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MAY 31 2000

May 25, 2000

BUREAU OF AIR REGULATION

Mr. Al Linero
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Dade County Resources Recovery Facility
PA 77-08, PSD-FL 006A

Dear Mr. Linero:

The purpose of this letter is to provide documentation of our conversation on May 23, 2000, regarding removal of the dust collectors (located underneath the air heaters) at the Dade County Resources Recovery Facility. Dade County Department of Solid Waste Management submitted an application dated April 21, 2000, describing the work to be performed. The application information stated that the dust collectors operated in conjunction with the electrostatic precipitators on Units 1 through 4 which were recently replaced with baghouses. It was further explained that the dust collectors are no longer needed and must be removed in order to continue with the retrofit of the units to meet Subpart Cb. Montenay is managing this project for Dade County and the County has requested that FDEP's approval be obtained before proceeding with the removal as previous submittals on the boiler air pollution control upgrades did not detail this work.

At our meeting on May 23, 2000, to review this and other matters contained in the permit application, you stated that the retrofit of the units to meet Subpart Cb has already been approved by the Department and that a separate approval did not need to be issued by FDEP for these specific pieces of equipment. You further noted that FDEP plans to issue a technical review of the permit application which will contain a reference to the dust collector removal. However, you advised that the removal activity did not need to be delayed until the issuance of the new permit and the technical review. Given this approval, Montenay will proceed with the removal of the dust collectors on each unit within the next month.

For the purpose of this record, it should also be noted that the new baghouses have not yet been performance tested and that these dust collectors should be removed before the test so that the facility can demonstrate compliance with Subpart Cb after all modifications are completed.

David Buff and I would like to thank Theresa Heron and you for meeting with us in person to review the application and discuss this issue. Please contact me if there are any questions regarding this matter.

Sincerely,

D. Anetha Lue, P.E.
Environmental Coordinator, MIC

montenay international corp.

3225 aviation avenue, 4th floor, miami, florida 33133 (305) 854-2229 fax (305) 854-2272

May 25, 2000

CC: MPC & DCSWM Meeting attendees

D. Buff – Golder
V. Castro – DCSWM
F. Screve – Montenay
W. Uchdorf - DCSWM

FDEP Southeast District office

T. Long
T. Tittle

DERM

P. Wong

CC: EPA
J. Heron

LANDERS & PARSONS, P.A.

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Memorandum

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MAY 03 2000

BUREAU OF AIR REGULATION

To: Joe Kahn, P.E.

From: David S. Dee

D. Dee

Re: Dade County Resource Recovery Facility

Date: May 2, 2000

During our telephone conversation on April 26, 2000, you asked me whether I could verify the original design capacity of the Dade County Resource Recovery Facility (Facility). Accordingly, I have reviewed my files concerning the Facility's capacity to process municipal solid waste (MSW) and produce steam. This memorandum summarizes the information I have found to date.

Please note, however, that there is an important distinction between the design capacity of the "Facility" and the design capacity of the Facility's "boilers". The Facility was designed to receive MSW and then process the MSW into "refuse derived fuel" (RDF). Among other things, various materials (e.g., glass, aluminum, ferrous metal, etc.) were removed from the MSW and then the remaining material was shredded and converted into fuel. The capacity of the Facility refers to the Facility's ability to receive and process MSW into RDF and other materials.

By comparison, the design capacity of the Facility's boilers is based on the ability of the boilers to generate steam. As you know, steam generation is the normal benchmark for determining the capacity of boilers. The steam generation capacity of a boiler can be translated into other descriptors, such as the heat input rate or fuel input rate, by calculating the steam and feedwater enthalpies, combustion efficiency, etc.

Thus, the design capacity of the Facility is not the same as the design capacity of the Facility's boilers.

For the purposes of this memorandum, I have identified the design capacity of the Facility, but the focus of the Department's inquiry should be upon the design capacity of the boilers.

1977 Application for Site Certification

In July 1977, an "Application for Certification of Proposed Electrical Power Generating Plant Site"(Application) was prepared by Ken Kosky and Environmental Science and Engineering, Inc., for Dade County. The Application contains the following information:¹

1. Page 1.2, Section 1.0, of the County's Application states:

At [the] rated annual processing capacity of 936,000 tons [of MSW], the Plant will recover materials in annual amounts of :

Aluminum	7,020 tons
Other Non-Ferrous	4,680 tons
Glass	37,440 tons
Ferrous	65,520 tons
Fuel	514,800 tons

Thus, the "rated" design capacity of the Facility was 936,000 tons of MSW each year. The annual MSW processing capacity of the Facility was based on an operating scenario in which the Facility processed 3,000 tons per day of MSW, six days per week. Six days of operations, 52 weeks per year, results in a total of 312 days of operations per year. Three thousand tons of MSW processing each day for 312 days results in an annual throughput of 936,000 tons per year.

2. Page 3.8, Section 3.1.4, states that "boilers with a combined nominal² capacity of 765,000 pounds steam per hour will be provided."

¹ This memorandum cites to and quotes from various documents. The relevant portions of those documents are attached hereto.

Please note that the design drawing for the "Power Complex Module Heat Balance Flow System" is discussed herein and attached hereto, but this design drawing cannot be copied easily and, therefore, it is not attached to the copies of this letter that are being distributed with this original.

² Any underlining in this memorandum was added by me for emphasis.

Since the boilers have a “combined nominal capacity” of 765,000 lb/hr of steam, and there are four boilers at the Facility, the nominal capacity of each one of the four boilers is 191,250 lb/hr.

3. Page 3.11 is the Facility’s “Site Plan.” The Site Plan shows four boilers, which are identified as Boiler 1A, Boiler 1B, Boiler 2A and Boiler 2B.

I assume that the boilers were grouped in pairs or modules because Boilers 1A and 1B share a common stack, and Boilers 2A and 2B share a common stack.

4. Page 3.16, Section 3.3, states that “the Resource Recovery Facility is designed to burn 3,744 tons per day of pulped fuel”

I assume that 3,744 tons per day (tpd) is the maximum design capacity for the fuel feed rate into the four boilers. At a design rate of 3,744 tpd of RDF, the Facility will burn RDF at a rate of 156 tons per hour, and each one of the Facility’s four boilers will burn RDF at a rate of 39 tons per hour.

5. Page 7.1, Section 7.1, states that:

Initially, the facility will receive 936,000 tons per year of Dade County’s trash and garbage. (This figure can be expanded 50 percent to 1,400,000 tons per year, if necessary).

6. Appendix C of the Application contains the calculations that were performed to determine the Facility’s emission rates for certain criteria pollutants, such as particulate matter. Page C.1, Appendix C, states that “there will be 2 boilers per stack, rated at 72,000 lbs pulp fuel/hr each.” Further down on the same page, the text states that “each boiler fires an average of 72,000 lbs/hr of pulp”.

A nominal or average RDF capacity of 72,000 lbs/hr in each boiler is equivalent to 36 tons per hour, per boiler. At these rates, the average RDF feed rate for two boilers, discharging to a common stack, is 144,000 lbs/hr.

Other Relevant Documents

On or about September 2, 1977, the County’s contractor [Resources Recovery (Dade County), Inc.] sent a letter to the West Palm Beach Office of the Florida Department of Environmental Regulation (DER) concerning the DER construction permits (SC 13-2690; SC 13-2691) for the Facility. In its letter, the County’s contractor states that:

We are concerned over Condition No. 6 in both cases, which states that the

incinerator shall not be loaded in excess of its capacity of 144,000 pounds per hour. This refers to the rate of feed for the fuel. Please note in our application that the 144,000 pounds per hour refers to the average rate of feed per hour and the maximum rate of feed, which is the design condition of the boiler, is 156,400 pounds per hour.

On September 20, 1977, DER sent a letter to Resource Recovery (Dade County), Inc. The DER letter states that it revises the construction permits (SC 13-2690; SC 13-2691) for the Facility. With this letter, the general text of the Facility's DER permits was revised to state:

For the construction of the following: Pulp boilers #1 & 2 (3 & 4) (discharging through a common stack) each with an average feed rate of 144,000 #/hr.of processed pulp

The letter also states that:

Proviso #6 of the referenced permit should read, "This incinerator shall not be loaded in excess of its capacity of 156,400 pounds per hour" instead of 144,000 pounds per hour stated in the original permit proviso.

Although the DER letter is not clear when read in isolation, the DER approval for the Facility must be considered in light of the Application that had been submitted for review and the subsequent correspondence from the County's contractor. When all of these documents are considered together, it is apparent that DER's values for an average RDF feed rate (144,000 lb/hr) and a maximum rate (156,400 lbs/hr) are based on the use of two boilers, which share a common stack. In this context, it also is clear that the language in the DER permit concerning "156,400 pounds per hour" refers to the fuel feed rate, not the steam generation capacity, for two boilers.

Unfortunately, the confusing language from the 1977 DER letter was incorporated into the original Conditions of Certification for the Facility (PPSA Case No. 77-08), which were issued in January 1978. The Conditions of Certification state on page 1, Section I.A.5, that "the incinerator boilers shall not be loaded in excess of their capacity of 156,400 pounds per hour."

The Governor and Cabinet, sitting as the Siting Board, issued a "Order Adopting Hearing Officer's Orders Recommending Certification Subject to Certification" for the Facility. On page 2, paragraph 2 of the Hearing Officer's "Findings of Fact, Conclusions of Law, and Recommended Order" for the Facility, the Hearing Officer finds that the Facility "consists of a three thousand (3,000) tons per day solid waste resource recovery facility". Thus, the Siting Board approved the Facility's design capacity for processing MSW at a level of 3000 tpd.

After these approvals were issued by DER and the Siting Board, Dade County's contractor [Resources Recovery (Dade County), Inc.] prepared the detailed design for the Facility

and its boilers. The design drawing for the "Power Complex Module Heat Balance Flow System" (the Power Module Drawing) depicts and describes Boiler A and Boiler B.³ The Power Module Drawing (revised January 28, 1980) shows a separate "High Pressure [Steam] Line" from each boiler to the steam turbine. The Power Module Drawing contains two sets of comments concerning the High Pressure Line. One set of comments indicates that the "Design Conditions" for the High Pressure Line are based on a steam flow of "187,700 [lbs/hr] w/ waste fuel" and "185,000 w/ fuel oil" at 625 psig and 750° F. The second set of comments are located further from the boiler. The second set of comments indicates that the steam flow in the High Pressure Line will be 191,397.5 lbs/hr at 614.5 psi and 750.2° F. Since the second set of comments does not refer to the type of fuel used, I assume that the steam flow at that location in the High Pressure Line will be approximately 191,400 lbs/hr under all normal operating conditions.

Resources Recovery (Dade County), Inc., put some of the plans and specifications for the Facility in a "Resources Recovery Manual" (Manual) for easy reference. Since the Manual describes general operating and maintenance (O & M) procedures for the Facility, I assume that the Manual was compiled after the Facility was constructed and was intended to be a general O & M manual. Among other things, the Manual contains the "General Specifications" for the boilers, which show that the boilers were manufactured by "Fives-Cail Babcock" and had a "Steam Output" of "191,400 lbs/hr" when firing "refuse fuel only" and 185,000 lbs/hr when firing oil only. The Manual explains that the "boilers are fired on hydropulped refuse fuel, with three air atomizing oil burners intended for start-up, and when it is desired to supplement the refuse fuel with oil (to boost power production)."

Conclusion

Based on the information provided above, it seems clear that the DER permit (as revised in 1977) and the Siting Board's approval for Dade County's Facility authorized the County to burn RDF at an average rate of 144,000 lb/hr for two boilers (72,000 lbs/hr/unit) and at a maximum rate of 156,400 lb/hr for two units (78,200 lb/hr/unit). The Facility was authorized to process a total of 3,000 tpd of MSW.

I have not found any provision in the DER permit or the Siting Board's Conditions of Certification that would expressly limit the steam production rate for the Facility's boilers. If we reasonably assume that the Siting Board's approval was based upon the information in the County's Application, then the steam generating capacity of the Facility would be limited to a total of 765,000 lbs/hr or 191,250 lb/hr/unit. These limits are consistent with the Power Module Drawing, which shows a steam flow in the High Pressure Line of 191,397.5 lbs/hr, and they are consistent with the Manual, which shows that the Steam Output of the boilers is 191,400 lbs/hr

³ Here, too, I presume that the two boilers were viewed as one "module" because the two boilers use a common stack

when firing RDF.

Please call me if you have any questions or need any additional information.

Kenny Hayman
Clair Fancy
Lee Casey
Anetha Lue
David Buff

Monteney

APPLICATION FOR CERTIFICATION OF PROPOSED
ELECTRICAL POWER GENERATING PLANT SITE

Prepared for
Metropolitan Dade County

by

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

With Technical Assistance From:

Resource Recovery (Dade County), Inc.

Ferendino, Grafton, Spillis, Candela
Architects - Engineers - Planners, Inc.

Equitable Environmental Health, Inc.

Kennard F. Kosky, P.E. - Project Manager

E. R. Hendrickson, Ph.D., P.E. - Chairman of the Board

July, 1977

Non-combustible materials will be separated into usable components. At rated annual processing capacity of 936,000 tons, the Plant will recover materials in annual amounts of:

Aluminum	7,020 tons
Other Non-Ferrous	4,680 tons
Glass	37,440 tons
Ferrous	65,520 tons
Fuel	514,800 tons

Electricity--MWH/Yr.--440,000 to 520,000

As noted above, the facility may operate at maximum capacity during peaking hours. It will directly reduce the need of the fossil fuel derived electricity required during these periods. However, all fuel input and output must balance out on a weekly basis.

Since the proposed facility is not a prime generating source in the Florida Power and Light system, this application does not address itself to Parts 1.1 through 1.3.

The inventory of fuel will be worked on a first-in, first-out basis. The fuel will be distributed in one end of the storage pile by means of a shuttle conveyor while it is being reclaimed from the other.

3.1.4 Steam Generation

Boilers with a combined nominal capacity of 765,000 pounds steam per hour will be provided. These will be standard, two drum water wall boilers equipped with integral superheaters, economizers and air heaters.

The boiler furnaces will be of the high volume type employed in the pulp and paper industry for recovering the heat value from wet bark.

Each boiler will be equipped with two stages of particulate gas cleaning equipment. The first stage will be mechanical dust collectors which will remove the large particles from the gas stream and reinject them into the furnace to burn unburned carbon. The second stage particulate cleaning equipment will be electrostatic precipitators. These will remove the fine particles to comply with the current applicable air emission standards.

The boilers will be designed to operate with reclaimed organics from solid waste as their sole fuel. However, the boilers will be equipped with auxiliary oil burners. These burners will be used primarily for start-up.

The solid waste fuel will be burned on an air swept spreader stoker. The fuel, controlled by variable speed live bottom bins, is picked up by an air blast and blown into the furnace. Approximately one-third of the fuel is burned in suspension, while the other two-thirds is burned on the travelling grate of the stoker. This type of stoker has proven to be very efficient in burning wet bark in pulp mills, and hydro-pulped fuel from a demonstration project in Franklin, Ohio.

Auxiliaries to be provided include feedwater pumps for each boiler plus an installed spare, two stage feedwater heating, deaerator, demineralizer for feedwater make-up, and an ash disposal system. The ash storage silo will have a capacity adequate for two days operation at full capacity.

Electric Power Generation

A turbo generator module, complete with transmission facilities, will be provided for the account of the Florida Power and Light Company.

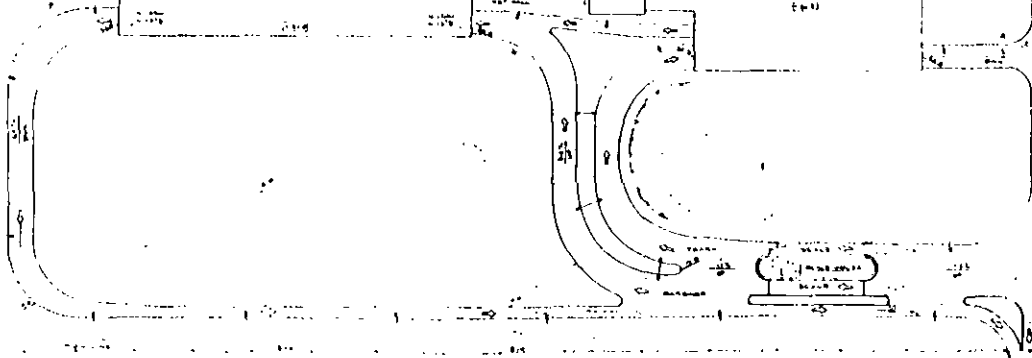
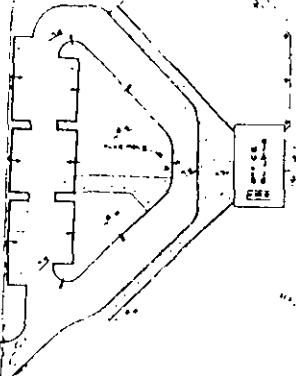
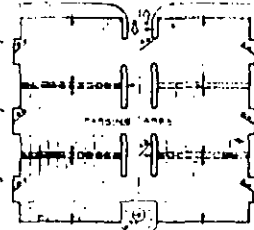
Two 38.5 megawatt, 44 MVA, hydrogen or air cooled turbo generator sets will be provided. The turbines will be supplied with steam at 600 psig, 750° F at the throttle. The turbines will be condensing, with extraction at 178, 32, and 10 psig to provide low pressure steam for the boiler room

SIT PLAN

1000000

1000000

1000000



1000000

1000000

1000000



The Resource Recovery Facility is designed to burn 3,744 tons per day of pulped fuel, with sufficient storage available for 11,200 tons or three days of steam production. As the storage area will be entirely enclosed, no spillage or runoff will occur. Figure 3-1 shows the location of the pulped storage area.

The ultimate source of the pulped fuel, which originates from residential and commercial sources, must be transported in trucks to the facility. Since the proposed Resource Recovery Facility is located adjacent to the existing Northwest 58th Street landfill, little additional travel for the waste trucks will be required. Greenleaf (1972), in analyzing the engineering and economic aspects of solid waste disposal of Dade County, determined that from 1980 to 1990 there will be a 39 percent and 38 percent increase, respectively, in production of rubbish and trash. It is projected that in 1980, the solid waste disposal requirements (rubbish and trash) for Dade County would exceed 1,900,000 tons per year. Since solid waste requirement for Resource Recovery is 936,000 tons per year, the availability of fuel to meet electric power generation capabilities will exist through the 1990's.

3.4 PLANT WATER USE

Figure 3-4 shows the water use flow diagram plan for the facility. All plant water, with the exception of the public water system, will be from three wells, including one spare, located on the site near the cooling tower (refer to Figure 3-1). The wells, of 750 gallons per minute capacity each, will withdraw water from the Biscayne Aquifer at 60-foot depths. The water from this depth is presently contaminated from the leachate cone of the existing 58th Street landfill. Beneficial effects of the use of groundwater from this area are discussed in Section 5-6.

As shown in Figure 3-4, three water treatment systems will be used in the plant water use system. Presented below are discussions of these systems.

Treatment 1--Cold Lime Softening: The characteristics of well water for cooling tower and boiler makeup are such as to provide less than two cycles of concentration. Without any pre-treatment, the maximum number of cycles would be 1.5, which would result in over 2,000 gallons per minute cooling tower blowdown. Such a quantity of waste water would be unacceptable to treat as waste water and create a liquid effluent disposal problem (the process water requirements are limited to 100 gallons per minute). Consequently, incoming makeup water will be treated by cold lime softening. A spiractor device has been selected for use. Physically, the spiractor is similar to an inverted cone with supporting legs. Water and chemicals (lime slurry and coagulate) are introduced tangentially at the bottom of the unit. The mixture, which rises through a suspended bed of catalyst (a fine sand) is maintained in a fluidized bed by the upward velocity of water. Proceeding upward in the spiractor, additional area of the expanding section decreases velocity sufficiently

7.0 ECONOMIC AND SOCIAL EFFECTS OF PLANT CONSTRUCTION AND OPERATION*

It is particularly difficult to evaluate the social and economic benefits and costs of the solid waste processing facility because the effects are so widely and unevenly distributed over a number of separate bodies; namely Metropolitan Dade County, Resource Recovery, Inc., Florida Power and Light, and the public at large. The majority of the social and economic consequences of the facility are not readily quantifiable but, at the same time, must be weighed against monetized effects. As a result, the individual cost-benefit comparisons, i.e., for the county, for Florida Power and Light, etc., may appear to be out of balance. When measurable costs outweigh measurable benefits, this imbalance represents a willingness to pay for non-quantifiable positive effects.

7.1 BENEFITS

Metropolitan Dade County has long been faced with the problem of inefficient disposal of solid waste. Lack of adequate land for sanitary landfill and the infeasibility of upgrading present incineration plant operation to comply with air pollution control standards have pressured the county to consider a different means of disposal to accommodate its large volume of solid waste. This more efficient method of solid waste disposal is the primary benefit of the proposed facility.

Initially, the facility will receive 936,000 tons per year of Dade County's trash and garbage. (This figure can be expanded 50 percent to 1,400,000 tons per year, if necessary). Ninety-seven percent by volume of the materials received will be recovered in the form of material or energy and only 3 percent by volume will be sent to landfill. This represents a substantial volume reduction and a consequent similar reduction in lands required for landfill. Thus, successful operation of the facility will result in conservation of lands which would otherwise have been reserved for landfill sites.

In addition to reducing the amount of land required for solid waste disposal, conversion from landfilling of raw garbage to solid waste processing will preclude further damage to the water table, since the processed material to be landfilled is inert, consisting of ash from the boilers and fines from the Minerals Recovery Plant. Also, once the plant is in operation, the existing open 58th Street Landfill will be phased out. Although pollution of the Biscayne Aquifer from the landfill leachate will continue for some time after the closing of the site, the potential amount of pollution will be minimized by avoiding any further use as landfill.

Other benefits resulting from the conversion from raw landfill to processing of solid waste are the reduction of air and noise pollution and lowered health hazards. The clean operation of the facility and

APPENDIX C

Calculations

There will be 2 boilers per stack, rated at 72,000 lbs pulp fuel/hr each. The exhaust gases from the boilers are combined and then passed through a battery of 16 cyclones in parallel and then through an electrostatic precipitator (ESP), prior to discharging through a 150 foot (minimum height) stack.

The control system is expected to perform at a total efficiency of 99.4% based on 85% of the particulate matter being removed by the cyclones and 96% of the remaining particulate matter being collected by the ESP. These efficiencies are based upon manufacture's guarantee.

Particulate Emission Rates are calculated as follows:

USING 314,000 ACFM @ 420° & 22% moisture; calculated CO₂ at 11.6%;
Manufacture Guarantee 0.06gr/SCF at 12% CO₂; design at 40% excess air.

$$314,000 \text{ ACFM} \times (1 - 0.22) \times \frac{528}{880} = 146,950 \text{ SCFMD}$$

Correction for % CO₂ $C_{12} = C_A \frac{12}{(\%CO_2)_A}$ where C = concentration

$$C_{\text{Actual}} = 0.06 \times 1/12 \times 11.6 = 0.058 \text{ gr/SCF}$$

Calculated Emission:

$$\begin{aligned} 0.058 \text{ gr/SCF} \times 1/(7000 \text{ gr/lb}) \times 146,950 \text{ SCFMD} \times 60 \text{ min/hr} &= 73.1 \text{ lbs/hr} \\ 73.1 \text{ lbs/hr} \times 24 \text{ hrs/day} \times 6 \text{ days/week} \times 52 \text{ weeks/year} \times 1 \text{ ton/2000 lbs} &= 274 \text{ tons/year} \end{aligned}$$

Regulation 0.08 gr/SCF corrected to 50% excess air

Correction for % excess air:

$$C_{50} = C_A (100 + \%EA)/150 \text{ where } C = \text{concentration}$$

$$C_{\text{Actual}} = 0.08 \times 150/(100 + 40) = 0.086 \text{ gr/SCF}$$

$$\begin{aligned} 0.086 \text{ gr/SCF} \times 1/(7000 \text{ gr/lb}) \times 146,950 \text{ SCFMD} \times 60 \text{ min/hr} &= 108.3 \text{ lbs/hr} \\ 108.3 \text{ lbs/hr} \times 24 \text{ hrs/day} \times 6 \text{ days/week} \times 52 \text{ weeks/year} \times 1 \text{ ton/2000 lbs} &= 405 \text{ tons/year} \end{aligned}$$

Sulfur Dioxide Emission Rates are calculated as follows:

USING .1% S in pulp fuel

No. 2 Fuel Oil is used for start up only
each boiler fires an average of 72,000 lbs/hr of pulp

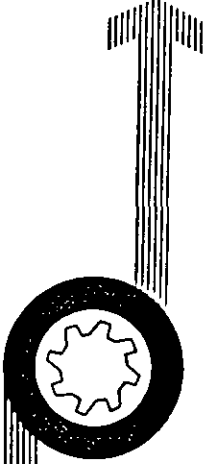
$$72,000 \text{ lbs} \times 2 \text{ units} \times .001 \times 2 = 288 \text{ lbs/hr of SO}_2$$

$$\begin{aligned} 288 \text{ lbs/hr} \times 24 \text{ hrs/day} \times 6 \text{ days/wk} \times 52 \text{ wks/year} \times 1 \text{ ton/2000 lbs} &= 1078 \text{ tons/year} \end{aligned}$$

Storm Water Runoff

All storm water runoff will be retained on-site.

energy



RESOURCES
RECOVERY
(DADE COUNTY)
INC.

September 2, 1977

DHK-77-487

Mr. David Karsmarski
Central and Southern Districts
State of Florida
Dept. of Environmental Regulation
3301 Gun Club Road
West Palm Beach, Florida 33402

Subject: Construction Permit No. SC-13-2690,
Dated August 4, 1977 and
SC13-2691, Dated August 4, 1977

Resources Recovery (Dade Co.), Inc.

Dear Mr. Karsmarski:

These permits arrived during my vacation and consequently the ten day review period has expired.

We are concerned over Condition No. 6 in both cases, which states that the incinerator shall not be loaded in excess of its capacity of 144,000 pounds per hour. This refers to the rate of feed for the fuel. Please note in our application that the 144,000 pounds per hour refers to the average rate of feed per hour and the maximum rate of feed, which is the design condition of the boiler, is 156,400 pounds per hour. We believe this latter figure that should be reflected in the subject permits and, also, in the attached Condition No. 6.

We thank you for your attention to this matter. Please let us know if there is any problem.

Very truly yours,

Dean H. Kohlhepp,
Resident Engineer

DHK/se

cc: Mr. Dennis Olle, Mr. Ken Kosky

Suite 203, 800 Douglas Entrance, Coral Gables, Florida 33134/Phone: (305) 448 1064



REUBIN O'D ASKEW
GOVERNOR

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTH FLORIDA SUBDISTRICT
3301 GUN CLUB ROAD
POST OFFICE BOX 3858
WEST PALM BEACH, FLORIDA 33402

JOSEPH W. LANDERS, JR.
SECRETARY

September 20, 1977

Dade County
SW - Resource Recovery
(Dade County), Inc.

Mr. Dean H. Kohlhepp
Resident Engineer
Resource Recovery (Dade County), Inc.
800 Douglas Entrance
Coral Gables, Florida 33134

Dear Mr. Kohlhepp:

Re: Construction Permits #SC 13-2690 and SC 13-2691 Issued
August 4, 1977 - Design Capacities

This is in response to your letter of concern dated September 2,
1977 regarding the subject permits.

Please accept this transmittal as official notice that the above
referenced permits are revised as follows:

1. The wording in the body of the permit is changed to read, "For the construction of the following: Pulp boilers #1 & 2 (3 & 4) (discharging through a common stack) each with an average feed rate of 144,000 #/hr. of processed pulp operating 24 hours/day, 6 days/week products of combustion are channeled through a Flakt Model CKDB mechanical collector and a Flakt Model FAA-32 electrostatic precipitator discharging particulate not greater than .08 grains/SCFD gas corrected to 50% E.A. through a 150 ft. (minimum) stack. Conditions 1-10 apply."
2. Proviso #6 of the referenced permit should read, "This incinerator shall not be loaded in excess of its capacity of 156,400 pounds per hour" instead of 144,000 pounds per hour stated in the original permit proviso.

If you have any questions please feel free to contact Al Townsend or Dave Karsmarski of this office, telephone 305/689-5800.

Sincerely,

Warren G. Strahm
Subdistrict Manager

WGS:AWT:fs

cc: Metropolitan Dade County Environmental Resources Management
Ken Kosky
Tallahassee Central Files

State of Florida Department of Environmental Regulation
Resource Recovery (Dade County), Inc.
Resource Recovery Facility
Case No. PA 77-08
CONDITIONS OF CERTIFICATION

SPECIAL

I. AIR

The construction and operation of the Resource Recovery Facility shall be in accordance with all applicable provisions of Chapters 17-2 and 17-7, Florida Administrative Code. In addition to the foregoing, the permittee shall comply with the following specific conditions of certification:

A. Emission Limitations

1. Incinerator stack emissions shall not exceed the following:
 - a. Particulate matter - 0.08 grains per standard cubic foot dry gas corrected to 50% excess air.
 - b. Odor - there shall be no objectionable odor.
2. Pathological incinerator emissions shall not exceed the following:
 - a. Visible emissions - no visible emissions except visible emissions are allowable for up to three minutes in any hour up to but not more than 20% opacity.
 - b. Odor - there shall be no objectionable odor.
3. The height of the boiler exhaust stacks shall not be less than 150 feet above grade.
4. The incinerator boilers shall not be loaded in excess of their capacity of 156,400 pounds per hour.
5. The incinerator boilers shall have a metal name plate affixed in a conspicuous place on the shell showing manufacturer, model number, type waste, rated capacity and certification number.

energy



RESOURCES
RECOVERY
(DADE COUNTY)
INC.

RESOURCES RECOVERY manual

BOILERS AREA

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BOILERS

GENERAL SPECIFICATIONS

MANUFACTURER:	FIVES-CAIL BABCOCK
OPERATING PRESSURE:	625 psig at superheater outlet 685 psig steam drum
OPERATING TEMPERATURE:	750 degrees F at superheater outlet
STEAM OUTPUT:	191,400 lbs/hr refuse fuel only 185,000 lbs/hr oil firing only
HEATING SURFACE:	17,714 FT ²
VOLUME:	14,045 Gal at normal operating level 19,297 Gal total capacity

INTRODUCTION:

The installation is comprised of four single pass boilers constructed in accordance with the ASME code section I. The boilers are fired on hydropulped refuse fuel, with three air atomizing oil burners intended for start-up, and when it is desired to supplement the refuse fuel with oil (to boost power production). The boilers produce superheated steam and are fitted with economizers and air heaters to gain better plant efficiency. The boilers are fitted with mechanical roto grate type stokers for burning refuse

fuel, with combustion air being supplied by a forced draft fan. The furnace and the flue gas system will operate at a negative pressure with the system including an induced draft fan. The boilers are of the suspended type permitting free expansion downward. Construction is of the Bent Tube design with three tube banks installed between the steam and mud drums, including a fully waterwalled furnace area. Circulation within the boilers will be accelerated natural circulation.

ECONOMIZER

GENERAL SPECIFICATIONS

	<u>Refuse</u>	<u>Oil</u>
Water Temperature at inlet	350°F	350°F
Water Temperature at outlet	379°F	365°F
Flue Gas Temperature at inlet	792°F	653°F
Flue Gas Temperature at outlet	748°F	610°F
Water Flow Rate Through Unit	191,400 lbs/hr.	185,000 lbs/hr.
Flue Gas Flow Rate Through Unit	86,621 lbs/hr.	45,351 lbs/hr.
Design Pressure	775 psig	
Heating Surface	1938 Ft ²	
Tube Diameter	2 in	
Header Diameter	4.5 in	