MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

April 25, 2003

Al Linero
Administrator of New Sources Review
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Mail Station #5500
Tallahassee, Florida 32399-2400

Re: Lee County Energy Recovery Facility
Draft Permit No. PSD-FL-151C

Dear Mr. Linero:

Enclosed please find comments regarding Draft Permit No. PSD-FL-151C ("Draft Permit") for the addition of a third municipal waste combustor unit at the Lee County Energy Recovery Facility ("Facility"). The following comments were prepared by Lee County's Project Team, which includes representatives from the County, Malcolm Pirnie, Inc., RTP Environmental Associates, Inc., Landers and Parsons, P.A., and Covanta Lee, Inc.

Comments regarding the Department's 'Technical Evaluation and Preliminary BACT Determinations will be forwarded to the Department separately.

Requested changes to the Draft Permit are indicated in **bold type**. Comments and explanations are indicated in *italic type*. Item numbers are referenced to the Draft Permit item numbers.

The project team is available to answer any questions that you have.

Sincerely,

MALCOLM PIRNIE, INC.

Janine Christen for

Sam M. Rosania, R.E.M.
Associate, Project Manager

MALCOLM PIRNIE, INC.

Amit Chattopadhyay

Amit Chattopadhyay, P.E.
Registration Number: 52823

Attachment

c: Howard L. Rhodes, Director, Florida Department of Environmental Protection
Trina Vielhauer, Chief, Florida Department of Environmental Protection
Lindsey Sampson, Lee County Solid Waste Department
David S. Dee, Landers & Parsons, P.A.
Don Elias, RTP Environmental Associates, Inc.
Joe Treshler, Covanta

LEE COUNTY'S COMMENTS CONCERNING DRAFT PERMIT PSD-FL-151C

Requested changes to the Draft Permit are indicated in **bold type**. Comments and explanations are indicated in *italic type*. Item numbers are referenced to the Draft Permit item numbers.

Permit Cover Page
First paragraph, third sentence:

Replace "short-term" with "nominal".

This change will make the statement consistent with the County's application and other Draft Permit conditions.

SECTION I. FACILITY INFORMATION
Subsection A. Facility Description
Subsection B. Regulatory Classification
Subsection C. Permit Schedule
Subsection D. Relevant Documents

No Comments

SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS
Subsection A. Administrative
Subsection B. Construction Requirements
Subsection C. Operational Requirements
Subsection D. Monitoring of Operation
Subsection E. Other Requirements

No Comments

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS
Subsection A. 40 CFR 60 NSPS, General Provisions

Delete the word "maximum" from the center column of the table.

Under SECTION I, Subsection A, the Department has established that the capacity of the third MWC unit is 660 tons per day based on a nominal HHV of 5,000 BTU/lb. The proposed change will provide consistency between all permit terms associated with facility throughput.

Subsection B. Specific Conditions

Delete the word "maximum" from the second column of the table.

See above comments.

Item B.2 Process Operating Rates

Replace the word "maximum" with "nominal".

This draft condition should be re-stated to be consistent with other permit conditions that establish 660 tons per day of MSW is relative to a 5000 BTU/lb. HHV.

Item B.4 Emission Control Equipment – Selective Noncatalytic Reduction System.

Delete the first paragraph in its entirety and replace with:

"The unit shall be equipped with a selective non-catalytic reduction system designed, constructed and operated so as not to exceed a maximum NOX emission concentration of 150 ppmvd corrected to 7 percent O2 on a 24-hour block arithmetic mean average (midnight to midnight) as well as 140 ppmvd corrected to 7 percent O2 on a calendar year average.

The Applicant shall initiate and implement an optimization program with the intent of reducing the annual NOX emission rates further, as described in item B.8 below."

The County requests that this condition be changed to enable a site-specific determination of the appropriate NOX and NH3 emission limits. This approach will enable the Department and the County to establish a continuously achievable NOX emission limit while also establishing a continuously achievable and reasonable ammonia slip limit. The annual average will effectively reduce the NOX ton per year emission rate and help to preserve the ozone attainment status of the area. This lower annual average concentration will be achieved through some overcontrol of NOX during on-line operating periods and zero NOX emissions associated with downtime due to a unit outage. The Facility is not requiring a limit on operating hours.

Item B.6.6

Replace "rolling 30-day average" with "calendar monthly average".

The County proposes that a "calendar monthly average" is more appropriate given that Draft Permit Conditions B.15, B.24, permit PSD-FL-151B, and the Facility's existing Title V permit establishes the average daily charging rate(s) on a calendar monthly basis. The calendar monthly basis has been used at the existing Facility and other MWCs in Florida because it is recognized as a more reliable method for measuring the charging rate of MSW. By using a calendar monthly average in Condition B.6.6, all calculations regarding MSW throughput will be consistent.

Item B.6.7

Replace "rolling 30-day average" with "calendar monthly average".

See Item B.6.6, above.

Item B.7 Startup/Shutdown/Malfunction
Paragraph (b), third sentence:

Insert the words "or propane" after the words "natural gas"

The Facility does not have natural gas on site but does use propane. The County may add natural gas supply line in the future depending on economics. Also refer to B.6.4, last sentence.

Item B.8 Emission Limitations and Standards

Replace the Table in its entirety with the following table:

Pollutant Name	Standard(s)	Lbs/Hour	TPY
Particulate Matter (PM10)	20.6 mg/dscm, corrected to 7% O2	5.12	22.3
MWC Metals (PM)	20.6 mg/dscm, corrected to 7% O2	5.12	22.3
Sulfur Dioxide (SO2) (1)	26 ppm, 24 hour geom. Avg., or 80% reduction, both at 7% O2	65.72	287.8
Sulfuric Acid Mist (SAM)	15 ppmvd at 7% O2	15.1	66.1
Nitrogen Oxides (NOx) (2)	150 ppm at 7% O2 – 24 hour block average 140 ppm at 7% O2 – calendar year average Optimization Program	70.8	289.4
Carbon Monoxide (CO)	80 ppm at 7% O2 – calendar year avg. 100 ppm at 7% O2 – 4 hr. block average	28.73	100.7
Mercury (Hg) (1)	0.028 mg/dscm or 85% reduction, both at 7% O2	0.0426	0.19
Visible Emissions (VE)	10 % - 6 minute average		
Lead (Pb)	0.2 mg/dscm corrected to 7% O2	0.05	0.22
MWC Acid Gas (HCl) (1)	25 ppm or 95% reduction, both at 7% O2	46.76	204.8
Hydrogen Fluoride (HF)	3.5 ppmvd at 7% O2	0.718	3.145
Dioxin/Furan (PCDD/F)	13 ng/dscm corrected to 7% O2	3.2x10-6	1.4x10-5
Ammonia (2)	50 ppm Optimization Program		

Notes to table:
Abbreviations
ug/dscm: Micrograms per dry standard cubic meter
mg/dscm: Milligrams per dry standard cubic meter
ng/dscm: Nanograms per dry standard cubic meter
ppm: Part per million dry volume
Dioxin/Furan: Total tetra through octa-chlorinated dibenzo-p-dioxins and dibenzofurans
Note (1) Whichever standard is less stringent. Emission limits in lb/hour and tpy represent the percent control standards with inlet uncontrolled emissions of 500 ppmdv for SO2, 1.15 mg/dscm for Hg, and 2500 ppmdv for HCl (all corrected to 7% O2).

Note (2) The Applicant proposes the following condition;

a. **A daily NOX emission limit of 150 ppmdv at 7 % O2.**
b. **An initial annual (calendar year) average NOX emission limit of 140 ppmdv at 7 % O2.**
c. **An initial daily NH3 emission limit of 50 ppmdv at 7 % O2.**
d. **The Applicant will implement a testing and optimization program to evaluate and establish sustainable lower NOX and NH3 emission limits, which will be adopted as State-only emission limits. This optimization program will last for a minimum of one year (after initial compliance testing). Thereafter, the Department will determine whether lower annual emission limits are continuously achievable for NOX and NH3. The proposed not-to-exceed standards (a., b., and c., above) will remain in place until the Department establishes the permanent annual NOX emission limit and NH3 limit.**
e. **A detached ammonium chloride plume(s) from Unit 3 (EU 006) shall not be deemed a violation of this PSD permit. .**
f. **An outline of the optimization program is included herein as "Attachment A".**

The draft table of emission limits and standards includes values for NOX, CO and NH3 that are not continuously achievable given the County's understanding of the capabilities of SNCR. During operation, these emissions are interrelated. The County begins with the acceptance of the CO emission standard (more stringent than NSPS) and expects to adjust unit operations so as to optimize NOx and NH3 emissions. The County proposes this alternate approach that will create the possibility of establishing new and lower emission limits for NOX and NH3 but only after such limits have been demonstrated to be continuously achievable during actual sustained operating conditions and within the emission limit of the CO standard.

Item B.9
Numerous locations in all sentences:

Insert the words "or propane" after the words "natural gas"

The Facility does not have natural gas on site but does use propane. The County may add natural gas supply line in the future depending on economics. Also refer to B.6.4, last sentence.

Item B.10 (2)
Second Sentence:

Replace the words "or less for all MWC units" with;

"and if the existing two MWC units' dioxin/furan emissions do not exceed 15 ng/dscm each, corrected to 7% O2."

Test frequency reduction is based on each unit emitting approximately 50% or less of the emission limit for each unit.

Item B.10 (4)

Replace this draft condition in its entirety with the following condition:

The mercury emission rate shall be limited to no more than 0.028 mg/dscm at 7% O2 or an 85% reduction (whichever is less stringent) based upon three valid test runs (annually) pursuant to Rule 62-297.310(1), F.A.C. However, the applicant may eliminate one test run per year in the event that the single run yields an inlet Hg concentration above 0.560 mg/dscm at 7% O2, and the carbon injection system can be shown to have been operating properly. In the alternative, the applicant may retest within 30 days after receiving test results showing that the inlet Hg concentration was above 0.560 mg/dscm at 7% O2 in two or more test runs, provided the applicant demonstrates that the carbon injection system was working properly during the test runs.

The applicant accepts the Department's mercury emission limit of 0.028 mg/dscm at 7% O2 or an 85% reduction (whichever is less stringent) beginning with the initial operation and compliance test. However, the County needs to be able to retest or otherwise obtain relief if two or more test runs are adversely affected by a "hot load" during a compliance test.

Item B.11
Third Sentence:

Delete the words "shall be scheduled to coincide with as much of the normal cleaning (soot blowing) cycle as practicable"

Add this sentence after the third sentence: "At least one test run shall be conducted during a normal (soot blowing) cycle."

One test run for particulate matter conducted during soot blowing is representative of "normal operations" as specified in the second sentence of this condition and is consistent with PSD-FL-151B and the Facility's Title V permit.

Item B.17

Replace this draft condition in its entirety with the following condition:

Carbon Injection Rate: The optimal carbon injection rate in pounds per hour shall be determined during initial operations preceding and during the initial compliance test. Optimization should be based upon the maximum expected mercury inlet concentrations as well as necessary operating parameters such as the screw feeder speed, hopper volume, hopper refill frequency, or other parameters appropriate to the feed system being employed. During operation of the MWC unit, the carbon injection system shall be provided with a continuous indication of the injection rate and the carbon mass feed rate must equal or exceed the level that was determined as optimal. The owner or operator shall estimate the total carbon usage for the unit for each calendar quarter by utilizing the measured carbon mass feed rate (lb/hr) for each hour of operation of the MWC unit based

on the continuous indicator for carbon mass feed rate, and the total number of operating hours of operation during the calendar quarter. (Rule 62-204.800(8), F.A.C. and 40 CFR 60.58b(m))

The applicant accepts the Department's mercury emission limit of 0.028 mg/dscm at 7% O2 or an 85% reduction (whichever is less stringent) beginning with the initial operation and compliance test.

Item B.19(d)
Throughout this item:

Add the words "or propane" after the words "natural gas"

The Facility does not have natural gas on site but does use propane. The County may add natural gas supply line in the future depending on economics. Also refer to B.6.4, last sentence.

Item B.20.2 Other Excess Emission Reports:
Second sentence:

Add the words "excluding weekends and holidays" after the word "day"

Consistent with other conditions of the draft permit.

Item B.24

Replace the second and third paragraphs of this section in their entirety with the following two paragraphs:

Each day the total weight of segregated tires received shall be computed and the daily total shall be added to the sum of the daily totals of the current month. The resultant total weight of tires at the end of each calendar month (excluding tires stored at the waste tire processing facility) shall be divided by the total weight of all waste materials received during each calendar month and the resultant number shall be multiplied by 100 to express the ratio as a percent. The percentage computed shall be compared to the 3% limitation.

Each day the total weight of segregated non-MSW materials received that are subject to the 5% restriction (restricted materials) shall be computed and the daily total shall be added to the sum of the daily totals of the current month. The resultant total weight of restricted materials at the end of each calendar month shall be divided by the total weight of all waste materials received during each calendar month and the resultant number shall be multiplied by 100 to express the ratio as a percent. The percentage computed shall be compared to the 5% limitation.

The County proposes that a "calendar monthly average" is more appropriate given that Draft Permit Conditions B.15, B.24, permit PSD-FL-151B, and the Facility's existing Title V permit establishes the average daily charging rate(s) on a calendar monthly basis. The calendar

monthly basis has been used at the existing Facility and other MWCs in Florida because it is recognized as a more reliable method for measuring the charging rate of MSW. By using a calendar monthly average in Condition B.24, all calculations regarding MSW throughput will be consistent.

Item B.27(a) (Operator Training and Certification Requirements)

Add the following sentence at the end of Item B.27(a);

"A qualified, provisionally certified control room operator may temporarily replace the fully certified shift supervisor during specific periods when the certified shift supervisor is excused from work due to vacation or illness and after notification to the Department's South District Office.

Since the Facility operates at all times throughout the year, it may be necessary, on occasion to enlist the services of a qualified certified control room operator to temporarily fill-in for a shift supervisor. The Facility's certified chief facility operator shall notify the Department if such action is required.

Subsection C. Specific Conditions:

Item C.1(a)

Delete the first sentence of this item.

The amount of particulate emissions due to silo filling is insignificant (e.g., less than 0.03 tpy for the lime silo). The applicant requests that the mass emission limit (i.e., 0.015 gr/dscf) be deleted. This is consistent with current PSD-FL-151B and the Facility's Title V permit conditions for the existing lime silo.

Item C.1(b)

Replace the first sentence of this item with:

PM emissions shall be controlled by a baghouse.

See above comment.

Item C.3

Delete the first and fourth sentences.

See above comment. (Note: without a gr/dscf standard, there is no reason to request the PM compliance test waiver or relief from the presumption that the gr/dscf limit is being violated.)

Subsection D. Common Conditions:

Delete the word "maximum" from the second column of the table.

Same comment as before.

Item D.8(a)

Replace "45 days" with "60 days"

The Department typically allows 60 days to submit a test report at other MWC facilities in Florida. This is reasonable relative to the extensive time required to test the multiple speciations of Dioxins/Furans.

ATTACHMENT A

SNCR Optimization Program
For Lee County's Proposed MWC Unit No. 3

April 24, 2003

1. Lee County intends to use a Selective Non-Catalytic Reduction (SNCR) system to reduce the NOx emissions from Unit No. 3 of the County's Solid Waste Energy Recovery Facility (Facility). The County shall undertake the following actions and comply with the following criteria to ensure that the SNCR system for Unit No. 3 is operated at its optimal level of performance.

2. The goal of this optimization program is to establish the lowest annual NOx emission limit for Unit No. 3 that can be continuously achieved while: (a) achieving continuous compliance with all of the emission limits and other requirements in the Facility's PSD permit (PSD-FL-151C); (b) minimizing the occurrence of visible plumes of ammonium chloride; (c) maintaining a safe and suitable work environment at the Facility; and (d) minimizing corrosion problems that would result in boiler tube leaks or otherwise compromise the structural integrity of the boiler.

3. As a design goal, the SNCR system for Unit No. 3 shall be designed to achieve a NOx emission limit of 110 ppmvd (corrected to 7% O2), based on a calendar year average. This design goal shall guide the County when determining the number of injection nozzles that shall be used in the SNCR system, the location of the injection nozzles, the amount of reagent that will need to be injected, and the type of reagent that will be used (e.g., urea, aqueous ammonia, anhydrous ammonia).

4. At least thirty (30) days before the County commences construction of the SNCR system, the County shall provide the Department with a letter confirming that the SNCR system for Unit No. 3 has been designed in compliance with the requirements of Paragraph 3, above. The County also shall provide the Department with the relevant technical data and specifications for the SNCR system, including the manufacturer's applicable guarantees and the major design parameters.

5. The SNCR system shall be built in compliance with the design provided to the Department, pursuant to Paragraph 4, above.

6. After the Facility successfully completes the initial compliance tests required under the Facility's PSD permit, the County shall commence a quarterly testing program in accordance with the requirements in Paragraphs 7-12, below. The first tests shall be conducted within three months after the County receives the results of the initial compliance tests. Additional tests shall be conducted at least once each quarter for at least four, but not more than six, consecutive quarters.

7. The County's testing program shall be designed to evaluate the performance of the SNCR system under different operating conditions, in light of the goals and factors identified in Paragraph 2, above. Among other things, the County shall evaluate the effect of using different reagent injection rates in the SNCR system. Each quarterly test shall include evaluations of at least three different reagent injection rates. Each injection rate shall be maintained for a minimum of eight hours, unless the injection rate results in the creation of a continuous visible plume from the Facility's stack or causes excessive levels of ammonia in the Facility.

8. Although the operating parameters for the SNCR system will be varied during the quarterly tests, the other air pollution control equipment at the Facility shall be operated in compliance with the applicable requirements in the Facility's PSD permit. The quarterly tests shall be conducted under normal, representative operating conditions for the Facility.

9. Each quarterly test shall include appropriate monitoring of Unit No. 3 and the SNCR system. At a minimum, the County shall:

a) use the Facility's automated data acquisition system to obtain and record relevant operating data;
b) use the Facility's continuous emissions monitors to measure and record NOx, SO_2, CO, and O_2 concentrations, plus opacity in the stack;
c) measure the ammonia concentrations at the economizer and the stack sampling location; and
d) conduct field observations to evaluate any detached plume.

10. The County shall evaluate the effect of the SNCR system on corrosion in the boiler, to the extent feasible. At least twice during the four quarters of the testing program, the County shall use ultrasonic testing methods or other appropriate techniques to measure the corrosion rate in the boiler tubes in Unit No. 3. These measurements shall be performed while the boiler is off-line for maintenance.

11. The County shall measure the ammonia concentrations in the boiler enclosure, the ash conveyor system, and the ash management building. The measurements shall be made by using Draeger tubes, a mobile analyzer, or other appropriate technique. These measurements shall be performed concurrently with each quarterly test, unless the County concludes that the ammonia concentrations do not pose a meaningful threat to the operations at the Facility. The ammonia measurements shall be used to help the County determine whether the ammonia concentrations in the Facility pose a threat to the health and safety of the people working in the Facility. The County also shall determine whether the ammonia concentrations in the Facility unreasonably interfere with the employees' work by causing objectionable odors, as defined in DEP Rule 62-210.200(181), F.A.C., and nuisance conditions within the Facility.

12. The County shall evaluate the NOx removal efficiency (i.e., percent removal) of the SNCR system. At least once each quarter, the County shall shut down the SNCR system for a period not less than one and not more than four hours to measure uncontrolled NOx emissions during representative operating conditions. The temporary operation of Unit No. 3 without the

SNCR system, in accordance with the requirements of this SNCR Optimization Program, shall not constitute a violation of the Facility's PSD permit or Conditions of Certification.

13. Within sixty days after the County completes all of the quarterly tests, the County shall submit a report to the Department concerning the performance of the SNCR system. The report shall: (a) analyze the data from the quarterly testing program; (b) address each of the criteria identified in Paragraph 2, above; (c) recommend an interim NOx emission limit for Unit 3, based on a calendar year average; (d) recommend an interim emission limit for ammonia; and (e) recommend other tests or research, if necessary.

14. The Department shall consider the data collected during the quarterly testing program and the criteria identified in Paragraph 2, above. If the Department concludes, based on the quarterly test data, that the SNCR system on Unit No. 3 can continuously comply with a lower NOx emission limit while simultaneously satisfying criteria in Paragraph 2, the Department shall establish interim limits for NOx and ammonia.

15. The interim limits for NOx and ammonia shall remain in effect for a minimum of six months. During this interim period, the County shall conduct such tests as the County deems necessary to evaluate the performance of the SNCR system and its effect on the Facility. Within thirty days following the end of this interim testing period, the County shall submit a report to the Department concerning the performance of the SNCR system, the appropriateness of the interim emissions limits for NOx and ammonia, and other relevant issues.

16. At the end of the interim testing period, the Department shall establish the permanent NOx emission limit for Unit No. 3, based on a calendar year average, and the permanent ammonia limit. The permanent NOx emission limit shall be set at a level that will allow the Facility to comply with NOx emission limit, while simultaneously complying with the Facility's other permit requirements, and rarely have a detached plume of ammonium chloride. The permanent emission limit for NOx shall be established as a State limit, but shall not be federally enforceable. The permanent NOx limit shall not be lower than 110 ppmvd (7% O_2) and shall not be higher than 140 ppmvd (7% O_2) on a calendar year average.