dry scrubber.

The existing Title V operation permit limits fluoride emissions from the MWC units under Florida permit no. PSD-FL-151B. The MWC units use a control device (scrubber) to achieve compliance with the fluoride emission limitation. Potential pre-control fluoride emissions estimates are calculated below. No fluoride emission factors were published in AP-42, so the most recent (2000) stack test data for fluoride was used in conjunction with an assumed scrubber control efficiency of 90% to obtain the pre-control emission estimate. The 90% control efficiency was referenced in the PSD application in the calculation of the 5 ppmdv F limit. The 5 ppmdv limit was included in the final PSD permit, so FDEP must have concurred with the 90% scrubber efficiency assumption. Malcolm Pirnie has no direct data on dry scrubber control efficiencies for fluoride, but will continue to use the 90% efficiency assumption unless FDEP objects.

Assuming 90% control efficiency, the pre-control fluoride emission estimate is below the major source threshold. Therefore, the CAM rule does not apply to the MWC units at the Facility for fluoride emissions. The potential pre-control fluoride emissions estimate calculation is shown below.

Pre-Control F Estimate

Emission rate[1] x ton conversion x operating time[2] x scrubber efficiency factor = F emissions estimate
(0.038 lb./hr.) x (ton/2,000 lb.) x (8,760 hrs./yr.) x (100/100-90) = 1.66 tons/yr.

1.66 tons/yr. < 10 tons/yr. (major source threshold for F), so CAM rules are not applicable to F for both MWC units.

[1] Maximum fluoride emissions rate from 2000 stack test
[2] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Beryllium (Be)

Beryllium is a metal found only in trace quantities in solid waste, and is much less volatile than lead or mercury. Therefore, most of the beryllium in the solid waste will be retained in the bottom ash after combustion. Small amounts of beryllium vapor will solidify in the cooler areas of the heat recovery equipment by condensing on the surface of entrained particles in the flue gas. These particles are carried in the flue gas stream to the baghouse, where they settle out by gravity or are captured on the filter bag surface and removed. Therefore, the capture of particulate matter in the baghouse results in the capture of beryllium. A small fraction of the beryllium remains as fine particulate and will escape capture in the control device.

The existing Title V operation permit limits beryllium emissions from the MWC units under Florida permit no. PSD-FL-151B. The MWC units use a control device (baghouse) to achieve compliance with the beryllium emission limitation. Potential pre-control beryllium emissions estimates are calculated below. No beryllium emission factors were published in AP-42, so the most recent (2000) stack test data for beryllium was used in conjunction with an assumed scrubber control efficiency of 99.9% to obtain the pre-control emission estimate. Malcolm Pirnie has no data on dry scrubber control efficiencies for beryllium, but an efficiency assumption of 99.9% produces a very conservative estimate of pre-control emissions.

Assuming 99.9% control efficiency, the pre-control beryllium emission estimate is below the major source threshold. Therefore, the CAM rule does not apply to the MWC units at the Facility for beryllium emissions. The potential pre-control beryllium emissions estimate calculation is shown below.

Pre-Control Be Estimate

Emission rate[1] x ton conversion x operating time[2] x scrubber efficiency factor = Be emissions estimate
(1.5 E-05 lb./hr.) x (ton/2,000 lb.) x (8,760 hrs./yr.) x (100/100-99.9) = 0.066 tons/yr.

0.066 tons/yr. < 10 tons/yr. (major source threshold for F), so CAM rules are not applicable to F for both MWC units.

[1] Maximum beryllium emissions rate from 2000 stack test
[2] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Arsenic (As)

Arsenic is a metal found only in trace quantities in solid waste. The arsenic content of municipal solid waste is generally in the combustible fraction and is considered to be fully volatilized in the combustion process. Therefore, most of the arsenic is entrained in the flue gas and only small amounts remain in the bottom ash. Arsenic vapor will solidify in the cooler areas of the heat recovery equipment by adsorbing or condensing on the surface of entrained particles in the flue gas, especially fine particulate matter. These particles are carried in the flue gas stream to the baghouse, where they settle out by gravity or are captured on the filter bag surface and removed. Therefore, the capture of particulate matter in the baghouse results in the capture of arsenic. A small fraction of the arsenic remains as fine particulate and will escape capture in the control device.

The existing Title V operation permit limits arsenic emissions from the MWC units under Florida permit no. PSD-FL-151B. The MWC units use a control device (baghouse) to achieve compliance with the arsenic emission limitation. However, the pre-control arsenic emission estimate is below the major source threshold, so the CAM rule does not apply to the MWC units at the Facility for arsenic emissions. Potential pre-control arsenic emissions estimates are calculated below.

Pre-Control As Estimate

Emission factor[1] Btu conversion
(4.37 E-03 lb./ton) x (5,000/4,500) = (4.85 E-03 lb./ton)

Emission Factor x ton conversion x design feed rate[2] x operating time[3] = As emissions estimate
(4.85 E-03 lb./ton) x (ton/2,000 lb.) x (27.5 tons/hr.) x (8,760 hrs./yr.) = 0.58 tons/yr.

0.58 tons/yr. < 10 tons/yr. (major source threshold for As), so CAM rules are not applicable to As for both MWC units.

[1] Uncontrolled Arsenic Emission Factor for Mass Burn Combustors (from AP-42, Vol. 1, Chapter 2) used a heating value of 4,500 Btu/lb. The Facility reference waste heating value is 5,000 Btu/lb.
[2] MWC design feed rate used as a conservative estimate. Actual feed rate may be less.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

Ammonia (NH_3)

The Facility uses ammonia in the Thermal Denox System for NO_x emissions control. The existing Title V operation permit limits ammonia emissions from the MWC units under Florida permit no. PSD-FL-151B. However, the MWC units do not use a control device to achieve compliance with the ammonia emission limitation, so the CAM rule does not apply to the MWC units at the Facility for ammonia emissions.

Lime Silo

Description

The Facility is equipped with one lime storage silo that stores pebble lime used in the production of lime slurry for the dry scrubbers. The silo is equipped with a fabric vent filter to remove entrained lime from conveying air vented during loading operations.

Opacity (VE)

Opacity is regulated under Florida permit no. PSD-FL-151B. However, there is no major source threshold defined for opacity in 40 CFR 60. Therefore, the CAM rule does not apply to the lime silo at the Facility for opacity emissions.

Ash Building

Description

The ash building is an enclosed prefabricated metal structure at the terminus of the ash collection system that contains ferrous and nonferrous separation equipment and concrete storage bunkers. Fly ash discharged to the collection system from various points in the combustion trains is wetted to prevent fugitive emissions and mixed with bottom ash. The wet combined ash is then conveyed to the ash building, where ferrous and nonferrous metals are removed from the ash. The finished wet ash is then discharged to a storage bunker for later transport to the Lee-Hendry landfill. The ash building is equipped with a small baghouse to control particulate emissions.

Particulate (PM/PM10)

The existing Title V operation permit limits particulate emissions from the ash building under Florida permit no. PSD-FL-151B. The ash building is equipped with a baghouse to control particulate emissions. The pre-control emissions factor for the wetted ash was calculated using the predictive emission factor equation in AP-42 Section 13, *Aggregate Handling and Storage Piles.*

AP-42 references landfill fly ash with 27% moisture content as a typical material used in the predictive equation. The wetted ash stored in the ash building is a similar material, with moisture content ranging from 13-16%. In order to provide a conservative estimate, the largest particle size multiplier (0.74) and the lowest measured moisture content (13%), and the highest recorded wind speed (5 mph) was used in the equation. Wind speed data was taken from opacity measurements during the most recent (2004) stack test, and are included in Exhibit 13. Potential pre-control particulate emissions estimates for the wetted ash were calculated below.

Pre-Control PM Estimate

E = Emission Factor[1]
k = Particle size multiplier (0.74)
U = Mean wind speed (5 mph)
M = Material moisture content (13%)

$$E = k*(0.0032)* \frac{(U/5)^{1.3}}{(M/2)^{1.4}}$$

$$E = 0.74*(0.0032)* \frac{(5/5)^{1.3}}{(13/2)^{1.4}} = 1.72 \text{ E-04 lb./ton}$$

Emission factor x ton conversion x design feed rate[2] x operating time[3] = PM emissions estimate
(1.72 E-04 lb./ton) x (ton/2,000 lb.) x (55 tons/hr.) x (8,760 hrs./yr.) = 0.04 tons/yr.

0.04 tons/yr. < 100 tons/yr. (major source threshold for PM), so CAM rules are not applicable to PM for the ash building.

[1] Emission factor from AP-42, Vol. 1, Chapter 13, predictive emission factor equation 1)
[2] Design feed rate includes both MWC units discharging at 27.5 tons per hour.
[3] Operating time is based on 100% availability. Actual operating time is less than 8,760 hours per year.

The estimated potential uncontrolled emissions are below the major source threshold for PM, so the CAM rule does not apply to the ash building at the Facility for particulate emissions.

Transfer Station

Description

The transfer station is an enclosed prefabricated metal structure located approximately ¼ mile west of the ash building on the Facility site, designed to handle up to 1,800 tons of solid waste per day (75 tons per hour). Collection vehicles deliver solid waste to the transfer station, where it is drop loaded into transfer trucks for transport to the Lee-Hendry landfill. The transfer station is not

equipped with a control device to control particulate emissions, so the CAM rule does not apply to the Transfer Station.

Horticultural Processing Facility

Description

The horticultural processing facility (HPF) is a 6.8-acre asphalt paved pad adjacent to the transfer station on the Facility site. The HPF was designed to handle clean horticultural waste (tree limbs, brush, grass clippings, etc.) collected from residences and businesses. Collection vehicles deliver horticultural waste to the HPF, where it is placed in rows by front-end loaders for easy access during mulching operations. A tub grinder is used a few days each month to grind the waste into marketable-quality mulch. Front-end loaders load the finished mulch into transfer trucks for transport off site. The HPF does not use a control device to control emissions, so the CAM rule does not apply.

Tire Shredder

Description

A 325-hp diesel portable tire shredder is at the Facility for 3-6 week periods, totaling approximately 18 weeks during the year. When the shredder is on site, tire shredding operations can occur for up to 24 hours per day. The shredder is a low-speed, high-torque design, which slowly shreds tires into pieces approximately 1" in size. The tire shredder is not equipped with a control device, so the CAM rule does not apply.

COMPLIANCE ASSURANCE MONITORING APPROACH –SPRAY DRYER ABSORBER

Background

Emissions Unit

Description:	Municipal Waste Combustor Units 1 and 2
Identification:	MWC-01, -02
Facility:	Lee County Resource Recovery Facility, Fort Myers, FL

Applicable Regulation, Emission Limit and Monitoring Requirements

Regulation:	Title V operations permit no. 0710119-003-AV Florida permit no. PSD-FL-151B

Emission Limits:

HCl:	25 ppmdv corrected to 7% O_2 or 95% reduction by weight or volume

Monitoring Requirements: Once every 15 minutes

Control Technology

Spray dryer absorber

Monitoring Approach

The key elements of the monitoring approach are presented in Table 1.

Table 1 – Spray Dryer Absorber Monitoring Approach

I. Indicator	SO_2 outlet concentration or control efficiency
Measurement Approach	The SO_2 outlet concentration or control efficiency (which is calculated based on the concentrations measured by sensors located at the SDA inlet and stack), serve as a surrogate parameter for HCl control efficiency.
II. Indicator Range	An excursion is defined as either an SO_2 concentration measured in the stack of more than 29 ppmdv corrected to 7% O_2, or an SO_2 reduction of less than 80% as measured by the SO_2 concentration difference between the SDA inlet and baghouse exhaust over the averaging period, whichever is less stringent. An excursion shall trigger an inspection, corrective action as necessary, and a reporting requirement.
III. Performance Criteria	
Data Representativeness	The SO_2 monitors analyze gases extracted from the SDA inlet and baghouse exhaust and adequately represent pre and post APC control device conditions.
Verification of Operational Status	The SO_2 sensors are constantly monitored by the CEM system.
QA/QC Practices and Criteria	Monitoring equipment and process downtime is recorded in a log. The SO_2 sensors are checked daily for zero and span calibration drift, and quarterly using either CGA or RATA for linearity. The sensors are also checked for accuracy monthly and are calibrated annually according to the manufacturer's specifications for equipment accuracy.
Monitoring Frequency	The SO_2 concentrations are measured continuously.
Data Collection Procedures	The CEM system records inlet and stack SO_2 concentrations each minute in the operating log and compiles them into 1-hour average values.
Averaging period	24-hour daily geometric mean.

Monitoring Approach Justification

I. Background

The pollutant-specific emissions units are MWC Units 1 and 2, which are each equipped with a spray dryer absorber (SDA) and fabric filter baghouse. Flue gas containing acid gases primarily consisting of HCl and SO_2 enters the dry scrubbers, where it comes in contact with finely atomized alkaline (lime) slurry. The atomized alkaline slurry chemically reacts with the acid gases in the flue gas, forming neutralized calcium compounds that settle out in the scrubber hopper or are captured on the baghouse filters.

II. Rationale for Selection of Performance Indicators

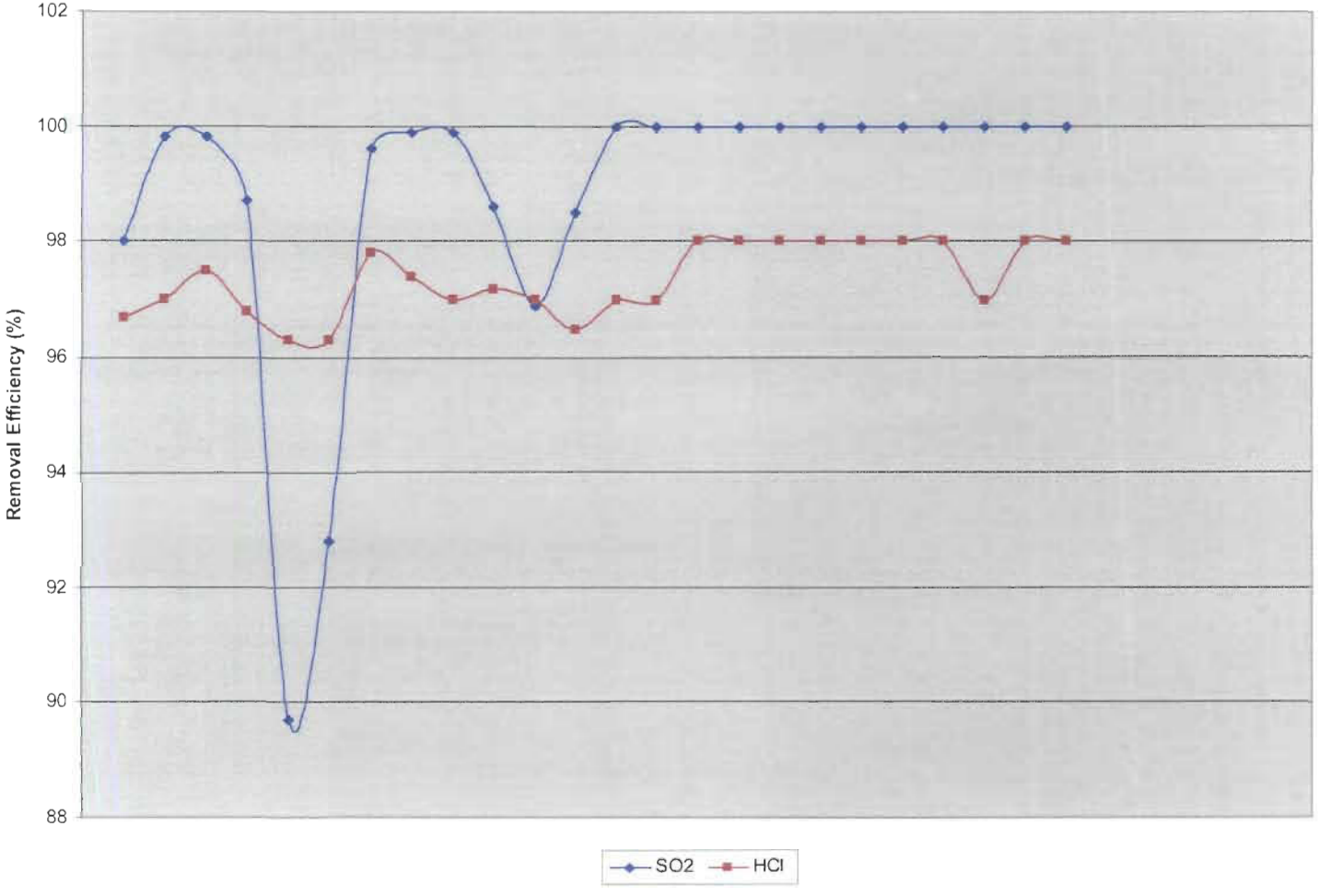
Each combustion train at the Facility operates an SDA in conjunction with a fabric filter baghouse to achieve compliance with the emissions limits for acid gases in the PSD permit and Title V operating permit. The primary measure of SDA and baghouse performance related to acid gas control is the assessment of SO_2 inlet and outlet concentrations. The existing Title V operations permit requires assurance of this reduction by one of two ways, either by a set outlet concentration (i.e. the SO_2 limit is 29 ppmdv corrected to 7% O_2), or by a percent reduction measured from inlet and outlet concentration differentials.

Stack test data from the last five years indicates that SO_2 and HCl have similar removal rates as they pass through the SDA and baghouse. During normal operations, the SDA and baghouse combination is designed to reduce Facility SO_2 emissions by 80% or more and HCl emissions by 95% or more. Data from the last five annual stack tests showed that the HCl removal efficiency was consistently higher than 96% when the SO_2 removal efficiency was at least 80%. A graph of the data is shown in Figure 1. The Facility does not continuously measure HCl concentration, so the Facility proposes to use SO_2 as a surrogate parameter for HCl. The CEM system will provide continuous SO_2 readings from the SDA inlet and baghouse exhaust that will satisfy the requirements of 40 CFR 64.

III. Rationale for Selection of Indicator Ranges

The indicator selected to assure compliance with the HCL limitations is the use of the emission limit and removal efficiency for SO_2 in the existing Title V permit. SO_2 readings will be taken continuously and recorded at least four times per hour in accordance with 40 CFR Part 64.

Figure 1 – Comparison of SDA SO_2 and HCl Removal Efficiencies (2000-2004)



COMPLIANCE ASSURANCE MONITORING APPROACH –FABRIC FILTER BAGHOUSE

Background

Emissions Unit

Description: Municipal Waste Combustor Unit Nos. 1 and 2

Identification: MWC-01, -02

Facility: Lee County Resource Recovery Facility, Fort Myers, FL

Applicable Regulation, Emission Limit and Monitoring Requirements

Regulation:	Title V operations permit no. 0710119-003-AV
	Florida permit no. PSD-FL-151B
Emission Limits:	
PM/PM10:	0.10 gr/dscf, 5.34 lbs./hr., 21.3 tons/yr per unit
Pb:	0.0006 lbs./MMBtu, 0.165 lbs./hr., 0.66 tons/yr per unit
HCl:	25 ppmdv corrected to 7% O_2 or 95% reduction by weight or volume
Monitoring Requirements:	Opacity, SO_2

Control Technology

Pulse-jet fabric filter baghouse to primarily remove particulate matter (PM/PM10) and lead (Pb). HCl is primarily removed in the SDA, but some additional removal does occur on the fabric filters as the acid gases contact the filter cake. The monitoring parameters for HCl are described in the section for the Spray Dryer Absorber.

Monitoring Approach

The key elements of the monitoring approach are presented in Table 2.

Table 2 – PM/PM10 and Pb Monitoring Approach

I. Indicator Measurement Approach	Opacity The opacity is measured by sensors located at the baghouse exhaust.
III. Indicator Range	An excursion is defined as a measured opacity of more than 10%. An excursion shall trigger an inspection, corrective action as necessary, and a reporting requirement.
III. Performance Criteria Data Representativeness Verification of Operational Status QA/QC Practices and Criteria Monitoring Frequency Data Collection Procedures Averaging period	 The opacity monitors are located in the baghouse exhaust and accurately represent assurance of normal baghouse operation. The opacity sensors are constantly monitored by the CEM system. Monitoring equipment and process downtime is recorded in a log. The opacity sensors are checked for accuracy monthly and are calibrated annually according to the manufacturer's specifications for equipment accuracy. The percent opacity is measured continuously. The CEM system records opacity readings in the operating log. 24-hour daily geometric mean.

Monitoring Approach Justification

I. Background

The pollutant-specific emissions units are MWC Units 1 and 2, which are each equipped with a spray dryer absorber (SDA) and fabric filter baghouse. Flue gas containing particulate matter, lead, and hydrogen chloride enters the SDA, where it comes in contact with finely atomized alkaline (lime) slurry. The SDA reduces the flue gas velocity, allowing some entrained particulate matter (and lead) to settle in the hopper. The alkaline slurry in the SDA chemically reacts with the hydrogen chloride in the flue gas, forming neutralized calcium compounds that settle out in the SDA hopper or flow through to the baghouse filters. Particulate matter entrained in the flue gas exiting the SDA (including neutralized HCl and lead) settles in the baghouse hopper or is captured on the baghouse filters.

II. Rationale for Selection of Performance Indicators

Each combustion train at the Facility operates an SDA in conjunction with a fabric filter baghouse to achieve compliance with the emissions limits in the PSD permit and Title V operating permit. Opacity is one of the main parameters used to monitor baghouse operations. High opacity readings can indicate problems such as leaks, bleedthrough, or filter bag failures while opacity readings at ten percent or less indicate normal baghouse operation.

Opacity monitors are also commonly used for judging particulate matter in gas flows. These devices optically measure opacity by passing light across the flue gas duct and reflecting it back to a photoelectric sensing element. The magnitude of the reflected light is proportional to the opacity (i.e. in general, the more particulate matter present in the flue gas, the lower the magnitude of reflected light, and the higher the percent opacity).

The opacity monitor is also a good indicator of lead emissions. Lead vapor solidifies in the cooler areas of the heat recovery equipment by condensing on the surface of entrained particles in the flue gas or will form particulate itself. Because the opacity monitor in the stack provides an indication of matter emissions, it also will indicate lead emissions proportional to the relative lead content in the particulate matter.

III. Rationale for Selection of Indicator Ranges

The indicator selected is the opacity emission limit in the existing Title V permit. The federal requirements in 40 CFR 60 Subpart Cb, which presumably incorporated CAM requirements, limit opacity to 10%. The PSD and existing Title V operations permits implement the Subpart Cb limit of 10 percent. Therefore, baghouse operations (including PM and lead removal) are presumed to be within normal operating ranges if opacity is less than or equal to

10 percent. In order to assure proper operation of the baghouses, one 24-hour geometric mean of opacity readings will be recorded every 24 hours in accordance with 40 CFR Part 64. This data will be supplemented with stack test results on an annual basis to provide additional compliance assurance.

COMPLIANCE ASSURANCE MONITORING APPROACH –SELECTIVE NON-CATALYTIC REDUCTION (SNCR)

Background

Emissions Unit

Description:	Municipal Waste Combustor Units 1 and 2
Identification:	MWC-01, -02
Facility:	Lee County Resource Recovery Facility, Fort Myers, FL

Applicable Regulation, Emission Limit and Monitoring Requirements

Regulation:	Title V operations permit no. 0710119-003-AV Florida permit no. PSD-FL-151B

Emission Limits:

NO_x:	180 ppmdv in 24-hour block average. In no case more than 80 lbs/hr and 320 tons/yr.

Monitoring Requirements: NO_x

Control Technology

Selective Non-Catalytic Reduction (SNCR)

Monitoring Approach

The key elements of the monitoring approach are presented in Table 3.

Table 3 – SNCR Monitoring Approach

I. Indicator	NO_x
Measurement Approach	The NO_x concentration is measured by sensors located at the economizer outlet.
IV. Indicator Range	An excursion is defined as a NO_x concentration measured in the economizer of more than 180 ppmdv in a 24-hour block average. An excursion shall trigger an inspection, corrective action as necessary, and a reporting requirement.
III. Performance Criteria	
Data Representativeness	The NO_x sensors are located at the economizer outlet.
Verification of Operational Status	The NO_x sensors are constantly monitored by the CEM system.
QA/QC Practices and Criteria	Monitoring equipment and process downtime is recorded in a log. The NO_x sensors are checked for accuracy monthly and are calibrated annually according to the manufacturer's specifications for equipment accuracy.
Monitoring Frequency	The NO_x concentrations are measured continuously.
Data Collection Procedures	The CEM system records NO_x concentrations in the operating log.
Averaging period	24-hour daily geometric mean.

Monitoring Approach Justification

I. Background

The pollutant-specific emissions units are MWC Units 1 and 2, which are each equipped with an SNCR (Thermal Denox) system to control NO_x concentration in the flue gas.

II. Rationale for Selection of Performance Indicators

The SNCR system injects a mixture of air and ammonia into the boiler at one of two injection zones above the stoker grate. The ammonia injection is controlled by a cascade control system, which continuously analyzes the NO_x concentration and adjusts the ammonia feed rate to optimize NO_x reduction and maintain compliance with permit limits. The best performance indicator for NO_x reduction is the direct measurement of NO_x that this system continuously performs as part of the control loop.

III. Rationale for Selection of Indicator Ranges

The indicator selected is the NO_x emission limit in the existing Title V permit. The SNCR system is part of the CEM system, so NO_x concentrations in the flue gas are continuously monitored. An increase in NO_x concentration would indicate a problem with the SNCR system (e.g. ammonia feed, control loop failure, NO_x sensor error, etc.). In order to ensure proper operation of the control devices, NO_x readings will be taken four times per hour in accordance with 40 CFR Part 64.

Department of
Environmental Protection

Jeb Bush
Governor

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

Colleen M. Castille
Secretary

Certified Mail -- Return Receipt Requested

May 10, 2005

Mr. Lindsey J. Sampson
Lee County Solid Waste Division
10500 Buckingham Road
Fort Myers, Florida 33905

Re: DRAFT Title V Air Operation Permit Renewal No. **0710119-004-AV**
Lee County Resource Recovery Facility

Dear Mr. Sampson:

We have begun the review of your Title V permit renewal application received on April 28, 2005. However, we must deem your application *incomplete*, because we need further information relative to the following items:

- It appears that the required compliance certification statement signed by the Responsible Official is missing.

- The requested changes to the current Title V permit (Exhibit 8) would require an air construction permit (AC) to implement.

- Compliance Assurance Monitoring (CAM) exemption justification data (Exhibit 6). In the section of the Application titled "Compliance Assurance Monitoring (CAM) Plan", you state that the emissions units identified are exempt from CAM requirements, or the CAM rule does not apply, for the pollutants with emissions limited by specific conditions in the facility's current Title V permit. For reference, we have listed below specific conditions that address these pollutants. As noted in these conditions, in many cases the specified emissions limits are based on *both* NSPS (40 CFR 60, Subpart Cb) and PSD applicable requirements.

- We assume that your argument is that CAM Plans are not required for a number of pollutants subject to post-1990 NSPS emission limit (40 CFR, Subpart Cb). *However if there is a BACT or SIP standard for a pollutant that is different (either more stringent or less stringent) from the one addressed by the NSPS or NESHAP, CAM may still apply to the emissions unit for that standard.* Based on this finding, please provide the additional analysis required, and submit the necessary CAM plans if warranted.

- As part of the analysis to determine if CAM plans are required for emissions units using add-on control devices to meet an emissions limitation, you need to calculate the pre-control potential emissions (PTE) of all the pollutants with SIP-based limitations to assess if the pre-control PTE values exceed the Title V thresholds for CAM applicability.

- Please indicate if there are *control devices in place* to limit emissions of each of the pollutants addressed by the Title V permit's specific conditions.

- When we receive this information, we will continue processing your application. If you have any questions, please contact Tom Cascio at 850-921-9526.

- Rule 62-4.050(3), F.A.C., requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Permit applicants are advised that Rule 62-213.420(1)(b), F.A.C., requires applicants to respond to requests for information within 90 days, unless the applicant has requested in writing, and has been granted, additional time within 90 days.

Selected Specific Conditions of current Title V air operation permit No. 0710119-003-AV:

Particulate Matter

A.21. The emission limit for PM/PM_{10} contained in the gases discharged to the atmosphere is 0.010 grains/dry standard cubic foot; 5.34 lbs/hr per unit; and 21.3 tons/year per unit, corrected to 7 percent oxygen.
[PSD-FL-151]

Cadmium

A.23. The emission limit for cadmium contained in the gases discharged to the atmosphere is 0.040 milligrams per dry standard cubic meter, corrected to 7 percent oxygen.
[40 CFR 60.33b(a)(2)(i)]

Mercury

A.24. The emission limit for mercury contained in the gases discharged to the atmosphere is 0.070 milligrams per dry standard cubic meter or 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7 percent oxygen, whichever is less stringent.
[40 CFR 60.33b(a)(3); and, Rule 62-296.416(3)(a)1., F.A.C.]

A.25. Flue gas emissions from each unit shall not exceed 0.000138 lb/MMBtu, 0.0379 lbs/hour per unit and 0.166 tons/year per unit.
[PSD-FL-151]

Lead

A.26. In no case shall lead emissions exceed 0.00060 lbs/MMBtu, 0.165 lbs/hour per unit and 0.66 tons/year per unit.
[PSD-FL-151]

Sulfur Dioxide

A.30. The emission limit for sulfur dioxide contained in the gases discharged to the atmosphere is 29 parts per million, by volume, or 20 percent of the potential sulfur dioxide emission concentration (80-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean.
[40 CFR 60.33b(b)(3)(i); and, PSD-FL-151]

Hydrogen Chloride

A.31. The emission limit for hydrogen chloride contained in the gases discharged to the atmosphere is 25 parts per million, by volume, or 5 percent of the potential hydrogen chloride emission concentration (95-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent.
[40 CFR 60.33b(b)(3)(ii); and, PSD-FL-151]

Dioxins/Furans

A.32. The emission limit for dioxins/furans contained in the gases discharged to the atmosphere that do not employ an electrostatic precipitator-based emission control system is 30 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen. In no case shall emissions exceed 2.54×10^{-8} lbs/MMBtu heat input, 7.0×10^{-6} lbs/hour per unit, and 2.80×10^{-5} tons/year per unit.
[40 CFR 60.33b(c)(1)(ii); and, PSD-FL-151]

Nitrogen Oxides

A.33. The emission limit for nitrogen oxides contained in the gases discharged to the atmosphere is 180 parts per million, by volume, corrected to 7 percent oxygen, dry basis. Compliance with this emission limit is based on a 24 hour daily block average (midnight to midnight). In no case shall NO_X emissions exceed 0.290 lb/MMBtu, 80 lbs/hour per unit and 320 tons/year per unit.
[40 CFR 60.33b(d); and, PSD-FL-151]

Carbon Monoxide

A.34. The emission limit for carbon monoxide contained in the gases discharged to the atmosphere is 100 parts per million, by volume, measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7 percent oxygen, dry basis. Calculated as an arithmetic average. Averaging time is a 4-hour block average, beginning at midnight. In No case shall CO emissions exceed 0.10 lb/MMBtu, 27.2 lbs/hour per unit, and 108 tons/year per unit.
[40 CFR 60.34b(a); and, PSD-FL-151]

Beryllium

A.28. Flue gas emissions from each unit shall not exceed 1.35×10^{-7} lb/MMBtu heat input, 3.70×10^{-5} lbs/hour per unit and 1.47×10^{-4} tons/year per unit.
[PSD-FL-151]

Fluoride

A.27. Flue gas emissions from each unit shall not exceed 5.0 parts per million, by volume, corrected to 7 percent oxygen. In no case shall emissions exceed 0.0035 lb/MMBtu, 0.96 lbs/hour per unit, and 3.8 tons/year per unit.
[PSD-FL-151]

Volatile Organic Compounds

A.29. Flue gas emissions from each unit shall not exceed 37 parts per million, by volume, corrected to 7 percent oxygen. In no case shall emissions exceed 0.021lb/MMBtu, 5.80 lbs/hour per unit, and 23 tons/year per unit.
[PSD-FL-151]

Sulfuric Acid Mist

A.35. In no case shall H_2SO_4 emissions exceed 0.036 lbs/MMBtu, 9.85 lbs/hour per unit, and 39.3 tons/year per unit.
[PSD-FL-151]

Arsenic

A.36. In no case shall arsenic emissions exceed 9.10×10^{-6} lbs/MMBtu, 2.50×10^{-3} lbs/hour per unit, and 0.01 tons/year per unit
[PSD-FL-151]

Ammonia

A.37. In no case shall ammonia slip from exhaust gases exceed 50 parts per million, by volume. [PSD-FL-151]

Sincerely,

Jeffrey A. Kern

For

A. A. Linero, P.E.
Program Administrator
Permitting South Section

Cc: Ron Blackburn, South District Office
Christopher C. Tillman, P.E., Malcolm Pirnie, Inc., 4315 Metro Parkway, Suite 520, Fort Myers, FL 33916

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Mr. Lindsey J. Simpson
Lee County Solid Waste Division
10500 Buckingham Road
Fort Myers, Florida 33905

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