



RTP ENVIRONMENTAL ASSOCIATES INC.®

AIR • WATER • SOLID WASTE CONSULTANTS

239 U.S. Highway 22 East
Green Brook, New Jersey 08812-1909

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November 19, 1996

Mr. Clair H. Fancy, P.E.
Florida Dept. of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED

NOV 20 1996

BUREAU OF
AIR REGULATION

Dear Mr. Fancy:

As discussed in our November 6th and 7th meetings with the Department, Camp Dresser & McKee, Inc. (CDM) is planning to submit a construction permit application for the City of Tampa's McKay Bay Resource Recovery Facility (MBRRF) in early 1997. After obtaining the necessary Department approvals, proposed improvements to the MBRRF will be made to enable the facility to meet the Emission Guidelines (EG) requirements contained in 40 CFR 60 Subpart Cb, and incorporated by reference at FAC 62-204.800(8). The applicant is also requesting other changes in the permit to make conditions consistent with EG definitions and current industry practice.

For allowable fuels, the applicant is proposing to use the definition of Municipal Solid Waste (MSW) as included in the EG, with some clarifications based on the intent of the EG and current statewide practices. The applicant is also proposing to redefine the operating window for the facility based on steam load, according to EG requirements, rather than waste throughput, which is impossible to accurately measure.

There is considerable interest in expediting the EG improvements to the MBRRF. Therefore, we are submitting the attached for your approval so we can complete the air permit application. Thank you for your consideration to these matters. If you have any questions, please feel free to contact either William E. Corbin or myself at 908-968-9600 or David S. Dee, Esq. at 904-681-0311.

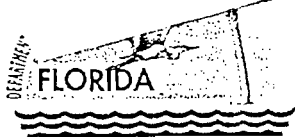
Sincerely,
RTP ENVIRONMENTAL ASSOCIATES, INC.®

Donald F. Elias
Principal

DFE/WEC/wec
Attachment

- 2 -

cc: A. Linero, T. Heron, C. Holladay/FDEP-Tallahassee
J. Kissel/FDEP-Southwest District
J. Campbell/Hillsborough County Environmental Protection Commission
N. McCann, G. Grotecloss, M. Salmon/City of Tampa
D. Strobridge, C. Hibbard/CDM
D. Dee, Esq./Landers & Parsons
W. Corbin, TAMPA3 Project File/RTP



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

January 30, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Donald F. Elias
RTP Environmental Associates Inc.
239 U.S. Highway 22 East
Green Brook, New Jersey 08812-1909

Dear Mr. Elias:

Re: Hillsborough County RRF Emission Guidelines Compliance Project
Your letters of November 14 and 19, 1996

The Department is in receipt of your letters dated November 14 and 19, 1996, on behalf of the Hillsborough County Resource Recovery Facility (HCRRF) requesting approval of various issues prior to submittal of the construction permit application. The purpose of the referenced project is to comply with 40 CFR 60 Subpart Cb - Emission Guidelines and Compliance Times for Municipal Waste Combustors that are constructed on or before December 19, 1995 (adopted as in Rule 62-204.800(8)(b), F.A.C.). These issues pertain to the Reasonable Available Control Technology (RACT) requirements for minor and fugitive sources of Particulate Matter (PM) as well as the definition of municipal solid waste (MSW) and the most appropriate process limitation for the proposed project.

The Department has reviewed your request and has the following responses:

RACT DETERMINATION

The Subpart Cb requirements for PM from minor and fugitive sources proposed for these sources appear to be reasonable as RACT. The specific plan will be reviewed with your application and a determination will be made as part of our technical review pursuant to the Department's authority contained in Rule 62-296.711(2)(c) F.A.C. However, the proposal to use a different test method (EPA Method 22 instead of EPA Method 9) will be reviewed under *Exceptions and Approval of Alternate Procedures and Requirements*, Rule 62-297.620 F.A.C. The Department does not have the authority under 62-296.711 (3) F.A.C. to approve a different test method.

Please submit a request in accordance with Rule 62-297.620 F.A.C., for approval of an alternate sampling procedure (ASP) along with your application.

DEFINITION OF MUNICIPAL SOLID WASTE (MSW) AS INCLUDED IN THE EG

The Department has received requests other than yours regarding the definition of solid waste from other MWC operators. We have referred these matters to the Division's Office of Policy Analysis and Program Management who will coordinate a response with this Bureau, the Office of General Counsel, and the Bureau of Solid and Hazardous Waste Management. We will provide a determination on this matter during the course of reviewing the application.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

OPERATING CONDITIONS

PROCESS LIMITATION:

Based on preliminary discussions, the Department is not inclined to delete the current MSW throughput limit measured as tons per day (TPD). We are continuing to review the matter and will make a final decision during review of the application.

We recognize that the throughput rating depends on the heating value of the waste. Heating value of municipal waste can vary significantly from one part of the country to another. It can also vary in time based on changing composition of municipal waste - for example from the continuing trend toward burning of plastics. Therefore a 250 TPD unit in one part of the country and at a given time may not be a 250 TPD unit at another site or time. Note however that based on the increasing amounts of plastic in waste, we would expect the units to be capable of processing less waste instead of more than originally designed to handle (unless they were oversized to begin with).

Now that the units at HCRRF have operated for years, it should be possible to provide ratings for them and get the manufacturer or modification contractor to guarantee their ability to efficiently burn waste throughout an appropriate operating window. If the new ratings (for waste throughput and steam production) and future method of operation will result in an increase in emissions, it will be necessary to conduct a PSD and BACT Review. You will need to assess and reconcile the ramifications of the permit revisions required to incorporate the NSPS requirements with the possible PSD/BACT implications of a throughput increase.

The proposal to use steam production to calculate the solid waste firing rate (in lieu of actually weighing the material) will be acceptable *only* under the following circumstances:

1. COMPLIANCE TESTING

Under this scenario, HCRRF would be required to use the F-factor in Table 19-1 of EPA Method 19 or collect the samples necessary to determine a fuel specific F- factor and heating value at the time of each run of the emission test. The procedures specified in EPA Method 19 should be used to determine the fuel specific F- factor and heating value. This eliminates boiler efficiency as a potential source of error. Subpart Ea [40 CFR 60.58a (b) (4)] requires affected sources to use the F- factor and EPA Method 19 in the emission rate determination. EPA Method 19 allows HCRRF the option of using the F- factor in Table 19 or determining a source specific F- factor using the procedure given in EPA Method 19.

2. CONTINUOUS COMPLIANCE

Under this scenario, HCRRF will either need to install weighing devices, or devices to continuously measure flue gas flow rate and oxygen and content. HCRRF would also need to either use the F- factor in Table 19-1 of EPA Method 19 or conduct daily analyses to determine the fuel specific F- factor and heating value. When units are continuously charged the options include, but are not limited to, belt scales. For units that are continuously charged, the weighing options may include a weighing device mounted on the crane based on the principle of a strain gauge.

OPERATING WINDOW

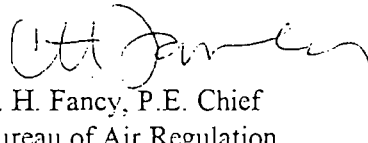
The Department acknowledges your statement that the MSW unit will be operationally limited by 40 CFR 60.53b (b) to a load level of 110% or less of the maximum demonstrated MWC *unit load* [40 CFR 60.51b and 40 CFR 60.58b(i)(6)]. This is consistent with the federal guidelines which stated that "no owner or operator of an affected facility located within a small or large municipal waste combustor plant shall cause such facility to operate at a load level greater than 110 percent of the of the maximum demonstrated MWC *unit load* level [highest 4-hour arithmetic average], achieved during four consecutive hours during the most recent dioxin/furan compliance test" (Page 65424, FR/Vol 60. No. 243 Tuesday, December 19, 1995).

The *proposed operating window* based on 80% to 115% of a nominal 250 tpd capacity and 80% to 115% of a nominal 104.2 MMBtu/hour capacity (250 tpd at 5000 Btu/lb) is not acceptable as presented because it appears to conflict with NSPS Subpart Cb. However, as mentioned above, the characteristics of the unit can be updated (by the manufacturer or modification designers) and expressed at a nominal heating value of 4,500 Btu/lb as indicated in Subpart Cb and the operating window defined within the constraints of Subpart Cb [40 CFR 60.51b and 40 CFR 60.58b(j)].

HCRRF shall also comply with Rule 62-297.310(2), F.A.C., Operating Rate during Testing and Rule 62-297.310(2)(b) F.A.C., Permitted Capacity definition.

If you have any questions, please contact Al Linero or Teresa Heron at 904/488-1344.

Sincerely,



C. H. Fancy, P.E. Chief
Bureau of Air Regulation

CHF/th/hh

cc: Brian Beals, EPA
Bill Thomas, SWD
Jerry Campbell, HCEPC
Pat Comer, DEP
Larry George, DEP
Dottie Diltz, DEP
Michael Hewett, DEP

Tuesday, March 25, 1997
1:30 p.m.

Bill Carbin	RTP Env. Assoc.	908-968-9600
Tim Porter	Whe Laboratories	603 929-3885
Cher Fancy	FDEP	904 488 1344
A.A. Lingo	DEP	904 488 - 1344
Michael Hewitt	DEP/OPAPM	904/488-0114
David S. Dee	Landis + Parsons	904-681-0311
Pat Conner	FDEP / OGC	904-488-9730
Geresa Heron	FDEP / NSR	904-488-1344
Syed Arif	FDEP / NSR	904-488-1344
Donald F. Elias	RTP Env. Assoc.	908-968-9600
Dan Strabridge	CDM	813-281-2900
Louis Nuttall	FDEP / EMS	904/488-6110
Paul J. Brandl	" "	"
M. D. HARLEY	" "	"

Meeting on Hillsborough and McKay Bay MWCs
Tuesday, March 25, 1997

Dan: Tampa has a weight throughput limit but everyone has ignored it up to this point. No one will certify a strain gage because its accuracy is no more than 20%, it is expensive and high maintenance. What we do is weigh each truck so that over a one week period we know how much waste has come in and how much is in the pit so we can estimate the amount incinerated.

If steam is measured and more waste goes through you have CEMs to monitor most parameters (SO₂ in and out, CO, NO_x, O₂, Opacity and temperature). Right now the facilities only monitor opacity.

Strain gauges are very inaccurate. Truck scales are accurate and are certified every year.

Efficiency of the boiler only varies 2 or 3 percent from a clean to a dirty boiler. The Hillsborough boiler efficiency is about 68%.

These units typically operate at steady state. The weight throughput does not vary. The steam flow monitoring and truck scales support this.

Mike: When these units were permitted it was assumed that a certain amount of MSW generated a certain amount of air pollution. The units generally just had opacity and PM limits.

Revelation:

These units were permitted 15 years ago when air pollution was sometimes measured as grains PM per lb waste. However, today we just want a throughput limit to label it - so we know what to call it when speaking to the public.

Tim: In other states we have an annual capacity limit. So, if we meet that limit in November, we have to shut down for a month. Of course we don't. It just forces us to stay within a certain daily or weekly throughput.

Dan: When we submit our application we will propose that we measure steam load according to guidelines but will also propose that, for public info, we keep a throughput limit and propose how we will meet that limit.

Clair: Remember that the averaging time must be as short as possible. Less than a week is too short and 30 days is too long.

David: Let's shoot for two weeks.

Clair: The position we are taking is that if you want to burn vehicle fluff or drugs then you submit a permit modification request to us and we will decide if public notice is required. The longer the list of segregated wastes, the more likely you will be required to demonstrate compliance.

Conversation with Walt Stevenson, OAQPS
June 6, 1997

The FR notice vacating the small MWC unit standards and amending the large unit standards will probably be published in July.

In the notice, the EPA will set the size cut-off at 250 tons-per-day. The reference to 225 megagrams-per-day will be deleted. It will be the only English unit of measure in the subpart in order to remain consistent with the CAA.

The EPA does not look at the permit limit when determining the size of a unit. They are only concerned with the design capacity using the assumed KJ value. Scott Davis is a good person to talk to about this issue.

Under the general provisions you can allow for monitoring or combined stacks as long as you satisfy the "at least as stringent as" provisions. But it must pass the "straight face" test. For example, if the SO₂ limit is 30 ppm and they propose to monitor combined flue gas streams from multiple unit (thus averaging the emissions) they might agree to a 20 ppm limit. You must be comfortable that each unit is meeting the 30 ppm standard. Scott Davis is also a good person to talk to about this issue.

It will be 1998 before EPA proposes the small unit standards. It's a full blown rulemaking and it's impossible to tell when the standards might be promulgated. It could be 1998 or 1999.

Conversation with Scott Davis, Region 4
June 9, 1997

Oregon will probably be the first plan to be approved. Florida may be the next. Their target is to get every plan approved by this Fall (August/September).

If a facility wishes to use one CEM for a common stack they may do so as long as they demonstrate the "at least as stringent as" provision. That may mean agreeing to a lower emission limit. One disadvantage for the facility is that, if a violation is recorded, it will be applied to all of the units that share the common stack.

RECEIVED

MAY 27 1997

DIVISION OF AIR
RESOURCES MANAGEMENT

CITY OF TAMPA

Environmental Services and Public Works Projects



May 22, 1997

Mr. Howard L. Rhodes, Director
 Division of Air Resources Management
 Department of Environmental Protection
 Twin Towers Office Building
 2600 Blair Stone Road
 Tallahassee, Florida 32399-2400

Dear Mr. Rhodes:

This letter responds to your April 13, 1997, letter to the City of Tampa requesting that the City provide to the Florida Department of Environmental Protection verification of the capacity of each of the four municipal waste combustion units at the McKay Bay Refuse-to-Energy Facility for purposes of the EPA's air emissions regulations. As you noted in your letter, the four combustion units at the McKay Bay Facility each have a capacity that borders between the EPA's definition of large and small facilities. Because the EPA has not yet issued the final regulations defining a large unit for purposes of the regulations, the City has been unable to determine whether its units are large or small.

Based on our discussions with the EPA, we understand that the EPA intends to issue a final rule during the next 60 days that will define a large unit for purposes of the regulations. We understand that a "large unit" will be defined as a unit with a design capacity greater than 250 tons per day (tpd) based on a fuel with a heating value of 10,500 kJ/kg. The City is in the process of gathering information needed to classify its units. Among other things, the Design and Construction Contract pursuant to which the McKay Bay Facility was constructed provides that the design for the units at the McKay Bay Facility was "a nominal capacity of 93.75×10^6 BTU/hr heat input when firing as received municipal refuse having a higher heating value of 4,500 BTU/lb. with 30 percent moisture content." Our calculations indicate that the foregoing design heat input converts to 249 tpd at 10,500 kJ/kg, or 250 tpd at 4,500 BTU/lb. Additionally, the operating specifications provided in that contract state that the facility (all four units) must be capable of incinerating not less than 3,000 tons during a three-day acceptance test, as long as the waste has a moisture content between 25% and 40% and a higher heating value between 3,800 and 5,000 BTU/lb. The operating window for a unit typically is about 80-115% of the design heat input. Once it has compiled all pertinent information regarding the capacity of the McKay Bay units, the City plans to submit the information to the EPA for confirmation regarding the unit size classification.

*Lamy - pls draft
 Michael any necessary
 response
 Howard
 6/6*



consulting
engineering
construction
operations

Camp Dresser & McKee Inc.

1715 North Westshore Boulevard, Suite 875
Tampa, Florida 33607
Tel: 813 281-2900 Fax: 813 288-8787



October 30, 1997

Mr. Al Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED

OCT 31 1997

**BUREAU OF
AIR REGULATION**

Subject: DEP File Number 0570127-002-AC, McKay Bay Retrofit Project

Dear Mr. Linero:

The following letter contains the City of Tampa's responses to the Department's request for additional information dated October 14, 1997. The Department's questions are in italics and are followed by the City's responses.

1. *"For verification of combustion capacity as indicated in the August 25, 1997 federal rule changes for Subpart Cb and Eb units, please provide calculations of the maximum charging rate of each unit according to the procedures under Section 60.58b(j) of 40 CFR Subpart Eb. Also provide annual tonnage of municipal solid waste processed by the MBREF over the last five years along with any heat content determinations that have been made for the municipal solid waste burned."*

Response: The maximum charging rate calculations originally prepared by the vendor for the McKay Bay facility can not be located. The City's consultants have conducted an exhaustive records search for these calculations, but have had no success. However, the contract between the City and the vendor contains a guarantee that the Facility can process at least 1000 tons per day of refuse with a heating value up to 5000 Btu/lb. Since the vendor guaranteed 1000 tons per day of processing capacity with refuse containing 5000 Btu/lb, we assume that each of the four units was designed to process more than 250 tons per day of refuse with a heating value of 4500 Btu/lb (i.e. the reference value used by EPA). Our assumption is consistent with the results of the initial acceptance testing at the facility, when the Facility processed more than 250 tons per day per unit. The City's application (Volume 1 page 1-1) confirms this information.

Given this and other similar information, the City, the Hillsborough County Environmental Protection Commission, and DEP previously determined that the units at the McKay Bay facility are "large" units as defined under the EPA regulations.

The quantities of waste processed at the Facility over the past five years are summarized below:

Mr. Al Linero, P.E.
October 30, 1997
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<u>Year</u>	<u>Tons Processed</u>
1996	324,318
1995	319,284
1994	318,930
1993	295,312
1992	289,165

The City and the operator have not attempted to estimate the average heating value of the waste delivered to the McKay Bay facility. At the Hillsborough County resource recovery facility, such determinations are made monthly, and the annual average heating value is approximately 4800 Btu/lb. Although the heating value of the waste collected within the City of Tampa may be different than in the unincorporated County, the heating value for Hillsborough County's waste stream may provide an approximation of the heating value expected with the City's waste stream.

- "For verification of 'modification' or 'reconstruction' status as defined in Subpart Eb, provide Subpart Eb construction cost calculations consistent with the EPA's August 20, 1996 'Applicability Determination,' as amended on December 30, 1996. The Department considers induced draft (ID) fans to be part of the MWC units because they could not operate without them even if there was no air pollution control equipment. The ID fans are required to overcome the pressure drop of the process equipment as well as the pollution control equipment. In this case, the ID fans are the equivalent of forced air fans and should be considered as being within the physical boundaries of the MWC unit.*

Response: EPA previously advised the City that the cost of the City's proposed improvements to the Facility's refuse receiving building, pit and cranes would be included in any calculation to determine whether the City's improvements constituted a "reconstruction," but the cost of the other improvements to the Facility would not be included in that calculation.

The total estimated cost of this work is well under 10 million dollars, which does not approach 50 percent of the 1980 facility cost (approximately \$80 million).

CDM agrees that the municipal waste combustor unit (MWC) would not operate without the ID fan. However, EPA's rule is clear that the MWC, as defined by EPA, ends immediately following the heat recovery equipment [40 CFR 60 Subpart Eb Section 60.51b Municipal Waste Combustor definition (1)]. Since the ID fan is located downstream of the heat recovery equipment, the ID fan is not part of the MWC unit, as defined by EPA. Costs for changes that do not involve the MWC are excluded from the 50% calculation.

Mr. Al Linero, P.E.
October 30, 1997
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The cost of replacing the ID fans at the Tampa Facility would be excluded from the 50% "reconstruction" rule [40 CFR 60 Subpart Eb Section 60.50b(a)], regardless of how the boundaries of the MWC unit are defined. The ID fans at the Tampa Facility will be replaced solely because Tampa must change the current configuration of the Facility to comply with EPA's MWC EG. The only reason the ID fans would be replaced would be to accommodate the increased pressure drop resulting from substituting a baghouse for the existing ESP. Even if DEP considers the ID fan as part of the MWC, the cost of replacing the ID fan would be excluded from the 50% calculation because changes made primarily for the purpose of complying with the emission guidelines are not considered a modification or reconstruction [40 CFR 60 Subpart Eb Section 60.50b(d)]. Consequently, it is not necessary to include the cost of the ID fan in the 50% calculation.

3. *The process equipment retrofit appears to be more of a life extension project than for meeting Subpart Cb in which case Subpart Eb may apply. Please provide a detailed engineering report confirming that the process equipment replacements are required for the MBREF to meet the Subpart Cb guidelines. The report should be prepared and sealed by a professional engineer with expertise in the appropriate mechanical and process disciplines addressed in the report.*

Response: The City would not need to change the "process equipment" at the Facility if the City did not need to comply with the requirements of Subpart Cb. The existing furnace, grate, boiler and air pollution control systems are adequate to comply with the Facility's existing permit conditions for the remainder of the Facility's projected life. If no new air pollution controls were required under Subpart Cb, the City would simply construct an ash management facility to comply with applicable Florida solid waste regulations.

A detailed engineering report was previously prepared for the City by Mr. Ted Sjoberg of SVI. Sealed copies of his report are attached hereto as Exhibit 1 together with Mr. Sjoberg's resume. Mr. Sjoberg has extensive experience with waste-to-energy facilities, including the City's Facility. Mr. Sjoberg was personally involved with the original design, construction, and operation of the Facility in its current configuration. He is well qualified to evaluate the Facility's current performance and the need for improvements to meet the requirements of Subpart Cb.

CDM has reviewed SVI reports and other relevant materials. CDM generally agrees with Mr. Sjoberg's conclusions, including his conclusion that without major changes to the Facility's combustion units and the boilers, compliance with the carbon monoxide and dioxin limitations contained in Subpart Cb could not be guaranteed by a full-service system vendor/operator.

EPA has already reviewed and accepted Mr. Sjoberg's analyses of these issues. The EPA evaluation was performed by representatives of EPA Region IV from Atlanta, the EPA Office

We already had the SVI report. We were talking about a more detailed report covering the engineering analyses involved.

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of Air Quality Planning and Standards (OAQPS) in North Carolina, and EPA Headquarters in Washington, D.C. EPA's conclusion about the proposed project, the applicability of EPA's EG, and related issues were set forth in letters dated August 20, 1996 and December 30, 1996, which were provided to DEP by EPA.

4. *Please indicate the most probable choice between reconstructing the existing mass burn refractory combustors or replacing them with the waterwall design (page 2-5), and between replacing the existing boilers or substantially improving them (page 3-1). This is necessary to meet the requirements of Rule 62-4.070, F.A.C., Standards for Issuing or Denying Permits Subpart applicability, the ultimate performance of the facility, and the ability to efficiently burn the slate of wastes anticipated in the application may be related to this decision.*

Response: At this point in the City's procurement process for a full service vendor, it is not possible to indicate a "most probable" choice relative to replacing or repairing the Facility's combustors and boilers. However, it is not necessary to make that decision now. All of the vendors are required to meet certain minimum performance guarantees. All of the vendors must guarantee the City that the upgraded Facility will comply with all of the applicable emission limitations promulgated by EPA or DEP, including Subpart Cb. Regardless of what the successful vendor proposes, the work at the Facility is required "primarily to meet the Emission Guidelines" in Subpart Cb and as such is not included in the reconstruction calculation. [40 CFR 60 Subpart Eb Section 60.50b(d)]. Of course, the City would be willing to provide DEP with copies of the Vendors' specific plans and specifications when they become available.

Application will remain incomplete until this is received. Can't permit an "idea" or "concept"

5. *Please indicate which of the wastes specified in the application are already burned at the facility. How will the proposed specification of fuels affect overall waste throughput quantities? We may submit additional questions regarding wastes and fuel following review by Department solid waste staff.*

Response: The City believes that all of the waste materials specified in the City's application are currently received and processed at the Facility as part of the City's normal solid waste stream. The proposed specification is offered simply to clarify and more precisely define allowable fuels and the manner in which they are handled. The overall waste throughput quantities are not expected to change. The fuel quantity and quality will generally normalize around past throughput quantities and fuel quality.

6. *The proposed monitoring plan does not reference specific monitors, locations, or techniques. Please provide this information.*

Ambient monitoring vs. Stack monitoring

Response: Section 3.3.7, page 3-7, Volume 1 of the City's application explains that continuous emission monitors (CEMs) for SO₂, NO_x, CO, and O₂ will be installed after the

Mr. Al Linero, P.E.

October 30, 1997

Page 5

fabric filter (FF) outlet of each combustion unit. SO₂ and O₂ CEMs will be installed at the economizer outlet, prior to the Spray Dry Absorber inlet, to allow calculation of SO₂ removal efficiency. A continuous opacity monitor (COM) will be installed after the FF outlet on each unit.

Flue gas samples will be taken continuously at the economizer/boiler outlet for SO₂ and O₂ and after the FF outlet for SO₂, NO_x, CO, and O₂. The sample lines will be connected to a climate controlled CEM trailer. The CEM trailer will contain the sample preparation equipment and analyzers. Data collected from the CEM analyzers will be transmitted to the Facility's main control room and collected with data loggers.

At this time, a vendor has not been selected and, therefore, the specific brand names of the analyzers and CEMS cannot be provided. The exact location within the ductwork where the CEMS will be located cannot be provided for this same reason. The City is willing to submit this information to the Department when it becomes available.

7. *Table 1-1 provides a comparison of present and projected emission limits. Please provide annual and hourly emissions reflecting actual emissions for a representative two year period reflective of normal operations prior to the retrofit project. To the extent possible and based upon expected equipment performance, please submit best estimates of future annual and hourly emissions.*

Response: Stack test data summaries for the past 11 years are provided in Appendix E of Volume I of the permit application, and are broken out in more detail in the attached Exhibit 2. The Exhibit 2 provides the annual and hourly emissions reflecting actual emissions from the Facility for a two-year period before the retrofit. (Note, however, that there is only one year of test data for carbon monoxide and beryllium). The Exhibit 2 also shows a calculation of the mean plus two standard deviations above the mean for all data collected for each pollutant. The Retrofit will result in a net reduction in actual air pollutant emissions from the facility.

With regard to expected future performance, we would expect emissions to be somewhat below the requested emission limitations to provide for a reasonable operating margin between the expected performance of the equipment over time and the permit limitation. This operating margin may vary considerably from pollutant to pollutant and will likely vary from vendor to vendor, depending upon their respective risk posture. Consequently, any estimates of future actual emissions at the Facility may deviate significantly from those that may be realized. For all these reasons it would be difficult to estimate future actual emissions accurately and any such estimates may provide misleading information.

Mr. Al Linero, P.E.

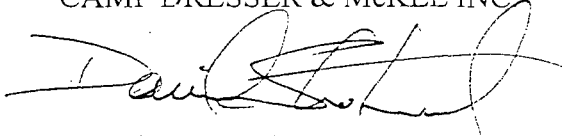
October 30, 1997

Page 6

If you have any questions or comments, do not hesitate to contact me.

Sincerely,

CAMP DRESSER & McKEE INC



Daniel E. Strobridge

Associate

cc: Mike Salmon, City of Tampa
Nancy McCann, City of Tampa
David Dee, Landers & Parsons
Don Elias, RTP
Cynthia Hibbard, CDM
Doug Fredericks, CDM
Ted Sjoberg, SVI

EXHIBIT 1

S. U. J.
10404 Oakbrook Drive
Tampa, Florida 33624
(813) 968-7483

October 29, 1997

R. Michael Salmon, Project Director
Environmental Services and
Public Works Project Coordinator
City of Tampa
306 E. Jackson St., 7th Floor
Tampa, Florida 33602


Subject: Confirmation - McKay Bay Waste-to-Energy Report - March 1996

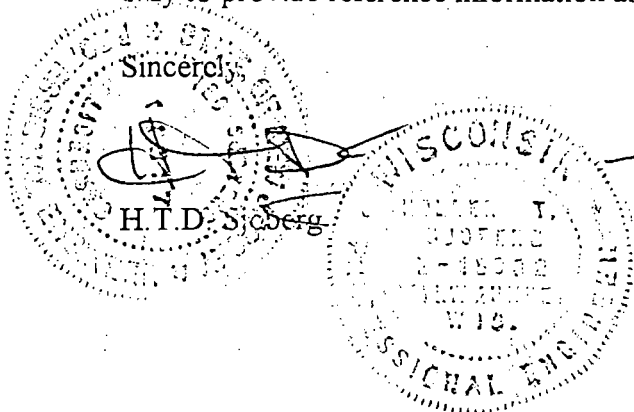
Dear Mr. M. Salmon:

Pursuant with your request, I have reviewed the information prepared for the City of Tampa and provided in the McKay Bay Waste-to-Energy Compliance Report - dated March 1996 - and find that the conclusions reached as part of the analysis, relative to the capability of the existing systems meeting the revised emissions standards as promulgated by the EPA remain, to the best of my knowledge and belief, to be accurate. The many recent subsequent meetings held with almost all of the major system suppliers, facility operators, and consultants active on this project have corroborated the conclusions in the Report relative to requiring replacement of the major combustion, heat recovery, and air pollution control systems.

You have also indicated that the Florida Environmental Protection Agency has requested confirmation that I am a registered Professional Engineer in any State and provide my seal with this letter. I am a registered Professional Engineer in the States of New Jersey and Wisconsin, but am not registered in the State of Florida. I have not in the past nor intend to in the future represent myself as a registered Professional Engineer in the State of Florida and my seals on this letter are applied only to provide reference information as requested.

Sincerely,


H.T.D. Sjoberg



City of Tampa
McKay Bay Waste - to - Energy Facility
Compliance Review

Prepared by SVI

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City of Tampa
McKay Bay Waste-to-Energy Facility
Compliance Review re USEPA Emission Guidelines

Objective: This intent of this brief overview is to evaluate portions of the McKay Bay Waste-to-Energy facility as to its current operational status and the changes deemed necessary to comply with the recently mandated USEPA Emission Guidelines. The total facility is involved, which includes not only the processing lines, but also the site, transfer station and scale house. Facility changes must also provide for the extension of operational life for an additional 20 years as a requirement for bond financing of the plant retrofit.

SUMMARY: This review addresses the changes to the principal areas of the facility, as denoted below, required to bring it into compliance with the new USEPA Emission Guidelines. An estimate is also provided to delineate the incumbent costs associated with the retrofit program.

COMPLIANCE REVIEW

ARCHITECTURAL/STRUCTURAL/CIVIL

The physical plant, including the process building, maintenance building, transfer station and scale house are basically in good to fair condition. Some refurbishment and repairs will be necessary to extend the plant life for the required 20 years.

PROCESS EQUIPMENT

The major plant equipment is currently operational but will require some upgrading and refurbishment to meet the extended plant life criteria.

COMBUSTION SYSTEM

The existing furnace/kiln system cannot be revised to provide the combustion environment necessary to prohibit dioxin formation required for compliance. It will be necessary to alter the furnace configuration by eliminating the kiln system and exchanging it with a furnace only system. A gas fired pre-heat system will also be required.

HEAT RECOVERY SYSTEM

The existing boilers do not currently have sufficient heat absorbing capability to reduce the flue gas exit temperatures to a satisfactory level of approximately 400-450 F necessary to inhibit reformation of dioxin. Several changes to the boilers will be required, which consists basically of expanding the surface areas of the 2nd and 3rd passes.

ASH SYSTEM

Environmental constraints will require that a new Ash/Lime Processing Building be erected. The ash conveyor system will have to be upgraded and rerouted to the new building site location. A revised ash processing system will also be required due the incorporation of the lime and activated carbon to the Air Pollution Control System.

AIR POLLUTION CONTROL SYSTEM

The entire existing electrostatic precipitator systems will have to be replaced with flue gas scrubbers and bag houses. A lime slurry and activated carbon will be injected into the gas stream at the scrubbers and the dioxin-heavy metal absorption/adsorption process will then take place on the surface of the filter bags.

COST ESTIMATE

Estimated cost to bring the McKay Bay Facility into compliance with the USEPA Emission Guidelines is broken down into the principal components noted above. The total estimated cost to retrofit the plant is anticipated to be approximately \$ 85 million.

Facility Background: Initially, the McKay Bay Waste to Energy facility was an incinerator that was operational from 1967 through 1979. The City of Tampa opted to rebuild the plant to comply with environmental regulations mandated at that time. It was determined that a 1,000 ton per day facility having 4 - 250 ton per day processing lines would be the optimum configuration. A contract was awarded in 1982 to equip the plant with a totally new combustion system, waste heat boilers, turbine/generator and air pollution control system. During this period a scale house and transfer station were constructed. The plant was totally gutted with only the structural portions remaining intact. Construction, installation and testing was completed in 1985 and the plant has been operational since that time. It must be taken into consideration when evaluating the plant that the structures are almost 30 years old and the processing systems have been in service for over 10 years of their rated 20 year life. These systems should be functional at the end of that period if operated correctly and properly maintained. The technology, however, was state of the art for the late 1970s. This is particularly true of the furnace, instrumentation and control systems. The plant processed in excess of 310,000 tons of waste during the year 1995 and is meeting the electrical generation contract commitments.

Compliance Review:

ARCHITECTURAL / STRUCTURAL / CIVIL

◇ SITE

- Description: The site encompasses approximately 11 acres on which the plant is located (Figure 1) and an additional area where the transfer station and scale house are situated along with interconnecting roadway. Road surfacing, fencing, gates and area lighting are in satisfactory condition for current operations.

USEPA Compliance Action: Each process line will have to be extended to the south and the existing stacks removed and relocated. It will also be necessary to incorporate a new Ash/Lime Processing Building on the site. The site will be expanded to the south and occupy a portion of the existing Police Auto Compound (Figure 2). Some of the roadway area may require resurfacing after construction is completed.

◇ PROCESS BUILDING

Description : The main processing building was totally stripped during the 1983 modification. An extension was added over the tipping floor area, aluminum siding provided for the existing structure and a new roof installed. The interior renovations consisted of new flooring, wall covering and ceilings provided for the administration areas with all other portions of the plant repainted.

Action: The processing building is in satisfactory condition and will require "sprucing up" in the form of repainting the exterior and the office and shop areas. Some refurbishment will be required after the plant rework since some of these areas will be occupied by outside contractors.

* Tipping Area and Pit

Description : The tipping area is covered with a steel framed enclosure. Pit capacity is approximately 2,000 tons, which is nominal for this size plant, and is part of the original structure. The tipping floor and pit areas are in poor condition, which is typical of ten years of operation in this harsh working environment.

Action: The tipping area and pit will have to be refurbished in all respects to provide the additional 20 year life of the plant

* **Control Room**

Description: The control room layout is unique in this plant because the crane operators and plant operators are in the same room. This is purposely done to improve communication and coordination. The control panels for the plant extend the length of one wall and consists primarily of analog instrumentation since the system was installed prior to the extensive use of computerized controls.

USEPA Compliance Action: It is anticipated that the combustion system will be modified and computer controlled. The computers will be housed in a console located in the middle of the control room. It is not necessary that the control room undergo any major revisions. The existing halon fire suppression system is no longer environmentally permitted and will require upgrading.

◇ **MAINTENANCE BUILDING**

Description: A pre-fabricated metal sided building utilized for maintenance and parts storage is located south of the current stacks (Figure 1).

USEPA Compliance Action: Installation of the required scrubber/baghouses will necessitate relocating this building to the area currently used for ash storage (Figure 2).

◇ **TRANSFER STATION**

Description: The transfer station is located on the plant site, a short distance from the process facility, and connected by asphalt roadway. The building is a metal sided, steel truss structure erected in 1985, and is in good condition.

Action: Some refurbishment may be necessary.

◇ **SCALE HOUSE**

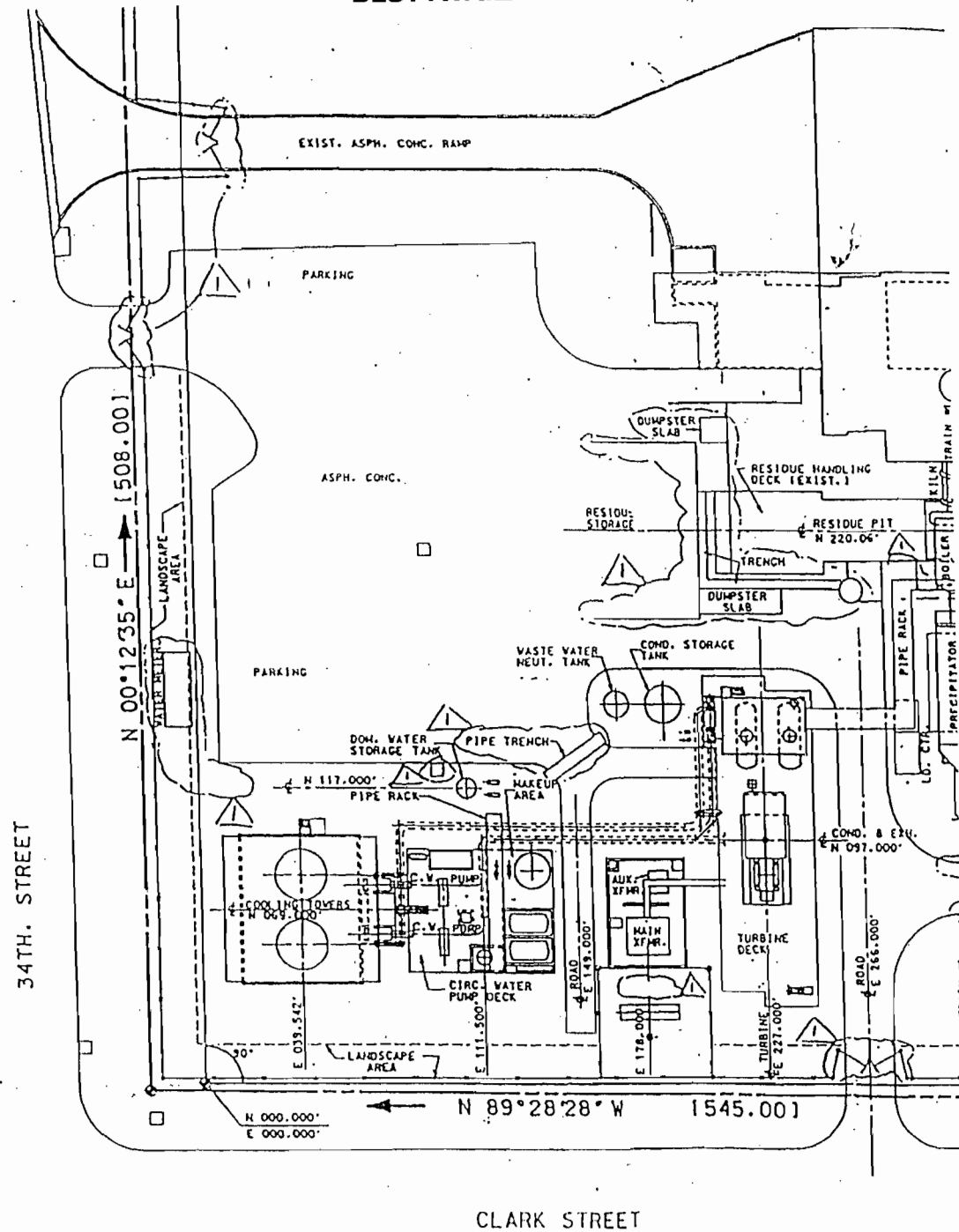
Description: The Scale House and associated computer system was installed in 1985. The facility is in good condition.

Action: Some building refurbishment may be necessary. The computer system is currently fully operational but should be reviewed as to upgrading to current technology.

Figure 1

**McKay Bay Plot Plan
Current Layout**

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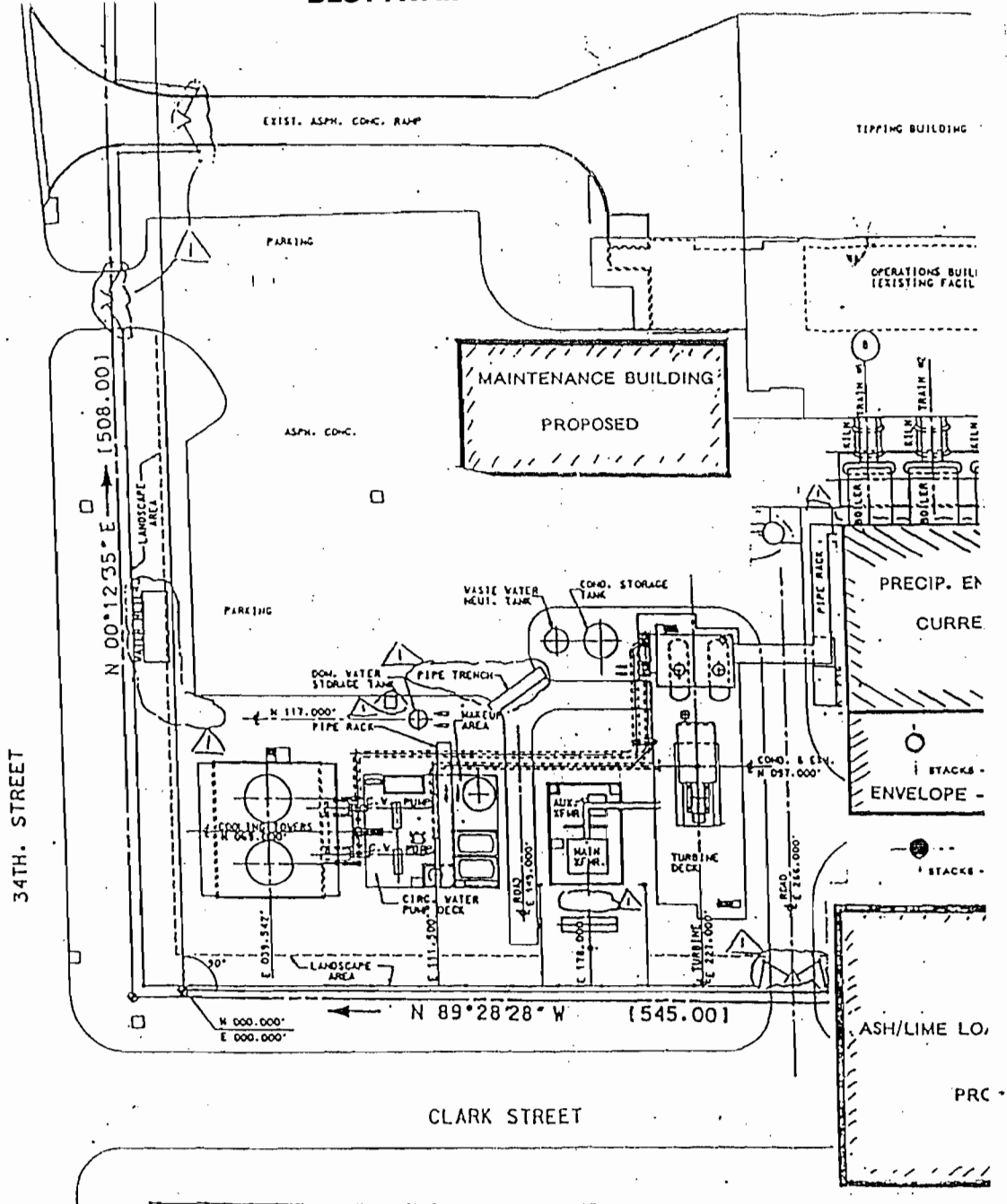


CLARK STREET

Figure 2

**McKay Bay Plot Plan
Proposed Layout**

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PROCESSING EQUIPMENT

◇ CRANES

Description: Two - 100% capacity cranes are installed and controlled by "joy sticks" from either of two operator control stations. The cranes were designed and supplied by the Finnish firm - KONE. However, the semi automated control system was installed by a KONE-US subcontractor and replacement parts are difficult to obtain. Switching is done with breakers located on the next lower level. Trolley, bridge and hoist operation is electrically driven and traversing is via steel wheels on crane rails. Orange peel grapples are utilized with the tines hydraulically actuated and hoisting by drum wound wire rope.

Action: The crane system will require refurbishment to provide the required extended 20 year life criteria. This will entail overhauling the trolley and bridge hoisting equipment and rails. The control and switching systems will require upgrading to a solid state maintainable system.

◇ AIR HANDLING

Description: The forced draft air handling system consists of individual primary and secondary fans for each line. Primary air fans are located on the lower level, drawing the air from ducts located at the roof level. The air passes through a steam air heater and then is ducted into chambers below the furnace grates. Control is by varying the air flow from the fans and remote controlled valves. There is no method to measure the air flow or distribution beneath each grate. Secondary air is drawn from the tipping area by fans located on the roof and ducted down to the furnaces. Control of secondary air is by manual valves with no method to determine the quantity of air introduced.

USEPA Compliance Action: A computerized control system is necessary to control air distribution to the furnaces. This will entail providing air measuring and remote control devices with associated revised ducting. It will be necessary to increase the capacity of the primary and induced air fans to compensate for the increased pressure drop caused by replacement of the precipitators with a scrubber/baghouse configuration.

◇ **ELECTRICAL DISTRIBUTION**

Description : The plant electrical system is a typical design with the motor control centers located throughout the plant. Electrical and control distribution throughout the plant is "hard wired" using cable trays or conduit where required. Obtaining replacement parts for the existing electrical system is difficult due to the age of the equipment. The plant battery system is in satisfactory condition.

USEPA Compliance Action: The requirement to install the new scrubber/baghouses, forced and induced air fans, and modify the combustion system will require revising most of the electrical supply and controls throughout the plant.

◇ **TOOLS**

Description: The plant currently has computers of different types which process work orders, plant operation data and budget control. Plant engineering information and files are limited. The majority of shop tools are those provided to the plant in 1985. The plant has 4 front end loaders, of which 2 are in poor condition. The 3 stand-by truck tractors and 12 trailers retained for waste hauling from the Transfer Station or during plant outages are in fair condition.

USEPA Compliance Action: The requirement to provide an additional 20 year plant operational status and the mandatory system changes will impact this area. Upgrading of the computers is necessary to utilize enhanced computer programming to improve record keeping and tracking plant performance. Additional equipment necessary for effective plant maintenance is required, including instrumentation testing and calibration systems. Two additional 5 ton forklifts should be provided and 2 of the front end loaders replaced. The condition of the waste hauling tractors and trailers should be assessed at the completion of the compliance program.

COMBUSTION SYSTEM

◇ FURNACE

Description: Four waste burning furnace/kiln units, each rated at 250 tons/day capacity, based on a proven incinerator design dating to the 1950's, were manufactured and installed in 1985 by Volund Miljoteknik A /S of Copenhagen, Denmark. The system was designed in conformance with the US environmental regulations in force at that time. This work was done under the direction of Waste Management Energy Systems, with the process systems subcontracted to Volund USA, a Volund subsidiary that was located in Chicago, Ill.. It is to be noted that Volund Miljoteknik A / S was purchased in 1992 by the Italian company, Ansaldo, and the Volund office in the US was closed. Construction and installation was subcontracted to the Bechtel Corporation.

The Volund units are steel casing, refractory lined furnaces with three reciprocating grates discharging into a refractory lined rotary kiln for final burnout, with an ash gravity feed to the water trough steel drag chain transport system (Figure 3). Underfire combustion air is injected upward through the grates from a sectioned hopper beneath the grates. Secondary air is injected through the refractory side walls, acting as coolant, with additional air introduced into the bypass duct prior to the 1st pass of the boiler. Ash sifting down through the grates drops into a hopper with a water covered drag chain conveyor and is then discharged into the main ash transport.

The primary control system addresses control of the waste combustion process in the furnace and the kiln. As currently installed, the control system consists of analog instrumentation with all control parameters manually set. The system basically reflects state of art control technology available in the 1970s. Extended along one wall of the control room is the control panel dedicated to the furnace/kiln which the operator monitors and manually adjusts as he deems necessary. The primary control parameter is steam flow, which the operator attempts to optimize while maximizing waste throughput. Throughput is controlled by the rate of grate movement and kiln rotation speed. Combustion air control is maintained by varying the total combustion or forced draft air to the system, underfire air individually for the three grates and total secondary air flow. Control factors include a minimum of manually adjusted 12 variables to maintain proper

furnace temperature - system pressures - temperatures throughout the total system and steam flow among other parameters. The operators must do this for four lines in addition to monitoring the balance of plant As can be noted from Figure 3, once the burning waste enters the kiln, where approximately 20% of the combustion or final burnout takes place, there is no capability to meter either primary or secondary combustion air and control combustion temperature to inhibit the formation of dioxin.

USEPA Compliance Action: The existing system will not comply with the new USEPA Guidelines. It will be modified by reconfiguring the furnace from a grate/kiln system to a grate only system (Figure 4) to permit accurate control of the process and furnace temperatures. The furnace will be refractory or ceramic lined with the flue gas exiting directly into the existing boiler. Waste feed from the existing chute to the three segment reciprocating grate system will be controlled by a hydraulically driven ram. Individual air plenums will be located beneath each grate section and measured air flow controlled by flow control valving in each section. Secondary air is also be similarly controlled for each section . Furnace temperature at each grate section - flue gas temperatures - steam flow - air flows - feed rate - grate speed - and other contributing parameters will be monitored and computer controlled. An individual computer, data acquisition and logging system will be provided for each line.

Ash will be discharged from the third grate into a water filled ash hopper push system, which not only cools the ash but also acts as an air seal. The cooled ash is then pushed up out of the water bath by a hydraulic ram on to one of two transfer conveyors.

◇ PREHEAT SYSTEM

USEPA Compliance Action: A gas or oil fired system is mandated to preheat the furnaces prior to introduction of waste to avoid "cold" startup or operation of the combustion system at reduced temperatures to repress the possibility of dioxin formation.

Figure 3
McKay Bay - Cross Section
Current Configuration

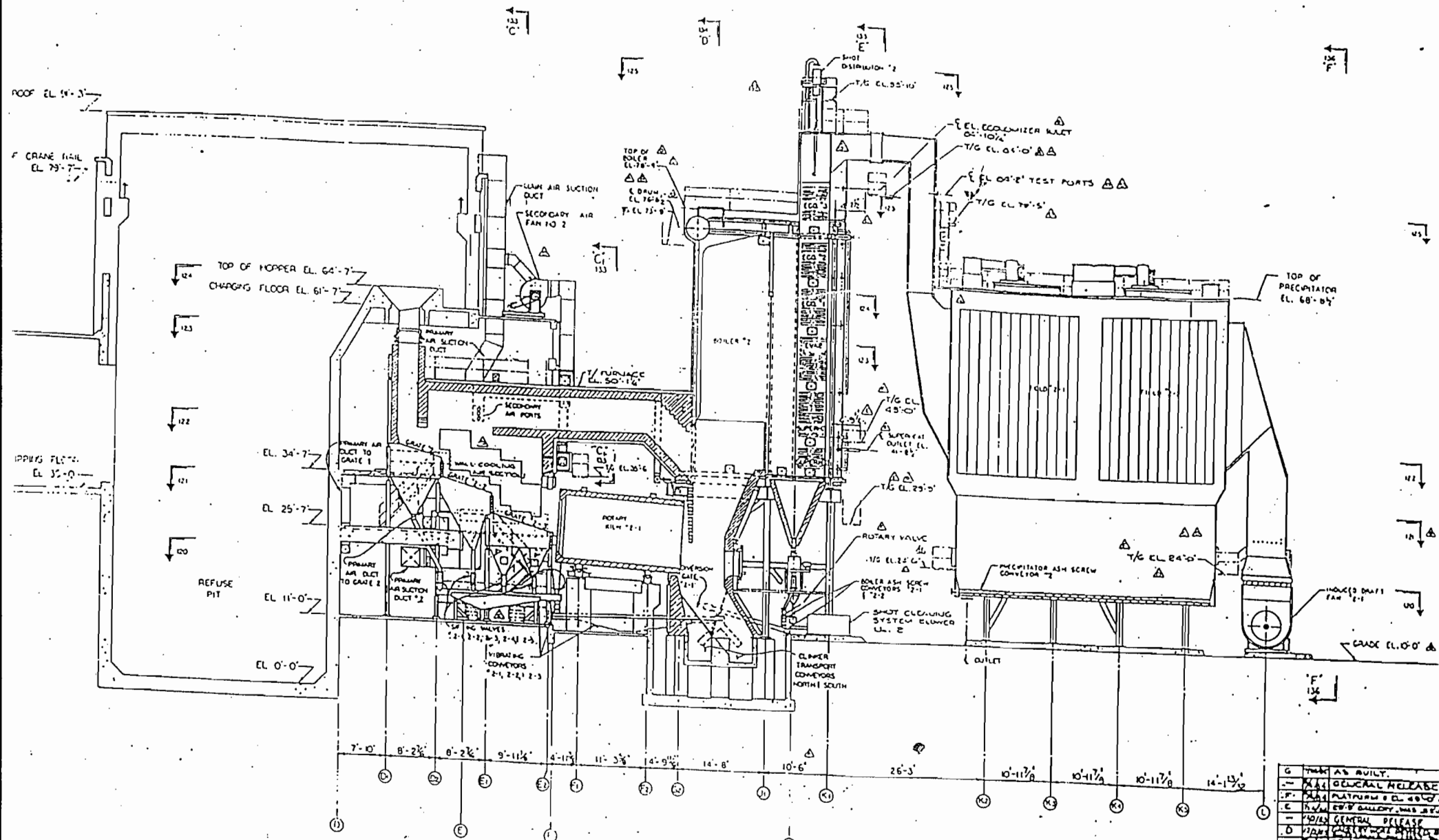
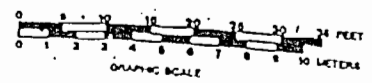


Figure 3

McKay Bay - Cross Section

Current Configuration

SECTION 'B-B'



G	1/4"	AS BUILT
-	3/8"	GENERAL RELEASE
F	3/8"	PLATFORM EL. 49'-0"
E	1/2"	EV'S BATTERY WARE SHED
-	1/2"	GENERAL RELEASE
D	1/2"	GENERAL RELEASE
-	1/2"	GENERAL RELEASE
C	1/2"	GENERAL RELEASE
-	1/2"	GENERAL RELEASE
B	1/2"	GENERAL RELEASE
-	1/2"	GENERAL RELEASE
A	1/2"	GENERAL RELEASE
-	1/2"	GENERAL RELEASE

Volund

DATE: 1/13/80

BY: [Signature]

PROJECT: [Signature]

SCALE: AS SHOWN

Figure 4
McKay Bay - Cross Section
Proposed Configuration

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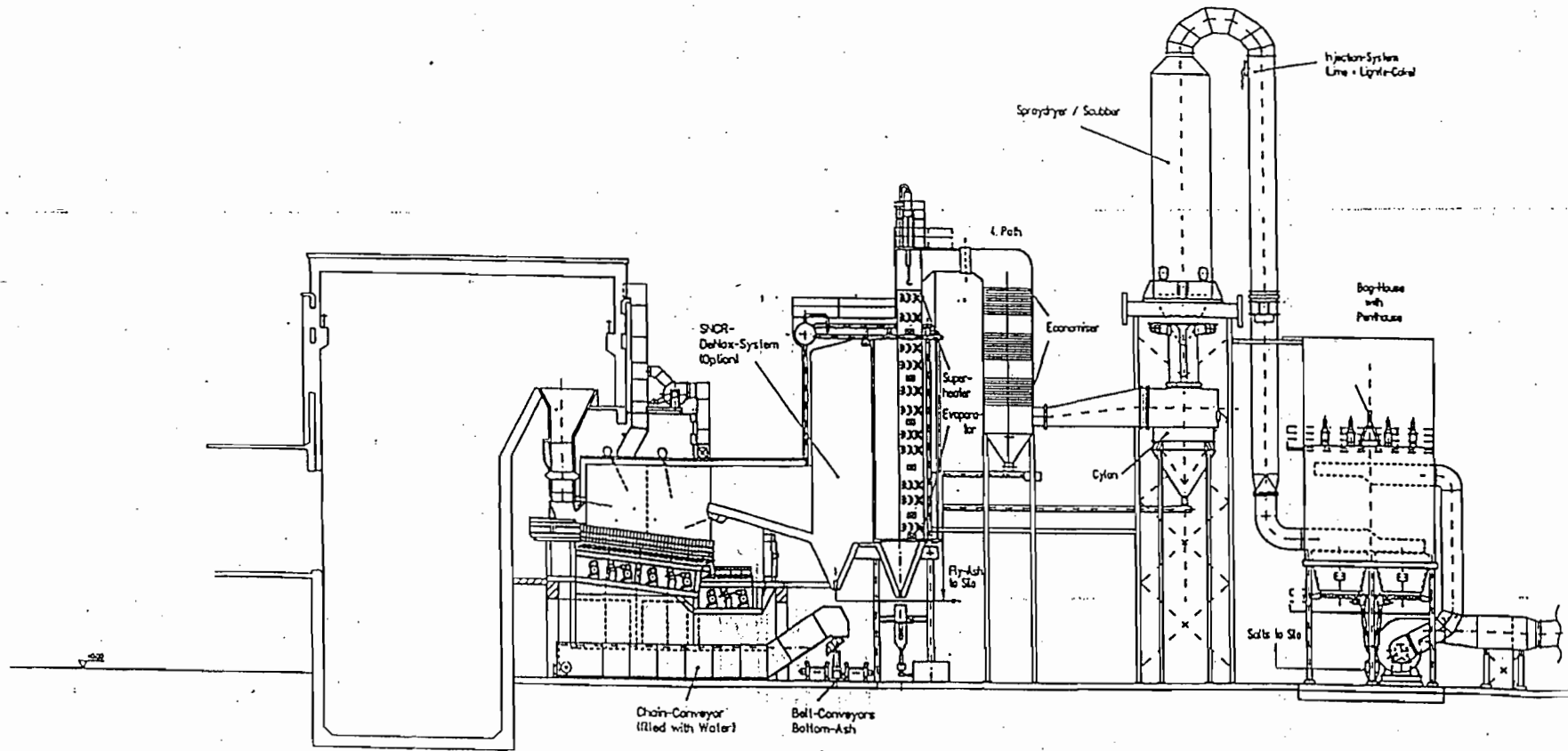


Figure 4

McKay Bay - Cross Section

Proposed Configuration



HEAT RECOVERY SYSTEM

◇ BOILER

Sounds like the boiler design is inefficient as is. Could justify replacement on inefficiency alone.

Description: The boilers were provided by Volund Miljoteknik A/S and manufactured in Denmark. They are corner tube - 3 pass - single drum - bottom supported units based on an Ekruhr design licensed from Deutsch Babcock of Germany. Heat absorption capability of the boilers has proven to be marginal. This is manifested by the fact that at full load, in a fouled condition, flue gas exit temperatures are in the range of 600 F vs. the 400 F - 450 F range deemed acceptable for inhibiting dioxin reformation. Volund unsuccessfully attempted to rectify this problem by adding additional economizer capacity and changing the superheater configuration. Gas distribution is uneven within the units and several approaches have been tried to create laminar flow, but none have proven effective to date. It is anticipated that thermal profiling of the boilers will show post ignition in the boilers of unburned gases emanating from the furnace, a situation, which constrains performance of the air pollution control systems.

USEPA Compliance Action: The boilers must be modified to provide the required additional heat absorption necessary to have the flue gas exit temperatures in the acceptable range of 400 - 450 F for dioxin control. This can be accomplished by increasing the surface area in the 1st pass- adding tube pendants in the 2nd pass - enlarging the 3rd pass by altering the width of the side walls and providing larger superheaters. The precise boiler modifications will be dependent upon a further detailed design review. It is not anticipated that additional NO_x control will be required. If deemed necessary, NO_x control will be provided by spraying Urea or other appropriate chemicals into the 1st pass flue gas stream.

ASH SYSTEM

◇ ASH/LIME PROCESSING BUILDING

Description: Current regulations dictate that the ash be stored under roof and chemically treated before disposal off site. Plans are in work for cover to be provided over the existing ash storage area (Figure 1), which is restrictive in size and run off control..

USEPA Compliance Action: Installation of the scrubber/baghouse system will require the addition of a lime handling system in addition to an upgraded ash and spent lime processing system. It is a requisite that this processing and storage be done under cover to prohibit dust excursion and possible leaching from rainfall. A new Processing Building is required and will be located south of the repositioned stacks (Figure 2) and situated to provide access from the existing entrance roadway for loading and off loading.

◇ BOTTOM ASH

Description: The bottom ash is discharged from the end of the rotating kiln into water filled reinforced concrete troughs which are common to all units. Grate ash and fly ash from the boilers is also discharged into the bottom ash stream. All ash is then transported by steel link drag chain conveyor up into a rotating trommel, which permits the ash to drop through and the larger items to be separated. The ash conveyor system was originally installed in 1967. Ferrous material is magnetically removed from the separated ash streams. A temporary Wes-Phix chemical ash treatment system has recently been added.

USEPA Compliance Action: The ash conveyor system will be rerouted, due to the location of the Ash/Lime Processing Building, and the existing steel drag chain system will be abandoned. A pair of parallel rubber belt conveyors, providing a 100% redundancy, will be installed to provide ash transport. As shown in the area plot plan (Figure 2), the furnace ash conveyors upon exiting from the process area will discharge onto one of two north/south covered rubber belt conveyors transporting the ash into the Ash/Lime Processing Building.

AIR POLLUTION CONTROL SYSTEM

Description: The existing emission control equipment consists of an electrostatic precipitator for each line. Installed during the 1985 plant overhaul, the units were fabricated by F.L. Schmidt of Denmark. The precipitator system has performed satisfactorily during the 10 years of service and the plant has been in environmental compliance.

USEPA Guidelines Compliance Action: The USEPA Emission Guidelines requires that the electrostatic precipitator system be replaced with a scrubber/bag house configuration. This is particularly necessary to meet the heavy metals and dioxin level standards. The emission control configuration to be installed (Figure 4) is similar to the system utilized Hamm, Germany in a plant of similar size to McKay Bay, 4 lines of 250 ton per day throughput capacity. Dioxin emission results were less than 0.1 nanograms per cubic meter, which is the threshold level required to meet the highly restrictive German 17 BImSchV environmental standards. A lime slurry and a small percentage of activated carbon will be injected into the flue gas stream at the scrubber. The flue gases will then be filtered through the bag house system where the chemical reaction and adsorption/absorption of the emission contaminants occurs, primarily on the surface of the filtration bags. A continuous emission monitoring system will also be installed to conform with USEPA Guidelines.

Cost Estimate

The estimated costs are for changes and refurbishment required to retrofit the McKay Bay Waste-to-Energy Facility to comply with the new USEPA Emission Guidelines and the financing obligation for an additional 20 year plant life.

	<u>Cost (\$1,000)</u>
Architectural / Structural / Site	1,180
Process Equipment	1,950
Furnace / Control System	22,000
Heat Recovery System	11,100
Ash & Conveyor System	1,100
Ash / Lime Processing Building	950
Air Pollution Control System	33,500
	<u>71,780</u>
Contingency	7,200
	<u>78,980</u>
Engineer / Permitting	6,000
	<u>84,980</u>
Total	84,980

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H.T.D.SJOBERG

BIOGRAPHICAL SUMMARY

Mr. Sjoberg has over 35 years management experience in varied technical enterprises of which almost the last 20 years has been in the field of waste-to energy .

After initial involvement for several years in the construction field, Mr. Sjoberg was then active in the aerospace industry during the " Man on the Moon " phase. While employed by Thiokol Chemical Corp. and Wright Aeronautical Corp., he progressed from responsibility for a rocket testing complex to establishing and directing a corporate diversification program which provided major rocket testing facilities for NASA and all the major aerospace vendors:

Mr. Sjoberg, then founded and managed Space Engineering Inc. and Sjoberg & Hart Associates, which for 10 years provided specialized equipment and facilities for such typical clients as Allied Chemical Corp., Walter Kidde & Co., Pratt & Whitney Corp. and E.I. DuPont Inc..

Mr. Sjoberg assumed responsibility for all technical and operational aspects for the resource recovery organization of the American Can Co., known as Americology in 1975. A primary project was the first major Refuse-Derived-Fuel (RDF) facility in the U.S. to provide an alternate fuel supplement for a coal burning power plant which was constructed in Milwaukee, Wisconsin. His responsibilities encompassed direction of plant design and operation, permitting, contract negotiations, interface with all governmental agencies and subsequent start up and operation of the 1,000 ton per day RDF facility and power plant interface. Mr. Sjoberg was also involved with technical overview of a developmental waste-to-energy pyrolysis process which involved operation a 100 ton per day facility.

In 1980, Mr. Sjoberg joined Waste Management Inc., where he initially had overall responsibility for all corporate engineering functions and resource recovery operations, as well as all aspects of solid, chemical and infectious waste disposal and treatment. These included Recovery I, a 600 ton per day waste shredding and separation facility and landfill in New Orleans, La. and RefCOM, a 100 ton per day anaerobic digestive process demonstration

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plant which converted solid waste and digested sewage sludge to methane gas for energy utilization. It consisted of a shredding and separation facility which prepared material for the anaerobic digesters. He assumed overall responsibility for the resource recovery area as a staff Corporate Vice-President and President of Waste Management Energy Systems (WMES). This involved the full spectrum of business activities in the field of waste-to-energy. Typical WMES projects were constructing and operating a 1,000 ton per day mass burn facility in Tampa, Fl.; a 2,200 ton per day facility for Broward County, FL was negotiated and under contract with all State and Federal environmental permits being issued, among others. WMES was merged with Wheelabrator Technologies in late 1988.

Mr. Sjoberg is currently President of Sjoberg Ventures, Inc.(SVI), which he founded in 1988. S.V.I. has provided consulting services in all aspects of both solid and chemical waste treatment and alternative energy systems. Clients have included such organizations as Bechtel Corporation, Tampa Electric Company, Waste Management Inc. and Wheelabrator Technologies among others. Activities have involved projects in the US and overseas. This has included tasks such as being totally responsible for the rebuilding and reorganization of a 1,000 ton per day mass burn facility in Germany, which was in excess of 75 million dollars and incorporated an emission control system to meet the latest stringent European regulations. Landfill design evaluation, waste to energy business development plans, analysis of anaerobic digestion systems for waste conversion to methane for the Department of Energy are among some of the SVI projects.

Mr. Sjoberg holds a degree in Engineering from the New Jersey Institute of Technology and is a licensed Professional Engineer in the States of New Jersey and Wisconsin. His service activities include periods as an instructor in Tactical Nuclear Weapons and Shipboard Communications Officer.

Mr. Sjoberg has held membership in the American Institute of Aeronautics and Astronautics, the American Defense Preparedness Association, the Society of Plastic Engineers, The American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Public Works Association, and the National Solid Waste Association among others. He is the author of several papers on Aerospace Testing and Resource Recovery has been active on many professional organization panels.

EXHIBIT 2

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
Particulate Matter (in lb/hr)**

		Year of Stack Test										
		1985	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Unit 1	Run 1	3.11	3.51	2.95	1.57	2.43	3.09	3.27	1.81	1.11	9.98	1.43
	Run 2	5.87	3.06	1.20	1.38	0.76	2.46	1.67	3.81	0.94	8.12	1.85
	Run 3	1.47	5.27	2.43	1.92	0.73	4.67	1.22	3.72	3.26	1.07	0.90
Unit 2	Run 1	3.99	2.62	1.98	1.54	2.12	1.62	6.50	2.08	7.68	19.26	1.03
	Run 2	3.08	2.19	3.32	1.57	2.43	2.01	1.46	2.09	6.79	2.63	0.72
	Run 3	8.14	1.79	3.86	0.89	2.44	1.52	1.08	3.81	6.01	6.36	1.75
Unit 3	Run 1	0.86	3.03	3.55	2.67	2.92	2.06	2.73	1.63	1.81	0.66	0.69
	Run 2	0.57	3.35	1.62	4.68	1.44	3.23	1.03	1.88	1.35	1.86	1.19
	Run 3	0.30	3.65	5.26	4.12	1.22	3.78	1.73	5.53	0.97	0.72	0.60
Unit 4	Run 1	4.18	1.10	9.55	0.97	2.44	1.15	0.89	3.23	3.96	2.49	0.87
	Run 2	NA	0.77	2.67	2.65	1.52	1.15	1.48	2.91	1.06	0.38	0.66
	Run 3	1.47	0.87	2.44	4.20	1.45	5.72	3.56	4.28	0.78	0.92	0.60
Test Series Averages:												
	Unit 1	3.49	3.95	2.19	1.62	1.31	3.41	2.05	3.11	1.77	6.39	1.39
	Unit 2	5.07	2.20	3.05	1.33	2.33	1.72	3.01	2.66	6.83	9.42	1.17
	Unit 3	0.58	3.34	3.48	3.82	1.86	3.02	1.83	3.01	1.38	1.08	0.83
	Unit 4	2.83	0.91	4.89	2.61	1.80	2.67	1.98	3.47	1.93	1.26	0.71
Facility Total:		11.96	10.40	13.61	9.39	7.30	10.82	8.87	12.26	11.91	18.15	4.10

Annual Facility availability (as of fiscal year ending 9/9):	90.9%	
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	18.15	72.26
	13.61	54.19

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	Equiv. Facility Total		lb/hr/serie	Equiv. Facility Total	
		lb/hr	ton/year		lb/hr	ton/year
Overall Average	2.70	10.79	42.97	2.70	10.80	42.99
Standard Deviation	2.40	—	—	1.73	—	—
Average + 2SD	7.49	29.96	119.26	6.17	24.67	98.21

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
SO₂ (in lb/hr)**

		Year of Stack Test					
		1985	1987	1988	1989	1990	1991
Unit 1	Run 1	41.0	14.5	48.3	25.3	24.1	26.8
	Run 2	34.5	10.7	13.6	16.2	35.4	29.2
	Run 3	9.13	18.9	23.5	18.3	24.5	23.2
Unit 2	Run 1	38.1	12.2	17.3	29.8	39.0	41.6
	Run 2	36.1	NA	21.6	35.4	23.2	36.9
	Run 3	25.8	20.0	31.5	69.1	23.6	37.1
Unit 3	Run 1	18.8	21.5	23.2	26.4	25.0	17.3
	Run 2	26.6	23.6	13.4	24.7	15.7	11.7
	Run 3	37.2	42.1	18.3	33.0	24.4	6.8
Unit 4	Run 1	36.7	11.4	16.5	7.2	72.1	22.7
	Run 2	NA	17.4	22.4	28.3	22.7	11.0
	Run 3	65.0	30.7	26.4	21.2	40.0	1.3
Test Series Averages:							
	Unit 1	28.2	14.7	28.5	19.9	28.0	26.4
	Unit 2	33.3	16.1	23.5	44.8	28.6	38.5
	Unit 3	27.5	29.1	18.3	28.0	21.7	11.9
	Unit 4	50.9	19.8	21.8	18.9	44.9	11.7
Facility Total:		139.9	79.7	92.0	111.6	123.2	88.5

Annual Facility availability (as of fiscal year ending 9/97)		90.9%
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	139.9	557.1
	123.2	490.6

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	Equiv. Facility Total		lb/hr/serie	Equiv. Facility Total	
		lb/hr	ton/year		lb/hr	ton/year
Overall Average	26.3	105.0	418.2	26.5	105.8	421.4
Standard Deviation	13.3	—	—	10.3	—	—
Average + 2SD	52.9	211.6	842.7	47.0	188.0	748.7

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
NOx (in lb/hr)**

		Year of Stack Test					
		1985	1987	1988	1989	1990	1991
Unit 1	Run 1	NA	26.1	50.1	45.9	42.6	28.7
	Run 2	NA	34.9	48.1	39.7	32.7	31.2
	Run 3	NA	30.7	43.1	54.2	43.6	26.3
Unit 2	Run 1	12.8	29.1	41.6	61.4	31.0	61.6
	Run 2	11.2	31.4	43.6	75.2	52.0	44.1
	Run 3	9.4	42.9	50.2	64.6	63.2	46.0
Unit 3	Run 1	29.7	31.7	38.6	53.6	37.8	31.6
	Run 2	31.3	32.9	38.7	51.8	47.3	38.9
	Run 3	14.0	41.2	40.1	67.3	57.1	33.5
Unit 4	Run 1	28.7	35.8	38.6	50.0	42.7	23.1
	Run 2	33.4	37.3	41.7	66.1	28.9	38.5
	Run 3	29.0	33.1	45.5	62.4	28.7	42.9
Test Series Averages:							
	Unit 1	NA	30.6	47.1	46.6	39.6	28.7
	Unit 2	11.1	34.5	45.1	67.1	48.7	50.6
	Unit 3	25.0	35.3	39.1	57.6	47.4	34.7
	Unit 4	30.4	35.4	41.9	59.5	33.4	34.8
Facility Total:							
		66.5 (3 units)	135.7	173.3	230.7	169.2	148.8

Annual Facility availability (as of fiscal year ending 9/9)	90.9%
Highest two years of Facility stack test data:	Estimated
	lb/hr
	ton/year
	230.7
	173.3
	918.6
	690.0

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	Equiv. Facility Total		lb/hr/serie	Equiv. Facility Total	
		lb/hr	ton/year		lb/hr	ton/year
Overall Average	40.2	160.7	640.0	40.2	160.7	640.0
Standard Deviation	13.5	—	—	12.3	—	—
Average + 2SD	67.1	268.5	1069.2	64.8	259.1	1031.7

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
Lead (in lb/hr)**

		Year of Stack Test										
		1985	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Unit 1	Run 1	0.124	0.25	0.08	0.05	0.07	0.09	0.080	0.0578	0.0359	0.2455	0.0232
	Run 2	0.086	0.15	0.03	0.01	0.01	0.10	0.046	0.0893	0.0252	0.0893	0.0183
	Run 3	0.088	0.07	0.04	0.03	0.02	0.17	0.029	0.1370	0.0717	0.0468	0.0132
Unit 2	Run 1	0.098	0.09	0.05	0.04	0.03	0.04	0.073	0.0210	0.1925	0.4400	0.0253
	Run 2	0.091	0.08	0.06	0.03	0.05	0.03	0.047	0.0358	0.1551	0.0461	0.0170
	Run 3	0.106	0.08	0.11	0.02	0.04	0.04	0.027	0.0898	0.1776	0.0747	0.0456
Unit 3	Run 1	0.090	0.03	0.08	0.07	0.03	0.06	0.091	0.0248	0.0403	0.0223	0.0134
	Run 2	0.089	0.02	0.10	0.15	0.02	0.13	0.014	0.0214	0.0227	0.0346	0.0194
	Run 3	0.100	0.04	0.13	0.27	0.02	0.09	0.064	0.0315	0.0163	0.0126	0.00824
Unit 4	Run 1	0.118	0.02	0.08	0.03	0.06	0.01	0.014	0.0828	0.1104	0.0362	0.0232
	Run 2	0.114	0.02	0.04	0.09	0.03	0.03	0.020	0.0668	0.0824	0.0196	0.0183
	Run 3	0.105	0.02	0.05	0.17	0.02	0.17	0.072	0.0939	0.0461	0.0300	0.0132
Test Series Averages:												
	Unit 1	0.10	0.16	0.05	0.03	0.03	0.12	0.05	0.09	0.04	0.13	0.02
	Unit 2	0.10	0.08	0.07	0.03	0.04	0.04	0.05	0.05	0.18	0.19	0.03
	Unit 3	0.09	0.03	0.10	0.16	0.02	0.09	0.06	0.03	0.03	0.02	0.01
	Unit 4	0.11	0.02	0.06	0.10	0.04	0.07	0.04	0.08	0.08	0.03	0.02
Facility Total:		0.40	0.29	0.28	0.32	0.13	0.32	0.19	0.25	0.33	0.37	0.08

Annual Facility availability (as of fiscal year ending 9/9):		90.9%	
Highest two years of Facility stack test data:		lb/hr	Estimated ton/year
		0.40	1.60
		0.37	1.46

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	lb/hr	ton/year	lb/hr/serie	lb/hr	ton/year
Overall Average	0.07	0.27	1.07	0.07	0.27	1.07
Standard Deviation	0.06	—	—	0.05	—	—
Average + 2SD	0.19	0.76	3.01	0.16	0.63	2.53

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
Fluorides (in lb/hr)**

		Year of Stack Test	
		1985	1991
Unit 1	Run 1	0.51	0.46
	Run 2	0.35	0.45
	Run 3	0.18	0.53
Unit 2	Run 1	0.24	0.26
	Run 2	0.47	0.26
	Run 3	0.52	0.39
Unit 3	Run 1	0.47	0.37
	Run 2	0.90	0.37
	Run 3	0.56	0.28
Unit 4	Run 1	0.94	0.33
	Run 2	NA	0.50
	Run 3	0.85	0.50
Test Series Averages:			
	Unit 1	0.35	0.48
	Unit 2	0.41	0.30
	Unit 3	0.64	0.34
	Unit 4	0.90	0.44
Facility Total:		2.30	1.57

Annual Facility availability (as of fiscal year ending 9/97)	90.9%	
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	2.30	9.14
	1.57	6.24

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	Equiv. Facility Total		lb/hr/serie	Equiv. Facility Total	
		lb/hr	ton/year		lb/hr	ton/year
Overall Average	0.46	1.86	7.40	0.48	1.93	7.69
Standard Deviation	0.20	—	—	0.20	—	—
Average + 2SD	0.87	3.47	13.81	0.88	3.51	13.99

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
Mercury (in lb/hr)**

		Year of Stack Test					
		1985	1991	1993	1994	1995	1996
Unit 1	Run 1	0.044	0.0098	0.01065	0.00639	0.019	0.0135
	Run 2	0.051	0.0297	0.02351	0.10408	0.013	0.0148
	Run 3	0.109	0.0357	0.02505	0.03167	0.011	0.0088
Unit 2	Run 1	0.102	0.0122	0.0177	0.02340	0.01765	0.0133
	Run 2	0.042	0.0067	0.02906	0.02200	0.01100	0.0172
	Run 3	0.092	0.0132	0.01335	0.01262	0.00726	0.00951
Unit 3	Run 1	0.124	0.0064	0.03668	0.00438	0.01241	0.00939
	Run 2	0.103	0.0065	0.01016	0.00923	0.01293	0.00650
	Run 3	0.067	0.0121	0.01302	0.01180	0.5564	0.0151
Unit 4	Run 1	0.169	0.0043	0.0102	0.0124	0.00708	0.0108
	Run 2	0.073	0.0108	0.01751	0.0258	0.00400	0.0743
	Run 3	0.074	0.0126	0.02973	0.0135	0.00631	0.0114
Test Series Averages:							
	Unit 1	0.068	0.025	0.020	0.047	0.014	0.012
	Unit 2	0.079	0.011	0.020	0.019	0.012	0.013
	Unit 3	0.098	0.008	0.020	0.008	0.194	0.010
	Unit 4	0.105	0.009	0.019	0.017	0.006	0.032
Facility Total:		0.350	0.053	0.079	0.092	0.226	0.068

Annual Facility availability (as of fiscal year ending 9/97)	90.9%	
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	0.350	1.393
	0.226	0.900

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	Equiv. Facility Total		lb/hr/serie	Equiv. Facility Total	
		lb/hr	ton/year		lb/hr	ton/year
Overall Average	0.036	0.145	0.577	0.036	0.145	0.577
Standard Deviation	0.071	—	—	0.044	—	—
Average + 2SD	0.177	0.710	2.825	0.125	0.498	1.985

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
CO (in lb/hr)**

		Year 1985
Unit 1	Run 1	7.5
	Run 2	4.2
	Run 3	4.2
Unit 2	Run 1	6.7
	Run 2	5.2
	Run 3	6.3
Unit 3	Run 1	6.1
	Run 2	4.5
	Run 3	3.8
Unit 4	Run 1	5.2
	Run 2	5.4
	Run 3	6.5
Test Series Averages:		
	Unit 1	5.3
	Unit 2	6.1
	Unit 3	4.8
	Unit 4	5.7
Facility Total:		21.9

Annual Facility availability (as of fiscal year ending 9/97)	90.9%	
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	21.9	87.1
	NA	NA

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	lb/hr	ton/year	lb/hr/series	lb/hr	ton/year
Overall Average	5.5	21.9	87.1	5.5	21.9	87.1
Standard Deviation	1.2	—	—	0.5	—	—
Average + 2SD	7.8	31.2	124.1	6.6	26.2	104.4

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
VOC (in lb/hr)**

		Year of Stack Test	
		1985	1991
Unit 1	Run 1	1.7	0.37
	Run 2	0.46	0.39
	Run 3	0.46	0.24
Unit 2	Run 1	0.47	0.20
	Run 2	0.32	0.27
	Run 3	0.32	0.29
Unit 3	Run 1	0.71	0.29
	Run 2	0.42	0.35
	Run 3	0.99	0.38
Unit 4	Run 1	0.48	0.25
	Run 2	1.00	0.21
	Run 3	0.69	0.39
Test Series Averages:			
	Unit 1	0.87	0.33
	Unit 2	0.37	0.25
	Unit 3	0.71	0.34
	Unit 4	0.72	0.28
Facility Total:		2.67	1.21

Annual Facility availability (as of fiscal year ending 9/97)		90.9%
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	2.67	10.64
	1.21	4.82

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	lb/hr	ton/year	lb/hr/serie	lb/hr	ton/year
Overall Average	0.49	1.94	7.73	0.49	1.94	7.73
Standard Deviation	0.34	---	---	0.24	---	---
Average + 2SD	1.16	4.63	18.45	0.97	3.87	15.42

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
Beryllium (in lb/hr)**

		Year 1991
Unit 1	Run 1	5.72E-06
	Run 2	5.61E-06
	Run 3	5.66E-06
Unit 2	Run 1	5.47E-06
	Run 2	5.64E-06
	Run 3	5.61E-06
Unit 3	Run 1	5.91E-06
	Run 2	4.60E-06
	Run 3	7.04E-06
Unit 4	Run 1	5.65E-06
	Run 2	5.77E-06
	Run 3	1.87E-05
Test Series Averages:		
	Unit 1	5.66E-06
	Unit 2	5.57E-06
	Unit 3	5.85E-06
	Unit 4	1.00E-05
Facility Total:		2.71E-05

Annual Facility availability (as of fiscal year ending 9/9)		90.9%
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	2.71E-05 NA	1.08E-04 NA

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	Equiv. Facility Total lb/hr	ton/year	b/hr/serie	Equiv. Facility Total lb/hr	ton/year
Overall Average	6.78E-06	2.71E-05	1.08E-04	6.78E-06	2.71E-05	1.08E-04
Standard Deviation	3.79E-06	—	—	2.18E-06	—	—
Average + 2SD	1.44E-05	5.75E-05	2.29E-04	1.11E-05	4.45E-05	1.77E-04

Note: Beryllium testing was conducted in 1985, but is not included here, because the detection limit used was higher than the permit limit.

**McKAY BAY REFUSE-TO-ENERGY FACILITY
STACK TEST DATA SUMMARY
Cadmium (in lb/hr)**

		Year of Stack Test	
		1994	1995
Unit 1	Run 1	0.00176	0.01120
	Run 2	0.00233	0.00064
	Run 3	0.00376	0.00248
Unit 2	Run 1	0.00280	0.02531
	Run 2	0.01168	0.00571
	Run 3	0.01156	0.00388
Unit 3	Run 1	0.00183	0.00106
	Run 2	0.00311	0.00299
	Run 3	0.03078	0.00042
Unit 4	Run 1	0.00500	0.00782
	Run 2	0.00440	0.00203
	Run 3	0.00289	0.00138
Test Series Averages:			
	Unit 1	0.00262	0.00477
	Unit 2	0.00868	0.01163
	Unit 3	0.01191	0.00149
	Unit 4	0.00410	0.00374
Facility Total:		0.02730	0.02164

Annual Facility availability (as of fiscal year ending 9/97)		90.9%
Highest two years of Facility stack test data:	lb/hr	Estimated ton/year
	0.02730	0.10869
	0.02164	0.08616

Statistics	Individual Run Results			Test Series Averages		
	lb/hr/run	lb/hr	ton/year	lb/hr/series	lb/hr	ton/year
Overall Average	0.00612	0.02447	0.09743	0.00612	0.02447	0.09743
Standard Deviation	0.00756	—	—	0.00407	—	—
Average + 2SD	0.02123	0.08492	0.33810	0.01425	0.05699	0.22692

**McKAY BAY REFUSE-TO-ENERGY FACILITY
 STACK TEST DATA SUMMARY
 Facility Totals for All Pollutants (tons/year)**

	Highest 2 Years 1st High 2nd High		Statistics		
			Overall Average	Average + 2 Std. Dev. Individual Test Series Runs Averages	
PM	72.26	54.19	42.97	119.3	98.21
SO2	557.1	490.6	418.2	842.7	748.7
NOx	918.6	690.0	640.0	1069	1032
Lead	1.60	1.46	1.07	3.01	2.53
Fluorides	9.14	6.24	7.40	13.81	13.99
Mercury	1.39	0.90	0.58	2.83	1.98
CO	87.1	NA	87.1	124.1	104.4
VOC	10.64	4.82	7.73	18.45	15.42
Beryllium	1.08E-04	NA	1.08E-04	2.29E-04	1.77E-04
Cadmium	0.1087	0.0862	0.0974	0.3381	0.2269

Note: Test data was collected as lb/hr. Ton/yr is based on 90.9% availability, or about 7963 hours of operation per year.



Department of Environmental Protection

JR's

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
October 14, 1997

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Honorable Dick Greco, Mayor
City of Tampa
306 E. Jackson
Tampa, Florida 33602

Re: DEP File Number 0570127-002-AC
McKay Bay Retrofit Project

Dear Mayor Greco:

The Department received the City's application for the McKay Bay Refuse-to-Energy Facility (MBREF) Air Pollution Control Equipment and Facility Improvements project on September 16, 1997. Following our initial review, we need the additional information listed below to process this request.

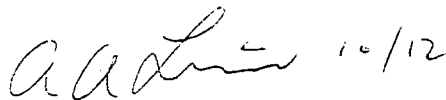
1. For verification of combustion capacity as indicated in the August 25, 1997 federal rule changes for Subpart Cb and Eb units, please provide calculations of the maximum charging rate of each unit according to the procedures under Section 60.58b(j) of 40 CFR 60 Subpart Eb. Also provide annual tonnage of municipal solid waste processed by the MBREF over the last five years along with any heat content determinations that have been made for the municipal solid waste burned.
2. For verification of "modification" or "reconstruction" status as defined in Subpart Eb, provide Subpart Eb construction cost calculations consistent with the EPA's August 20, 1996 "Applicability Determination," as amended on December 30, 1996. The Department considers induced draft (ID) fans to be part of the MWC units because they could not operate without them even if there was no air pollution control equipment. The ID fans are required to overcome the pressure drop of the process equipment as well as the pollution control equipment. In this case, the ID fans are the equivalent of forced air fans and should be considered as being within the physical boundaries of the MWC unit.
3. The process equipment retrofit appears to be a more of a life extension project than for meeting Subpart Cb in which case Subpart Eb may apply. Please provide a detailed engineering report confirming that the process equipment replacements are required for the MBREF to meet the Subpart Cb guidelines. The report should be prepared and sealed by a professional engineer with expertise in the appropriate mechanical and process disciplines addressed in the report.
4. Please indicate the most probable choice between reconstructing the existing mass burn refractory combustors or replacing them with the waterwall design (page 2-5), and between replacing the existing boilers or substantially improving them (page 3-1). This is necessary to meet the requirements of Rule 62-4.070, F.A.C., Standards for Issuing or Denying Permits. Subpart applicability, the ultimate performance of the facility, and the ability to efficiently burn the slate of wastes anticipated in the application may be related to this decision.
5. Please indicate which of the wastes specified in the application are already burned at the facility. How will the proposed specification of fuels affect overall waste throughput quantities? We may to submit some additional questions regarding wastes and fuels following review by Department solid waste staff.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

6. The proposed monitoring plan does not reference specific monitors, locations, or techniques. Please provided this information.
7. Table 1-1 provides a comparison of present and projected emission limits. Please provide annual and hourly emissions reflecting actual emissions for a representative two year period reflective of normal operations prior to the retrofit project. To the extent possible and based on expected equipment performance, please submit best estimates of future annual and hourly emissions.

We will resume processing this application after receipt of the requested information. We have contacted your engineering consultant, Camp Dresser and McKee, regarding the above request. Your project staff and consultants can contact me or Mr. John Reynolds at 850/488-1344 if they have any questions regarding this matter.

Sincerely,



A. A. Lincro, P.E. Administrator
New Source Review Section

cc: Mike Salmon, City of Tampa
Douglas W. Fredericks, P.E., CK&M
Brian Beals, EPA Region IV
Mr. John Bunyak, NPS
Bill Thomas, DEP
Jerry Campbell, EPCHC

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WETLANDS MANAGEMENT DIVISION
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ENVIRONMENTAL PROTECTION COMMISSION
of Hillsborough County

FAX Transmittal Sheet

DATE: 10/15/97

TO: John Reynolds DEP

FAX Phone: auto Voice Phone: 272-1344

TOTAL NUMBER OF PAGES INCLUDING THIS COVER PAGE:

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FROM: Rick Kirby
(Circle applicable section below)

Air Division

-Enforcement

-Engineering

-Support Operations

SPECIAL INSTRUCTIONS: Tampa/McKay Bay

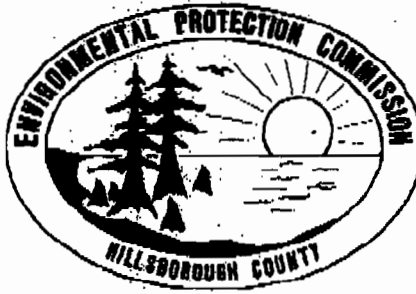


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MEMORANDUM

DATE: October 15, 1997

TO: John Reynolds, DEP

FROM: Alice H. Harman **THRU:** Richard C. Kirby, IV, P.E.
 Jerry R. Campbell, P.E.

SUBJECT: City of Tampa - McKay Bay Refuse-to-Energy Facility
 (MBREF) 0570127-002-AC

EPC would like to offer the following comments concerning the permit application and DEP Incompletion letter dated October 14, 1997. Incompletion item Nos. 1-4 concur with EPC's questions needing clarification or reasonable assurance that no additional requirements have been triggered.

Item No. 5 pertain to defining "municipal solid waste" to be burned at the facility is of significant concern to the EPC. As listed in their application page 2-18, several wastes do not follow the definition of Municipal Solid Waste as defined in 40 CFR 60 Subpart Eb. In addition, EPC has sent numerous correspondence to DEP and the City of Tampa discussing the burning of different types of "refuse" in municipal waste combustors and the origin of the waste.

EPC strongly suggests that the permit be specific in what is allowed or not allowed to be burned, in lieu of EPC being force to make an on-site determination of undesirable waste. See correspondence from November/December 1996.

Item No. 7 concerning the actual emissions versus the future allowable emissions does require justification from the City of Tampa. EPC completely agrees that the City of Tampa MBREF should provide adequate information to demonstrate that PSD and NAANSR are not triggered.

Also, several proposed permit emission limits listed in Table 1-1 don't correspond to the limitations outlined in 40 CFR 60 Subpart Cb or the State rule. For example, 40 CFR 60 Subpart Cb vs. Proposed Permit Emission Limit: nitrogen oxides 200ppmdv vs. 205 ppmdv, and dioxin 30 nanograms/dscm vs. 30 microgram/dscm.



John Reynolds
October 15, 1997

Page Two

Thank you for allowing EPC to comment on this project.

Piney Point Hearing - mid Jan.

Date: 10/22/97 6:13:26 PM
From: Alvaro Linero TAL
Subject: Tampa McKay MWC Meeting and (possibly Hillsborough RRF)
To: See Below

The City of Tampa, their consultants - RTP Associates and Camp Dresser McKee, and their attorney - David Dee of Landers and Parsons asked to come in and meet with us. The topic I understand is the definition of solid waste and their responses to our incompleteness questions on the air pollution control project to comply with the new MWC rules. The meeting has been scheduled for Wednesday, November 5th at 1:30 in the DARM Director's conference room at 111 S. Magnolia.

John Reynolds is the review engineer on the application. John - they will have their response to our letter before the meeting. They specifically asked that Clair attend. Clair O.K.'d the date. They did not want to meet without him. I already told Don Elias that we will methodically look at what they send us. Basically, John, feel free to remind them that we need to review the materials they will provide and then make some decisions (but not at this meeting!).

Joe - can you have a look at what they want to specify as solid waste and work with the solid waste folks to reconcile what is permitted already with what is requested and the applicable definitions? Mary Jean Yon said Jan Clark would be interested from the solid waste area on all of this. Anyway, please coordinate as you deem necessary to advise us of what ought to go into the permit and what needs to be public noticed with respect to what they burn. Teresa is putting together the profiles of waste conditions already in the existing PSD permits for the MWCs. Feel free to consult her book, the McKay Bay application, and the Title V application that Ed has.

Doug. I told Don Elias that David Dee should contact you and let you know what this meeting is about. If you can't make it, can you ask someone to attend, like Pat or Chris? I hope they can come anyway.

Ed. I just wanted to keep you informed since you have the Title V application. Feel free to come. Mike Hewett - feel free to attend. I'm sure the compliance schedules for Tampa McKay will come up.

This meeting could expand to include the Hillsborough RRF depending on when the sufficiency review letter goes out for Site Certification. In that case, this could interest Buck and Chip.

To: John Reynolds TAL
To: Joseph Kahn TAL
To: ~~Jan Rae Clark TAL~~
To: ~~Michael Hewett TAL~~
To: ~~Doug Beason TAL~~
To: ~~Chris McGuire TAL~~
To: Clair Fancy TAL
To: Ed Svec TAL
CC: ~~Hamilton Buck Owen TAL~~
CC: ~~Chip Collette TAL~~
CC: Patricia Comer TAL
CC: ~~Scott Sheplak TAL~~
CC: ~~Teresa Heron TAL~~

C_bE_b

PM	27 mg/dscm @ 7% O ₂	24 mg/dscm @ 7% O ₂
VE	10% (6 min. avg.)	10% (6 min. avg.)
Cd	0.04 mg/dscm @ 7% O ₂	0.020 mg/dscm @ 7% O ₂
Pb	0.44 mg/dscm @ 7% O ₂	0.20 mg/dscm @ 7% O ₂
Hg	0.08 mg/dscm or 85% reduction @ 7% O ₂ (whichever is less stringent)	0.08 mg/dscm or 85% reduction @ 7% O ₂ (whichever is less stringent)
SO ₂	29 ppmvd or 75% reduction @ 7% O ₂ (whichever is less stringent)	30 ppmv or 80% reduction @ 7% O ₂
Hcl	29 ppmvd or 95% reduction @ 7% O ₂ (whichever is less stringent)	25 ppmv or 95% reduction @ 7% O ₂ (whichever is less stringent)
Dioxins/ Furans	30 ng/dscm @ 7% O ₂ 60 ng/dscm only for ESP	30 ng/dscm @ 7% O ₂ for 3 yrs 13 ng/dscm @
CO	100 ppmv @ 7% O ₂	100 ppmv @ 7% O ₂
NO _x	205 ppmv @ 7% O ₂	180 ppmv @ 7% O ₂ for 1 yr 150 ppmv @ 7% O ₂ after 1 yr.
Temp.	17° C above max. demonstr. control device	170° above max. demonstr. PM control device

C_b E_b

PM	27 mg/dscm @ 7% O ₂	24 mg/dscm @ 7% O ₂
VE	10% (6 min. avg.)	10% (6 min. avg.)
Cd	0.04 mg/dscm @ 7% O ₂	0.020 mg/dscm @ 7% O ₂
Pb	0.44 mg/dscm @ 7% O ₂	0.20 mg/dscm @ 7% O ₂
Hg	0.08 mg/dscm or 85% reduction @ 7% O ₂ (whichever is less stringent)	0.08 mg/dscm or 85% reduction @ 7% O ₂ (whichever is less stringent)
SO ₂	29 ppmvd or 75% reduction @ 7% O ₂ (whichever is less stringent)	30 ppmv or 80% reduction @ 7% O ₂
Hcl	29 ppmvd or 95% reduction @ 7% O ₂ (whichever is less stringent)	25 ppmv or 95% reduction @ 7% O ₂ (whichever is less stringent)
Dioxins/ Furans	30 ng/dscm @ 7% O ₂ 60 ng/dscm only for ESP	30 ng/dscm @ 7% O ₂ for 3 yrs 13 ng/dscm @
CO	100 ppmv @ 7% O ₂	100 ppmv @ 7% O ₂
NOx	205 ppmv @ 7% O ₂	180 ppmv @ 7% O ₂ for 1 yr 150 ppmv @ 7% O ₂ after 1 yr.
Temp.	17° C above max. demonstr. control device	170° above max. demonstr. PM control device

C_b

E_b

PM

27 mg/dscm
@ 7% O₂

24 mg/dscm
@ 7% O₂

VE

10% (6 min avg.)

10% (6 min avg.)

Cd

0.04 mg/dscm
@ 7% O₂

0.020 mg/dscm
@ 7% O₂

Pb

0.44 mg/dscm
@ 7% O₂

0.20 mg/dscm
@ 7% O₂

Hg

0.08 mg/dscm
or 85% reduction @ 7% O₂
(whichever is less stringent)

0.08 mg/dscm
or 85% reduction @ 7% O₂
(whichever is less stringent)

Acid
Gases

SO₂
HCl

29 ppmv
or 75% reduction @ 7% O₂
(whichever is less stringent)

30 ppmv
or 80% reduction @ 7% O₂

29 ppmv
or 95% reduction @ 7% O₂
(whichever is less stringent)

25 ppmv
or 95% reduction @ 7% O₂
(whichever is less stringent)

Dioxins/Furans

30 ng/dscm @ 7% O₂ ~~5-7~~
~~13 ng/dscm~~
60 ng/dscm only for ESP

30 ng/dscm @ 7% O₂ for 3 yrs.
13 ng/dscm @

CO

100 ppmv @ 7% O₂

100 ppmv @ 7% O₂

NO_x

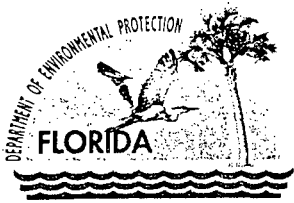
205 ppmv @ 7% O₂

180 ppmv @ 7% O₂ for 1 yr.
150 ppmv @ 7% O₂ after 1 yr.

Temp

17°C above max. demon. PM
control device

17°C above max. demon. PM
control device



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 18, 1997

Mr. Brian Beals, Section Chief
Air & Radiation Technology Branch
Preconstruction/HAP Section
U.S. EPA- Region IV
100 Alabama Street, SW
Atlanta, Georgia 30303

Re: Hillsborough County and Tampa McKay Municipal Waste Combustor
Air Pollution Control Projects

Dear Mr. Beals:

Enclosed for your review and comments are applications to upgrade the referenced facilities to comply with the Emissions Guidelines for Municipal Waste Combustors pursuant to 40 CFR 60 Subpart Cb.

Please forward your comments to my attention at the letterhead address. The Bureau's Fax number is (850)922-6979.

If you have any questions, please contact Teresa Heron or John Reynolds at (850)488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/kt

Enclosures

cc: Teresa Heron, BAR
John Reynolds, BAR
Gerald Kissel, SWD



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 21, 1997

Mike Salmon, Coordinator
Department of Environmental Services
and Public Works Projects
City of Tampa
306 East Jackson Street
Tampa, FL 33602

Dear Mr. Salmon:

On April 18 you were sent a letter by this office requesting that you provide the Department of Environmental Protection (Department) with verification of maximum design capacity for each of the four combustion units operating at the McKay Bay Refuse-to-Energy Facility (MBREF). In your May 22 response letter you stated that the City would be unable to determine whether its municipal waste combustion units were large or small until EPA issues the final regulations. Also, your letter stated that the City is gathering the information needed to classify the units.

Florida's 111(d) implementation plan, which was sent to EPA Region 4 last December, cannot be approved until the unit size issue is resolved for all 13 facilities (35 units) identified in the plan. Plan approval and, consequently, the compliance clock are on hold for all affected facilities until EPA receives verification of design capacity from the Department. Since this is an issue which affects multiple facility owners, and because your response to our request for verification of maximum design capacity contained no design capacity data, our Department personnel have reviewed the MBREF permit file and have determined the following:

- a) The original MBREF construction application, dated July 23, 1981, lists the facility design capacity as 8.3×10^4 pounds per hour (approximately 250 tons per day (TPD) per unit) using an estimated solid waste heating value of 4,500 Btu/lb.
- b) The document "Waste Quantities" (appendix F of the original application) presents data from a sampling program designed to determine the composition of the municipal solid waste stream during each season in

$$\frac{83000 \times 24}{2000 \times 4} = 249 \text{ TPD}$$

(NOT 250!)

Hillsborough County. The measured solid waste heating values from November 1979 to August 1980 ranged from 4,080 to 4,750 Btu/lb and averaged 4,450 Btu/lb.

- c) An incineration capacity test was conducted in September 1985, to demonstrate that the MBREF met the performance guarantee specified in the design and construction contract. The test report states that the facility incinerated 8,466.73 tons weekly (approximately 302 TPD per unit). This is 21 percent above the guaranteed incineration capacity of 7,000 tons per week, at an estimated solid waste heating value of 4,500 Btu/lb.
- d) An efficiency test was also conducted in September 1985, to determine the electrical energy generation per ton of waste. The test report states that the facility incinerated 390.22 tons in 8 hours (approximately 293 TPD per unit) at a measured solid waste heating value of 4,230 Btu/lb.
- e) In a May 13, 1987 letter from the City of Tampa to the Department, the City requested the maximum charging rate of each MBREF unit be increased to 325 TPD for a facility total of 1,300 TPD. The letter states, "The value of 1000 tons per day stated in the construction permit application, submitted in 1981, was the design capacity guaranteed by the vendor, based on design fuel parameters of 4,500 BTU per pound higher heating value and 30% moisture content. It was never intended to be the maximum plant capacity for operating purposes."
- f) After realizing that an increase to 1,300 TPD would exceed the PSD increment for NO_x, on June 15, 1989, the City of Tampa sent the Department a letter requesting that the permitted charging rate for the facility be increased to only 1,075 TPD (approximately 269 TPD per unit).

In a June 6 phone conversation, Walt Stevenson, in EPA's Office of Air Quality Planning and Standards, conveyed to Michael Hewett, in DEP's Office of Policy Analysis and Program Management, that the final revised standards will probably be published in late July or early August. Also, Mr. Stevenson stated that in the final standards: the 225 megagram per day or less aggregate capacity subcategory for small facilities would be changed to 250 TPD or less, applicable on a per unit basis; the small unit standards would be vacated from the emission guidelines; and the method of calculating the maximum charging rate in 40 CFR 60.58b would not be changed.

After reviewing the contents of the MBREF permit file, and given Mr. Stevenson's comments, two points seem evident. First, it seems reasonable to apply the 10,500 kilojoules per kilogram (approximately 4,500 Btu/lb) heating value specified by EPA in 40 CFR 60.58b, when calculating the maximum design capacity of the MBREF units.

Mr. Salmon
July 21, 1997
page 3

Second, the City has documented on several occasions that the MBREF units are designed to incinerate significantly more than the 250 TPD stated in the original construction permit application. In fact, the City has stated in writing that 1,000 TPD (250 TPD per unit) was the capacity guaranteed by the vendor, not the maximum capacity. Therefore, the available information seems to show that the four identical municipal waste combustion units operating at the MBREF have maximum design capacities exceeding 250 TPD.

The Department will be sending a letter to EPA Region 4 in the next 30 days which will verify the size of each of the 35 affected units in Florida. If you would like to discuss the Department's determination in this matter prior to the letter being sent, please contact Michael Hewett at 850/488-0114 to schedule a meeting.

Sincerely,



Howard L. Rhodes, Director
Division of Air Resources Management

HLR/mh

cc: M. Hewett, DEP ✓
B. Thomas, Southwest District
I. Choronenko, Hillsborough Co.
S. Davis, EPA Region 4
D. Dee, Landers and Parsons

1/10/97 Meeting
Various MWC Issues

Limiting Steam Generation instead of Waste Throughput

The primary purpose of an MWC is burn garbage. Steam generation is secondary. If we don't limit the waste throughput and only limit the steam output then it is in the facility's best interest to run the unit inefficiently so that they can burn the maximum amount of waste while generating the maximum amount of steam. The steam does not generate the pollution, the waste does. We would be giving a the opportunity to burn more waste without addressing the potential increase in emissions. If they are underrated for steam and want to be permitted to burn more waste when necessary, then they should come in for a permit modification.

You could argue that Cb requires steam load to be continuously monitored for surrogate compliance with other parameters, therefore the standards recognize that steam load is the appropriate operating limit. However, the standards also require that the waste throughput capacity be determined. In fact, the entire applicability of the standards is based on throughput capacity, not steam load.

Broadening the Definition of Municipal Waste

The Subpart Eb definition was written to include as many MWCs as possible (e.g., all facilities greater than 40 TPD). It would not be appropriate to use that definition to describe exactly what can or should be burned in an MWC. It seems that Ogden is trying to argue that MSW is everything except hazardous waste and infectious waste. Pinellas argues that, although used oil is not MSW under Eb, it is OK to burn oil filters. Broward argues that, although vehicle fluff is not MSW under Eb, plastics recovered from automobiles is OK to burn.

We should look at the whole certification for Pasco to find out why the language that Smallwood references was put in. We should also find the 17-7 definition for MSW from 1988 that Smallwood references and find all existing DEP definitions for MSW. The air rules do not have a definition of MSW but there is one for solid waste. Our definition of solid waste is not appropriate because its applicability too broad. We should also get the hazardous waste guys on board because it looks like the facilities are asking to burn some questionable wastes.

09:50 FROM: AIR
MAR 10 '92 13:44

RADIATION BR
FROM M HND E HIL 8723161

ID: 4045829095
TO WAKEFIELD

PAGE 6/6
PAGE 020

BEST AVAILABLE COPY

Mr. Dave Spahn
March 14, 1988.
Page Three

If you have any questions, feel free to contact me at 404/656-4867.

Sincerely,



Paul W. Izant
Environmental Engineer
Air Pollution Compliance Program

PWI:njj:613N
Enclosure

From Appendix F of original application
submitted July 1981

Waste Quantities

A. PURPOSE

To verify the annual quantity of solid waste generated in Hillsborough County and determine if a solid waste generation rate of 4.3 lb/cap/day determined previously should be used for resource recovery procurement activities.

B. SUMMARY

- a) This analysis indicated that 539,400 tons rather than the projected 495,000 tons was disposed of in Hillsborough County in 1980. We propose the use of the lower tonnage as the basis for the RFP procurement documents.
- b) The analysis showed a unit waste generation rate of 4.7 lb/cap/day which was higher than the projected rate of 4.3 lb/cap/day. To conservatively estimate the quantities, we propose the use of the lower rate of 4.3 lb/cap/day as the basis for the RFP procurement documents and when it is to the County's advantage, increase the baseline quantities.

C. DISCUSSION

1. Introduction

As part of the work program, solid waste records were collected and analyzed to determine an appropriate waste generation rate to be used to estimate future waste quantities generated in Hillsborough County. The previous consultant, Brown & Caldwell, used a unit waste generation rate

OPERATING WINDOW

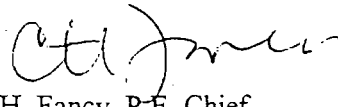
The Department acknowledges your statement that the MSW unit will be operationally limited by 40 CFR 60.53b (b) to a load level of 110% or less of the maximum demonstrated MWC *unit load* [40 CFR 60.51b and 40 CFR 60.58b(i)(6)]. This is consistent with the federal guidelines which stated that "no owner or operator of an affected facility located within a small or large municipal waste combustor plant shall cause such facility to operate at a load level greater than 110 percent of the of the maximum demonstrated MWC *unit load* level [highest 4-hour arithmetic average], achieved during four consecutive hours during the most recent dioxin/furan compliance test" (Page 65424, FR/Vol 60. No.243 Tuesday, December 19, 1995).

The *proposed operating window* based on 80% to 115% of a nominal 250 tpd capacity and 80% to 115% of a nominal 104.2 MMBtu/hour capacity (250 tpd at 5000 Btu/lb) is not acceptable as presented because it appears to conflict with NSPS Subpart Cb. However, as mentioned above, the characteristics of the unit can be updated (by the manufacturer or modification designers) and expressed at a nominal heating value of 4,500 Btu/lb as indicated in Subpart Cb and the operating window defined within the constraints of Subpart Cb [40 CFR 60.51b and 40 CFR 60.58b(j)].

MBRRF shall also comply with Rule 62-297.310(2), F.A.C., Operating Rate during Testing and Rule 62-297.310(2)(b) F.A.C., Permitted Capacity definition.

If you have any questions, please contact Al Linero or Teresa Heron at 904/488-1344.

Sincerely,



C. H. Fancy, P.E. Chief
Bureau of Air Regulation

CHF/th/hh

cc: Brian Beals, EPA
Bill Thomas, SWD
Jerry Campbell, HCEPC
Pat Comer, DEP
Larry George, DEP
Dottie Diltz, DEP
Michael Hewett, DEP

OPERATING CONDITIONS

PROCESS LIMITATION:

Based on preliminary discussions, the Department is not inclined to delete the current MSW throughput limit measured as tons per day (TPD). We are continuing to review the matter and will make a final decision during review of the application.

We recognize that the throughput rating depends on the heating value of the waste. Heating value of municipal waste can vary significantly from one part of the country to another. It can also vary in time based on changing composition of municipal waste - for example from the continuing trend toward burning of plastics. Therefore a 250 TPD unit in one part of the country and at a given time may not be a 250 TPD unit at another site or time. Note however that based on the increasing amounts of plastic in waste, we would expect the units to be capable of processing less waste instead of more than originally designed to handle (unless they were overdesigned to begin with).

Now that the units at MBRRF have operated for years, it should be possible to provide ratings for them and get the manufacturer or modification contractor to guarantee their ability to efficiently burn waste throughout an appropriate operating window. If the new ratings (for waste throughput and steam production) and future method of operation will result in an increase in emissions, it will be necessary to conduct a PSD and BACT Review. You will need to assess and reconcile the ramifications of the permit revisions required to incorporate the NSPS requirements with the possible PSD/BACT implications of a throughput increase.

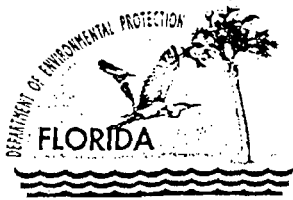
The proposal to use steam production to calculate the solid waste firing rate (in lieu of actually weighing the material) will be acceptable *only* under the following circumstances:

1. COMPLIANCE TESTING

Under this scenario, MBRRF would be required to use the F-factor in Table 19-1 of EPA Method 19 or collect the samples necessary to determine a fuel specific F- factor and heating value at the time of each run of the emission test. The procedures specified in EPA Method 19 should be used to determine the fuel specific F- factor and heating value. This eliminates boiler efficiency as a potential source of error. Subpart Ea [40 CFR 60.58a (b) (4)] requires affected sources to use the F- factor and EPA Method 19 in the emission rate determination. EPA Method 19 allows MBRRF the option of using the F- factor in Table 19 or determining a source specific F- factor using the procedure given in EPA Method 19.

2. CONTINUOUS COMPLIANCE

Under this scenario, MBRRF will either need to install weighing devices, or devices to continuously measure flue gas flow rate and oxygen and content. MBRRF would also need to either use the F- factor in Table 19-1 of EPA Method 19 or conduct daily analyses to determine the fuel specific F- factor and heating value. When units are continuously charged the options include, but are not limited to, belt scales. For units that are continuously charged, the weighing options may include a weighing device mounted on the crane based on the principle of a strain gauge.



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
January 30, 1997

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Donald F. Elias
RTP Environmental Associates Inc.
239 U.S. Highway 22 East
Green Brook, New Jersey 08812-1909

Dear Mr. Elias:

Re: Tampa McKay Bay RRF Emission Guidelines Compliance Project
Your letters of November 14 and 19, 1996

The Department is in receipt of your letters dated November 14 and 19, 1996, on behalf of the City of Tampa McKay Bay Resource Recovery Facility (MBRRF) requesting approval of various issues prior to submittal of the construction permit application. The purpose of the referenced project is to comply with 40 CFR 60 Subpart Cb - Emission Guidelines and Compliance Times for Municipal Waste Combustors that are constructed on or before December 19, 1995 (adopted as in Rule 62-204.800(8)(b), F.A.C.). These issues pertain to the Reasonable Available Control Technology (RACT) requirements for minor and fugitive sources of Particulate Matter (PM) as well as the definition of municipal solid waste (MSW) and the most appropriate process limitation for the proposed project.

The Department has reviewed your request and has the following responses:

RACT DETERMINATION

The Subpart Cb requirements for PM from minor and fugitive sources proposed for these sources appear to be reasonable as RACT. The specific plan will be reviewed with your application and a determination will be made as part of our technical review pursuant to the Department's authority contained in Rule 62-296.711(2)(c) F.A.C. However, the proposal to use a different test method (EPA Method 22 instead of EPA Method 9) will be reviewed under *Exceptions and Approval of Alternate Procedures and Requirements*, Rule 62-297.620 F.A.C. The Department does not have the authority under 62-296.711 (3) F.A.C. to approve a different test method.

Please submit a request in accordance with Rule 62-297.620 F.A.C., for approval of an alternate sampling procedure (ASP) along with your application.

DEFINITION OF MUNICIPAL SOLID WASTE (MSW) AS INCLUDED IN THE EG

The Department has received requests other than yours regarding the definition of solid waste from other MWC operators. We have referred these matters to the Division's Office of Policy Analysis and Program Management who will coordinate a response with this Bureau, the Office of General Counsel, and the Bureau of Solid and Hazardous Waste Management. We will provide a determination on this matter during the course of reviewing the application.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Date: 5/9/97 3:01:24 PM
From: Allison Amram TPA
Subject: McKay Bay Waste-to-Energy Plant
To: See Below

Hello! I'm with the Solid Waste Section -FDEP/Tampa, and we are in permit renewal with the City of Tampa for operation of the McKay Bay waste-to-energy plant. We have some improvements that we would like to see at the plant, but the City wants to do them at the same time as their air quality improvements. These improvements are needed to bring the facility into compliance with the FDEP's Ash Management Rule, 62-702.

I understand from conversations with the City's representatives that they are not sure if they are a "small" or "large" generator, according to the air rules, and so they don't know the date that they will begin upgrades. Bruce King at Hillsborough County EPC told me that EPC-Air Section sent a letter to you asking for clarification on this point. Please copy us on your reply. Resolution of this issue will help us greatly in our permit renewal process.

Thanks!

Allison Amram

To: Howard Rhodes TAL
To: Michael Hewett TAL
CC: Robert Butera TPA
CC: Kim Ford TPA
CC: Bruce M. King TPA
CC: Michael A. Newman TPA

Pls see me on this
H
Howard
5/9

** Also, keep Jerry Campbell, Hills Co., informed on ring issue of McKay Bay*

of 4.3 pounds/capita/day. HDR will determine if this waste generation rate is appropriate based upon the additional year of data that has been collected since Brown & Caldwell did their analysis in 1979. The updated unit waste generation factor will be used to estimate the future quantities of solid waste that will have to be accommodated by a solid waste management system.

2. Waste Quantities

Two sanitary landfills are currently in operation in Hillsborough County: the Northwest Landfill and Hillsborough Heights. These two landfills receive all of the waste disposed in the County. In the past, other landfills were also used.

The Ruskin Landfill was operational until August 1978 when its waste was diverted to the Taylor Road Landfill. Plant City's landfill was operational through September 1979 when its waste was diverted to the Taylor Road Landfill. Furthermore, the Tampa Incinerator was operational until December 1979, when its waste was also diverted to the Taylor Road Landfill. The Taylor Road Landfill was replaced by the Hillsborough Heights Landfill and daily operation was contracted to Waste Management Inc. on February 11, 1980. Hillsborough County also operates the South County Transfer Station which hauls all of its waste to the Hillsborough Heights Landfill.

Scale data from the Hillsborough Heights Landfill is available for most of 1980. Scale data of the incoming waste stream is also available from the Transfer Station. Other pertinent data concerning the waste stream includes estimates of the total volume in cubic yards of the waste going to the landfills which do not or did not operate scales. For the months when no information on the waste stream was available; reasonable estimates of the incoming waste were made by the scale attendants.

TABLE A-4 - SOLID WASTE PROJECTIONS FOR HILLSBOROUGH COUNTY

<u>Year</u>	<u>Waste Quantity (Tons)</u> <u>4.7 lb/cap/day</u>	<u>Resource Recovery</u> <u>Quantity</u> <u>4.3 lb/cap/day</u>
1980	539,000	495,000
1985	647,000	594,000
1990	725,000	666,000
2000	880,000	808,000

5. Seasonal Variations

Figure A-1 depicts the seasonal variation of waste quantities for the years 1978, 1979 and 1980. Figure A-2 gives reference to which months are above or below the average monthly waste generation percentage of 8.33% (100% - 12 months = 8.33%).

6. Solid Waste Composition

Local solid waste composition data was extracted from the Phase I Project Draft Report. This sampling program determined the composition of the municipal solid waste stream in Hillsborough County.

The sampling survey spanned six continuous days per month in each of the following months: November 1979, February 1980, May 1980 and August 1980.

Table A-5 summarizes the seasonal variation in the waste stream composition. The percentage of combustibles was the highest at 89.8% in August 1980, and the lowest at 80.3% in February 1980.

TABLE A-5 - STUDY AREA MSW COMPOSITION COMPARISON

Category	Waste Stream Composition, Percent				
	November 1979(1)	February 1980(2)	May 1980(3)	August 1980(4)	Average (5)
Combustibles					
Paper					
Miscellaneous paper	33.4	33.1	27.2	24.4	29.5
Newspaper	11.2	7.6	9.6	9.4	9.4
Food and organics	9.5	16.2	7.9	4.8	9.6
Wood and garden	18.7	13.8	17.9	42.1	25.6
Rubber, leather, and textile	2.8	3.8	4.5	4.5	3.9
Plastics	6.2	5.8	6.1	4.6	5.7
Subtotal combustibles	81.8	80.3	83.1	89.8	83.7
Noncombustibles					
Ferrous					
Heavy	1.2	2.4	1.1	0.1	1.2
Light	4.0	4.7	2.9	2.3	3.5
Aluminum	1.1	1.0	.7	0.8	0.9
Other nonferrous metals	0.0	0.0	.5	0.0	0.1
Glass	7.9	8.3	9.2	6.0	7.9
Rocks, dirt, ash and miscellaneous	4.0	3.3	2.4	1.0	2.7
Subtotal noncombustibles	18.2	19.7	16.9	10.2	16.3

- (1) Average wet weight from a 6-day sampling survey from November 12 to November 17, 1979.
- (2) Average wet weight from a 6-day sampling survey from February 4 to February 9, 1980.
- (3) Average wet weight from a 6-day sampling survey from May 5 to May 10, 1980.
- (4) Average wet weight from a 6-day sampling survey from August 4 to August 9, 1980.
- (5) Based on the November, February, May and August results.

Source: Hillsborough County Resource Recovery Planning Study, Chapter 2.

Table A-6 illustrates the seasonal variation of the higher heating value and moisture content of the solid waste. The heating value was lowest in May 1980, the highest values occurred in the months of November 1979 and August 1980. This local data correlates reasonably with HDR and other's sampling programs listed in Table A-7 and its use should provide a reasonable basis for the procurement activities.

TABLE A-6 - STUDY AREA HIGH HEAT VALUE, PROXIMATE ANALYSES

Category	High Heat Value, Btu per Pound				
	November 1979(1)	February 1980(2)	May 1980(3)	August 1980(4)	Average
Combustible fraction, as received	5750	5290	4910	5290	5310
Combustible fraction, moisture free	8100	7560	7220	7780	7660
MSW, as received	4710	4250	4080	4750	4450
MSW, moisture free	6630	6070	6000	6980	6420
Average Moisture %	29	30	32	32	-

(1) Based on a 6-day sampling survey from November 12 to November 17, 1979.

(2) Based on a 6-day sampling survey from February 4 to February 9, 1980.

(3) Based on a 6-day sampling survey from May 5 to May 10, 1980.

(4) Based on a 6-day sampling survey from August 4 to August 9, 1980.

Source: Hillsborough County Resource Recovery Planning Study, Chapter 2.

Special wastes can comprise a significant amount of the waste that is landfilled. Included in these wastes are large amounts of shrimp, tires, dead animals, lumber, and construction wastes. These non-processable wastes will go directly to the landfills and bypass any waste processing facilities. By selecting the 4.3 unit waste generation rate, we are of the opinion the special wastes have been adequately included in the total waste quantities listed in Table 4.

For the purposes of RFP procurement it is assumed that the waste stream delivered to resource recovery facilities will have the following characteristics:

Combustibles	-	80%
Ferrous	-	5%
Aluminum	-	1%
Other Non Ferrous Metals	-	0.1%
Average higher heating value	-	4500 Btus/lb. @ moisture content of 30%

E. CONCLUSIONS:

The primary purpose of this analysis was to confirm the quantity of waste that would be available for resource recovery in Hillsborough County. Our analysis indicated that more than the 1980 projected tonnage of 495,000 tons was disposed. Our analysis indicated that approximately 539,400 tons were disposed during 1980.

Since all waste is now being weighed at the Hillsborough Heights Landfill, we are proposing to use for the RFP procurement documents the lower tonnage of 495,000 tons (4.3 lbs/capita/day) as the basis for future projections. We will monitor the additional records and as more definitive data becomes available, we may recommend an increase in the quantity available for resource recovery when it is advantageous to the county.



CITY OF TAMPA

Sandra W. Freedman, Mayor

Office of Environmental Coordination
McKay Bay Refuse-to-Energy Project

May 13, 1987

Mr. Clair Fancy
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

DER

MAY 18 1987

BAQM

Dear Mr. Fancy:

The City of Tampa has proposed three amendments to Permit Number A029-114760 to operate the McKay Bay Refuse-to-Energy Facility which appear to be inconsistent with construction permit numbers AC29-47277 (DER) and PSD-FL-086 (EPA). The proposed amendments are as follows:

1. A maximum charging rate of 325 tons per day per process line and 1300 tons per day for the facility (instead of 250 TPD per line and 1000 TPD for the facility).
2. A maximum heat input rate of 2925 MMBTU per day per process line and 11,700 MMBTU per day for the facility (instead of 2500 MMBTU per day per line and 9000 MMBTU per day for the facility).
3. Testing emissions within $\pm 10\%$ of the nominal steam rate of 52,100 pounds per hour (instead of $\pm 10\%$ of the maximum charging rate of 10.5 tons per hour).

These amendments would not increase air emissions. We are requesting the ability to charge a higher quantity of fuel when the fuel quality is low, to maintain proper steam flow rates. If it is necessary to amend the construction permits to allow these changes, please consider this a request to do so.

The value of 1000 tons per day stated in the construction permit application, submitted in 1981, was the design capacity guaranteed by the vendor, based on design fuel parameters of 4500 BTU per pound higher heating value and 30% moisture content. It was never intended to be the maximum plant capacity for operating purposes. We now have real data to be applied toward our plant capacity and emissions requirements.

BEST AVAILABLE COPY

Mr. Dave Spain
 March 14, 1988
 Page Two

The particulate matter performance tests were conducted September 9-10, 1987 on A incinerator and September 12-13, 1986 on B incinerator to determine compliance with the allowable limit of 0.05 gr/DSCF corrected to 12% CO₂ set in Air Quality Permit No. 4953-025-9154. The data taken during those tests was used along with the now available F factor to calculate each incinerator heat input and particulate matter emission rates. The revised test and calculation results are attached and are summarized as follows:

	Heat Input 10 ⁶ BTU/hr	Emission Rate lbs/10 ⁶ BTU
Incinerator A Run 1	97.2	0.089
2	100.5	0.077
3	106.3	0.056
Weighted Average		0.072
Incinerator B Run 1	86.2	0.100
2	100.4	0.074
3	93.1	0.251
Weighted Average		0.107

It can be seen from these results that each steam generating unit is capable of continuous operation with a heat input greater than 100 X 10⁶ BTU/hour. In addition, the same conclusion can be reached that maximum heat input based on physical design and characteristics of each unit is greater than 100 X 10⁶ BTU/hour as previous information and the Zurn boiler design and performance summary submitted with the test results do not indicate otherwise. Finally, it is my understanding that contractual arrangements for the incinerators with the City of Savannah were not completed until December 1984 and actual construction did not start until April 1986. Therefore, it has now been determined that the Savannah Energy incinerators are subject to the provisions of NSPS 40 CFR 60, Subpart D. The standard for particulate matter emissions under this regulation is 0.10 lb/10⁶ BTU.

It will be necessary to meet this allowable limit in all future compliance tests for particulate matter emissions. The heat input rate during the tests will be determined using the F factor or an alternate F factor by methods such as prescribed in 40 CFR 60, Appendix A. All methods and procedures are to be approved by the Division prior to the tests. Condition No. 9 of Air Quality Permit No. 4953-025-9154 requires biennial particulate matter emission tests from the incinerators and to be conducted annually on alternate incinerators. The first test is to be conducted within one year after completion of the initial compliance tests. Therefore, a particulate matter emission test is to be conducted on B incinerator by August 1, 1988 so that the results can be submitted prior to the first test anniversary date.

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CC: MURD, JAM, PLS
FILE: SAUA LEGAL - AIR QUALITY

Georgia Department of Natural Resources

205 Butler Street, S.E., Floyd Towers East, Atlanta, Georgia 30334

J. Leonard Ledbetter, Commissioner
Harold F. Patewa, Assistant Director
Environmental Protection Division

March 14, 1988

cc: Rick Nelson

Mr. Dave Spahn
Project Engineer
Katy-Seghers, Inc.
3844 Walsh Street
St. Louis, Missouri 63116-3399

Dear Mr. Spahn:

This is in regard to the regulations applicable to the municipal solid waste incinerators of the Savannah Energy Systems Company, Savannah, Georgia.

Applicability of the incinerators with the Federal New Source Performance Standards (NSPS) 40 CFR 60 Subpart Db and E was reviewed in my letter of February 13, 1987 to Mark Dragovich. In summary, Subpart E applies to all incinerators with a charging rate of over 50 tons/day and was the applicable regulation when the original permit was issued on April 5, 1984 for the Savannah incinerators. Subpart Db applies to steam generating units with heat input capacity greater than 100×10^6 BTU/hour including municipal solid waste incinerators. This regulation was proposed on June 19, 1984 and applied to affected facilities that had not commenced construction prior to that date. The standard became final on November 25, 1986. Paul Kutan replied to my letter on February 23, 1987 and reviewed design and operating capacities of the incinerators. The letter stated that maximum design heat input capacity for continuous operation was 99.9×10^6 BTU/hour. Therefore, based on the available information at the time, it was determined and stated in my letter of March 9, 1987 that the incinerators would not be subject to Subpart Db. However, it was also stated that determination could be reevaluated if incinerator operation would indicate higher heat input capability.

Additional standards of performance were proposed under 40 CFR 60, Subpart Db on June 19, 1986 and were concerned primarily with sulfur dioxide emissions. Those proposed standards became final on December 16, 1987. Emission testing procedures under Method 19 of 40 CFR 60, Appendix A were amended the same day. This reference method is for determination of sulfur dioxide removal efficiency and particulate matter, sulfur dioxide and nitrogen oxides emission rates. Included in the amendment was a revised list of F factors for various fuels and for the first time included municipal solid waste as a fuel. The F factor (Fd) for municipal solid waste is $9570 \text{ dscf}/10^6 \text{ BTU}$ determined at standard conditions: 200C (680F) and 760 MM Hg (29.92 in. Hg). An F factor is defined as the ratio of the gas volume of the products of combustion to the heat content of the fuel. It is used in calculations to determine heat content during emission tests where the allowable emission rate is based on the fuel heat input.

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February 12, 1997
Georgia DNR, Page 2 of 2

In summary, each of the two municipal waste combustor units exceed 250 tpd and may be considered "large" municipal waste combustors. If you have any further questions regarding the design of our units, please do not hesitate to contact me.

Sincerely,



Ernest R. Bennett
Savannah Energy Systems Company

Enclosure

cc: R. Evans, City of Savannah
H. Magwood, City of Savannah
G. Prevatt, City of Savannah
J. Osborn, Metcalf & Eddy
R. Baratta, Katy Industries

BEST AVAILABLE COPY

SAVANNAH ENERGY SYSTEMS COMPANY

P.O. BOX 3007
 SAVANNAH, GA 31402
 (912) 236-1014
 FAX: (912) 236-5778

RECEIVED

FEB 24 1997

AIR PROTECTION BRANCH

J-019507-0001

February 12, 1997

Kent Pierce, Environmental Engineer
 Georgia Department of Natural Resources
 Environmental Protection Division, Air Protection Branch
 4244 International Parkway, Suite 120
 Atlanta, Georgia 30354

RE: Savannah Energy Systems Company, Savannah, Georgia
 MWC Capacity Calculations under Federal NSPS Regulations 40 CFR Part 60,
 Subpart Cc

Dear Mr. Pierce:

This Letter is in response to your request Dated January 28, 1997 wherein you requested specific design capacity information for each combustor.

As noted in the attached letter from DNR dated 3/14/88, the maximum design heat input capacity for continuous operations for each of the two SESCO combustors is 99.9×10^6 BTU/hour. The actual heat input capacity, as shown during the particulate performance tests conducted in September of 1987, may be as high as 106.3×10^6 BTU/hr. Using the method described in §60.58b(j) of the NSPS regulation, the capacity of the two combustors is calculated for both (1) the maximum design heat input and (2) maximum performance test data. As these combustors are designed based on heat capacity, the maximum charging rate is calculated based on the maximum (or demonstrated) design heat input capacity of the unit and a heating value of:

$$\frac{10,500 \text{ kilojoules}}{\text{kilogram}} = \frac{(10,500 \text{ joules})}{\text{gram}} \left(\frac{1 \text{ BTU}}{1054 \text{ joule}} \right) \frac{(454 \text{ gram})}{\text{lb}} = 4523 \text{ BTU/lb}$$

Therefore, the capacity of each combustor based on the maximum design heat capacity is:

$$\frac{99.9 \times 10^6 \text{ BTU/hr}}{4523 \text{ BTU/lb}} = 22,087 \frac{\text{lb}}{\text{hr}} = 11.0 \text{ tph} = 265 \text{ tpd}$$

And the capacity of each combustor based on the demonstrated heat input capacity is:

$$\frac{106.3 \times 10^6 \text{ BTU/hr}}{4523 \text{ BTU/lb}} = 23,502 \frac{\text{lb}}{\text{hr}} = 11.5 \text{ tph} = 277 \text{ tpd}$$

BEST AVAILABLE COPY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION 4
AIR, PESTICIDES & TOXICS MANAGEMENT DIVISION
AIR & RADIATION TECHNOLOGY BRANCH
100 Alabama Street, SW
Atlanta, Georgia 30303
Fax Number: 404/562-9095

FACSIMILE TRANSMISSION SHEET

DATE: April 3, 1997

NUMBER OF PAGES (including this sheet): 6

TO: Mike Hewitt

PHONE: 904-488-0114

ADDRESS: FDEP

FAX NUMBER: 904-922-6979

FROM: Scott Davis

PHONE: 404-562-9127

Please call me if this transmission is received poorly.

SPECIAL INSTRUCTIONS:

MWC Design Capacity
(Savannah Energy Systems, GA)

Mr. Salmon
April 18, 1997
Page Two

Thank you for your prompt attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Howard L. Rhodes". The signature is written in dark ink and is positioned above the typed name and title.

Howard L. Rhodes, Director
Division of Air Resources Management

cc: M. Hewett, DEP
B. Thomas, Southwest District
I. Choronenko, Hillsborough Co.
S. Davis, EPA Region 4
D. Dee, Landers and Parsons



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

April 18, 1997

Mike Salmon, Coordinator
Department of Environmental Services
and Public Works Projects
City of Tampa
306 East Jackson Street
Tampa, FL 33602

Dear Mr. Salmon:

In a recent District of Columbia Circuit Court decision, the standards applicable to existing municipal waste combustor (MWC) units with capacity to combust greater than 35 megagrams per day, but equal to or less than 225 megagrams per day, were vacated from 40 CFR 60, Subpart Cb, Emissions Guidelines and Compliance Times for Municipal Waste Combustors that are Constructed on or Before December 19, 1995. EPA Region 4 has indicated that it will accept the Department's subpart Cb implementation plan as submitted last December, even though it contains compliance schedules for small as well as large (greater than 225 megagrams per day) MWC facilities. However, in order that they may know which parts of the implementation plan to approve, Region 4 staff have requested that we verify which MWC facilities contain large and which contain small units.

After review of the available data, it appears that the four identical MWC units at the McKay Bay Refuse-to-Energy Facility have capacities that border between EPA's definition of large and small. For this reason we request that you provide the Department with verification of capacity for each of the four units per the conditions of 40 CFR 60.58b, Compliance and Performance Testing. If you have any questions concerning this request, please contact Michael Hewett at the address above or call him at 904\488-0114.

COMMISSION

DOTTIE BERGER
JOE CHILLURA
CHRIS HART
JIM NORMAN
JAN PLATT
THOMAS SCOTT
ED TURANCHIK



ADMINISTRATIVE OFFICES, LEGAL &
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

EXECUTIVE DIRECTOR

ROGER P. STEWART

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JUL 1 1997

DIVISION OF AIR
RESOURCES MANAGEMENT

June 30, 1997

Mr. Mike Hewett, P.E.
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: City of Tampa McKay Bay MWC

Dear Mr. Hewett:

Thank you for the opportunity to submit the following comments on the City of Tampa's May 22, 1997 letter to you.

According to EPA Region IV, the procedures specified in paragraph (j) of 40 CFR 60.58b shall be used to calculate municipal waste combustor unit capacity. Furthermore, that calculation shall be based on "maximum" design heat input capacity, not "nominal" capacity. The City of Tampa should submit the results of this calculation conducted in accordance with 40 CFR 60.58b.

Florida's Section 111(d) plan lists McKay Bay as a large facility. EPC feels that designation should remain until a determination is made that it should change. The administrative requirements to change the 111(d) plan, already submitted to EPA, might delay the entire submission.

If you have any questions, please call me or Leroy Shelton at (813)-272-5530.

Sincerely,

Jerry Campbell
Assistant Director, Air Management Division

cc: David S. Dee, Landers and Parsons, P.A.
Mike Salmon, City of Tampa



BEST AVAILABLE COPY

Date: 5/9/97 3:01:24 PM
From: Allison Amram TPA
Subject: McKay Bay Waste-to-Energy Plant
To: See Below

Hello! I'm with the Solid Waste Section -FDEP/Tampa, and we are in permit renewal with the City of Tampa for operation of the McKay Bay waste-to-energy plant. We have some improvements that we would like to see at the plant, but the City wants to do them at the same time as their air quality improvements. These improvements are needed to bring the facility into compliance with the FDEP's Ash Management Rule, 62-702.

I understand from conversations with the City's representatives that they are not sure if they are they are a "small" or "large" generator, according to the air rules, and so they don't know the date that they will begin upgrades. Bruce King at Hillsborough County EPC told me that EPC-Air Section sent a letter to you asking for clarification on this point. Please copy us on your reply. Resolution of this issue will help us greatly in our permit renewal process.

Thanks!

Allison Amram

To: Howard Rhodes TAL
To: Michael Hewett TAL
CC: Robert Butera TPA
CC: Kim Ford TPA
CC: Bruce M. King TPA
CC: Michael A. Newman TPA

Pls see me on this
Or
Howard
5/9

Subject:
From:
To:

Mr. Salmon
April 18, 1997
Page Two

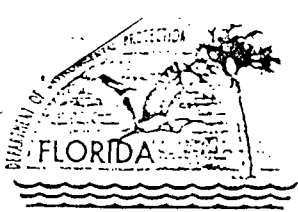
Thank you for your prompt attention to this matter.

Sincerely,



Howard L. Rhodes, Director
Division of Air Resources Management

- cc: M. Hewett, DEP
B. Thomas, Southwest District
I. Choronenko, Hillsborough Co.
S. Davis, EPA Region 4
D. Dee, Landers and Parsons



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

April 18, 1997

Mike Salmon, Coordinator
Department of Environmental Services
and Public Works Projects
City of Tampa
306 East Jackson Street
Tampa, FL 33602

Dear Mr. Salmon:

In a recent District of Columbia Circuit Court decision, the standards applicable to existing municipal waste combustor (MWC) units with capacity to combust greater than 35 megagrams per day, but equal to or less than 225 megagrams per day, were vacated from 40 CFR 60, Subpart Cb, Emissions Guidelines and Compliance Times for Municipal Waste Combustors that are Constructed on or Before December 19, 1995. EPA Region 4 has indicated that it will accept the Department's subpart Cb implementation plan as submitted last December, even though it contains compliance schedules for small as well as large (greater than 225 megagrams per day) MWC facilities. However, in order that they may know which parts of the implementation plan to approve, Region 4 staff have requested that we verify which MWC facilities contain large and which contain small units.

After review of the available data, it appears that the four identical MWC units at the McKay Bay Refuse-to-Energy Facility have capacities that border between EPA's definition of large and small. For this reason we request that you provide the Department with verification of capacity for each of the four units per the conditions of 40 CFR 60.58b, Compliance and Performance Testing. If you have any questions concerning this request, please contact Michael Hewett at the address above or call him at 904\488-0114.

Letter to Mr. Howard L. Rhodes
May 22, 1997

Page 2

We recognize that the DEP must advise the EPA regarding the size of the City's units so that EPA can proceed with its approval of Florida's Section 111(d) plan. For the present, DEP should proceed as though the City's units are small. If it is determined at a subsequent date that the City's units are large, DEP could amend the state Section 111(d) plan to re-classify the City's units. As a practical matter, we believe it will be easier to amend the plan to re-classify the City's units as large, rather than amending the plan to re-classify the City's units as small.

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

Sincerely,

A handwritten signature in cursive script that reads "R. Michael Salmon". The signature is written in black ink and is positioned above the typed name.

R. Michael Salmon, P.E., Coordinator
Environmental Services/Public Works Projects

CC: Michael Hewett, Department of Environmental Protection

489-016-01^C Ltr. DEP re MACT classification

Mr. Clair Fancy
May 13, 1987
Page Two

The acceptance testing in September, 1985 proved that the plant could efficiently process 1209 TPD and be well within air emission limitations as stated in the construction permits. The BTU value during acceptance testing averaged 4230 BTU per pound. During the summer of 1986, it became obvious that the municipal solid waste delivered was often higher in moisture content and lower in BTU value than design fuel parameters. Equipment is currently being installed that will enhance the plants ability to burn wet garbage. Much of the increased tonnage we are requesting will be excess water.

There are no explicit references to a 1000 TPD maximum charging rate in the DER or EPA construction permits. Both permits do reference all information presented in the application as part of the permits. The original application only mentioned charging rates in Section IV. It appears that projected emissions were based on other similar facilities and not on an assumed emission factor and an assumed charging rate. I have verified that the actual plant emissions at 1209 TPD were below the 1981 projected emissions for facility number 1 for all regulated pollutants. The air modeling was done with the assumption that two facilities would be collocated at the McKay Bay site. The second facility was constructed about 4.5 miles east of McKay Bay. The requested changes do not invalidate the air quality analysis originally presented to DER.

I wish to emphasize that we are not requesting any changes in emission and power production limitations as set forth in the current operating permit. I have attached additional information in support of this request, with the major points highlighted in red for your convenience. Please call Greig Grotecloss of my staff at (813) 223-8071 if additional information is required.

Thank you for your assistance in this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:21-37
attachment

xc: Mike Salmon, City of Tampa
Jim Estler, SWFDER (w/attach.)
Victor San Agustin, HCEPC (w/attach.)
Peter Ware, WMI

Bill Engel, WMI
Jim Brittain, HDR
Red McCormack, HDR
Kim Ford, SWFDER



CITY OF TAMPA

Sandra W. Freedman, Mayor

file
RECEIVED

JUN 26 1989

SOLID WASTE DEPARTMENT

DER. L. W. Bass
Everett W. Bass
Director

June 15, 1989

Mr. Clair Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Enclosed is a summary of all available emissions testing data for the McKay Bay Refuse-to-Energy Facility. A chart is also attached showing how the daily charging rate varies as a function of moisture content. Our calculations indicate that the PSD increment for NO_x is exceeded at an average charging rate of 1075 TPD. We still maintain that our increased charging rate is due to high moisture content and will not correlate to increased emissions, but we realize this does not fit the methodology of the PSD review process. Therefore, we would like to propose the following permit amendments that will suit our needs and be consistent with the PSD review process.

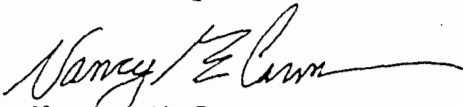
1. Increase the charging rate to 1075 TPD based on a thirty day rolling average with an annual limit of 365,000 tons. This allows us to increase our charging rate during the rainy season without exceeding the PSD increments on a daily basis or causing any increase of pollutants on an annual basis.
2. Conduct compliance testing based on a design steam flow of 52,100 pounds per hour per boiler $\pm 10\%$ instead of a maximum charging rate. The maximum charging rate varies according to the moisture content of the refuse. The steam flow is also a much more accurate and easier parameter to measure during the compliance test.
3. Keep the current maximum heat input rate unchanged at 9,000 MMBTU per day. This will reinforce our position that the increased charging rate is due to increased moisture content and not an increase in the actual dry weight of the refuse being charged.

Mr. Clair Fancy
June 15, 1989
Page Two

The McKay Bay Refuse-to-Energy Facility has processed 308,000 and 310,000 tons the last two years and the annual charging rate is not expected to ever exceed 330,000 tons per year. The permit amendments will not result in any overall increase in the amount of refuse burned per year or the amount of pollutants emitted per year. The amendments will allow the facility to maintain good combustion conditions when the moisture content of the refuse increases or decreases and a higher or lower charging rate is necessary to maintain the proper heat input to the furnaces.

We would like to present our data and arguments to EPA/DER in person if you feel this would be productive. Please contact Greig Grotecloss at (813) 223-8071 if any additional information is needed or if you would like to arrange a meeting to discuss these amendments. I greatly appreciate your assistance in resolving this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:32-29

xc: William D. Engel

7-7-89
Rand
Copied: J Campbell, HCEPC
E. Thomas, SW District
W. Aronson, EPA
C. Shaver, NPS
B. Andrews, BIRM

McKAY BAY REFUSE TO ENERGY FACILITY

EMISSIONS ANALYSIS

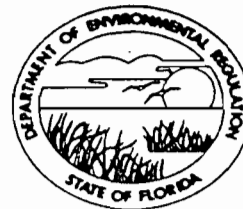
	PART	LEAD	SO2	NOX	FLUORIDE	MERCURY	VOC	BERYLLIUM	CO
PERMIT LIMITS (LB/HRI)	27.9	3.1	170.0	300.0	6.0	0.6	9.0	0.00046	NO LIMIT
1985									
EMISSIONS (LBS/HR)	8.1	0.4	139.9	94.8	2.3	0.4	2.7	0.00008	21.9
EMISSIONS (TONS/YR)	35.3	1.8	612.8	415.2	10.1	1.6	11.8	0.00035	95.9
ALLOWABLE EMISSIONS INCREASE (TPY)	25.0	0.6	40.0	40.0	3.0	0.1	40.0	0.00040	100.0
ALLOWABLE THRUPUT INCREASE (TPD)	855	414	79	116	360	77	4089	1380	1260
1987									
EMISSIONS (LBS/HR)	10.4	0.3	79.7	135.8					
EMISSIONS (TONS/YR)	45.6	1.3	349.1	594.8	0.0	0.0	0.0	0.00000	0.0
ALLOWABLE EMISSIONS INCREASE (TPY)	25.0	0.6	40.0	40.0	3.0	0.1	40.0	0.00040	100.0
ALLOWABLE THRUPUT (TPD)	496.7	413.2	103.7	60.9	ERR	ERR	ERR	ERR	ERR
1988									
EMISSIONS (LBS/HR)	13.6	0.3	92.1	173.2					
EMISSIONS (TONS/YR)	59.6	1.3	403.4	758.6	0.0	0.0	0.0	0.00000	0.0
ALLOWABLE EMISSIONS INCREASE (TPY)	25.0	0.6	40.0	40.0	3.0	0.1	40.0	0.00040	100.0
ALLOWABLE THRUPUT (TPD)	381	414	90	48	ERR	ERR	ERR	ERR	ERR
AVERAGE ALLOWABLE INCREASE (TPD)	577	414	91	75	360	77	4089	1380	1260
AVERAGE TOTAL THRUPUT (TPD)	1577	1414	1091	1075	1360	1077	5089	2380	2260

McKAY BAY FACILITY
HHV VS THRUPT ANALYSIS

BOILER INPUT BTU/DAY	HHV BTU/LB	TOTAL TPD	TOTAL TPD REFUSE	TOTAL TPD MOISTURE	PERCENT MOISTURE	TONS PER HOUR/LINE
9E+09	2000	2250	700	1550	69	23.44
9E+09	2100	2143	700	1443	67	22.32
9E+09	2200	2045	700	1345	66	21.31
9E+09	2300	1957	700	1257	64	20.38
9E+09	2400	1875	700	1175	63	19.53
9E+09	2500	1800	700	1100	61	18.75
9E+09	2600	1731	700	1031	60	18.03
9E+09	2700	1667	700	967	58	17.36
9E+09	2800	1607	700	907	56	16.74
9E+09	2900	1552	700	852	55	16.16
9E+09	3000	1500	700	800	53	15.63
9E+09	3100	1452	700	752	52	15.12
9E+09	3200	1406	700	706	50	14.65
9E+09	3300	1364	700	664	49	14.20
9E+09	3400	1324	700	624	47	13.79
9E+09	3500	1286	700	586	46	13.39
9E+09	3600	1250	700	550	44	13.02
9E+09	3700	1216	700	516	42	12.67
9E+09	3800	1184	700	484	41	12.34
9E+09	3900	1154	700	454	39	12.02
9E+09	4000	1125	700	425	38	11.72
9E+09	4100	1098	700	398	36	11.43
9E+09	4200	1071	700	371	35	11.16
9E+09	4300	1047	700	347	33	10.90
9E+09	4400	1023	700	323	32	10.65
9E+09	4500	1000	700	300	30	10.42
9E+09	4600	978	700	278	28	10.19
9E+09	4700	957	700	257	27	9.97
9E+09	4800	938	700	238	25	9.77
9E+09	4900	918	700	218	24	9.57
9E+09	5000	900	700	200	22	9.38
9E+09	5100	882	700	182	21	9.19
9E+09	5200	865	700	165	19	9.01
9E+09	5300	849	700	149	18	8.84
9E+09	5400	833	700	133	16	8.68
9E+09	5500	818	700	118	14	8.52
9E+09	5600	804	700	104	13	8.37
9E+09	5700	789	700	89	11	8.22
9E+09	5800	776	700	76	10	8.08
9E+09	5900	763	700	63	8	7.94
9E+09	6000	750	700	50	7	7.81
9E+09	6100	738	700	38	5	7.68
9E+09	6200	726	700	26	4	7.55
9E+09	6300	714	700	14	2	7.44
9E+09	6400	703	700	3	0	7.32

**MCKAY BAY REFUSE-TO-ENERGY FACILITY
EMISSIONS SUMMARY**

	<u>Sept 1985</u>	<u>Oct 1987</u>	<u>Dec 1988</u>	<u>Permit Limits</u>
Particulate	8.07 lb/hr 0.0088 gr/dscf at 12% CO ₂	10.4 lb/hr 0.012 gr/dscf at 12% CO ₂	13.6 lb/hr 0.016 gr/dscf at 12% CO ₂	27.9 lb/hr 0.025 gr/dscf at 12% CO ₂
SO ₂	139.9 lb/hr	79.7 lb/hr	92.1 lb/hr	170.0 lb/hr
NO _x	94.8 lb/hr	135.8 lb/hr	173.2 lb/hr	300.0 lb/hr
Lead	0.4 lb/hr	0.3 lb/hr	0.3 lb/hr	3.1 lb/hr
Fluoride	2.3 lb/hr			6.0 lb/hr
Mercury	0.36 lb/hr			0.6 lb/hr
VOC	2.7 lb/hr			9.0 lb/hr
Beryllium	<0.00008 lb/hr			0.00046 lb/hr
Charging Rate	1209 TPD	905 TPD	907 TPD	
BTU Value	4230	4649	4650	



Interoffice Memorandum

For Routing To Other Than The Addressee

To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

TO: File No. AC 29-114760, PSD - FL - 086

THROUGH: S. Smallwood *[Signature]*

THROUGH: C. Fancy *[Signature]*

THROUGH: B. Thomas *[Signature]*

FROM: P. Raval *[Signature]*

SUBJECT: Mckay Bay Incinerator, MSW throughput Increase

DATE: April 14, 1988

The City of Tampa proposes to increase the MSW charging rate of the existing Mckay Bay incinerators from 1000 tons per day (TPD) to 1300 TPD. Testing at the facility has shown that operation at 1000 TPD and 1300 TPD results in emissions below the allowable emission limits.

Although the proposed project will result in an increase in actual emissions, it will not be subject to a PSD review because the Department will rely on the current PSD permit's BACT determined allowable emissions as the basis for evaluating PSD applicability, in accordance with Rule 17-2.100(2) and 17-2.500(2)(d)4, Florida Administrative Code (See attachments).

Therefore since the projected emissions will remain below currently permitted allowables, and since no physical changes are going to be made at the facility for the increased MSW charging rate, the project will not be subject to PSD/BACT requirements.

The Department recommends that the current permit be ammended to reflect a 1300 TPD MSW throughput capacity for the facility, so long as reasonable assurance is provided to establish that allowable emissions will not be exceeded at the higher operating level on an ongoing basis.

PR/jp

cc: L. George
B. Andrews

Attachments

**PART I
DEFINITIONS**

17-2.100 Definitions. The following words and phrases when used in this chapter shall, unless content clearly indicates otherwise, have the following meanings:

(1) "Acid Mist" - Liquid drops of any size of any acid including but not limited to sulfuric acid and sulfur trioxide, hydrochloric acid and nitric acid as measured by test methods approved by the Department.

(2) "Actual Emissions" - The actual rate of emission of a pollutant from a source as determined in accordance with the following provisions:

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the source actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the source.

The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the source. Actual emissions shall be calculated using the source's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that source specific federally enforceable allowable emissions for a source are equivalent to the actual emissions of the source.

(c) For a source which has not completed start-up and testing on a particular date, actual emissions shall equal the potential emissions

of the source on that date.

(3) "Administrator" - The Administrator of the United States Environmental Protection Agency or the Administrator's designee.

(4) "Adverse Impact on Visibility" - An impairment to visibility which interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of a Federal Class I area. This determination shall be made on a case-by-case basis, utilizing EPA-approved methods of visibility impairment analysis, if available, and taking into account such factors as the geographic extent, intensity, duration, frequency, and time of visibility impairments, and how these factors correlate with the times of visitor use of the Federal Class I area and the frequency and timing of natural conditions that reduce visibility.

(5) "Affected Pollutant" - In a nonattainment area or area of influence the pollutant for which the area is designated nonattainment is the affected pollutant except in the case of ozone nonattainment areas where the affected pollutant is volatile organic compounds (VOC).

(6) "Air Dried Coating" - Coatings which are dried by the use of air or forced warm air at temperatures up to 194°F (90°C).

(7) "Air Pollutant" - Any substance (particulate, liquid, gaseous, organic or inorganic) which if released, allowed to escape, or emitted, whether intentionally or unintentionally, into the outdoor atmosphere may result in or contribute to air pollution.

(8) "Air Pollution" - The presence in the outdoor atmosphere of the state of any one or more substances or pollutants in quantities

Industrial Classification (SIC) Code would be equal to or greater than 5 tons per year.

3. Modifications to Minor Facilities.

Unless exempted under 17-2.500(2)(a), (b) or (c), a proposed modification to a minor facility shall be subject to the NSR requirements of this section only if the modification would be a physical change which, in and of itself, would constitute a new major facility subject to NSR requirements pursuant to 17-2.500(2)(d)2.

4. Modifications to Major Facilities.

a. Unless exempted under 17-2.500(2)(a), (b) or (c), a proposed modification to a major facility shall be subject to the NSR requirements of this section if:

(i) The facility to be modified would be subject to NSR requirements pursuant to 17-2.500(2)(d)2. if it were itself a proposed new facility; and

(ii) The modification would result in a significant net emissions increase (as set forth in 17-2.500(2)(e)2.) of any pollutant regulated under the Act; or the facility to be modified is located within 10 kilometers of a Class I area and the modification would result in a net emissions increase (as set forth in 17-2.500(2)(e)1.) of any pollutant regulated under the Act, which increase would have an impact on any Class I area equal to or greater than 1.0 microgram per cubic meter (24-hour average).

b. A proposed modification to a major facility shall be subject to the provisions of 17-2.500(2)(d)3., Modifications to Minor Facilities, if the facility to be modified would not be subject to NSR requirements

pursuant to 17-2.500(2)(d)2. if it were itself a proposed new facility.

(e) Emissions Increases.

1. Net Emissions Increase.

A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the actual emissions of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.

2. Significant Net Emissions Increase.

A significant net emissions increase of a pollutant regulated under the Act is a net emissions increase equal to or greater than the applicable significant emission rate listed in Table 500-2, Regulated Air Pollutants - Significant Emission Rates.

3. Contemporaneous Emissions Changes.

An increase or decrease in the actual emissions or in the quantifiable fugitive emissions of a facility is contemporaneous with a particular modification if it occurs within the period beginning five years prior to the date on which the owner or operator of the facility submits a complete application for a permit to modify the facility and ending on the date on which the owner or operator of the modified facility projects the new or modified source(s) to begin operation. The date on which any increase in the actual emissions or in the quantifiable fugitive emissions of the facility occurs is the date on which the owner or operator of the facility begins, or projects to

17-2.500(2)(d)2.c. -- 17-2.500(2)(e)3.

When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in Appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

(c) The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this part any other facility within that source.

(d) [Reserved]

(e) The following shall not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category, subject to the provisions of paragraph (e) of this section and § 60.15.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by § 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change. Conversion to coal required for energy considerations, as specified in section 111(a)(8) of the Act, shall not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants,

except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

(f) Special provisions set forth under an applicable subpart of this part shall supersede any conflicting provisions of this section.

(g) Within 180 days of the completion of any physical or operational change subject to the control measures specified in paragraph (a) of this section, compliance with all applicable standards must be achieved.

[40 FR 58419, Dec. 16, 1975, amended at 43 FR 34347, Aug. 3, 1978; 45 FR 5617, Jan. 23, 1980]

§ 60.15 Reconstruction.

(a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.

(b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and

(2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

(c) "Fixed capital cost" means the capital needed to provide all the depreciable components.

(d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:

(1) Name and address of the owner or operator.

(2) The location of the existing facility.

Environmental Protection Agency

(3) A brief description of the existing facility and the components which are to be replaced.

(4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.

(5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.

(6) The estimated life of the existing facility after the replacements.

(7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

(e) The Administrator will determine, within 30 days of the receipt of the notice required by paragraph (d) of this section and any additional information he may reasonably require, whether the proposed replacement constitutes reconstruction.

(f) The Administrator's determination under paragraph (e) shall be based on:

(1) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility;

(2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;

(3) The extent to which the components being replaced cause or contribute to the emissions from the facility; and

(4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.

(g) Individual subparts of this part may include specific provisions which refine and delimit the concept of reconstruction set forth in this section.

[40 FR 58420, Dec. 16, 1975]

§ 60.16 Priority list.

PRIORITIZED MAJOR SOURCE CATEGORIES

Priority Number¹

Source Category

1. Synthetic Organic Chemical Manufacturing
 - (a) Unit processes
 - (b) Storage and handling equipment
 - (c) Fugitive emissions sources
 - (d) Secondary sources
2. Industrial Surface Coating: Cans
3. Petroleum Refineries: Fugitive Sources
4. Industrial Surface Coating: Paper
5. Dry Cleaning
 - (a) Perchloroethylene
 - (b) Petroleum solvent
6. Graphic Arts
7. Polymers and Resins: Acrylic Resins
8. Mineral Wool (Deleted)
9. Stationary Internal Combustion Engines
10. Industrial Surface Coating: Fabric
11. Fossil-Fuel-Fired Steam Generators: Industrial Boilers
12. Incineration: Non-Municipal (Deleted)
13. Non-Metallic Mineral Processing
14. Metallic Mineral Processing
15. Secondary Copper (Deleted)
16. Phosphate Rock Preparation
17. Foundries: Steel and Gray Iron
18. Polymers and Resins: Polyethylene
19. Charcoal Production
20. Synthetic Rubber
 - (a) Tire manufacture
 - (b) SBR production
21. Vegetable Oil
22. Industrial Surface Coating: Metal Coating
23. Petroleum Transportation and Marketing
24. By-Product Coke Ovens
25. Synthetic Fibers
26. Plywood Manufacture
27. Industrial Surface Coating: Automobiles
28. Industrial Surface Coating: Large Appliances
29. Crude Oil and Natural Gas Production
30. Secondary Aluminum
31. Potash (Deleted)
32. Lightweight Aggregate Industry: Clay, Shale, and Slate²
33. Glass
34. Gypsum
35. Sodium Carbonate
36. Secondary Zinc (Deleted)
37. Polymers and Resins: Phenolic
38. Polymers and Resins: Urea-Melamine
39. Ammonia (Deleted)
40. Polymers and Resins: Polystyrene

¹Low numbers have highest priority, e.g. No. 1 is high priority, No. 59 is low priority.

²Formerly titled "Sintering: Clay and Fly Ash".

Section 1

Incineration Capacity Test

From Acceptance Test Report

1. OBJECTIVE

The objective of the Incineration Capacity Test is to demonstrate that the McKay Bay Refuse to Energy Facility meets the performance guarantee specified in the WMI/Tampa Design and Construction Contract, Exhibit 4.1.

2. REFERENCES

A. WMI/Tampa Design and Construction Contract

B. McKay Bay Facility Acceptance Test Methodology dated July 8, 1985

3. TEST PROCEDURE

During the days prior to the test commencement the refuse pit was dug down to the extent possible while final preparations of the plant were being made.

On Monday, September 16, 1985 the plant was stabilized at design steam flow at 10:00 a.m. as verified by the Data Logger Trendcurves attached, Addendum 2.

-- Refuse was received on a continuous basis beginning at approximately 7:00 a.m. During the midafternoon hours, efforts began to level the refuse pit for the initial level measurement.

-- At 5:48 p.m., WMI and HDR agreed that the pit was leveled sufficiently. The charging hoppers were filled to the bottom of the sloped portion of the hoppers.

- The initial pit level was recorded per the procedure in the Acceptance Test Methodology.
- The reject hopper was placed in service and discharged into an empty twenty cubic yard container. Refuse deliveries were curtailed during the pit measurement procedure.
- Deliveries were then resumed and recorded on the tipping floor log.
- The plant was maintained at the throughput rate of 50 tons per hour, using the refuse crane load cells to monitor the incineration rate.
- Shutdown time was required for parts of the facility during the test which is summarized as follows:

<u>LINE</u>	<u>DATE</u>	<u>TIME</u>	<u>DURATION</u>	<u>REASON</u>
4	9/18/85	0650-0730 Hrs.	40 Min	Plugged feed chute
1	9/18/85	2200-2215 Hrs.	15 Min	Plugged feed chute
4	9/18/85	2250-2320 Hrs.	30 Min	Plugged feed chute
3	9/19/85	0710-0755 Hrs.	45 Min	Clinker in after-burner chamber

<u>LINE</u>	<u>TOTAL TIME</u>	<u>TIME ALLOWED</u>
1	.25 Hrs.	2 Hrs.
2	.0 Hrs.	2 Hrs.
3	.75 Hrs.	2 Hrs.
4	1.17 Hrs.	2 Hrs.

The shutdown time experienced was significantly less than the time allowed in the contract, therefore it was not necessary to extend the test beyond seventy-two hours duration.

- On September 19, 1985, the refuse pit was leveled during the after-noon hours in preparation for the final pit level measurement.

- At 5:48 p.m., the charging chutes were restored to the beginning level at the bottom of the sloped portion of the hopper. Refuse deliveries were curtailed. The final refuse pit level was recorded. The container under the process rejects hopper was removed and weighed at the scalehouse.

4. DATA

The following data recorded during the test is included in this section:

Tipping Floor Logs

Test Data Sheets - Efficiency Test

Refuse Elevation Data

Volume Addition Calculation

5. CALCULATIONS

The tipping floor log was reconciled with the Scalehouse Transaction Log to account for the deliveries received that did not have tare weights. Also several recorded as "not dumped in the pit" were not recorded on the Transaction Log as being returned to the transfer station. These transactions were subtracted from the total tons received.

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The final refuse pit elevation was higher than the initial elevation. Therefore the volume difference must be subtracted from the tons received.

TOTAL RECEIVED - TONS	3,894.23
TOTAL PIT TONNAGE ADDITION - TONS	(264.04)
TOTAL PROCESS REJECTS - TONS	<u>(1.59)</u>
<u>TOTAL PROCESSED - TONS</u>	<u>3,628.60</u>

3 day total of actual weight incinerated. the stack testing occurred during this time

EQUIVALENT WEEKLY CAPACITY $3,628.60 \times \frac{7}{3} = 8,466.73$

6. CONCLUSION

It can be concluded that the facility has met its Incineration Capacity performance guarantee since the facility incinerated the equivalent of 8,466.73 tons weekly. This is 1,466.73 tons per week, or twenty-one percent above the guaranteed incineration capacity of 7,000 tons per week, at a higher heating value of 4,500 Btu/lb.

GUARANTEED:

$$\frac{7,000 \text{ TONS}}{\text{WK}} \times \frac{1}{4 \text{ UNITS}} \times \frac{\text{WK}}{7 \text{ DAYS}} = 250 \text{ TPD}$$

ACTUAL:

$$\frac{8466.73 \text{ TONS}}{\text{WK}} \times \frac{1}{4 \text{ UNITS}} \times \frac{\text{WK}}{7 \text{ DAYS}} = 302.38 \text{ TPD}$$

VOLUME ADDITION CALCULATION

ACCEPTANCE TEST PERIOD: 9/16/85 THRU 9/19/85

LOCATION	INITIAL ELEVATION			FINAL ELEVATION			AREA A-B	AREA B-C	TOTAL AREA	VOLUME
	A	B	C	A	B	C				
E. WALL	50.67	50.25	49.23	42.42	39.17	38.92	169.14	187.34	356.48	
PIER 1	54.08	50.92	50.25	42.25	43.00	40.25	172.81	156.80	329.61	4802.61
PIER 2	52.58	52.00	52.42	42.33	42.92	41.08	169.14	178.68	347.81	4741.98
PIER 3	52.58	52.00	50.17	41.92	43.00	42.50	172.03	145.86	317.89	4659.90
PIER 4	52.42	52.08	49.67	41.83	42.08	42.67	180.16	148.75	328.91	4527.60
PIER 5	49.00	49.50	47.92	44.00	44.67	42.08	86.01	93.36	179.38	3538.01
PIER 6	48.00	48.25	45.33	44.00	43.25	41.25	78.75	79.45	158.20	2363.03
PIER 7	48.33	45.92	43.67	43.25	43.50	43.50	65.63	22.66	88.29	1725.41
PIER 8	48.67	45.10	43.42	44.67	44.75	40.50	38.06	28.61	66.68	1084.74
PIER 9	47.33	45.33	42.33	43.42	44.33	39.25	42.96	35.70	78.66	1017.36
W. WALL	48.25	46.17	43.58	42.25	43.50	38.83	75.86	64.93	140.79	1536.15

VOLUME ADDITION (CF)										30016.79
TONNAGE ADDITION (TONS)										264.04
TOTAL RECEIVED (TONS)										3894.23
TOTAL PROCESS REJECTS (TONS)										1.59

<u>TOTAL BURNED (TONS)</u>										<u>3628.60</u>

From Acceptance Test Report - 1985

1. OBJECTIVE

The objective of the Efficiency Test is to determine that the electrical energy generation per ton of the reference composition waste complies with the energy recovery guarantee of a net electric output of 428 ($\pm 5\%$) kwh per ton of reference composition processible waste as defined in Exhibit 10.2, Section of the contract.

2. REFERENCES

WMI/Tampa Design and Construction Contract

ASME PTC 4.1 Steam Generating Units

G-E Curve K-1078421-197928-12, "Expected Output with Variable Exhaust Pressure"

ASME Steam Tables, Fifth Edition

Steam-Its Generation and Use by Babcock & Wilcox

3. TEST PROCEDURE

The plant was prepared for the efficiency test as described in the Acceptance Test Methodology dated July 8, 1985. The turbine driven boiler feed pump was secured, as was the steam supply to the dump condenser. The circulating water side of the dump condenser remained in service since this system has been modified to place the dump condenser in series with the main condenser which will be normal operating mode of the plant.

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PERFORMANCE CALCULATIONS
BASED ON ACTUAL CONDITIONS

	Btu/lb	%
F. <u>HEAT OUTPUT</u> Due to -		
Steam:		
[(lb/hr of steam) / (lb/hr of fuel)] x (h out - h in, Btu/lb)		
[(222,420) / (98,555)] x (1323.95 - 234.63)	2483.58	58.71
Boiler blowdown:		
[(lb/hr of blowdown) / (lb/hr of fuel)] x (h out - h in, Btu/lb)		
[(1168) / 97,555.5] x (484.73 - 234.73)	2.99	0.07
	2486.57	
G. <u>HEAT LOSSES DUE TO</u> -		
Dry gas:		
(lb dry gas/lb fuel) x average specific heat x (T gas exit - T Ref.)		
7.35 x 0.25 X (558.76 - 85.43)	869.74	20.56
Moisture from H ₂ and H ₂ O in fuel:		
(Wet Gas - Dry Gas - Quench Vapor-Moisture Comb. Air x (h T gas exit, 1 psia - h liquid T Ref.)		
(781,255 - 717,770 - 11,156/97,555) / (1316.14(- 50.43)	678.93	16.05
Moisture from combustion air:		
(lb air/lb fuel) x (lb moisture/lb air at Amb. T & humidity) x		
(h T gas exit, 1 psia - h sat. vapor at Ref T)		
697,235/97,555.5 x 0.16 X (1316.14 - 1096.4)	25.13	0.59
H. <u>HEAT LOSS DUE TO UNBURNED COMBUSTIBLES:</u>		
= (lb C per lb. Bottom Ash) X (lb Bottom Ash/hr) X (HHVC) ÷ (lb fuel)		
= 0.0121 X 20,732.5 X 14500 ÷ 97,555.5 =	37.29	0.88
= (lb C per lb. Fly Ash) X (lb Fly Ash/hr) X (HHVC) ÷ (lb fuel)		
= (.0097) X (1532.5) X 14500 ÷ 97,555.5 =	2.09	0.04
	39.38	0.93

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	<u>Btu/lb</u>	<u>%</u>
I. HEAT LOSS DUE TO RESIDUE SENSIBLE HEAT:		
= (1b Bottom Ash/hr) X (sp. ht. residue) (T after kiln - T at Quench Pit) ÷ (1b. fuel)		
= (20,732.5) X (0.25) X (1550.14 - 191) ÷ 97,555.5 =	72.21	0.17
= (1b Fly Ash/hr) X (sp. ht. residue) T after kiln-T at Quench Pit) ÷ (1b fuel)		
= (1532.5) X (0.25) X (1550.14-191) ÷ 97,555.5 =	5.34	0.12
	<hr/> 77.55	1.83
J. SENSIBLE HEAT IN QUENCH VAPOR:		
= (1b M-U Quench Water) (Enthalpy Vapor @ 558.76 Enthalpy MU Water) ÷ (1b fuel)		
= 3199.04 (1316.14 - 65.88) ÷ 97555.5 =	41.00	0.96
K. RADIATION AND CONVECTION	21.50	.005
L. TOTAL HEAT LOSS	1753.23	
M. <u>HEAT CREDITS</u> due to -		
Dry combustion air sensible heat: (1b air/lb fuel) X specific heat X (T air entering - T Ref.) (97235/97555.5 X 0.24 X (85.43 - 80)	9.31	0.22
Moisture in combustion air: (1b air/lb fuel) X (lb moisture/lb air at Amb. T & humidity) X specific heat X (T air entering - T Ref.) 697235/97555.5 X .016 X 0.24 X (85.43 - 80)	0.15 <hr/> 9.46	0.004 0.22
N. TOTAL HEAT CREDITS		
Heat Input = HHV of Fuel + Heat Credits = Heat Output + Heat Losses		
HHV of Fuel = Heat Output + Heat Losses - Heat Credits = 2486.57 + 1731.73 - 9.46 = $\frac{4208.84}{.995}$ = 4229.99		

0. HHV OF FUEL = 4229.99

P. Measured Steam Flow (8 hour average) 222,420 lb/hr

Q. Correction Factor for HHV
 $1 + \frac{4500 - 4299.99}{4500} = 1.06$

R. Corrected Steam Flow for Reference Composition Waste
 $1.06 \times 222,420 = 237,885 \text{ lb/hr}$

S. Equivalent Electrical Output per General Electric Company Curve K-1078421-12
Plot 237,885 lb/hr OS output = 23.6 MeW
For 8 hour test = $8 \times 23.6 = 189,008 \text{ Kwh}$

T. Station Power Usage (measured) 19,896 Kwh

U. Net Electrical Output 169,112 Kwh

V. Refuse Throughput (8 hours) 390.22 tons

W. Net Energy Output 433.4 Kwh/ton

REFUSE THROUGHPUT:

$$\frac{390.22 \text{ TONS}}{8 \text{ HR}} \times \frac{24 \text{ HR}}{\text{DAY}} \times \frac{1}{4 \text{ UNITS}} = 292.66 \text{ TPD}$$

COMMISSION

DOTTIE BERGER
JOE CHILLURA
CHRIS HART
JIM NORMAN
JAN PLATT
THOMAS SCOTT
ED TURANCHIK

EXECUTIVE DIRECTOR

ROGER P. STEWART



ADMINISTRATIVE OFFICES, LEGAL &
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

RECEIVED

May 1, 1997

MAY 05 1997

Mr. Howard Rhodes, P.E.
Director, Division of Air Resources Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

DIVISION OF AIR
RESOURCES MANAGEMENT

Re: City of Tampa McKay Bay Waste to Energy Facility

- Ref: (a) Pages 1-2 and 1-6 of the July 1981 Application to Construct (McKay Bay)
(b) Section 1, Incineration Capacity Test, from September 1985 Acceptance Test
(c) City of Tampa May 13, 1987 letter to Clair Fancy
(d) City of Tampa June 15, 1989 letter to Clair Fancy
(e) City of Tampa February 7, 1992 letter to Clair Fancy

Dear Mr. Rhodes:

Thank you for the opportunity to comment on the status of the City of Tampa's McKay Bay Waste to Energy facility.

The recent successful legal challenge to the EPA emission standards for Municipal Waste Combustors has created a potential loophole that could affect the health and welfare of the citizens of Hillsborough County. As you know, the City of Tampa's McKay Bay Waste to Energy facility has significant dioxin emissions as verified by EPA requested testing. These emissions can not be lowered any further without additional emissions controls. The court ruling has vacated EPA's emission standards for small facilities (less than 250 tons per day of waste burned), but let stand the emission standards and timeline for implementation for large facilities. Since EPA will have to revise the small facility definition and standards, and will have to go through the formal public review process, standards for small facilities might not be in place until 2004.

The designation of the McKay Bay facility needs to be reviewed and confirmed as a large facility. The City of Tampa currently plans to proceed with the necessary and admittedly expensive retrofit to improve the air quality. However, if McKay Bay were designated as a small facility, other fiscal demands might cause the City of Tampa to

Howard Rhodes
May 1, 1997
Page 2 of 3

logically wait and see what the new small facility emission standards will be, and implement them years in the future. A health risk study paid for by the City themselves indicated that dioxin emissions would not be a problem if the facility were retrofitted by the year 2000. Clearly they need to act, and the only question in our mind is whether the EPA program statutory requires them to.

Mike Hewett has indicated that DEP will probably make the decision as to what size facility McKay Bay is. Attached is the information the EPC of Hillsborough County has researched, which supports our belief that McKay Bay is a large facility. That information is summarized as follows:

- The McKay Bay Facility has four units, each currently permitted for 250 tons per day (TPD).
- City of Tampa officials maintain that the "design rating" for McKay Bay is 1000 tons per day total (250 TPD per unit based on fuel with a heat content of 4500 BTU/lb and a moisture content of 30%).
- Staff phone conversations with Walt Stevenson at EPA's combustion group indicate that the designation of the facility size is not necessarily based on name plate information, but on the physical capacity of the unit.
- 40 CFR 60.58b(j) indicates that the maximum charging rate shall be the maximum design charging rate.
- The July 1981 application to construct McKay Bay pages 1-2 and 1-6 (ref a) indicate the design capacity would be at least 1000 TPD and provide a minimum weekly capacity of 7000 tons per week (also 1000 TPD).
- The conclusion of the acceptance test on McKay Bay, conducted September 1985, indicates that the facility met its incineration performance guarantee. In fact, the acceptance test showed that the facility operated at an average of 1209.5 TPD for the three days of the test as measured by the scales on the overhead crane. (Ref b)

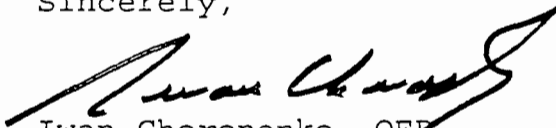
Howard Rhodes
May 1, 1997
Page 3 of 3

- On May 13, 1987, the City of Tampa requested the maximum charging rate be increased to 325 TPD per unit (1300 TPD total) by a simple permit amendment. This letter (ref c) said the 1981 construction permit application was based on the design capacity guaranteed by the vendor and was not intended to be the maximum plant capacity. It also cited the acceptance test results above which showed 1209 TPD. This request was not approved.
- On June 15, 1989, the City of Tampa requested the charging rate be increased to 1075 TPD (ref d). This request was apparently held up by pending EPA rule work.
- On February 7, 1992, the City of Tampa renewed its 1989 request to raise the maximum charging rate (ref e). Again, they were told this would be a modification and subject to a construction permit.

The initial 1981 construction application indicates that the 1000 TPD design rate is at the low end of the performance range of the facility. The 1985 acceptance test confirms that the facility is clearly capable of operating at more than 250 TPD. The City of Tampa acknowledged the larger capacity in its 1987 and 1989 requests to increase the charging rate and readily admits their demonstrated capacity exceeds 250 TPD. McKay Bay is and should be confirmed as a large facility.

If you have any questions, please call Jerry Campbell at (813)-272-5530.

Sincerely,



Iwan Choronenko, QEP
Director, Air Management Division

cc: Mike Hewett, FDEP
Brian Beals, EPA Region IV
Walt Stevenson, EPA
Mike Salmon, City of Tampa
David Dee, Landers & Parsons, P.A.

accept them as such. The equipment discussed has been accepted as "proven technology" in other refuse to energy projects. This term can be defined as that technology which has been historically proven relief by operating successfully for several years.

The field of resource recovery is such that a technology is not considered proven until a full size unit has been built and operated successfully. Deviations from accepted proven technology would increase the risk perceived by the financial community, thereby substantially increasing the cost of bonding the facility or ultimately undermining the sale of the bonds.

REHABILITATION OF THE TAMPA INCINERATOR (Facility I)

The closed Tampa Incinerator is located on a 14 acre site adjacent to McKay Bay south of Route U. S. 60. Figure 1-1 is the site plan of the McKay Bay Project. The existing incineration system presently consists of three Volund Technology mass burn combustion trains without energy recovery. Each is rated at 250 TPD. Design engineers have inspected the incinerator and have determined that it can be rehabilitated and converted into a state-of-the-art resource recovery system capable of generating electricity for sale to Tampa Electric Company (TECO). Figure 1-2 depicts a cross sectional view of the existing equipment. To renovate the incinerator waste heat boilers, electrostatic precipitators for particulate control and a turbine generator, with all support equipment and instrumentation, will have to be added. In addition, the inplace combustion system will have to be modified to bring the facility into a guaranteed operating condition for long-term operation and incorporation of modern design features.

Figure 1-3 shows the probable equipment configuration with a boiler and electrostatic precipitator added to the existing equipment. Three combustion trains were initially constructed with adequate space left in the building to add a fourth unit at a later date. Adding the fourth unit would increase the design capacity of the facility to at least 1000 TPD and provide the capability to dispose of a maximum of approximately 300,000 tons per year of solid waste.

The steam generated by the four boilers will be used to produce electricity in a condensing turbine generator. (See Figure 1-4) All generation support systems will be provided to sustain operation on an annual operating schedule consistent with parameters used in the electrical utility industry.

Non-attainment air emissions produced by the combustion process will be controlled to lowest achievable emission rate (LAER) of 0.03 gr/dscf at 50% excess air by an electrostatic precipitator (ESP) for each incinerator/boiler train. Control of other pollutants will be discussed in Chapter 6. The treated flue gas will be vented to the atmosphere through individual flues within a common 46 meter chimney which represents the good engineering practice (GEP) stack height.

Ash produced by the combustion process will be handled by a wet system. The wet ash will be dewatered and loaded into trucks for subsequent disposal in the designated permitted landfill. On a dry basis, the ash quantity requiring landfilling is estimated to be about 15 percent by weight of the input solid waste combusted.

Other modifications will include an enclosed tipping area which will be placed under negative pressure to control dust and odor. The recovery of secondary materials is also a possibility.

NEW RESOURCE RECOVERY FACILITY (Facility 2)

The new Resource Recovery Facility will be located adjacent to Facility 1. The incineration system will be two mass burn units capable of processing a total of 1000 tons per day of solid waste. The Facility 2 will include the recovery of secondary materials and the production of electricity for sale to the Tampa Electric Company. Two alternative site plans are shown in Figures 1-5 and 1-6.

Facility 2 will be designed to provide a minimum annual plant capacity of 300,000 tons per year and a minimum weekly capacity of 7,000 tons per week.

Section 1

Incineration Capacity Test

From *Acceptance Test Report*

1. OBJECTIVE

The objective of the Incineration Capacity Test is to demonstrate that the McKay Bay Refuse to Energy Facility meets the performance guarantee specified in the WMI/Tampa Design and Construction Contract, Exhibit 4.1.

2. REFERENCES

- A. WMI/Tampa Design and Construction Contract
- B. McKay Bay Facility Acceptance Test Methodology dated July 8, 1985

3. TEST PROCEDURE

During the days prior to the test commencement the refuse pit was dug down to the extent possible while final preparations of the plant were being made.

On Monday, September 16, 1985 the plant was stabilized at design steam flow at 10:00 a.m. as verified by the Data Logger Trendcurves attached, Addendum 2.

- Refuse was received on a continuous basis beginning at approximately 7:00 a.m. During the midafternoon hours, efforts began to level the refuse pit for the initial level measurement.
- At 5:48 p.m., WMI and HDR agreed that the pit was leveled sufficiently. The charging hoppers were filled to the bottom of the sloped portion of the hoppers.

- The initial pit level was recorded per the procedure in the Acceptance Test Methodology.
- The reject hopper was placed in service and discharged into an empty twenty cubic yard container. Refuse deliveries were curtailed during the pit measurement procedure.
- Deliveries were then resumed and recorded on the tipping floor log.
- The plant was maintained at the throughput rate of 50 tons per hour, using the refuse crane load cells to monitor the incineration rate.
- Shutdown time was required for parts of the facility during the test which is summarized as follows:

<u>LINE</u>	<u>DATE</u>	<u>TIME</u>	<u>DURATION</u>	<u>REASON</u>
4	9/18/85	0650-0730 Hrs.	40 Min	Plugged feed chute
1	9/18/85	2200-2215 Hrs.	15 Min	Plugged feed chute
4	9/18/85	2250-2320 Hrs.	30 Min	Plugged feed chute
3	9/19/85	0710-0755 Hrs.	45 Min	Clinker in after-burner chamber

<u>LINE</u>	<u>TOTAL TIME</u>	<u>TIME ALLOWED</u>
1	.25 Hrs.	2 Hrs.
2	.0 Hrs.	2 Hrs.
3	.75 Hrs.	2 Hrs.
4	1.17 Hrs.	2 Hrs.

The shutdown time experienced was significantly less than the time allowed in the contract, therefore it was not necessary to extend the test beyond seventy-two hours duration.

- On September 19, 1985, the refuse pit was leveled during the after-noon hours in preparation for the final pit level measurement.
- At 5:48 p.m., the charging chutes were restored to the beginning level at the bottom of the sloped portion of the hopper. Refuse deliveries were curtailed. The final refuse pit level was recorded. The container under the process rejects hopper was removed and weighed at the scalehouse.

4. DATA

The following data recorded during the test is included in this section:

Tipping Floor Logs

Test Data Sheets - Efficiency Test

Refuse Elevation Data

Volume Addition Calculation

5. CALCULATIONS

The tipping floor log was reconciled with the Scalehouse Transaction Log to account for the deliveries received that did not have tare weights. Also several recorded as "not dumped in the pit" were not recorded on the Transaction Log as being returned to the transfer station. These transactions were subtracted from the total tons received.

The final refuse pit elevation was higher than the initial elevation.
Therefore the volume difference must be subtracted from the tons received.

TOTAL RECEIVED - TONS	3,894.23	<i>3 day total of actual weight incinerated. the stack testing occurred during this time</i>
TOTAL PIT TONNAGE ADDITION - TONS	(264.04)	
TOTAL PROCESS REJECTS - TONS	<u>(1.59)</u>	
<u>TOTAL PROCESSED - TONS</u>	<u>3,628.60</u>	
EQUIVALENT WEEKLY CAPACITY	$3,628.60 \times \frac{7}{3} = 8,466.73$	

6. CONCLUSION

It can be concluded that the facility has met its Incineration Capacity performance guarantee since the facility incinerated the equivalent of 8,466.73 tons weekly. This is 1,466.73 tons per week, or twenty-one percent above the guaranteed incineration capacity of 7,000 tons per week, at a higher heating value of 4,500 Btu/lb.

VOLUME ADDITION CALCULATION

ACCEPTANCE TEST PERIOD: 9/16/85 THRU 9/19/85

LOCATION	INITIAL ELEVATION			FINAL ELEVATION			AREA A-B	AREA B-C	TOTAL AREA	VOLUME
	A	B	C	A	B	C				
E. WALL	50.67	50.25	49.25	42.42	39.17	38.92	169.14	187.34	336.48	4802.61
PIER 1	54.08	50.92	50.25	42.25	43.00	40.25	172.81	156.80	329.61	4741.98
PIER 2	52.58	52.00	52.42	42.33	42.92	41.08	169.14	178.68	347.81	4659.90
PIER 3	52.58	52.00	50.17	41.92	43.00	42.50	172.03	145.86	317.89	4527.60
PIER 4	52.42	52.08	49.67	41.83	42.08	42.67	180.16	148.75	328.91	3558.01
PIER 5	49.00	49.50	47.92	44.00	44.67	42.08	86.01	93.36	179.38	2363.03
PIER 6	48.00	48.25	45.33	44.00	43.25	41.25	78.75	79.45	158.20	1725.41
PIER 7	48.33	45.92	43.67	43.25	43.50	43.50	65.63	22.66	88.29	1084.74
PIER 8	48.67	45.10	43.42	44.67	44.75	40.50	38.06	28.61	66.68	1017.36
PIER 9	47.33	45.33	42.33	43.42	44.33	39.25	42.96	35.70	78.66	1536.15
W. WALL	48.25	46.17	43.58	42.25	43.50	38.83	75.86	64.93	140.79	
VOLUME ADDITION (CF)										30016.79
TONNAGE ADDITION (TONS)										264.04
TOTAL RECEIVED (TONS)										3894.23
TOTAL PROCESS REJECTS (TONS)										1.59
<u>TOTAL BURNED (TONS)</u>										<u>3628.60</u>

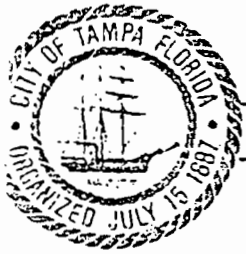
RECEIVED

MAY 15 1987

CITY OF TAMPA

Sandra W. Freedman, Mayor

E.P.C. OF H.C.

Office of Environmental Coordination
McKay Bay Refuse-to-Energy Project

May 13, 1987

Mr. Clair Fancy
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

Dear Mr. Fancy:

The City of Tampa has proposed three amendments to Permit Number A029-114760 to operate the McKay Bay Refuse-to-Energy Facility which appear to be inconsistent with construction permit numbers AC29-47277 (DER) and PSD-FL-086 (EPA). The proposed amendments are as follows:

1. A maximum charging rate of 325 tons per day per process line and 1300 tons per day for the facility (instead of 250 TPD per line and 1000 TPD for the facility).
2. A maximum heat input rate of 2925 MMBTU per day per process line and 11,700 MMBTU per day for the facility (instead of 2500 MMBTU per day per line and 9000 MMBTU per day for the facility).
3. Testing emissions within $\pm 10\%$ of the nominal steam rate of 52,100 pounds per hour (instead of $\pm 10\%$ of the maximum charging rate of 10.5 tons per hour).

These amendments would not increase air emissions. We are requesting the ability to charge a higher quantity of fuel when the fuel quality is low, to maintain proper steam flow rates. If it is necessary to amend the construction permits to allow these changes, please consider this a request to do so.

The value of 1000 tons per day stated in the construction permit application, submitted in 1981, was the design capacity guaranteed by the vendor, based on design fuel parameters of 4500 BTU per pound higher heating value and 30% moisture content. It was never intended to be the maximum plant capacity for operating purposes. We now have real data to be applied toward our plant capacity and emissions requirements.

Mr. Clair Fancy
May 13, 1987
Page Two

The acceptance testing in September, 1985 proved that the plant could efficiently process 1209 TPD and be well within air emission limitations as stated in the construction permits. The BTU value during acceptance testing averaged 4230 BTU per pound. During the summer of 1986, it became obvious that the municipal solid waste delivered was often higher in moisture content and lower in BTU value than design fuel parameters. Equipment is currently being installed that will enhance the plants ability to burn wet garbage. Much of the increased tonnage we are requesting will be excess water.

There are no explicit references to a 1000 TPD maximum charging rate in the DER or EPA construction permits. Both permits do reference all information presented in the application as part of the permits. The original application only mentioned charging rates in Section IV. It appears that projected emissions were based on other similar facilities and not on an assumed emission factor and an assumed charging rate. I have verified that the actual plant emissions at 1209 TPD were below the 1981 projected emissions for facility number 1 for all regulated pollutants. The air modeling was done with the assumption that two facilities would be collocated at the McKay Bay site. The second facility was constructed about 4.5 miles east of McKay Bay. The requested changes do not invalidate the air quality analysis originally presented to DER.

I wish to emphasize that we are not requesting any changes in emission and power production limitations as set forth in the current operating permit. I have attached additional information in support of this request, with the major points highlighted in red for your convenience. Please call Greig Grotecloss of my staff at (813) 223-8071 if additional information is required.

Thank you for your assistance in this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:21-37
attachment

xc: Mike Salmon, City of Tampa
Jim Estler, SWFDER (w/attach.)
Victor San Agustin, HCEPC (w/attach.)
Peter Ware, WMI

Bill Engel, WMI
Jim Brittain, HDR
Red McCormack, HDR
Kim Ford, SWFDER



CITY OF TAMPA

RECEIVED

JUN 26 1989

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT

DER. J. W. Bass
Everett W. Bass
Director

June 15, 1989

Mr. Clair Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Enclosed is a summary of all available emissions testing data for the McKay Bay Refuse-to-Energy Facility. A chart is also attached showing how the daily charging rate varies as a function of moisture content. Our calculations indicate that the PSD increment for NO_x is exceeded at an average charging rate of 1075 TPD. We still maintain that our increased charging rate is due to high moisture content and will not correlate to increased emissions, but we realize this does not fit the methodology of the PSD review process. Therefore, we would like to propose the following permit amendments that will suit our needs and be consistent with the PSD review process.

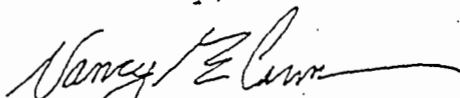
1. Increase the charging rate to 1075 TPD based on a thirty day rolling average with an annual limit of 365,000 tons. This allows us to increase our charging rate during the rainy season without exceeding the PSD increments on a daily basis or causing any increase of pollutants on an annual basis.
2. Conduct compliance testing based on a design steam flow of 52,100 pounds per hour per boiler $\pm 10\%$ instead of a maximum charging rate. The maximum charging rate varies according to the moisture content of the refuse. The steam flow is also a much more accurate and easier parameter to measure during the compliance test.
3. Keep the current maximum heat input rate unchanged at 9,000 MMBTU per day. This will reinforce our position that the increased charging rate is due to increased moisture content and not an increase in the actual dry weight of the refuse being charged.

Mr. Clair Fancy
June 15, 1989
Page Two

The McKay Bay Refuse-to-Energy Facility has processed 308,000 and 310,000 tons the last two years and the annual charging rate is not expected to ever exceed 330,000 tons per year. The permit amendments will not result in any overall increase in the amount of refuse burned per year or the amount of pollutants emitted per year. The amendments will allow the facility to maintain good combustion conditions when the moisture content of the refuse increases or decreases and a higher or lower charging rate is necessary to maintain the proper heat input to the furnaces.

We would like to present our data and arguments to EPA/DER in person if you feel this would be productive. Please contact Greig Grotecloss at (813) 223-8071 if any additional information is needed or if you would like to arrange a meeting to discuss these amendments. I greatly appreciate your assistance in resolving this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:32-29

xc: William D. Engel

Copied: J Campbell, HCEPC
7-7-89 E. Thomas, SA/Estimate
Kaval W. Aronson, EPA
C. Shaser, NPS
E. Anderson, BDM

RTE



CITY OF TAMPA

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT
Office of Environmental Coordination

FEB 11 1992

February 7, 1992

E.P.C. OF H.C.
AIR PROGRAM

Mr. Clair Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

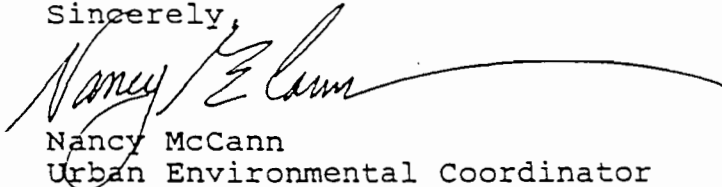
Dear Mr. Fancy:

Mirza Baig requested that the City of Tampa resubmit our request for a construction permit amendment for the McKay Bay Refuse-to-Energy Facility. The last two letters (copies attached) sent to the Department accurately summarize the City's request for an increased charging rate. The City has not actively pursued this request during the last year due to the pending EPA emission guidelines for existing municipal waste combustors.

Please resubmit our request for an amendment. Please contact Greig Grotecloss, of my staff at (813) 227-7832 if you have any questions regarding this request.

Thank you for your assistance with this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NM/GG/md

n:fancy.2

cc: William D. Engel, Wheelabrator McKay Bay, Inc.
Mirza Baig, Department of Environmental Regulation
Darrel Graziani, Environmental Protection Commission



CITY OF TAMPA

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT

Office of Environmental Coordination

May 2, 1990

Mr. Clair Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

This letter is a follow-up to my letter to you dated November 30, 1989 (copy attached). Since that time, Greig Grotecloss of my staff has spoken with Pradeep Raval of your staff regarding additional information DER would need to amend the construction permit for the McKay Bay Refuse-to-Energy Facility. Since Pradeep is no longer with the Department, I felt it would be wise to request written guidelines on what additional information will be necessary.

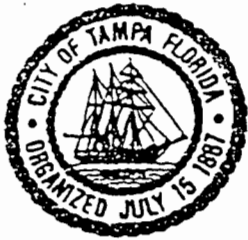
Please contact Greig at (813) 223-8071 if you have any questions regarding this request. Thank you for your assistance with this matter.

Sincerely,

Nancy McCann
Urban Environmental Coordinator

NMc/me:A

c: William D. Engel, Wheelabrator McKay Bay, Inc.



CITY OF TAMPA

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT

Office of Environmental Coordination

November 30, 1989

Mr. Clair H. Fancy, P.E.
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Permit Amendment for McKay Bay Refuse-to-Energy
Facility - Permit No. AC29-47277, PSD-FL-086

Dear Mr. Fancy:

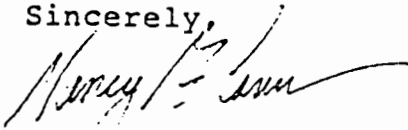
Attached is an updated emissions summary containing all data available for the McKay Bay Refuse-to-Energy Facility. The Department requested this during a meeting on October 20, 1989.

The City of Tampa requests two permit amendments as were discussed on October 20, 1989.

1. Increase the maximum charging rate to a weekly total based on the maximum daily charging rate that will not exceed the PSD thresholds. Our calculations indicate this value will be about 7,455 tons per week. We prepare the calculation of tons burned for the week every Monday morning.
2. Conduct compliance testing based on a design steam flow of 52,100 pounds per hour per boiler $\pm 10\%$ instead of a maximum charging rate. The maximum charging rate varies according to the moisture content of the refuse. The steam flow is a much more accurate and easier parameter to measure during the compliance test.

Please contact Greig Grotecloss at (813) 223-8071 if you would like additional information or have any questions regarding this request.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/me:32-8

xc: William D. Engel, Wheelabrator McKay Bay, Inc.
Pradeep Raval, DER
Barry Andrews, DER

Date: 9/19/97 9:27:10 AM
From: Michael Hewett TAL
Subject: Re: City of Tampa McKay Bay Refuse to Energy Facility

-> Mike Hewett. Please look at applicability issues in view of
-> recent court decisions and our rule adoption schedule. Provide any
-> other comments. Please share copy of application with Cindy Phillips.
-> Cindy. Does MACT look O.K?

I have been told by Region 4 that our Subpart Cb implementation plan is in DC now and approval should come very soon. We have had many discussions with Tampa concerning the applicability of Subpart Cb and all parties have agreed that the four Tampa units are large (maximum design capacity greater than 250 tons per day) and therefore subject to the MACT standards. Tampa has a compliance schedule in the implementation plan. The schedule, which includes a closure agreement if any unit is not in full compliance within three years, should be included in the permit. The compliance clock will begin to tick once EPA approves our state plan.

I will provide Teresa with a copy of Tampa's compliance schedule and any other part of the implementation plan that she might need. If you have any questions please let me know.

Michael



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
October 14, 1997

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Honorable Dick Greco, Mayor
City of Tampa
306 E. Jackson
Tampa, Florida 33602

Re: DEP File Number 0570127-002-AC
McKay Bay Retrofit Project

Dear Mayor Greco:

The Department received the City's application for the McKay Bay Refuse-to-Energy Facility (MBREF) Air Pollution Control Equipment and Facility Improvements project on September 16, 1997. Following our initial review, we need the additional information listed below to process this request.

1. For verification of combustion capacity as indicated in the August 25, 1997 federal rule changes for Subpart Cb and Eb units, please provide calculations of the maximum charging rate of each unit according to the procedures under Section 60.58b(j) of 40 CFR 60 Subpart Eb. Also provide annual tonnage of municipal solid waste processed by the MBREF over the last five years along with any heat content determinations that have been made for the municipal solid waste burned.
2. For verification of "modification" or "reconstruction" status as defined in Subpart Eb, provide Subpart Eb construction cost calculations consistent with the EPA's August 20, 1996 "Applicability Determination," as amended on December 30, 1996. The Department considers induced draft (ID) fans to be part of the MWC units because they could not operate without them even if there was no air pollution control equipment. The ID fans are required to overcome the pressure drop of the process equipment as well as the pollution control equipment. In this case, the ID fans are the equivalent of forced air fans and should be considered as being within the physical boundaries of the MWC unit.
3. The process equipment retrofit appears to be a more of a life extension project than for meeting Subpart Cb in which case Subpart Eb may apply. Please provide a detailed engineering report confirming that the process equipment replacements are required for the MBREF to meet the Subpart Cb guidelines. The report should be prepared and sealed by a professional engineer with expertise in the appropriate mechanical and process disciplines addressed in the report.
4. Please indicate the most probable choice between reconstructing the existing mass burn refractory combustors or replacing them with the waterwall design (page 2-5), and between replacing the existing boilers or substantially improving them (page 3-1). This is necessary to meet the requirements of Rule 62-4.070, F.A.C., Standards for Issuing or Denying Permits. Subpart applicability, the ultimate performance of the facility, and the ability to efficiently burn the slate of wastes anticipated in the application may be related to this decision.
5. Please indicate which of the wastes specified in the application are already burned at the facility. How will the proposed specification of fuels affect overall waste throughput quantities? We may to submit some additional questions regarding wastes and fuels following review by Department solid waste staff.

Hon. Dick Greco
Page 2
October 14, 1997

6. The proposed monitoring plan does not reference specific monitors, locations, or techniques. Please provided this information.
7. Table 1-1 provides a comparison of present and projected emission limits. Please provide annual and hourly emissions reflecting actual emissions for a representative two year period reflective of normal operations prior to the retrofit project. To the extent possible and based on expected equipment performance, please submit best estimates of future annual and hourly emissions.

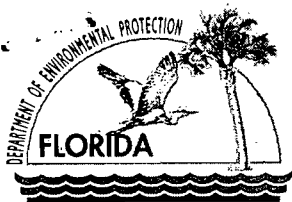
We will resume processing this application after receipt of the requested information. We have contacted your engineering consultant, Camp Dresser and McKee, regarding the above request. Your project staff and consultants can contact me or Mr. John Reynolds at 850/488-1344 if they have any questions regarding this matter.

Sincerely,



A. A. Lincro, P.E. Administrator
New Source Review Section

cc: Mike Salmon, City of Tampa
Douglas W. Fredericks, P.E., CK&M
Brian Beals, EPA Region IV
Mr. John Bunyak, NPS
Bill Thomas, DEP
Jerry Campbell, EPCHC



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

October 14, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Hon. Dick A. Greco, Mayor
City of Tampa
306 E. Jackson
Tampa, Florida 33602

Re: ~~DRAFT Permit~~ ^{DEP File} No. 0570127-002-AC/McKay Bay Retrofit Project

Dear Mr. Greco:

John - ignore comments & corrections on here. Refer to my E-mail (and attachment) here

The Department reviewed your application for the McKay Bay Refuse-to-Energy Facility (MBREF) Air Pollution Control Equipment and Facility Improvements project received on September 16, 1997. We need the additional information listed below to process this request.

1. For verification of "combustion capacity" as indicated in the August 25, 1997 federal rule changes for Subpart Cb and Eb units, provide calculations of the maximum charging rate of each unit according to the procedures under Section 60.58b(j) of 40 CFR 60 Subpart Eb. Also provide annual tonnage of municipal solid waste processed by the MBREF over the last five years along with any heat content determinations that have been made for the municipal solid waste burned.

Type paragraph first

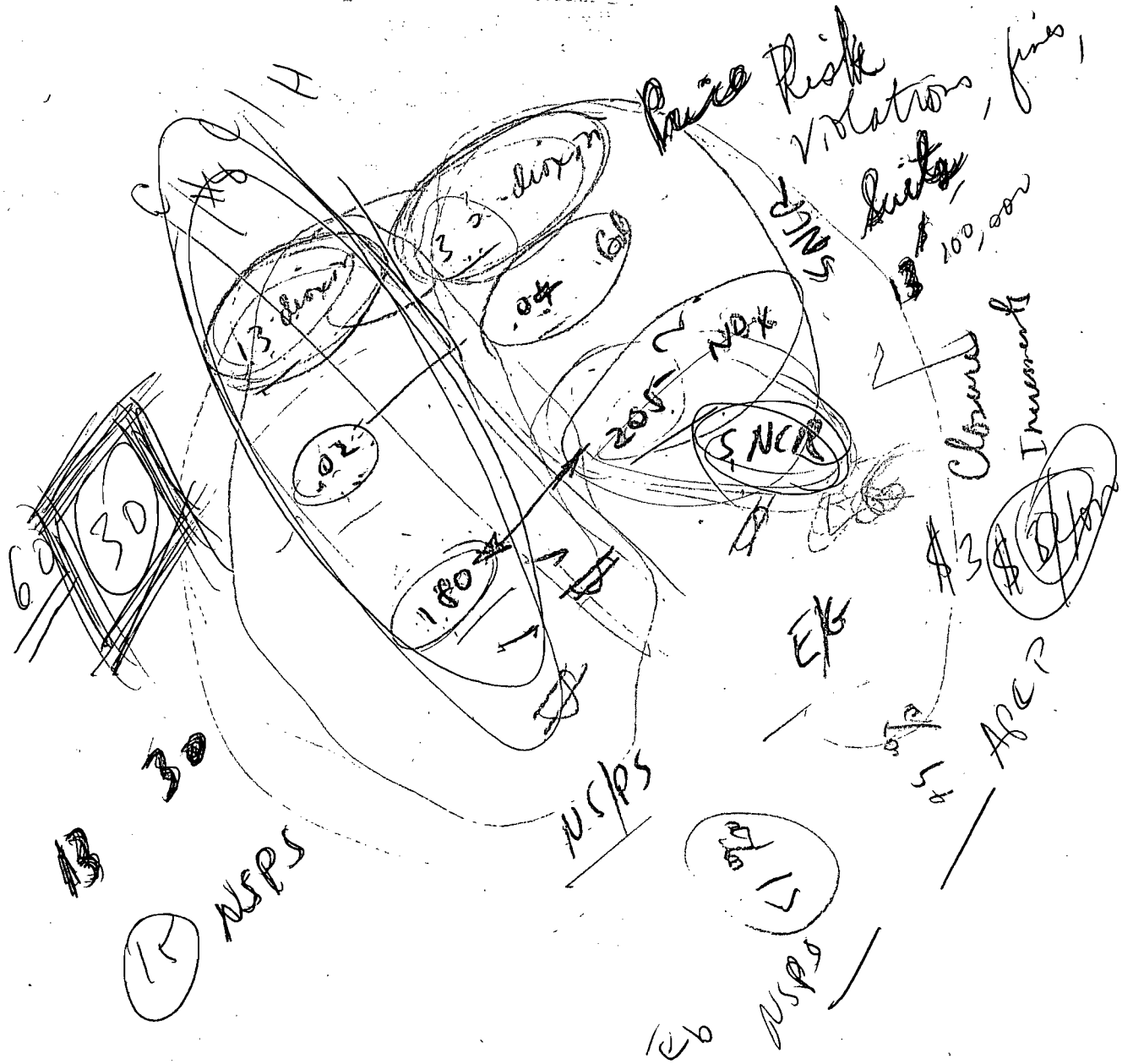
2. For verification of "modification" or "reconstruction" status as defined in Subpart Eb, provide Subpart Eb construction cost calculations consistent with the EPA's August 20, 1996 "Applicability Determination", as amended on December 30, 1996. It should be noted that the Department considers the induced draft (ID) fans to be part of the MWC units ~~although the EPA considers the ID fans to be outside the MWC definition because of their location. It is a fact that~~ the MWC units could not operate without the ID fans even if there was no air pollution equipment installed. The ID fans are required to overcome the pressure drop of the process equipment as well as the pollution control equipment. In this case the ID fans are the equivalent of forced air fans and therefore should be considered as being within the physical boundaries of the MWC unit.

as left-justified with no indent. Then apply numeration feature.

3. ~~Although the EPA made an applicability determination, the Department has concerns about the process equipment retrofit being more of a life extension project than for meeting Subpart Cb, in which case Subpart Eb may apply.~~ The Department has information supplied by a similar Volund-designed plant indicating that replacement of the furnaces, grates, kilns and boilers was not required to meet the Subpart Cb guidelines. Please provide a detailed engineering report done by qualified experts confirming that the process equipment replacements are required for the MBREF to meet the Subpart Cb guidelines. The report must be sealed by a Florida registered professional engineer. If indicated by the report, the Department may request a redetermination of applicability by the EPA.

a concern

in later phase design



conceptual

4. ~~The Department should not issue a construction permit for a "hypothetical" project.~~ Therefore, it is necessary that the applicant select the most probable choice between reconstructing the existing mass burn refractory combustors or replacing them with the mass burn waterwall design (page 2-5), and between replacing the existing boilers or substantially improving them (page 3-1).

5. The Department desires to reserve incompleteness questions concerning the types of fuels allowed to be processed at the MBREF, ~~until a legal decision is reached in the Ogden-Martin case. A decision is expected in the near future.~~ *Gotta ask now.*

6. The proposed monitoring plan does not reference specific monitors, locations, or techniques. Please provide this information.

7. The \$250 permit fee *→ O.K. CAI Verona apparently said so* submitted is insufficient for the scope of review required by this application which covers replacing essentially the entire facility. The appropriate permit processing fee under Rule 62-4.050(4), F.A.C., is: "Construction permit for a source having potential emissions of 100 or more tons per year of any single pollutant but not requiring a PSD or NAA new source review permit - \$5,000".

The Department will resume processing this application after receipt of the requested information. If you have any questions on this matter, please call ~~Al Linero~~ *me* or John Reynolds at 850/488-1344.

Sincerely,

[Handwritten signature]
A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/jr

- cc: ~~Mr. Douglas W. Fredericks, P.E.~~
~~Mr. Scott Davis, EPA Region IV~~
Mr. John Bunyak, NPS
Mr. Bill Thomas, SWD
Mr. Jerry Campbell, EPCHC

Brian Beal

~~Mr. Dan Strohbridge~~
Mike Salmon, City of Tampa, Projects Coordinator

*3 separate copies
to: David Dee L&P
Don Elias RTP
Don Strohbridge CD&M*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION 4
AIR, PESTICIDES & TOXICS MANAGEMENT DIVISION
AIR & RADIATION TECHNOLOGY BRANCH
100 Alabama Street, SW
Atlanta, Georgia 30303
Fax Number: 404/562-9095

FACSIMILE TRANSMISSION SHEET

DATE: OCT 9, 1997	NUMBER OF PAGES (including this sheet): 14
TO: John Reynolds	PHONE: 850-921-9536
ADDRESS: Florida DEP	FAX NUMBER: 850- 921 922-6979
FROM: Scott Davis	PHONE: 404-562-9127

Please call me if this transmission is received poorly.

SPECIAL INSTRUCTIONS:

Mckay Bay MWC unit capacity info
This is an EG facility with "large"
MWC units (capacity greater than 250 tons/day)

MCKAY BAY REFUSE TO ENERGY FACILITY

NOTES ON MWC UNIT CAPACITY DETERMINATION

The City of Tampa McKay Bay Refuse to Energy Facility is located in Tampa, Florida, and falls under the jurisdiction of the Florida Department of Environmental Protection (Florida DEP), the Hillsborough County Environmental Protection Commission (EPC), and EPA Region 4.

The McKay Bay facility received a PSD permit from EPA Region 4 in May 1982. The file for this permitting action is in the Region 4 archives. According to the file listing, subsequent permit modification and amendment requests were processed by Florida DEP and not by Region 4. According to available correspondence, Region 4 was copied on a permit amendment request dated June 15, 1989, to increase the MSW charging rate to 1075 tons per day (269 tons per day per unit). The PSD permit was never amended above the original limit of 250 tons per day per unit. With this source file presently archived, the extent of the information in the actual permit file subsequent to initial PSD permit issuance is not known at the present time.

The McKay Bay facility was targeted as significant emitter of dioxins/furans by EPA during the MWC Dioxin Initiative in Spring 1994. During dioxin stack tests, meetings and correspondence, and an eventual agreement in July 1995 with Region 4 for the interim reduction of dioxin emissions, all of the information submitted to EPA presented the McKay Bay facility as a 1000 tons per day facility consisting of four 250 tons per day units.

A NSPS determination of the McKay Bay facility was completed by Region 4 from April to December of 1996, in conjunction with OGC, OECA, and OAQPS. The information submitted to EPA by the facility during the preparation of this determination included the July 1981 PSD permit application, the March 1982 technical evaluation and preliminary determination completed by Florida DEP, and the final determination and PSD permit completed by Florida DEP and Region 4. All information presented in these documents referred to a 1000 tons per day facility consisting of four 250 tons per day units.

Information presented to the public by Wheelabrator on a daily basis (fact sheets, brochures) say the McKay Bay facility has a plant daily capacity of 1000 tons per day in four 250 tons per day units.

Florida DEP requested verification of the McKay Bay facility unit capacity on April 18, 1997, and July 21, 1997. A response was received from McKay Bay (City of Tampa) on May 22 deferring the unit capacity until the MWC rule amendments resulting from the Davis County litigation were promulgated and additional information on the facility was gathered.

Hillsborough County EPC submitted information on the unit capacity of the McKay Bay facility to Florida DEP and Region 4 on May 1, 1997. This information substantiates the classification of the McKay Bay facility as large MWC units in accordance with 40 CFR §60.51b and 60.58b(j).

Scott Davis, EPA Region 4, Air and Radiation Technology Branch, July 31, 1997.



Department of Environmental Protection

Lawton Chiles
Governor

RECEIVED

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

Virginia B. Wetherell
Secretary

JUL 23 1997

July 21, 1997

AIR AND RADIATION TECHNOLOGY BRANCH
EPA - REGION 4
ATLANTA, GA

Mike Salmon, Coordinator
Department of Environmental Services
and Public Works Projects
City of Tampa
306 East Jackson Street
Tampa, FL 33602

Dear Mr. Salmon:

On April 18 you were sent a letter by this office requesting that you provide the Department of Environmental Protection (Department) with verification of maximum design capacity for each of the four combustion units operating at the McKay Bay Refuse-to-Energy Facility (MBREF). In your May 22 response letter you stated that the City would be unable to determine whether its municipal waste combustion units were large or small until EPA issues the final regulations. Also, your letter stated that the City is gathering the information needed to classify the units.

Florida's 111(d) implementation plan, which was sent to EPA Region 4 last December, cannot be approved until the unit size issue is resolved for all 13 facilities (35 units) identified in the plan. Plan approval and, consequently, the compliance clock are on hold for all affected facilities until EPA receives verification of design capacity from the Department. Since this is an issue which affects multiple facility owners, and because your response to our request for verification of maximum design capacity contained no design capacity data, our Department personnel have reviewed the MBREF permit file and have determined the following:

- a) The original MBREF construction application, dated July 23, 1981, lists the facility design capacity as 8.3×10^4 pounds per hour (approximately 250 tons per day (TPD) per unit) using an estimated solid waste heating value of 4,500 Btu/lb.
- b) The document "Waste Quantities" (appendix F of the original application) presents data from a sampling program designed to determine the composition of the municipal solid waste stream during each season in

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

Mr. Salmon
July 21, 1997
page 2

Hillsborough County. The measured solid waste heating values from November 1979 to August 1980 ranged from 4,080 to 4,750 Btu/lb and averaged 4,450 Btu/lb.

- c) An incineration capacity test was conducted in September 1985, to demonstrate that the MBREF met the performance guarantee specified in the design and construction contract. The test report states that the facility incinerated 8,466.73 tons weekly (approximately 302 TPD per unit). This is 21 percent above the guaranteed incineration capacity of 7,000 tons per week, at an estimated solid waste heating value of 4,500 Btu/lb.
- d) An efficiency test was also conducted in September 1985, to determine the electrical energy generation per ton of waste. The test report states that the facility incinerated 390.22 tons in 8 hours (approximately 293 TPD per unit) at a measured solid waste heating value of 4,230 Btu/lb.
- e) In a May 13, 1987 letter from the City of Tampa to the Department, the City requested the maximum charging rate of each MBREF unit be increased to 325 TPD for a facility total of 1,300 TPD. The letter states, "The value of 1000 tons per day stated in the construction permit application, submitted in 1981, was the design capacity guaranteed by the vendor, based on design fuel parameters of 4,500 BTU per pound higher heating value and 30% moisture content. It was never intended to be the maximum plant capacity for operating purposes."
- f) After realizing that an increase to 1,300 TPD would exceed the PSD increment for NO_x, on June 15, 1989, the City of Tampa sent the Department a letter requesting that the permitted charging rate for the facility be increased to only 1,075 TPD (approximately 269 TPD per unit).

In a June 6 phone conversation, Walt Stevenson, in EPA's Office of Air Quality Planning and Standards, conveyed to Michael Hewett, in DEP's Office of Policy Analysis and Program Management, that the final revised standards will probably be published in late July or early August. Also, Mr. Stevenson stated that in the final standards: the 225 megagram per day or less aggregate capacity subcategory for small facilities would be changed to 250 TPD or less, applicable on a per unit basis; the small unit standards would be vacated from the emission guidelines; and the method of calculating the maximum charging rate in 40 CFR 60.58b would not be changed.

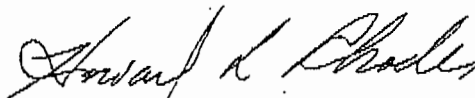
After reviewing the contents of the MBREF permit file, and given Mr. Stevenson's comments, two points seem evident. First, it seems reasonable to apply the 10,500 kilojoules per kilogram (approximately 4,500 Btu/lb) heating value specified by EPA in 40 CFR 60.58b, when calculating the maximum design capacity of the MBREF units.

Mr. Salmon
July 21, 1997
page 3

Second, the City has documented on several occasions that the MBREF units are designed to incinerate significantly more than the 250 TPD stated in the original construction permit application. In fact, the City has stated in writing that 1,000 TPD (250 TPD per unit) was the capacity guaranteed by the vendor, not the maximum capacity. Therefore, the available information seems to show that the four identical municipal waste combustion units operating at the MBREF have maximum design capacities exceeding 250 TPD.

The Department will be sending a letter to EPA Region 4 in the next 30 days which will verify the size of each of the 35 affected units in Florida. If you would like to discuss the Department's determination in this matter prior to the letter being sent, please contact Michael Hewett at 850/488-0114 to schedule a meeting.

Sincerely,



Howard L. Rhodes, Director
Division of Air Resources Management

HLR/mh

cc: M. Hewett, DEP
B. Thomas, Southwest District
I. Choronenko, Hillsborough Co.
S. Davis, EPA Region 4 ✓
D. Dee, Landers and Parsons



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

April 18, 1997

Mike Salmon, Coordinator
Department of Environmental Services
and Public Works Projects
City of Tampa
306 East Jackson Street
Tampa, FL 33602

RECEIVED

APR 22 1997

AIR AND RADIATION TECHNOLOGY BRANCH
EPA-REGION 4
ATLANTA, GA

Dear Mr. Salmon:

In a recent District of Columbia Circuit Court decision, the standards applicable to existing municipal waste combustor (MWC) units with capacity to combust greater than 35 megagrams per day, but equal to or less than 225 megagrams per day, were vacated from 40 CFR 60, Subpart Cb, Emissions Guidelines and Compliance Times for Municipal Waste Combustors that are Constructed on or Before December 19, 1995. EPA Region 4 has indicated that it will accept the Department's subpart Cb implementation plan as submitted last December, even though it contains compliance schedules for small as well as large (greater than 225 megagrams per day) MWC facilities. However, in order that they may know which parts of the implementation plan to approve, Region 4 staff have requested that we verify which MWC facilities contain large and which contain small units.

After review of the available data, it appears that the four identical MWC units at the McKay Bay Refuse-to-Energy Facility have capacities that border between EPA's definition of large and small. For this reason we request that you provide the Department with verification of capacity for each of the four units per the conditions of 40 CFR 60.58b, Compliance and Performance Testing. If you have any questions concerning this request, please contact Michael Hewett at the address above or call him at 904/488-0114.

Mr. Salmon
April 18, 1997
Page Two

Thank you for your prompt attention to this matter.

Sincerely,



Howard L. Rhodes, Director
Division of Air Resources Management

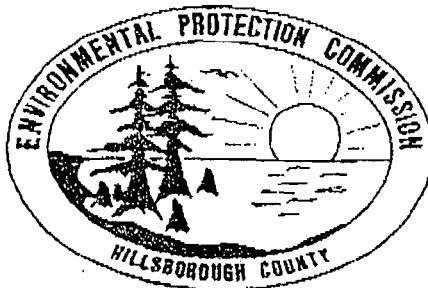
cc: M. Hewett, DEP
B. Thomas, Southwest District
I. Choronenko, Hillsborough County
S. Davis, EPA Region 4
D. Dee, Landers and Parsons

COMMISSION

DOTIE BERGER
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EXECUTIVE DIRECTOR

ROGER P. STEWART



ADMINISTRATIVE OFFICES, LEGAL &
 WATER MANAGEMENT DIVISION
 1900 - 9TH AVENUE
 TAMPA, FLORIDA 33605
 TELEPHONE (813) 272-5960
 FAX (813) 272-5157

AIR MANAGEMENT DIVISION
 TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
 TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
 TELEPHONE (813) 272-7104

May 1, 1997

Mr. Howard Rhodes, P.E.
 Director, Division of Air Resources Management
 Florida Department of Environmental Protection
 2600 Blair Stone Road
 Tallahassee, FL 32399-2400

RECEIVED

MAY 07 1997

AIR AND RADIATION TECHNOLOGY DIVISION
 EPA REGION 4
 ATLANTA, GA

Re: City of Tampa McKay Bay Waste to Energy Facility

- Ref: (a) Pages 1-2 and 1-6 of the July 1981 Application to Construct (McKay Bay)
 (b) Section 1, Incineration Capacity Test, from September 1985 Acceptance Test
 (c) City of Tampa May 13, 1987 letter to Clair Fancy
 (d) City of Tampa June 15, 1989 letter to Clair Fancy
 (e) City of Tampa February 7, 1992 letter to Clair Fancy

Dear Mr. Rhodes:

Thank you for the opportunity to comment on the status of the City of Tampa's McKay Bay Waste to Energy facility.

The recent successful legal challenge to the EPA emission standards for Municipal Waste Combustors has created a potential loophole that could affect the health and welfare of the citizens of Hillsborough County. As you know, the City of Tampa's McKay Bay Waste to Energy facility has significant dioxin emissions as verified by EPA requested testing. These emissions can not be lowered any further without additional emissions controls. The court ruling has vacated EPA's emission standards for small facilities (less than 250 tons per day of waste burned), but let stand the emission standards and timeline for implementation for large facilities. Since EPA will have to revise the small facility definition and standards, and will have to go through the formal public review process, standards for small facilities might not be in place until 2004.

The designation of the McKay Bay facility needs to be reviewed and confirmed as a large facility. The City of Tampa currently plans to proceed with the necessary and admittedly expensive retrofit to improve the air quality. However, if McKay Bay were designated as a small facility, other fiscal demands might cause the City of Tampa to



Howard Rhodes
May 1, 1997
Page 2 of 3

logically wait and see what the new small facility emission standards will be, and implement them years in the future. A health risk study paid for by the City themselves indicated that dioxin emissions would not be a problem if the facility were retrofitted by the year 2000. Clearly they need to act, and the only question in our mind is whether the EPA program statutory requires them to.

Mike Hewett has indicated that DEP will probably make the decision as to what size facility McKay Bay is. Attached is the information the EPC of Hillsborough County has researched, which supports our belief that McKay Bay is a large facility. That information is summarized as follows:

- The McKay Bay Facility has four units, each currently permitted for 250 tons per day (TPD).
- City of Tampa officials maintain that the "design rating" for McKay Bay is 1000 tons per day total (250 TPD per unit based on fuel with a heat content of 4500 BTU/lb and a moisture content of 30%).
- Staff phone conversations with Walt Stevenson at EPA's combustion group indicate that the designation of the facility size is not necessarily based on name plate information, but on the physical capacity of the unit.
- 40 CFR 60.58b(j) indicates that the maximum charging rate shall be the maximum design charging rate.
- The July 1981 application to construct McKay Bay pages 1-2 and 1-6 (ref a) indicate the design capacity would be at least 1000 TPD and provide a minimum weekly capacity of 7000 tons per week (also 1000 TPD).
- The conclusion of the acceptance test on McKay Bay, conducted September 1985, indicates that the facility met its incineration performance guarantee. In fact, the acceptance test showed that the facility operated at an average of 1209.5 TPD for the three days of the test as measured by the scales on the overhead crane. (Ref b)

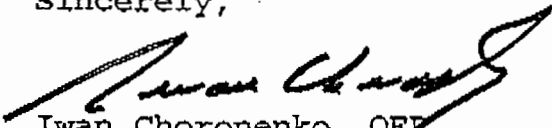
Howard Rhodes
May 1, 1997
Page 3 of 3

- On May 13, 1987, the City of Tampa requested the maximum charging rate be increased to 325 TPD per unit (1300 TPD total) by a simple permit amendment. This letter (ref c) said the 1981 construction permit application was based on the design capacity guaranteed by the vendor and was not intended to be the maximum plant capacity. It also cited the acceptance test results above which showed 1209 TPD. This request was not approved.
- On June 15, 1989, the City of Tampa requested the charging rate be increased to 1075 TPD (ref d). This request was apparently held up by pending EPA rule work.
- On February 7, 1992, the City of Tampa renewed its 1989 request to raise the maximum charging rate (ref e). Again, they were told this would be a modification and subject to a construction permit.

The initial 1981 construction application indicates that the 1000 TPD design rate is at the low end of the performance range of the facility. The 1985 acceptance test confirms that the facility is clearly capable of operating at more than 250 TPD. The City of Tampa acknowledged the larger capacity in its 1987 and 1989 requests to increase the charging rate and readily admits their demonstrated capacity exceeds 250 TPD. McKay Bay is and should be confirmed as a large facility.

If you have any questions, please call Jerry Campbell at (813)-272-5530.

Sincerely,



Iwan Choronenko, QEP
Director, Air Management-Division

cc: Mike Hewett, FDEP
Brian Beals, EPA Region IV
Walt Stevenson, EPA
Mike Salmon, City of Tampa
David Dee, Landers & Parsons, P.A.

(ref c)



CITY OF TAMPA

Sandra W. Freedman, Mayor

RECEIVED

MAY 15 1987

E.P.C. OF T.C.

Office of Environmental Coordination
McKay Bay Refuse-to-Energy Project

May 13, 1987

Mr. Clair Fancy
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

Dear Mr. Fancy:

The City of Tampa has proposed three amendments to Permit Number A029-114760 to operate the McKay Bay Refuse-to-Energy Facility which appear to be inconsistent with construction permit numbers AC29-47277 (DER) and PSD-FL-086 (EPA). The proposed amendments are as follows:

1. A maximum charging rate of 325 tons per day per process line and 1300 tons per day for the facility (instead of 250 TPD per line and 1000 TPD for the facility).
2. A maximum heat input rate of 2925 MMBTU per day per process line and 11,700 MMBTU per day for the facility (instead of 2500 MMBTU per day per line and 9000 MMBTU per day for the facility).
3. Testing emissions within $\pm 10\%$ of the nominal steam rate of 52,100 pounds per hour (instead of $\pm 10\%$ of the maximum charging rate of 10.5 tons per hour).

These amendments would not increase air emissions. We are requesting the ability to charge a higher quantity of fuel when the fuel quality is low, to maintain proper steam flow rates. If it is necessary to amend the construction permits to allow these changes, please consider this a request to do so.

The value of 1000 tons per day stated in the construction permit application, submitted in 1981, was the design capacity guaranteed by the vendor, based on design fuel parameters of 4500 BTU per pound higher heating value and 30% moisture content. It was never intended to be the maximum plant capacity for operating purposes. We now have real data to be applied toward our plant capacity and emissions requirements.

City Hall Plaza, 5N • Tampa, Florida 33602 • (813)223-8071

Mr. Clair Fancy
May 13, 1987
Page Two


The acceptance testing in September, 1985 proved that the plant could efficiently process 1209 TPD and be well within air emission limitations as stated in the construction permits. The BTU value during acceptance testing averaged 4230 BTU per pound. During the summer of 1986, it became obvious that the municipal solid waste delivered was often higher in moisture content and lower in BTU value than design fuel parameters. Equipment is currently being installed that will enhance the plants ability to burn wet garbage. Much of the increased tonnage we are requesting will be excess water.

There are no explicit references to a 1000 TPD maximum charging rate in the DER or EPA construction permits. Both permits do reference all information presented in the application as part of the permits. The original application only mentioned charging rates in Section IV. It appears that projected emissions were based on other similar facilities and not on an assumed emission factor and an assumed charging rate. I have verified that the actual plant emissions at 1209 TPD were below the 1981 projected emissions for facility number 1 for all regulated pollutants. The air modeling was done with the assumption that two facilities would be collocated at the McKay Bay site. The second facility was constructed about 4.5 miles east of McKay Bay. The requested changes do not invalidate the air quality analysis originally presented to DER.

I wish to emphasize that we are not requesting any changes in emission and power production limitations as set forth in the current operating permit. I have attached additional information in support of this request, with the major points highlighted in red for your convenience. Please call Greig Grotecloss of my staff at (813) 223-8071 if additional information is required.

Thank you for your assistance in this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:21-37
attachment

xc: Mike Salmon, City of Tampa
Jim Estler, SWFDER (w/attach.)
Victor San Agustin, HCEPC (w/attach.)
Peter Ware, WMI

Bill Engel, WMI
Jim Brittain, HDR
Red McCormack, HDR
Kim Ford, SWFDER

(ref d)



CITY OF TAMPA

RECEIVED

JUN 26 1989

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT

DEP. DIRECTOR
EVERETT WYBASS
Director

June 15, 1989

Mr. Clair Fancy,
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Enclosed is a summary of all available emissions testing data for the McKay Bay Refuse-to-Energy Facility. A chart is also attached showing how the daily charging rate varies as a function of moisture content. Our calculations indicate that the PSD increment for NO_x is exceeded at an average charging rate of 1075 TPD. We still maintain that our increased charging rate is due to high moisture content and will not correlate to increased emissions, but we realize this does not fit the methodology of the PSD review process. Therefore, we would like to propose the following permit amendments that will suit our needs and be consistent with the PSD review process.

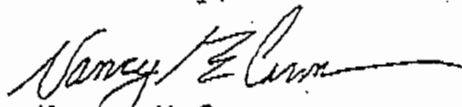
1. Increase the charging rate to 1075 TPD based on a thirty day rolling average with an annual limit of 365,000 tons. This allows us to increase our charging rate during the rainy season without exceeding the PSD increments on a daily basis or causing any increase of pollutants on an annual basis.
2. Conduct compliance testing based on a design steam flow of 52,100 pounds per hour per boiler $\pm 10\%$, instead of a maximum charging rate. The maximum charging rate varies according to the moisture content of the refuse. The steam flow is also a much more accurate and easier parameter to measure during the compliance test.
3. Keep the current maximum heat input rate unchanged at 9,000 MMBTU per day. This will reinforce our position that the increased charging rate is due to increased moisture content and not an increase in the actual dry weight of the refuse being charged.

Mr. Clair Fancy
June 15, 1989
Page Two

The McKay Bay Refuse-to-Energy Facility has processed 308,000 and 310,000 tons the last two years and the annual charging rate is not expected to ever exceed 330,000 tons per year. The permit amendments will not result in any overall increase in the amount of refuse burned per year or the amount of pollutants emitted per year. The amendments will allow the facility to maintain good combustion conditions when the moisture content of the refuse increases or decreases and a higher or lower charging rate is necessary to maintain the proper heat input to the furnaces.

We would like to present our data and arguments to EPA/DER in person if you feel this would be productive. Please contact Greig Grotecloss at (813) 223-8071 if any additional information is needed or if you would like to arrange a meeting to discuss these amendments. I greatly appreciate your assistance in resolving this matter.

Sincerely,



Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:32-29

xc: William D. Engel

Copied: J Campbell, HCEPC
7-7-89 E. Thomas, SA District
Kaval W. Adams, EPA
C. Shaver, NPS
B. Adams, BPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION 4
AIR, PESTICIDES & TOXICS MANAGEMENT DIVISION
AIR & RADIATION TECHNOLOGY BRANCH
100 Alabama Street, SW
Atlanta, Georgia 30303
Fax Number: 404/562-9095

FACSIMILE TRANSMISSION SHEET

DATE: SEPT 29, 1997	NUMBER OF PAGES (including this sheet): 15
TO: John Reynolds	PHONE: 850 488-1344
ADDRESS: FLORIDA DEP	FAX NUMBER: 850-922-6979
FROM: Scott Davis	PHONE: 404-562-9127

Please call me if this transmission is received poorly.

SPECIAL INSTRUCTIONS:

McKay Bay MWC applicability determinations
from AUGUST and DECEMBER 1996



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

AUG 20 1996

4APT-AEB

Mr. David S. Dee
Landers and Parsons
310 West College Avenue
P.O. Box 271
Tallahassee, Florida 32303

SUBJ: McKay Bay Refuse to Energy Facility

Dear Mr. Dee:

This letter is in response to your correspondence to the U.S. Environmental Protection Agency (EPA), dated April 2, 1996, requesting an applicability determination for the above referenced facility. Your correspondence requested an applicability determination pursuant to 40 C.F.R. §60.5 with regard to the retrofitting of equipment at the existing McKay Bay Refuse to Energy facility located in Tampa, Florida.

This determination is primarily based on the federal rule for municipal waste combustors (MWC's), promulgated on December 19, 1995, in the Federal Register under 40 C.F.R. Part 60, Subparts Cb (Emission Guidelines and Compliance Schedules for MWC's) and Eb (Standards of Performance for MWC's for Which Construction is Commenced After September 20, 1994). The rule contains the emission guidelines (EG) for existing MWC sources and the new source performance standards (NSPS) for new MWC sources. In addition to our review and interpretation of these federal regulations with regard to the proposed retrofit at the McKay Bay facility, to ensure national consistency, EPA Region 4 consulted with the Office of Enforcement and Compliance Assurance (OECA) and the Office of General Counsel (OGC), and received technical assistance from the EPA Office of Air Quality Planning and Standards (OAQPS).

Background: Reference Definitions and Concepts

The resultant applicability determination is derived directly from specific portions of the federal rule for MWC's. As a reference, the MWC applicability and the "MWC unit," "Modification," and "Reconstruction" definitions from the federal rule are included in this section.

Under 40 C.F.R. §60.51b, the boundaries of a municipal solid waste combustor are defined as follows:

2

The MWC unit includes, but is not limited to the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system, and the combustor water system. The MWC boundary starts at the municipal solid waste pit or hopper and extends through:

(i) the combustor flue gas system, which ends immediately following the heat recovery equipment, or if there is no heat recovery equipment, immediately following the combustion chamber

(ii) the combustor bottom ash system, which ends at the truck loading station or similar ash handling equipment that transfer the ash to final disposal, including all ash handling systems that are connected to the bottom ash handling system

(iii) the combustor water system, which starts at the feed water pump and ends at the piping exiting the steam drum or superheater

The MWC unit does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set.

Under 40 C.F.R. §60.51b, Modification (or Modified MWC Unit) and Reconstruction are defined as follows:

Modification or Modified MWC Unit means a MWC unit to which changes have been made after June 19, 1996, if the cumulative cost of the changes, over the life of the unit, exceed 50 percent of the original cost of construction and installation of the unit (not including the cost of any land purchased in connection with such construction or installation) updated to current costs; or any physical change in the MWC unit or change in the method of operation of the MWC unit [that] increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111. Increases in the amount of any air pollutant emitted by the MWC unit are determined at 100 percent physical load capability and downstream of all air pollution control devices, with no consideration given for load restrictions based on permits or other nonphysical operational restrictions.

Reconstruction means rebuilding a MWC unit for which the reconstruction commenced after June 19, 1996, and the cumulative costs of the construction over the life of the unit exceed 50 percent of the original cost of construction and installation of the unit (not including any cost of land purchased in connection with such construction or installation) updated to current costs (current dollars).

Same? changes or other changes (all past cumulative changes?)

future or past?

pre 6/19/96 changes are not included

3

Under 40 C.F.R. §60.50b, the applicability of the MWC guidelines and standards are outlined, to exclude certain actions:

(d) Physical or operational changes made to an existing MWC unit primarily for the purpose of complying with emission guidelines under subpart Cb are not considered a modification or reconstruction and do not result in an existing MWC unit becoming subject to this subpart.

As the definitions state, the determination of the occurrence of a modification/reconstruction at a MWC unit is based on a cost analysis process. This process includes four steps:

(1) Determine the original construction and installation costs for the unit.

(2) Aggregate all costs of changes to the unit since start-up, including all costs for the emission guidelines.

?
only "primarily"
to the EG

(3) Subtract the "allowed" retrofit costs required for compliance with the emission guidelines.

(4) Compare the cost of changes to the unit since start-up to the original cost of the unit. If this value is greater than 50 percent of the original cost then a modification/reconstruction has occurred.

Your correspondence addresses the "allowed" retrofit costs (in step 3), but does not address the other costs (in item 2) for McKay Bay. This response will address all aspects of the cost analysis process.

1985 Conversion to Waste-to-Energy Facility

The McKay Bay Refuse-to-Energy Facility was originally constructed in 1967 as a solid waste combustor without heat recovery. The original facility included three combustion units, each with a capacity of 250 tons per day of municipal solid waste. This facility was in operation from 1967 until it ceased operation in 1979. In 1985, the facility began operations after being converted to a waste-to-energy facility. This conversion included the replacement of three Volund rotary kiln combustion units and the installation of one new Volund kiln unit (250 tons per day capacity) at the facility. A waste heat recovery system, a turbine generator, and four electrostatic precipitators were also installed during the conversion. Under the federal MWC rule, the cumulative costs of the changes at McKay Bay are included in determining the occurrence of a modification/reconstruction. The original three combustion units

4

began operation in 1967; the fourth unit began operation in 1985. In order to complete the applicability determination of the subpart Cb emission guidelines or subpart Eb performance standards under the "cumulative cost" criteria, we are requesting the submittal of information outlining the waste-to-energy conversion costs and other modification costs for each combustion unit from the initial start-up dates of 1967 (for units 1, 2, and 3) and 1985 (for unit 4) through June 18, 1996.

Applicability Determination: Source Retrofit Categories

This section will initially outline our applicability determination, formulated in response to your question concerning whether the proposed retrofit improvements at McKay Bay would constitute modification/reconstruction of the MWC unit under the EG. Under the potential retrofit improvements discussed in your correspondence, categories for these improvements have been developed. These categories are:

(1) Improvements to components that are not part of the definition of a MWC unit, are being undertaken to comply with the EG, and are not considered part of potential costs of modification/reconstruction. This category has been determined to include the following potential improvements:

- Air Pollution Control Equipment
- Continuous Emissions Monitors
- Induced Draft Fans
- Electrical System (portions)
- Combustion Control Systems (portions)

(2) Improvements to components that are part of the definition of a MWC unit, are being undertaken to comply with the EG, and are not considered part of potential costs of modification/reconstruction. This category has been determined to include the following potential improvements:

- Auxiliary Burners
- Furnace, Grates, and Kilns
- Boiler and Economizer
- Ash Enclosures
- Ash Conveyor System

Table says "yes" ?

(3) Improvements to components that are not part of the definition of a MWC unit, are not being undertaken to comply with the EG, and are not considered part of potential costs of modification/reconstruction. This category has been determined to include the following potential improvements:

- General Equipment and Maintenance Building
- Control Room Systems

5

- Ash Building
- Ash Treatment System
- Tipping Floor

(4) Improvements to components that are part of the definition of a MWC unit, are not being undertaken to comply with the EG, and are considered part of potential costs of modification/reconstruction. This category has been determined to include the following potential changes and improvements:

- Furnace Configuration
- Refuse Pit
- Cranes

Within these four categories, for the purposes of determining whether or not this facility meets the criteria for modification/reconstruction under 40 C.F.R. §60.51b, the potential source improvements identified in Category 4 only would be considered a part of the potential costs of modification/reconstruction at the McKay Bay facility. In addition, the cumulative costs of changes over the life of the unit from the initial construction date through June 18, 1996, would be included in the potential costs of modification/reconstruction at the McKay Bay facility. A summary of the potential source improvements and their applicability criteria within this determination for the McKay Bay facility is presented in Table 1.

Applicability Determination: Discussion

Different interpretations are apparent when comparing our determination and the proposed determination in your correspondence. The basis for EPA's determination regarding the potential source improvements at the McKay Bay facility will be discussed in this section.

Category 1 Improvements: Air pollution control equipment is specifically excluded from the MWC unit definition and is being installed for compliance with the EG. Continuous emissions monitors are being installed specifically for compliance with the EG. As the rule (at §60.51b) is written, induced draft fans are not part of the MWC unit definition. This exclusion does not set a precedent however, for applicability to other NSPS boundary determinations. This exclusion is only for sources affected under subparts Cb, Ea, and Eb. The portions of the electrical system that are being installed for compliance with the EG (for compatibility with the new air pollution control system) are excluded from consideration as a modification/reconstruction. No costs associated with these potential improvements are included in modification/reconstruction cost calculations. In addition,



Process
cant operate
w/o id. fans

6

control systems for the combustion units and the air pollution control equipment are not included in the MWC unit definition, thus their costs can be excluded.

Category 2 Improvements: Auxiliary burners are included in the MWC unit definition and are being installed for compliance with the EG for the maintenance of good combustion practices. The furnaces, grates, and kilns are included in the MWC unit definition and are being installed primarily for compliance with the EG to meet the new emission limits. The boiler and economizer are included in the MWC unit definition and are being installed for compliance with the EG to maintain compatibility with the furnace system upgrades. The ash enclosures are included in the MWC unit definition and are being installed for compliance with the EG for the control of fugitive ash emissions. The ash conveyor system is included in the MWC unit definition and is being installed for compliance with the EG for the control of fugitive ash emissions. No costs associated with these potential improvements are included in modification/reconstruction cost calculations.

What are the engineering reasons?

OK.

Category 3 Improvements: General equipment improvements and the maintenance building are excluded from the MWC unit definition and are not being installed or improved for compliance with the EG. The control room systems are excluded from the MWC unit definition and are not being installed for compliance with the EG. The ash building is excluded from the MWC unit definition, is not being installed primarily for compliance with the EG, and is not primarily for the control of fugitive ash emissions (fugitive ash emissions are controlled by the ash conveyor system enclosures). The ash treatment system will be installed in the ash building and will treat fly ash prior to its combination with bottom ash, dewatering, and disposal. The ash treatment system, however, does not constitute a part of the ash handling system. The ash treatment system is excluded from the MWC unit definition and is not being installed primarily for compliance with the EG. The tipping floor is specifically excluded from the MWC unit definition and is not being improved for compliance with the EG. No costs associated with these potential improvements are included in modification/reconstruction cost calculations.

Check W/ EPA re/other applications filed by similar plants

Category 4 Improvements: The furnaces are specifically included in the MWC unit definition, however, a change in the existing furnace configuration would not be completed primarily for compliance with the EG.¹ Furnace configuration changes, such

¹ The McKay Bay facility is currently configured with four combustion units, each with a capacity of 250 tons per day.

7

as a change to either three units each with 333 tons per day capacity or two units each with 500 tons per day capacity, are a fundamental change to the MWC units at McKay Bay. These furnace configuration changes require a "unit by unit" comparison of costs to an existing 250 tons per day capacity unit at McKay Bay. Therefore, all costs associated with this potential change are included in modification/reconstruction cost calculations.

The intent of the rule was to include the refuse pit or the hopper, whichever occurs first, specifically in the MWC unit definition. Improvements to the refuse pit would not be done primarily for compliance with the EG. Therefore, all costs associated with this potential improvement are included in modification/reconstruction cost calculations.

Cranes are specifically included in the MWC unit definition as part of the fuel feed system. Any improvements to the cranes would not be done for compliance with the EG. All costs associated with this potential improvement are included in modification/reconstruction cost calculations.

Applicability Determination: Modification/Reconstruction Costs

On the basis of the definitions of modification and reconstruction in 40 C.F.R. §60.51b and our analysis of the proposed retrofit at the McKay Bay facility, the following improvements have been determined to be considered in the modification/reconstruction cost analysis: Furnace Configuration Change, Refuse Pit, Cranes. This cost comparison is to be completed on a "unit by unit" basis, comparing each existing unit's original cost of construction and installation (not including any cost of land purchased in connection with such construction or installation) updated to current costs (current dollars) to the replacement or modified unit's cumulative costs of changes over the life of the unit. These cumulative costs of changes over the life of the unit are not to exceed the threshold level of 50 percent of the original unit's updated current cost for a source to remain subject to the EG.

In response to your queries regarding original unit costs, new facility costs, and current dollars computations, EPA has the following responses:

- (1) There are two separate original costs for the MWC units at McKay Bay. The cost of the three original combustion units may be determined from the comparison of originally issued bonds for the construction of the facility, as originally constructed in 1967 as a solid waste combustor. For the fourth combustion unit, constructed new in 1985, its original cost is determined from this baseline date (1985). For the McKay Bay facility, however, a better comparison

8

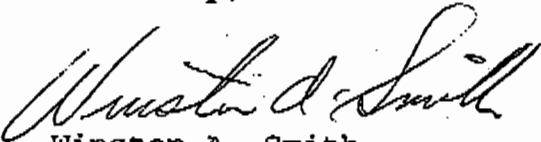
cost may be determined from an accurate estimate of the cost of a new MWC facility of comparable design.

(2) To determine the fixed capital cost required to construct a comparable entirely new MWC facility, reference the EG proposal from September 20, 1994, of the Federal Register. On page 48240, Tables 3A and 3B outline the Capital and Annualized Costs of Air Pollution Control For Typical New and Existing Large and Small MWC Plants.

(3) The method for performing a cost update to current dollars can be selected by the source. Provided the appropriate historical and financial documentation is included, the ENR Construction Price Index can be used.

We look forward to your submittal of additional data to complete the subpart Cb/Eb applicability determination. If you have any questions or comments concerning this response, please contact either Mr. Brian Beals or Mr. Scott Davis of my staff at (404) 347-3555, extensions 4167 or 4144, respectively.

Sincerely,



Winston A. Smith
Director
Air, Pesticides and Toxics
Management Division

Enclosure

cc: Joyce Chandler, OECA
Leslye Fraser, OGC
Walt Stevenson, OAQPS
Clair Fancy, Florida DEP
Iwan Choronenko, Hillsborough County EPC
Jerry Campbell, Hillsborough County EPC

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TABLE 1

Potential Source Improvement	Defined under "MWC Unit"?	For EG Compliance?	Include in Reconstruction?
Air Pollution Control Equipment	NO	YES	NO
Continuous Emissions Monitors	NO	YES	NO
Auxiliary Burners	YES	YES	NO
Induced Draft Fans	NO	YES	NO
General Equipment and Maintenance Building	NO	NO	NO
Furnaces, Grates, and Kilns	YES	YES	YES
Furnace Configuration	YES	NO *	YES *
Boiler and Economizer	YES	YES	NO
Electrical System	NO *	YES	NO
Control Room Systems	NO *	NO *	NO
Control Systems (APC/Combustor)	NO *	YES	NO
Ash Building	NO	NO *	NO
Ash Enclosures	YES *	YES	NO
Ash Conveyor System	YES	YES	NO
Ash Treatment System	NO	NO	NO
Tipping Floor	NO	NO	NO
Refuse Pit	YES *	NO	YES *
Cranes	YES *	NO	YES *

* Differences exist between Determinations by EPA and the Source

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

DEC 30 1996

4APT-ARB

Mr. David S. Dee
Landers and Parsons
310 West College Avenue
P.O. Box 271
Tallahassee, Florida 32303

SUBJ: McKay Bay Refuse to Energy Facility

Dear Mr. Dee:

This letter is in response to the additional information you submitted to the U.S. Environmental Protection Agency (EPA) on August 22, 1996, and as a follow-up to our correspondence to you, dated August 20, 1996, concerning federal rule applicability at the above referenced facility. Your correspondence and additional information was submitted pursuant to our request and pursuant to any applicability determination with respect to the retrofitting of equipment at the existing McKay Bay Refuse to Energy Facility in Tampa, Florida.

The basis for this response is the federal rule for municipal waste combustors (MWC's), promulgated on December 19, 1995, in the Federal Register under 40 C.F.R. part 60, subparts Cb (Emission Guidelines and Compliance Schedules for MWC's) and Eb (Standards of Performance for MWC's for Which Construction is Commenced After September 20, 1994). The rule contains the emission guidelines (EG) for existing MWC sources and the new source performance standards (NSPS) for new MWC sources. To ensure national consistency, EPA Region 4 consulted with the Office of Enforcement and Compliance Assurance (OECA) and the Office of General Counsel (OGC), and received technical assistance from the EPA Office of Air Quality Planning and Standards (OAQPS) on this response. As you are aware, the Court of Appeals for the District of Columbia Circuit issued an opinion on December 6, 1996, that indicated the Court's intent to vacate the NSPS and EG. Davis County Solid Waste Management District v. EPA, No. 95-1611 (D.C. Cir.). Since the standards are effective until the Court actually issues a mandate vacating them, this determination is based on the rules as promulgated on December 19, 1995.

Clarification and Correction to Initial Correspondence

In addition to providing answers to your questions related to the proposed activity at the McKay Bay Facility, EPA is clarifying and correcting several statements from our previous correspondence (dated August 20, 1996). This supplemental information is as follows:

- (1) In the Definitions section (see page 3), the discussion of reconstruction/modification analysis should be clarified such that the determination of the occurrence of a modification is based on either a cost analysis or an emission analysis process.
- (2) In the Source Retrofit Categories section (see page 4), the discussion of improvements to components as the rule defines a MWC unit should also include the specific physical boundaries of the MWC unit as defined in the rule.
- (3) In the Discussion section (see page 5), the Category 1 improvements paragraph discusses the induced draft fans. The rule does not specifically exclude induced draft fans from part of the MWC unit, but the diagram of the McKay Bay Facility which shows the location of the induced draft fans as located outside the physical boundaries of the MWC unit definition excludes the fans from the definition in this instance.
- (4) In the Modification/Reconstruction Costs section (see page 7), the first response on original costs should be clarified by including the following language: "However, for a facility than modifies after June 19, 1996, reconstruction costs under 40 C.F.R. Section 60.51b is based upon a comparison of the project costs to the updated costs of the original unit, not a comparable facility."
- (5) In the Table 1 enclosure, which summarizes EPA's findings and conclusions about the McKay Bay Facility, there is an error in the category of "Furnaces, Grates, and Kilns." The third column in this category (Include in Reconstruction?) should read "No" instead of "Yes." The City of Tampa's proposed improvements to the furnaces, grates, and kilns will not be included in the calculations that must be performed when determining whether there is a modification or reconstruction of the McKay Bay Facility. Table 1 did not accurately reflect the content of the Discussion section (see page 6), which discussed the City's proposed improvements to the McKay Bay furnaces, grates, and kilns and concluded that "[n]o costs associated with these potential improvements are included in modification/reconstruction cost calculations." A corrected Table 1 is enclosed with this response.

Clarification and Correction to Initial Correspondence

In addition to providing answers to your questions related to the proposed activity at the McKay Bay Facility, EPA is clarifying and correcting several statements from our previous correspondence (dated August 20, 1996). This supplemental information is as follows:

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ERROR!
I.D. FANS
REQ'D
FOR BOLDED
FURNACE
RESISTANCE

Initial Construction Date for the MWC Units

According to the information provided by the City of Tampa, three combustion units started operation at the McKay Bay Facility in 1967 and the fourth unit started operation in 1985. In light of this information, our previous correspondence requested "the submittal of information outlining the waste-to-energy conversion costs and other modification costs for each combustion unit from the initial start-up dates of 1967 (for units 1, 2, and 3) and 1985 (for unit 4) through June 18, 1996." In response to our request, the City of Tampa provided EPA with additional information and documents which demonstrate that all four of the MWC units at the McKay Bay Facility were newly constructed in 1983-85 and determined to be subject to the then applicable NSPS for Incinerators (40 C.F.R. part 60, subpart E).

The McKay Bay Facility was originally constructed in 1967 as a solid waste combustor without heat recovery. The original facility (Tampa Municipal Incinerator) included three combustion units, each with a capacity of 250 tons per day of municipal solid waste. This facility was in operation from 1967 until it ceased operation in 1979. On July 23, 1981, the City of Tampa submitted a Prevention of Significant Deterioration (PSD) preconstruction application for construction of a new refuse to energy facility on the site of the closed incinerator. The City of Tampa has submitted documents which demonstrate that this application was reviewed in 1981-82 by EPA Region 4 and the Florida Department of Environmental Regulation (DER) in light of the applicable NSPS requirements of subpart E. The Final PSD Determination was issued by the Florida DER on May 28, 1982. The PSD permit (PSD-FL-086), authorizing the construction of the four new MWC units and incorporating the NSPS requirements of subpart E, was issued by EPA Region 4 on July 2, 1982.

Construction occurred from 1983-1985. Four new Volund rotary kiln combustion units (250 tons per day capacity each) were installed at the McKay Bay Facility. The three MWC units built in 1967 were replaced from chute to stack during this construction. The City of Tampa installed new feed chutes, cranes, furnaces, kilns, boilers, stacks, electrostatic precipitators, a waste heat recovery system, and a turbine generator before commencing operations in 1985. All four units were deemed to be new units subject to the NSPS, subpart E.

Based on the new information submitted by the City of Tampa, EPA has determined that the "initial start-up date" for the McKay Bay Facility's four MWC units occurred in 1985. Therefore, when EPA determines whether a modification or reconstruction has occurred at any or all of the McKay Bay MWC units, EPA will compare the original cost of construction and installation based upon the units installed in 1985 updated to current costs to the cumulative cost of changes to each MWC unit that occurred from

the initial start-up date in 1985 through the present project.

NSPS Siting Requirements

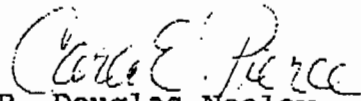
The City of Tampa has asked whether the McKay Bay Facility will be subject to the NSPS siting requirements for new MWC units in 40 C.F.R. Section 60.57b(a) and (b) if EPA determines that a modification or reconstruction has occurred at this facility. These siting requirements include preparation of a materials separation plan and a siting analysis, along with public meetings for both. The rule states that:

The owner or operator of an affected facility located within a small or large municipal waste combustor plant, for which the initial application for a construction permit under 40 C.F.R. part 51, subpart I, or part 52, as applicable, is submitted after December 19, 1995 shall prepare... (a materials separation plan and a siting analysis).
40 C.F.R. § 60.57(a) and (b) [emphasis added]

The PSD permit for the McKay Bay Facility and related documents indicate that the City of Tampa submitted its initial PSD application for a construction permit on July 23, 1981, and the application was subject to the requirements in 40 C.F.R. part 52. Consequently, the NSPS siting requirements in Sections 60.57b(a) and (b) do not apply to this facility. The preconstruction permit requirements and review for the proposed retrofits at the McKay Bay facility will not include a new PSD (or New Source Review) permit application, since there will be no significant increase in emissions (overall emissions will decrease with the addition of new pollution control technology). Furthermore, if the McKay Bay Facility is modified or reconstructed, the facility will be subject to the emissions limitations contained in the NSPS for MWC's (subpart Eb), but will not be subject to the NSPS siting requirements because its permit application was submitted prior to December 19, 1995.

If you have any questions or comments concerning this response, please contact Mr. Scott Davis of my staff at (404) 562-9127.

Sincerely,

for 
 R. Douglas Neeley
 Chief
 Air and Radiation Technology
 Branch
 Air, Pesticides and Toxics
 Management Division

Enclosure

- cc: Joyce Chandler, OECA
- Leslye Fraser, OGC
- Walt Stevenson, OAQPS
- Clair Fancy, Florida DEP
- Iwan Choronenko, Hillsborough County EPC
- Jerry Campbell, Hillsborough County EPC

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General Equipment and Maintenance Building	NO	NO	NO
Furnaces, Grates, and Kilns	YES	YES	NO <i>WAS "YES"</i>
Furnace Configuration	YES	NO *	YES *
Boiler and Economizer	YES	YES	NO
Electrical System	NO *	YES	NO
Control Room Systems	NO *	NO *	NO
Control Systems (APC/Combustor)	NO *	YES	NO
Ash Building	NO	NO *	NO
Ash Enclosures	YES *	YES	NO
Ash Conveyor System	YES	YES	NO
Ash Treatment System	NO	NO	NO
Tipping Floor	NO	NO	NO
Refuse Pit	YES *	NO	YES *
Cranes	YES *	NO	YES *

* Differences exist between Determinations by EPA and the Source