Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

February 25, 1994

Ms. Nancy McCann
City Hall Plaza 5N
Tampa, FL 33602

Dear Ms. McCann:

The City of Tampa Waste-to-Energy Facility is on a priority list from EPA's Office of Air Quality Standards, Emissions Standards Division, for obtaining specific operating information. For the Tampa facility, the following information for each unit, if available, is needed:

a. ESP Design Inlet Temperature

b. ESP Inlet Temperature Operating Data

c. Dioxin/Furan Test Data

Your response must be submitted in writing and is needed by Tuesday, March 1, 1994. The Division of Air Resource Management FAX number is 904/922-6979.

If you have any questions, please call Doug Outlaw or Preston Lewis at 904/488-1344. I have attached a copy of the letter from EPA/Region IV requesting the the Department to provide the ESP and dioxin/furan test data.

Sincerely,

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

attachment

cc: Bill Thomas, DEP/Tampa
Scott Davis, EPA/Region IV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

FACSIMILE CORRESPONDENCE

DATE: FEB 24 1994

FROM: Scott Davis
Air Enforcement Branch

TO: Preston Lewis
Air Permitting Branch
Florida Department of
Environmental Protection

The following list of municipal waste combustor facilities are on a priority list from EPA's Office of Air Quality Standards, Emissions Standards Division, for obtaining specific operating information. For these sources, the following data is desired:

-ESP Design Inlet Temperature

-ESP Inlet Temperature Operating Data

-Dioxin/Furan Test Data

As a minimum, the information on ESP Inlet Temperatures (both Design and Operating Data) must be submitted in writing to EPA Region IV from these sources:

1. Hillsborough County Resource Recovery Facility (3 units)

2. Pinellas County Resource Recovery Facility (3 units)

3. Tampa municipal waste combustor (4 units)

4. Bay County Waste to Energy (2 units)

Further information will be relayed to you by telephone, and your questions and comments can be discussed at that time. Thank you for your assistance in this matter.

GSA GENERAL FORM 99

FAX TRANSMITTAL ► 1

To: Preston Lewis	From: Scott Davis
Dept./Agency: FLORIDA DEP	Phone #: 404-347-5014
Fax #: 904-922-6979	Fax #: 404-347-3059

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Andrews

edited
7/22/91

Needs mercury
data and narratives.
EJG 8/15

Biological Waste Combustion in Florida

Division of Air Resources Management
Department of Environmental Regulation
State of Florida
2600 Blair Stone Road
Tallahassee, Florida
32399-2400

PREFACE

This report has been prepared to provide both summary and detailed answers to frequently asked questions about Florida's air pollution control rules that apply to the combustion of biological and biohazardous waste. This preface and the Executive Summary provide a brief review of the main points that are discussed in more detail in the report.

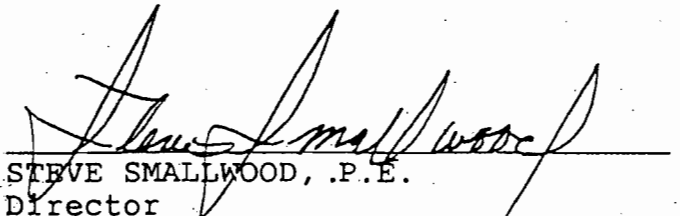
In 1988, the Florida Legislature passed the Solid Waste Management Act, and instructed the Department of Health and Rehabilitative Services (HRS) and the Department of Environmental Regulation (DER) to adopt specific rules to implement the parts of that Act that establish the State's policy for managing biological waste.

HRS determines what wastes need to be regulated as biological waste and regulates the packaging, storage, and treatment of biological waste which occurs at the generating facility. DER's Division of Waste Management regulates the off-site transport, storage, and disposal of biological waste,--the disposal of sterilized biological waste and the disposal of the ash residue resulting from the combustion of biological waste. DER's Division of Air Resources Management regulates the combustion of biological waste, whether it be on-site or off-site.

Local governments, through their zoning authority, determine where biological waste generating, transfer, storage, and treatment facilities are located. Neither HRS nor DER has zoning or siting authority for biological waste facilities.

State law now prohibits open dumping and the placing of untreated biological waste in landfills. Biological waste must be sterilized and put in a landfill, or incinerated and the ash landfilled. Radiological wastes may not be burned in a biological waste combustor, unless HRS has issued a permit to do so, or the specific type of low-level radiological waste is of such quantity to be exempt under HRS's Rules 10D-91 or 10D-104.003, F.A.C.

This report addresses only the combustion of biological waste. Contact Fran Stanton of HRS at (904) 488-3385 and Tom Moore of the Division of Waste Management at (904) 922-6104 for information on regulations relating to the generation and management of biological and biohazardous waste in Florida.



STEVE SMALLWOOD, .P.E.
Director
Division of Air Resources
Management
December 21, 1990

BIOLOGICAL WASTE COMBUSTION IN FLORIDA

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EXECUTIVE SUMMARY

The management of biological waste is a major environmental issue in Florida.

In 1988, the Florida Legislature passed the Solid Waste Management Act and directed the Department of Health and Rehabilitive Services (HRS) and the Department of Environmental Regulation (DER) to take various specific actions to improve the management of this type of waste within the state. Biological waste is solid or liquid waste that has the capability of causing disease or infection. It includes biohazardous waste, diseased or dead animals, and other waste capable of transmitting pathogens to humans or animals. Biohazardous waste is any solid or liquid waste which may present a threat of infection to humans.

August 30, Old vs New Combustors

Prior to the ~~September~~ 1989 effective date of DER's new biological waste combustor rule, there were 260 biological waste combustor facilities located throughout the state. Eighty-five percent (85%) of those were small combustors. Since the effective date of the new rule, the Department has received applications for 62 new biological waste combustor facilities. Sixty-seven percent (67%) of the new facilities are small combustors.

The old units have a total biological waste combustion capacity of approximately 600 tons per day. The Sixty-two new facilities, if they are all approved, would have a total additional usable waste combustor capacity of about 400 tons per day. Most of the capacity for the older units is represented by large off-site commercial units like the MEDX combustors in Miami. Most of the on-site hospital waste is handled by medium-sized combustors located at less than a dozen regional medical centers. All of these combustors are capable of properly incinerating trash and food waste, in addition to biological waste, and are generally permitted to do so. The total hospital waste stream typically is composed of fifteen percent (15%) biological waste and eighty-five percent (85%) trash and garbage. The Waste Management Division is conducting a study to better define the mix of waste that have been burned in the combustors permitted to incinerate biological waste, to help answer the waste management question of how the existing combustor capacity compares with the amount of waste being generated within the state.

The smaller biological waste combustors (for both the old and new facilities) are located at animal and human crematories, smaller medical facilities, laboratories, and the smaller off-site commercial waste combustor facilities.

Eighty-five percent (85%) of the requested new biological waste combustor capacity is off-site. Most of this new off-site capacity is to be provided by nine new large and eight new medium-sized commercial facilities.

For the new large off-site commercial units: 2 are for north Florida, 3 for central Florida, and 4 for south Florida. For the new medium-sized off-site units: 2 are for north Florida, 2 for central Florida, and 6 for south Florida.

Most of the new on-site capacity is to be provided by five new medium-sized combustion facilities to be located at hospitals and medical centers.

For the medium-sized on-site medical facility combustors: 1 is for north Florida, none are for central Florida, and 4 are for south Florida.

On an overall basis, the new small biological waste combustors account for about ten percent (10%) of the new capacity. About half of that is on-site and half is off-site. Seventeen of these new small combustors are for crematories, eight are for smaller medical facilities, and fifteen are for off-site commercial units.

Nine of the new small units are for north Florida, 14 are for central Florida, and 17 for south Florida. The current population in each of those areas is approximately 2.5 million persons, 5.4 million persons, and 5.0 million persons, respectively.

See the tables and graphs on pages 10-13 of this report for a tabular and graphical summary of this information.

In North Florida, a medium-sized combustor facility has been proposed for Bay County (Panama City), and two large off-site commercial combustors have been proposed for Hamilton County (Jasper), which are two of the fourteen counties in North Florida which do not have county-wide zoning (See Appendix F). All of the nine new small combustors proposed for North Florida are for counties that currently have county-wide zoning.

New Rule Requirements

The new rule requires biological waste to be incinerated at or above 1800°F with a gas retention time of 1 second in the secondary combustion chamber. Nationally recognized studies have established that 1400°F is sufficient to destroy the biological activity of the waste, and 1650°F is sufficient to destroy the toxicity of chlorinated organic plastics and solvents that might be included in the waste stream.

All biological waste combustors are required to meet a hydrogen chloride (HCl) emission standard which limits the amount of plastics that can be included in the waste stream that is incinerated in the small combustors. The rule also requires the installation of an acid gas scrubber on the ~~medical~~ medium and large-sized units (to prevent the HCl emissions from causing damage to property or vegetation in the vicinity of the combustors).

The medium and large-sized units are required to be equipped with a baghouse (or other high efficiency particulate collector) to limit the emission of particulate matter which includes both mineral ash and heavy metals. A biological waste combustor that meets the new rule requirements will emit no more than several pounds a day of particulate matter and no more than 100 pounds per day of hydrogen chloride vapor; with no significantly visible emissions (from either smoke or acid mist). The emissions of heavy metals from such a facility would measure in the ten thousandths of a pound per day. Dioxin emissions would be in the billionths of a pound per day range.

Atmospheric dispersion modeling for various typical-sized biological waste combustor facilities has shown that the maximum ground-level concentrations of each of these air pollutants that results from the emissions from the facility is well within the applicable National Ambient Air Quality Standard (NAAQS) or acceptable ambient concentration (AAC) level.

Public Notice

Upon receipt of an application for a new biological waste combustor and when the Department publishes its Intent to Issue or Deny the requested permit, the Department will give special written notice to affected state and local officials in addition to the normal public notice required by law (see Appendix G).

Compliance Inspections

To help ensure a high level of compliance with the new biological waste combustor rule, the Department has requested additional District Office inspectors to conduct quarterly inspections of these units as they become subject to the new rule, and to conduct timely investigations of citizen reports.

If you see significant visible emissions or smell a noticeable odor associated with a biological waste combustor (new or existing), it is not being properly operated and most likely is in violation of the new rule. In such cases, please report your observations to the Distric Air Program Administrator for the appropriate district office listed in Appendix E.

If you do not see visible emissions or observe noticeable odor, it is likely that the waste is being properly incinerated, and the emissions do not pose a threat to public health or the environment.

The Department welcomes suggestions on ways to improve the new rule, the methods of ensuring compliance with the rule, and public information about how Florida is addressing the management and disposal of biological waste within the state.

BIOLOGICAL WASTE COMBUSTION IN FLORIDA

INTRODUCTION

This report provides information on the development of DER's Biological Waste Combustor Rule, which became effective in September 1989, and on the biological waste combustion regulatory situation in Georgia and Alabama. It also provides information on the type, size, and location of the biological waste combustors for which the Florida DER has received applications from the effective date of the new rule through November 1990.

The Appendix contains copies of documents related to the development of the Florida biological waste combustor rule and copies of the corresponding rules of Georgia and Alabama.

BIOLOGICAL WASTE COMBUSTORS IN FLORIDA

Biological waste is solid waste that causes or has the capacity of causing disease and infection. It includes biohazardous waste, diseased or dead animals, and other waste capable of transmitting pathogens to humans or animals.

Biohazardous waste is any solid or liquid waste which may present a hazard of infection to humans.

Biological waste is generated, or originates, at medical facilities (hospitals/clinics and doctors' and dentists' offices) and crematories (funeral homes, animal hospitals, and shelters).

In 1988, there were 260 biological waste combustors in Florida which had been permitted under a general DER incinerator rule, similar to the rules that are currently in effect in Georgia and Alabama. These consisted of crematories, on-site medical facilities, and commercial facilities. All of the crematory units were small (500 pounds per hour or less).

The on-site medical facility combustors ranged from small to medium-sized (500 to 2,000 pounds per hour). The largest of these medium-sized units were located at eight of the state's largest regional medical centers. Some of these larger medium-sized units have heat recovery and good particulate emission control equipment.

The large-sized units (greater than 2,000 pounds per hour) were privately-operated regional units burning waste collected from many generators--like the large MEDX combustors in Miami.

Sixty-seven percent (67%) of the 260 combustors were very small--less than 200 pounds per hour. Eighty-five percent (85%) were less than 500 pounds per hour. None were in the range of 500 - 1,000 pounds per hour.

On a weight basis, most of the biological waste originating at medical facilities in Florida was combusted in the larger medium sized units. However, many of these units were not equipped with all of the currently available combustion or emissions control technology. The total usable biological waste combustion capacity for these 260 combustor facilities (which existed before the new rule became effective in September 1989) is approximately 600 tons per day.

BIOLOGICAL WASTE COMBUSTOR RULE DEVELOPMENT

In 1988, the Legislature enacted the Florida Solid Waste Management Act, which prohibits the disposal of untreated biological waste in a landfill or otherwise, and requires that biological waste in Florida be sterilized and properly landfilled, or incinerated and the ash residue properly landfilled. HRS was charged with regulating the generation, on-site management, and sterilization of biological waste. DER's Waste Management Division was charged with regulating the off-site transport, storage, transfer, and landfilling of properly treated biological waste and combustor ash. DER's Division of Air Resources Management was charged with regulating the combustion of biological waste, on-site or off-site. The location of new biological waste management facilities and waste combustors was to be determined by local governments through their zoning and building permit authority.

During 1988, the two state agencies held several public workshops throughout the state. Both agencies and the two DER divisions coordinated their development of the required new rules. Early in 1989, the HRS and DER rules were adopted. The DER Waste Management and Air Rules (Rule 17-712 and several sections of Rule 17-2, respectively) were adopted by the Florida Environmental Regulation Commission (ERC) in February 1989. The ERC is a seven member board which adopts all substantive rules involving standards that are implemented by the DER. The HRS rule (Rule 10D-104) was adopted by the Secretary of HRS about the same time.

In April 1989, a State administrative hearing was held in Tallahassee on MEDX Corporation's challenge to the new biological waste combustor rule adopted by the ERC. Among other things, MEDX alleged that the new rule would lead to a proliferation of small incinerators and, therefore, lead to increased air pollution instead of a diminution of such pollution. The hearing officer, after considering all of the testimony, concluded that

"it cannot be so," and on June 12, 1989, ordered that MEDX's challenge to the rule be dismissed. A complete copy of the hearing officer's final order (DOAH Case No. 89-1452R) is included in Appendix A of this report. The complete transcript of the hearing (which is about 300 pages in two bound volumes) is available for review and photocopying at DER's Tallahassee office (Contact Gary Smallridge or Betsy Hewitt in the Department's Office of General Counsel at (904) 488-9730).

Because of the rule challenge, the stricter standards in the new combustor rule did not go into effect until September 1989. Between February and September 1989 several air construction permit applications were filed with the Department to construct new biological waste combustors. Since the applications were filed before the effective date of the new rule, the applicants were legally entitled to have these units permitted under the old standard and be given three years from the effective date of the new rule to comply with the stricter standards in the new rule. All of the existing 260 biological waste combustors throughout the state were required by the new rule to comply with the new standards within three years or discontinue operation of the old combustors. The 1990 Legislature corrected the interim period issue by an amendment to the statute that required the combustors that were permitted during part of that interim period (June 1 through August 31, 1989) to comply with the new standards by July 1, 1991.

medium and large offsite

WHAT THE FLORIDA COMBUSTOR RULE REQUIRES

All new biological waste combustors must comply with the new standards and requirements when they first commence operation. Combustors permitted during part of the interim period as discussed in the previous section must comply with the new standards and requirements by July 1, 1991. All combustors permitted before the new rule was adopted must comply by July 1992. No combustor is permanently grandfathered under the old rule. All combustors in operation after July 1, 1992, will have to comply fully with the new rule.

All combustors must meet a 5% opacity standard (essentially no significantly visible emissions). In addition, all must meet a combustion time requirement of one second and a secondary combustion chamber temperature requirement of 1800°F. All combustors must continuously record the secondary combustion chamber temperature while the combustor is charged with waste.

The combustion time and temperature standard and the continuous temperature monitoring requirement are the most important requirements from the point of view of destroying the biological activity of the waste and destroying the toxicity of any chlorinated organic compounds present in the waste. With good

combustion (incineration), pathogens are killed and chlorinated organics are broken down into carbon dioxide, water vapor, and hydrochloric acid (HCl). If the time and temperature requirement is met and there are no significantly visible emissions, the waste has been properly and effectively incinerated and the emissions do not present a threat to the public or the environment.

All biological waste combustors must also comply with an HCl emission standard that is comparable to the standard that applies to hazardous waste incinerators. The HCl standard effectively limits the amount of certain plastic materials and organic solvents that can be part of the waste burned in these combustors. In other words, too much plastic will cause violations and will be detectable. The visible emissions standard also serves as a check on the continuous compliance with the HCl standard--excessive amounts of HCl as well as excessive amounts of unburned carbonaceous material will result in noticeable visible emissions.

There is a greater risk of localized property or environmental damage from a combustion failure in a large unit than in a smaller one. The human health risk from exposure to toxic smoke resulting from overloading a large unit or from a combustion failure in a large unit is also greater than for a small unit. The "dry scrubber" (or other type of acid gas control system) minimizes this otherwise increased risk of using the larger combustors in populated areas. Finally, all biological waste combustors must be operated by properly trained operators. The important air pollution control requirements that are necessary to protect public health apply to all units. The only requirements that are a function of the total biological waste combustor capacity at a given location are: than 500 lbs/hr

(1) Continuous monitoring requirements (for ~~carbon monoxide and for opacity--visible emissions~~) which serve as a double check on the combustion temperature requirement for the larger combustor facilities; and

(2) HCl limits for larger facilities that will require them to have an acid gas scrubber on each combustor to ensure compliance with the HCl standard.

To determine if the size-specific requirements apply, the total biological waste combustion capacity of all of the combustors at each location is used. If an owner adds a new combustor that causes the total biological waste combustion capacity to move from the small combustor facility category to the medium or large-sized facility category, all of the combustors at that location are required to meet the additional requirements for medium or large-sized facilities by the time the new combustor starts operation, even though each of the individual combustors might be of the "small" (less than 500 pounds per hour) size.

For a more detailed account of the technical rationale behind the rule, see Barry Andrews' testimony in the MEDX Corporation Rule Challenge Hearing transcript (about 100 pages). See the Technical Information Section of this report for a discussion of the technical basis of the time and temperature requirement, and of the nature of the type of emissions that can be expected from a biological waste combustor that is operated in compliance with the new rule.

See Appendix B for a complete copy of the Florida biological waste Combustor Rule.

THE GEORGIA AND ALABAMA BIOLOGICAL WASTE COMBUSTION SITUATION

Neither state has yet adopted rules that specifically apply to all types of biological waste combustion. Both have a general incinerator rule, somewhat like Florida's old rule. Georgia's Solid Waste Division has a rule that requires chemotherapy waste to be incinerated in a combustor that must comply with combustion time and temperature requirements similar to Florida's new rule. Although Georgia does not have a specific rule requiring it, the Air Division, through its permitting process, requires new medical waste combustors (but not crematories) to meet time, temperature, continuous temperature recording, and HCl emission requirements similar to Florida's new rule.

Only one commercial medical waste combustor has been permitted in Georgia during the last year (out of about a dozen applications), reportedly because the Georgia Solid Waste Management Act requires local zoning approval prior to obtaining the air permit. Local government is said to have also been pressured by public outcry not to allow local building permits to be issued for these types of facilities.

Alabama is drafting a new medical waste rule that is similar to the new Florida rule. The Alabama rule is to be adopted by May 1991 when the current two-year statewide moratorium on constructing new solid waste disposal facilities (which includes incinerators) ends. No commercial incinerators are being permitted during the moratorium period, but hospitals can accept up to 25% of their combustor's capacity in off-site waste.

See Appendix C for the Georgia rules and Appendix D for the Alabama rules.

BIOLOGICAL WASTE COMBUSTOR PERMIT APPLICATIONS RECEIVED UNDER THE NEW RULE

Under the U.S. EPA and Florida air rules, biological waste combustion facilities are classified as minor facilities. That just means that they emit less than 100 tons per year of any EPA regulated air pollutant. As such, they are not subject to the federal new source permitting requirements that apply to large new facilities, such as power plants and the municipal waste combustors.

Even though they are considerably smaller, the air pollution control requirements for the medium and large-sized biological waste combustor facilities under the new Florida rule are very similar to the state and federal requirements that apply to the very large municipal waste combustors. As a comparison, a large biological waste combustor may incinerate 30 tons of biological waste per day. A small biological waste combustor will typically incinerate about 1-2 tons per day. A typical municipal waste combustor will incinerate 1,000 to 1,500 tons of municipal waste per day.

Being classified as minor facilities also means that, in Florida, the permit applications for biological waste combustors are processed by the Department's District Offices.

There are six DER District Offices--located in Pensacola, Jacksonville, Orlando, Tampa, West Palm Beach, and Ft. Myers. See the map in Appendix E for the counties served by each of these offices.

In the following description of the number, type, size, and location of the new biological waste combustor facilities for which permits have been requested under the new rule, "north or north Florida" means within the DER Northwest and Northeast District area; "central" means within the Central and Southwest Districts; and "south" means within the Southeast and South Florida districts.

The 1990 population for north Florida is approximated at 2.5 million (about 20% of the state's population); central Florida is approximately 5.4 million (about 42%); and south Florida is approximately 5.0 million (about 38%), with a statewide population of approximately 13 million people.

BIOLOGICAL WASTE COMBUSTORS BY TYPE, SIZE, AND LOCATION

Under the new rule that became effective in September 1989, DER has received applications for 62 new biological waste combustors, with a total usable combustor capacity of approximately 406 tons per day. About 70 tons per day of this would be provided by 30 on-site facilities (crematories and medical facilities), and the balance of 336 tons per day by 32 off-site combustors. All crematory combustors are small. All large combustors are at off-site commercial facilities.

Crematories

Seventeen (17) applications have been for small combustors for animal and human crematories. Their average size is 150 pounds per hour. All are batch-type combustors which, at most, will operate 8-12 hours per day -- the waste is placed in the combustor, the combustor charging door sealed, the waste incinerated, the combustor cooled down, the ash removed, then a new batch is charged and the process repeated. Their total capacity is 2,600 pounds per hour (about 10 tons per day). Eight (8) of these are for south Florida (1,450 pounds per hour). Eight (8) are for central Florida (955 pounds per hour). One (1) is for north Florida (200 pounds per hour).

Hospitals/Medical Facilities

Thirteen (13) applications have been received. This breaks down to eight (8) small and five (5) medium-sized combustors for on-site incineration at various governmental and privately-owned medical centers and hospitals. Their average size is approximately 650 pounds per hour. The smaller units are batch type; the medium-sized units are continuously operating units -- waste is continually added to the combustor and ash removed, as the waste is being incinerated. Their total capacity is approximately 8,400 pounds per hour (about 56 tons per day--44 for the medium-sized units; 12 for the small units). Eight (8) of these combustors are for south Florida (6,390 pounds per hour)--four (4) small combustors and four (4) medium-sized ones. Two (2) small ones are for central Florida (525 pounds per hour), and three (3) are for north Florida (1,500 pounds per hour)--two small and one medium-sized unit.

Off-Site Commercial Combustors

Thirty-two (32) applications have been for commercial off-site combustors. Their average size is approximately 1,300 pounds per hour, and the total capacity of all of these combustors is 40,883 pounds per hour. Nine (9) of these applications have been for large combustors. Eight (8) are for medium-sized units, and fifteen (15) are for small batch combustors.

The fifteen (15) small batch combustors have a capacity of about 6,000 pounds per hour (about 30 tons per day). Of the small combustors, five (5) are for south Florida, four (4) are for central Florida, and six (6) are for north Florida.

The eight (8) medium-sized continuous-operation combustors have a capacity of about 9,000 pounds per hour (about 83 tons per day). Six (6) of these medium-sized combustors are to be located in south Florida, two in central Florida, and two in north Florida.

The nine (9) large combustors have a capacity of about 26,000 pounds per hour (about 233 tons per day). Four (4) of these large units are for south Florida (LaBelle, Hollywood, Miami). Three (3) are for central Florida (Lake County, Cocoa), and two (2) are for north Florida (Jasper).

Statistical Summary

According to testimony at a recent administrative hearing involving MEDX, about one-third of waste is, and traditionally has been, incinerated off-site in large commercial combustors like the MEDX units in Miami.

Another one-third has traditionally been incinerated on-site at medical facilities or crematories, or landfilled. The amount landfilled will likely decrease, increasing the amount to be treated by medical facilities, as reflected in the applications received. Another third of the total is biological waste that previously was not subject to regulation--primarily individually small amounts from a large number of doctors' and dentists' offices, clinics, and laboratories.

About 60% of the requested new capacity, thus far, is in nine new large off-site commercial units. More than 75% of the requested new capacity is in the nine new large and eight new medium-sized off-site commercial units.

85% of the new capacity is off-site; 15%, on-site. Nearly 70% of the new on-site capacity is in the five new medium-sized medical facility units. The remaining 15% of the new on-site capacity is about evenly split between crematories and small medical facility units.

Overall, small combustors account for about 10% of the new capacity. About half of that capacity is on-site and half off-site. Nine (9) of the new small units are for north Florida, fourteen (14) are for central Florida, and seventeen (17) are for south Florida--roughly proportional to the population in each of those areas.

The following tables and graphs summarize the requested new capacity by unit type and location for the sixty-two biological waste combustor applications received by DER from the time the new rule went into effect through November 1990.

There are fourteen counties in North Florida that do not have county-wide zoning ordinances. See Appendix F, County Zoning in Florida (1990), for a map showing the location of these counties.

One medium-sized and one large biological waste combustor facility have been proposed for two of these fourteen counties (Bay and Hamilton). The Bay County facility consists of two 500-pound and one 150-pound unit that is to incinerate hospital waste in Panama City. The large Hamilton County facility consists of two large commercial combustors to burn biological waste in Jasper in an industrial park. All of the nine new small combustors proposed for North Florida are to be located in counties that have county-wide zoning (St. Johns, Alachua, Bradford, Okaloosa, and Leon).

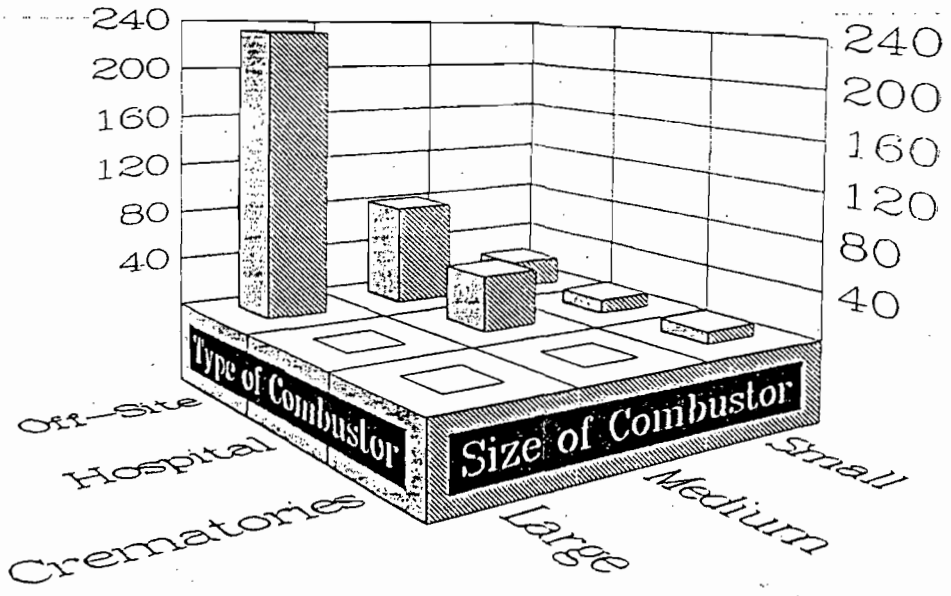
The Department's Division of Waste Management is also compiling information to determine the quantity and types of biological and biohazardous waste generated in Florida. The 260 combustor facilities that existed before the new biological waste combustor rule was effective and the 62 facilities for which permits have been requested under the new rule are permitted to to burn trash and food waste in addition to biological waste. The Waste Management Division's study will help answer the question of how much of the biological waste generated in this state is treated by various methods (including incinerators) and what mix of biological vs non-biological waste has traditionally been burned in these combustors, and what mix of waste is planned for the new combustors.

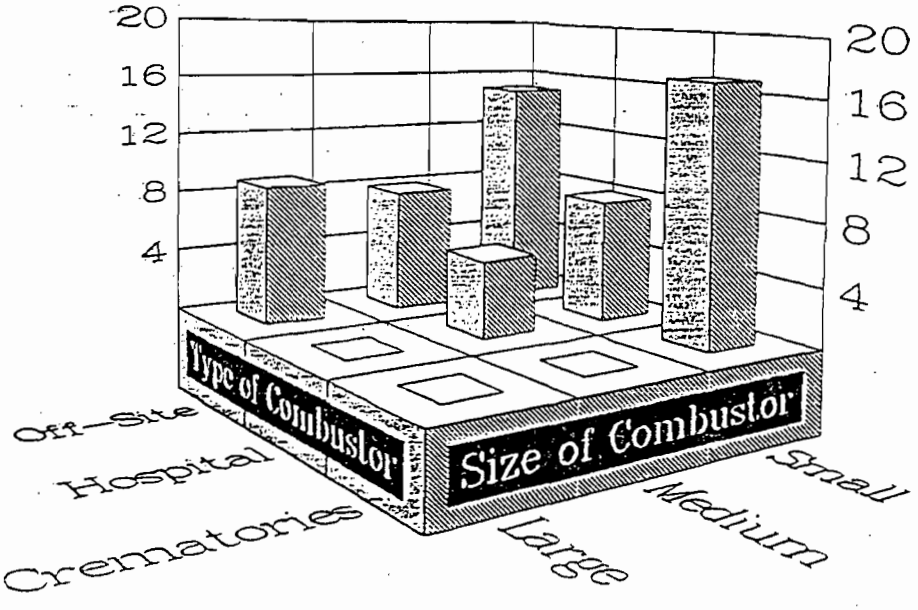
NEW BIOLOGICAL WASTE COMBUSTOR FACILITIES
BY TYPE AND SIZE
(1989-90)

Type of Facility	Total Capacity Tons/Day	No. of Facilities
Off-Site	(339)	(32)
Large Commerical	233	9
Medium Commercial	83	8
Small Commercial	23	15
On-Site	(67)	(30)
Large Medical	0	0
Medium Medical	45	5
Small Medical	12	8
Large Crematory	0	0
Medium Crematory	0	0
Small Crematory	10	17
Total	(406)	(62)

New Biological Waste Combustor Capacity

Tons Per Day by Type and Size





Number of Units by Type and Size

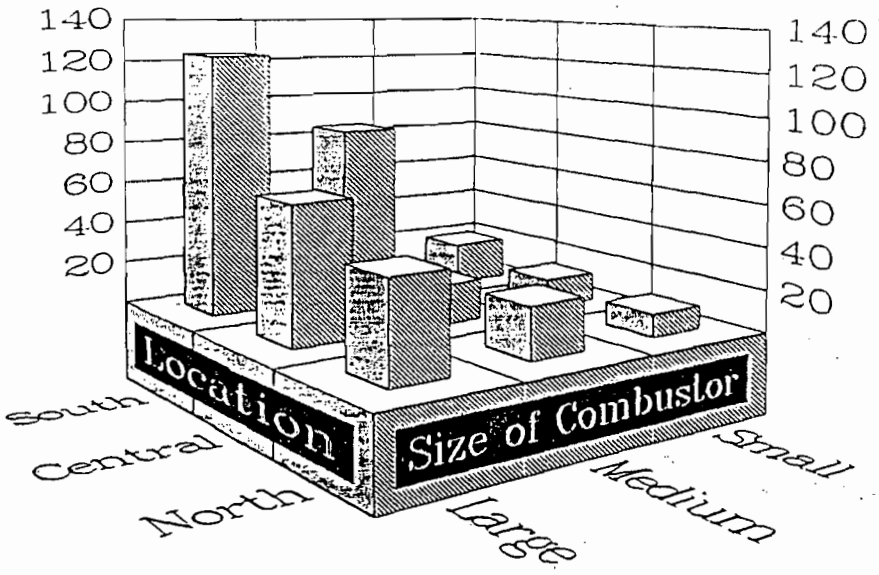
New Biological Waste Combustor Facilities

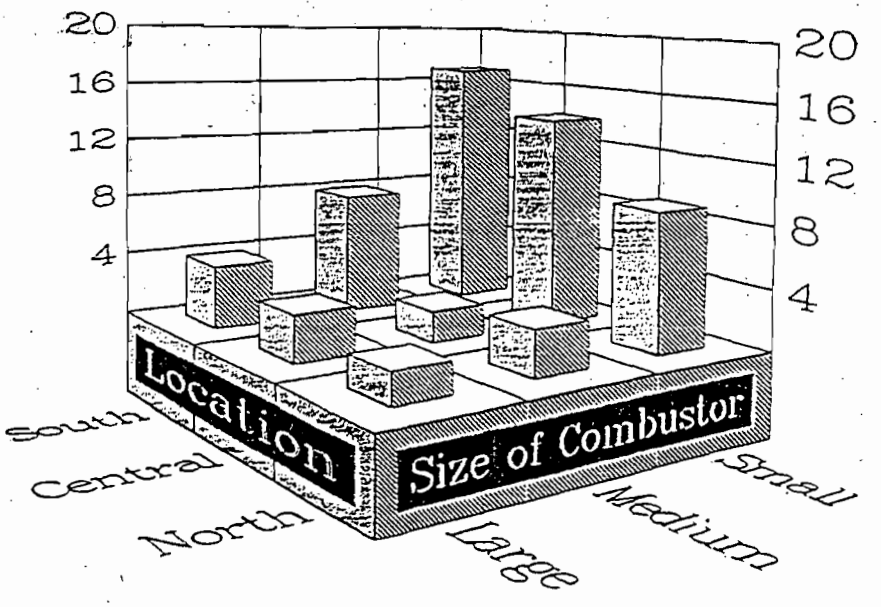
FLORIDA
NEW BIOLOGICAL WASTE COMBUSTOR FACILITIES
BY LOCATION AND SIZE
(1989-90)

Type of Facility	Total Capacity Tons/Day	No. of Facilities
North	(80)	(14)
Large	45	2
Medium	24	3
Small	11	9
Central	(97)	(19)
Large	64	3
Medium	19	2
Small	14	14
South	(229)	(29)
Large	124	4
Medium	85	8
Small	20	17
Total	(406)	(62)

New Biological Waste Combustor Capacity

Tons Per Day by Location and Size





Number of Units by Location and Size

New Biological Waste Combustor Facilities

TECHNICAL INFORMATION ON THE FLORIDA RULE

This section provides a discussion of the technical basis of the combustion time and temperature requirement. It also provides information on the type and amount of air pollutant emissions that can be expected from typical biological waste combustors, when they are operated in compliance with the new rule.

The Time and Temperature Requirement

The requirement to design biological waste combustors with at least a one-second retention time at 1800°F is based on studies that have been conducted by several researchers to determine what conditions are necessary to destroy both pathogens and toxic organic compounds such as dioxins and furans. For pathogens, several studies have been conducted in which the combustor was spiked with certain types of bacteria to determine the extent of destruction. These studies determined that a temperature of 1400°F was adequate to destroy all of the bacteria injected. For toxic organic compounds, the University of Dayton Research Institute determined that even the most stable toxic organic compounds are quickly decomposed at or below 1650°F, once sufficient air has been mixed with the combustion gases. The proper amount of air mixing has generally been provided by establishing a retention time of at least one second in the secondary combustion chamber.

During the rulemaking process, much discussion took place regarding the retention time that should be required. Although some states have established retention times of two seconds, it was the general consensus of the combustor vendors (those who would stand to gain from longer retention times because more expensive units would be necessary) that one second would be adequate for the destruction of pathogens and toxic organic compounds. The one-second retention time has also been adopted by other states, such as New York, which is a recognized leader in the development of regulations for biological waste combustion.

Combustor Emissions

The air pollutant emissions from biological waste combustion can be grouped into three separate categories as follows:

- Solid Combustion Products (Particulates and Heavy Metals)
- Gaseous Products of Incomplete Combustion (Carbon Monoxide, Volatile Organic Compounds, and Toxic Organic Compounds)
- Acid Gases (Sulfur Dioxide, Nitrogen Oxides, and Hydrogen Chloride)

often

Particulate matter is incompletely burned solid particles, such as soot, or uncombustible materials, such as glass fragments, which are swept along by hot combustion gases and emitted. The amount of particulate matter emitted is largely dependent upon the type of waste burned. Biological waste combustors which operate at hospitals are used to dispose of the entire waste stream produced by the hospital. Much of the particulate matter emitted from these units is from the paper and packaging waste that is discarded by the hospital. This is also true for commercial biological waste combustor facilities since the biological waste is typically transported or placed in cardboard containers before being incinerated in the combustor. At crematories, a lesser amount of particulate is emitted (provided there is good combustion), since this type of waste has a very low ash content.

Like particulate matter, the quantity of heavy metals emitted from biological waste combustors is directly related to the type of waste being combusted. Some sources of metals in hospital waste include surgical blades, foil wrappers, plastics, and printing inks. Whereas particulate emissions can be several pounds per day, the emission of heavy metals are in the range of several ten thousandths of a pound (for most metals) to just less than a pound per day (for lead).

Carbon monoxide and low molecular weight volatile organic compounds are produced when incomplete combustion of the waste takes place. When chlorine is present in the waste stream from materials such as bleached paper products and plastics, incomplete combustion can also lead to the formation of toxic organic compounds such as dioxins and furans.

The emission of hydrogen chloride from the combustion of biological waste results from the chlorine that is present in the waste. Because plastic items are typically found in biological waste, hydrogen chloride tends to be one of the major pollutants emitted from these facilities.

The quantity of chlorine present depends on the type of plastic being combusted, with polyvinyl chloride (PVC) containing the greatest amount.

Carbon monoxide increases with decreasing combustion efficiency. The amount of carbon monoxide emitted from incinerators does not pose a threat to human health. Carbon monoxide is regulated because it is a good indicator of the combustion efficiency and of the amount of dioxin and other toxic organic compounds emitted. For combustors that are operated in compliance with the new rule, we can expect the total dioxin emission to be in the range of 4 to 20 billionths of a pound per day.

Quantifying Combustor Emissions

During the Spring of 1987, the California Air Resources Board and DER jointly conducted a special dioxin emissions test of Unit #3, Pinellas County Resource Recovery Facility, in St. Petersburg. About that same time, the Department was co-sponsoring dioxin emission testing research with New York state, California, and other interested agencies at the Pittsfield, Massachussetts municipal waste-to-energy (WTE) facility. In May 1988 the EPA and numerous air pollution control agencies co-sponsored a National Workshop on Hospital Waste Incineration and Hospital Sterilization (EPA-450/4-89-002). In December 1988 EPA published additional technical information in a Volume entitled, "Hospital Waste Combustion Study: Data Gathering Phase (EPA-450/3-88-017)".

Based on these references and other information available to the Department, the emission of various air pollutants from three typical-sized biological waste combustors were estimated. For comparison, similar air pollutant emission estimates are given for a medium-sized municipal WTE facility.

The small unit in the example table is typical of a crematory. The medium-sized unit is typical of those used at larger hospitals and medical facilities. The large-sized unit is typical of the larger off-site combustors used by commercial operators.

The municipal WTE facility in the table is similar to the Pinellas County units, which were among the last new WTE facilities not to be equipped with a dry scrubber (to further reduce acid gas emissions). If the unit used as an example in the table were equipped with an acid gas scrubber, the hydrogen chloride (HCl) emissions would be approximately 40 pounds per day instead of the 414 pounds per day. Total particulate emissions would be about the same. The emissions of heavy metals and dioxin would be somewhat less.

Biological Waste Combustor Emissions (pounds per day)
A Comparison

The quantity of emissions per ton of biological waste incinerated is comparable but not exactly the same as for the combustion of a ton of municipal solid waste at WTE facilities. The following table provides a comparison of the typical daily emissions that can be expected from a small (150 pounds per hour) batch combustor at a crematory, a medium-sized (1,000 pounds per hour) continuous feed combustor at a hospital, and a large (3,000 pounds per hour) commercial combustor, all of which comply with the new biological waste combustor rule. These emissions are then compared to those of an existing medium-sized (1,000 ton per day)

municipal WTE facility equipped with an electrostatic percipitator for particulate control, but no scrubber for acid gases.

COMBUSTOR EMISSIONS

Air Pollutants Emitted	Biological Waste Small	Medium	Large	Municipal WTE Medium
	(pounds per day)			
Particulate	4	2	4	~~100~~ 99
HCL	20	~~31~~ 30	~~84~~ 90	~~414~~ 9,936
	(ten thousandth of a pound per day)			
Cadmium	60	~~130~~ 127	~~410~~ 391	667
Chromium	~~40~~ 5	18	~~54~~ 53	382 ?
Lead	640	~~3100~~ 2990	~~9100~~ 8,740	~~1340~~ 13,400
Arsenic	~~6~~ 3	3	8	295
	(billionth of a pound per day)			
Dioxins	~~6~~ 51	~~76~~ 66	~~21~~ 197	~~40~~ 6,736

Because the potential for adverse affects on public health and the environment are different for different types of air pollutants, a comparison of emissions alone does not tell us what kind of risk these emissions pose to our health, property, or the environment. To evaluate the significance of these emissions, we need to know the typical long-term average ambient air concentrations that will occur around these facilities. We need to know the long-term average because the toxic effects of concern from heavy metals and dioxins result from long-term exposure. Due to the very low emission rates, none of the metals or toxic organics that can be emitted from biological waste combustors pose an acute or immediate short-term health threat.

A worst-case estimate of the maximum annual average ambient ground-level concentration for each of the air pollutants shown in the table above was made using an EPA-approved air pollutant dispersion model, assuming the small batch combustor is operated about 10 hours per day, and the other (continuous) combustors run an average of 23 hours per day. The calculated maximum concentrations were then compared with the ambient air quality standard (AQS) or the acceptable ambient concentration (AAC) levels for each pollutant, whichever is applicable.

In general, the taller the stack and the hotter the exit gas, the higher the emissions from the incinerator will rise and the more they will be diluted before they reach ground level.

Using typical data for stack heights and stack gas temperatures, that are representative of the different sized units in the example table, an atmospheric dispersion model was used to calculate an estimate of the maximum expected annual average concentration for each example facility. The maximum annual average concentration is that which would occur around each facility considering all wind directions and meteorological conditions that typically occur over a period of a year in Florida.

Using data published in the October 26, 1989 Federal Register, page 43736, and data that is included in EPA's computerized Integrated Risk Information System's (IRIS) database, acceptable ambient concentrations were calculated for each of the air pollutants listed in the table. The acceptable ambient concentration for each compound is based on the recommendation of government health scientists and environmental groups that air toxics should be reduced to ambient levels which will not cause a greater than one-in-a-million chance of causing any human cancer after 70 continuous years of exposure. To provide an extra margin of safety, the calculations made to determine the health risks for air toxics use the worst case approach. There is a better than 95% change that the real health risks are much lower than the estimates given.

The following table lists the recommended acceptable ambient concentrations (AAC) for the air pollutants listed in the table for the example biological waste combustors and municipal WTE facility.

ACCEPTABLE AMBIENT CONCENTRATIONS (AAC)

Air Pollutants	AAC(ug/m^3)
Hydrochloric acid (HCl)	7
Cadmium	60×10^{-5}
Chromium	8×10^{-5}
Lead	9000×10^{-5}
Arsenic	20×10^{-5}
Dioxins	0.002×10^{-5}

Air Dispersion Modeling Results

An estimate of the maximum annual average ambient ground-level concentration for each of the air pollutants shown in the above table was made using the EPA-approved air pollutant dispersion model, SCREEN. A factor of 0.025 was used to convert the predicted maximum one-hour average concentration obtained from the model to an annual average value. In making these estimates the small batch combustor was assumed to operate 10 hours per day, while the other combustors were assumed to operate an average of 23 hours per day. The calculated maximum concentrations were then compared with the ambient air quality standard (AAQS) or the acceptable ambient concentration (AAC) level for each pollutant, whichever is applicable.

Typical stack parameter data (stack heights, gas exit temperature, etc.) representative of the different sized units were developed from the Department's database as follows.

	Stack Height (ft)	Stack Diameter (ft)	Stack Exit Temp. (deg F)	Stack Exit Velocity (ft/sec)
Small Combustor (150 lb/hr)	20	1.0	1200	15
Medium Combustor (1000 lb/hr)	30	1.5	1200	15
Large Combustor (3000 lb/hr)	75	3.0	400	45
WTE Facility (1000 ton/day)	150	6.0	450	70

In general, the greatest dispersion of the plume, and consequently the lowest ambient ground-level concentrations of the pollutants, occur for taller stacks, and for greater gas exit temperatures and velocities. Thus, the higher pollutant emission rates associated with the larger facilities may be offset by the greater dispersion characteristics of these facilities. The following table summarizes the estimated maximum annual concentration levels expected from these typical facilities.

Predicted Maximum Annual Average Ambient Air Concentrations

Pollutant	Small ($\mu g/m^3$)	Medium ($\mu g/m^3$)	Large ($\mu g/m^3$)	WTE ($\mu g/m^3$)	AAC ($\mu g/m^3$)
Particulates	0.189	0.0351	0.00657	0.0379	50
HCl	0.945	0.526	0.148	3.81	7
Cadmium	2.84×10^{-5}	2.23×10^{-5}	6.42×10^{-6}	2.56×10^{-6}	6×10^{-4}
Chromium	2.36×10^{-6}	3.16×10^{-6}	8.70×10^{-7}	1.46×10^{-6}	8×10^{-5}
Mercury					$.03 \times 10^{-1}$
Lead	3.02×10^{-4}	5.25×10^{-4}	1.44×10^{-4}	5.15×10^{-5}	9×10^{-2}
Arsenic	1.42×10^{-6}	5.25×10^{-7}	1.31×10^{-7}	1.13×10^{-6}	2×10^{-4}
Dioxins	2.41×10^{-9}	1.10×10^{-9}	3.12×10^{-10}	2.58×10^{-9}	2×10^{-8}

The maximum particulate matter ambient air concentrations caused by the biological waste and municipal WTE facilities that meet the Department's rules are well within the national and state ambient air quality standard.

Hydrochloric acid (HCl) emissions from the municipal WTE facility results in ambient concentrations of approximately 50 percent of the AAC level. For the biological waste facilities, predicated maximum concentrations of HCl are less than 15 percent of the AAC level. With the exception of dioxins, all other emitted pollutants listed above result in predicted annual concentrations of less than five percent of each pollutant's respective AAC level for all facilities. Dioxin concentrations are predicted to be less than 15 percent of its AAC for all facilities.

It should be noted that the above estimates of maximum concentrations are based on typical configurations for these types of facilities. The estimates could change significantly for any particular facility whose source and emission characteristics are much different than used here. The results obtained here, however, indicate that each of these types of facilities, if constructed and operated within the Department's rules, can easily comply with the annual ambient air quality standards and acceptable air concentration levels defined for each of the above pollutants.

The overall result of the emissions estimates, modeling, and risk assessment calculations is that if the facilities are operated in compliance with the new rule, there will be no significant visible emissions or noticeable odors, and the annual average ambient concentrations of concern will all be well within the recommended acceptable ambient concentration levels.

Additional information on the technical basis of the Florida biological waste combustor rule is included in the hearing officer's final report which is in Appendix A of Barry Andrew's testimony at the MEDX Corporation rule challenge hearing (see pages 3 and 5), and in an EPA contractor's report entitled "State-of-the-Art Assessment of Medical Waste Thermal Treatment." The contractor's report is available from Energy and Environmental Research Corporation. Call the company at (714) 859-8851 to request a copy of the report.

PUBLIC NOTICE REQUIREMENTS

State law requires the permit applicant to give notice, in a newspaper of general circulation in the area where the project is proposed, of the Department's intent to issue or deny the requested permit.

Because of the heightened public concern about biological waste combustion, the Department, beginning in the early summer of 1990, voluntarily adopted an agency-wide policy of notifying local elected officials and the legislative delegation for the affected area, not only of the proposed agency action on each biological waste combustor application, but also of the receipt of each such application.

That policy, which originally applied only to biological waste combustors, was recently expanded to apply to other types of facilities of heightened public concern. See Appendix G Public Notice, for a copy of the Secretary's policy memo.

BIOLOGICAL WASTE COMBUSTOR COMPLIANCE INSPECTIONS CITIZEN OBSERVATIONS

In its 1991 Legislative Budget Request to the Governor's Office, the Department has asked for five (5) new district office positions to allow the Department to conduct quarterly inspections of all biological waste combustors as they become subject to the new standards. The new positions would be funded from the state Air Pollution Control Trust Fund, which is entirely fee supported. The state's air program does not use any general revenue.

Under normal circumstances, major facilities are inspected once a year, and minor facilities once every five years. Any facility may be inspected more frequently if the Department has reason to believe that the facility is not operating in compliance. All citizen complaints are investigated. The Department relies on citizen observations and reports to help identify facilities that need additional investigation. In all cases, the Department takes enforcement action when violations are detected.

If you observe any significant visible emissions for more than a few minutes at a time, or smell any noticeable odor that is clearly associated with a biological waste combustor, the combustor is not being properly operated and the emission standards are most likely not being met. If you observe visible smoke or odor from a biological waste combustor, please report that observation to the appropriate District Air Program Administrator for the district office that serves the county in which the observation is made. See Appendix E for the mailing address and telephone numbers for each DER district office and a map of their service area.

If you observe a visible plume that is being knocked to the ground within several hundred feet of a combustor, then the combustor is located with the respect to other nearby buildings or structures, in such a way as to create a stack downwash problem which can result in periodic, short-term, higher ground-level concentrations than those that will occur if the stack is the proper height with respect to the surrounding buildings and structures. If you observe such an occurrence, report that observation to the appropriate District Air Program Administrator so an investigation of the situation can be conducted. If a down-wash problem is found to exist, the Department will amend the facility's permit to require the stack to be raised to the appropriate height to prevent down-wash. If that is not technically feasible in that location, special modeling will be conducted to determine if the down-wash situation has the potential to cause unacceptably high ambient concentration levels. If the modeling shows this is the case, the combustor will not be allowed to continue operation in that location.

In the case of improper operation, if the investigation establishes that improper operation has resulted in a violation of any of the applicable rule provisions, the Department will initiate appropriate enforcement action against the owner of the combustor.

If biological waste combustors are properly maintained, and operated in compliance with the new rule, you will see no significantly visible emissions nor smell any noticeable odor, and the emissions from the facility are not likely to present a threat to the public or to the environment.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor — Carol M. Browner, Secretary

FAX TRANSMITTAL SHEET

NAME(S): Jerry Kissel

DEPARTMENT/COMPANY: EPCHC

DATE: 11-19-92

FAX PHONE: 813-272-7144

TOTAL NUMBER OF PAGES, INCLUDING COVER PAGE: 5

****

FROM: Bruce Mitchell

DIVISION OF AIR RESOURCES MANAGEMENT

BUREAU: of Air Regulation

OFFICE PHONE: 904-488-1344 FAX PHONE: (904)922-6979

SENDER: Joan

COMMENTS: please confirm receipt of document. Thanks

HAVE A NICE DAY!

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Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

November 19, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Daniel E. Strobridge
Associate
Camp Dresser & McKee, Inc.
One Tampa City Center, Suite 1750
Tampa, Florida 33602

Dear Mr. Strobridge:

Re: City of Tampa Waste to Energy Facility Issues Regarding Waste Oil Firing

The Department has reviewed your August 24, 1992, letter, which requested that a federally enforceable condition, a restriction of firing only waste oil cleaned up by the Port Authority, be deleted from an air operation permit, No. AO 29-206279. Pursuant to Florida Administrative Code Rules 17-212.400(6)(b) and 17-212.500(8)(d), the operation permit shall include all operating conditions and provisions required in the construction permit. Therefore, the condition has to be deleted from the affected construction permit and cannot be processed under the current request. If this is what you desire, please submit the following information and the Department will, again, consider the issue:

o An application for a modification shall be submitted to the Department's Bureau of Air Regulation and the Environmental Protection Commission of Hillsborough County (EPCHC) under a Florida registered Professional Engineer's seal; also, the application package must be accompanied with the appropriate processing fee.

o Besides the Port Authority, identify all of the other potential sources of waste oil that the facility desires to process.

o As part of the application package, propose a protocol that shall be followed for every potential situation where the facility might be involved with the firing of waste oil. Minimally, the protocol shall include the following:

- o the source of the waste oil (i.e., ship's bilge, spill, etc.);
- o the address of the owner/operator of the source of the waste oil;
- o the identity and permit number of the storage tank that will receive the waste oil prior to firing;
- o the quantity of waste oil to be fired;

- an ultimate analysis of the waste oil to be fired, which shall include the Btu content, grade, percent sulfur content (by weight), metals (Cd, Hg, Pb, Cr, etc.), asphaltenes, and volatiles (benzene, toluene, ethyl-benzene, and xylene); and,
- the name and address of the laboratory that will be used for the analyses.

NOTE: Since the facility is not permitted to process any hazardous waste, the waste oil shall not exceed the limitations established in 40 CFR 266.

Once the above information and appropriate processing fee are received, the Department, the EPCHC, the U.S. EPA, and the U.S. Department of Interior's National Park Service will review the request for completeness and issue their findings. Once a complete application package has been received, a notice of complete application and the Department's Intent will each have to be placed on Public Notice. With or without an administrative hearing, the Department will issue a final determination (i.e., issue or deny).

If there are any questions, please call Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/BM/rbm

Attachment

cc: B. Thomas, SWD
J. Campbell, EPCHC
G. Kissel, EPCHC
D. Beason, Esq., DER

Attachment

CDM

environmental engineers, scientists, planners, & management consultants

CAMP DRESSER & McKEE INC.

One Tampa City Center, Suite 1750
Tampa, Florida 33602
813 221-2833 • Fax 813 221-2279

8/27

Preston
Pls advise
Clair

RECEIVED
AUG 27 1992
Division of Air
Resources Management

August 24, 1992

Bruce
What do you
think
Preston
8/28

Mr. Claire Fancy
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301-2400

Re: City of Tampa DER File No: AO29-206279

Dear Mr. Fancy:

Several weeks ago you and I discussed several aspects of the pending City of Tampa Refuse to Energy Facility permit application.

Among the concerns I raised was one dealing with the authorization to incinerate waste oil from spills cleaned up by the Port of Tampa. My concern was that limiting such disposal to wastes cleaned up by a given entity was unnecessarily restrictive and had no bearing on the environmental impact of incinerating the waste material.

It was my understanding that you concurred with the concept that the words "by the Port of Tampa" could be stricken from this permit. It is my further understanding that you indicated that Jerry Campbell could give you a call to confirm our conversation.

If I have misunderstood or misconstrued your meaning, please advise me at your earliest convenience.

As always, it is a pleasure to work with you on these and other issues.

Sincerely,

CAMP DRESSER & McKEE, INC.

Daniel E. Strobridge
Associate

cc: Nancy McCann, City of Tampa
Jerry Campbell, EPC

P 062 921 924

Receipt for Certified Mail

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Camp, Dresser & McKee, Inc
One Tampa City Ctr, Suite 1750
Tampa, Fl 33602

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X Michelle Steward

6. Signature – Agent
X

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ROGER P. STEWART
EXECUTIVE DIRECTOR
ADMINISTRATIVE OFFICES AND WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

ENVIRONMENTAL PROTECTION COMMISSION
of Hillsborough County

FAX Transmittal Sheet

DATE: 9/22/92

TO: BRUCE MITCHELL

FAX Phone: 904-922-6979 Voice Phone: _____

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Air Division	Waste Management	Ecosystems Management
- Special Programs	- UST Clean-Up	- Environmental Engineering
- Air Engineering	- Solid/Hazardous Waste	- Environmental Assessment
	- UST Compliance	- Compliance & Enforcement

SPECIAL INSTRUCTIONS: Copy of permits (original), BACT, LAER. 1 year 1983 Issued April 23, 1982 amendments: Dec 7, 1986 Construction of fly ash silo (addition of specific condition 9-through 14 may 20, 1983: Change of specific condition No 2 to allow the burning of infectious waste and waste oil collected from spills cleaned up by the Port Authority.

(File:\work\vms\FAXTrans.frm)

SEP-22-'92 TUE 10:29 ID:FPC TEL NO: #648 P01

ROGER P. STEWART
EXECUTIVE DIRECTOR
ADMINISTRATIVE OFFICES
AND
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

ENVIRONMENTAL PROTECTION COMMISSION
of Hillsborough County

FAX Transmittal Sheet

DATE: 9/22/92

TO: BRUCE MITCHELL

FAX Phone: 904-922-6979 Voice Phone: _____

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Division of Air
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STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

November 7, 1986

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Nancy McCann
Urban Environmental Coordinator
Office of Environmental Coordination
City Hall Plaza, 5N
Tampa, Florida 33602

Dear Ms. McCann:

Re: Amendment to Construction Permit AC 29-47277

The department is in receipt of your request to amend the above referenced state construction permit to reflect the "as built" construction of the facility. The amendment to the permit allows for the construction of a flyash storage silo. Particulate matter emissions will be controlled by use of a baghouse filter and are in accordance with the department's determination of Lowest Achievable Emission Rate for particulate matter. The department is in agreement with the request and the following shall be added or changed:

Expiration Date:

From: April 30, 1986
To: December 31, 1986

Specific Conditions:

9. Particulate matter emissions from the flyash storage silo shall not exceed 0.025 grains per dry standard cubic foot or 0.36 pound per hour based on a maximum flow rate of 2109 acfm.

10. Visible emissions from the flyash storage silo shall not exceed 5% opacity. Compliance with this limit shall be demonstrated by DER Method 9 in accordance with the requirements of section 17-2.700, FAC.

11. The permittee shall provide HCEPC and SWFDER at least 30 days advanced written notice of the startup date of the flyash storage silo.

12. The visible emissions tests for the flyash storage silo must be accomplished within 5 days of startup of the silo.

13. Should HCEPC or the Department have reason to believe the particulate emission standard is not being met, HCEPC or the Department may require that compliance with the particulate emission standards be demonstrated by testing in accordance with EPA Methods 1, 2, 3, 4, and 5.

14. Within 45 days of initial compliance testing of the source, test results along with 4 copies of a completed Certificate of Completion of Construction form shall be submitted to the HCEPC.

This letter must be attached to your construction permit, AC 29-47277, and shall become a part of that permit.

Sincerely,

Victoria J. Tschinkel
Secretary

VJT/ks

cc: Bill Thomas, SW District
Victor San Augustin, HCEPC

File 4 h(2) 1.4.c

Final Determination

Amendment to
McKay Bay Refuse-To-Energy Project
Hillsborough County

Permit Number
AC 29-47277

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

May 20, 1983

FINAL DETERMINATION

The City of Tampa's request to amend the construction permit of its McKay Bay Refuse-To-Energy Project to allow the incineration of infectious waste and waste oil recovered from oil spills has been reviewed by the Bureau of Air Quality Management. The department's Intent to Issue the permit was published in the Tampa Tribune on April 11, 1983.

Copies of the preliminary determination and technical review were available for public inspection at the Hillsborough County Environmental Protection Commission Office, the DER Southwest District Office, and the Bureau of Air Quality Management office.

No comments were received regarding this permit amendment. Therefore, it is requested that the permit conditions be issued as indicated in the preliminary determination.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

May 20, 1983

Mr. Dale H. Twachtmann
City of Tampa
McKay Bay Refuse-To-Energy Project
City Hall Plaza, 5N
Tampa, Florida 33602

Re: Modification of Conditions, Permit No. AC 29-47277

Dear Mr. Twachtmann:

We are in receipt of requests for modifications of the permit conditions. The specific conditions are changed as follows:

Specific Condition 2

From: Municipal waste only shall be burned in the facility. Wastewater treatment plant sludges or hazardous wastes shall not be incinerated.

TO: Municipal waste and infectious waste shall burned in the facility. Waste oil collected from spills cleaned up by the Port Authority not exceeding 10,000 gallons per day from tanker trucks or 10 tons per day of fiber drums shall also be burned. Wastewater treatment plant sludges or hazardous wastes shall not be incinerated.

This letter must be attached to your permit and becomes a part of that permit.

Sincerely,

Victoria J. Tschinkel
Secretary

VJT/ks

Issued this 20 day of May, 1983

7.C.8

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

Victoria J. Tschinkel
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

April 23, 1982

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

RECEIVED
APR 28 1982
H.C.E.P.C.

Dale H. Twachtmann
City of Tampa
306 East Jackson Street
Tampa, Florida 33602

Dear Mr. Twachtmann:

Enclosed is Permit Number AC 29-47277, dated April 23, 1982
to City of Tampa
issued pursuant to Section 403, Florida Statutes.

Acceptance of the permit constitutes notice and agreement that the Department will periodically review this permit for compliance, including site inspections where applicable, and may initiate enforcement actions for violation of the conditions and requirements thereof.

Sincerely,

for C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

CHF/pa

cc: Dan Williams, FDER, Southwest District
Hooshang Boostani, Hillsborough County Environmental Protection Commission
Joe Murdoch, City of Tampa

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL REGULATION

CONSTRUCTION
PERMIT

NO. AC 29- 47277

CITY OF TAMPA
MCKAY BAY REFUSE-TO-ENERGY
FACILITY NO. 1

DATE OF ISSUANCE

April 23, 1982

DATE OF EXPIRATION

DECEMBER 31, 1984

Victoria Tschinkel

VICTORIA TSCHINKEL
SECRETARY

Final Determination

McKay Bay Refuse-to-Energy Project
Hillsborough County

Permit Number:

AC 29-47277

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

April 21, 1982

The proposed air pollution construction application from the City of Tampa to build a resource recovery facility has been reviewed by the Bureau. The Department's Intent to Issue the construction permit was published in the Tampa Times on March 22 , 1982. Copies of the preliminary determination were available for public inspection at the Hillsborough County Environmental Protection Commission Office, at the Department's Southwest District Office and at the Bureau of Air Quality Management.

Only one letter of comment was received during the thirty day public notice period. The City of Tampa has requested that another specific condition be added that would allow a procedure for adjusting the emission limitations if the estimated emissions were less than the actual emissions. Since this condition is similar to a general condition in the federal permit and follows the Department's policy, the Bureau agrees with the recommendation.

Therefore, it is recommended that the air construction permit be issued with the above mentioned addition.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICANT: City of Tampa
306 East Jackson Street
Tampa, Florida 33602

PERMIT/CERTIFICATION
NO. AC 29-47277

COUNTY: Hillsborough

PROJECT: McKay Bay
Refuse-to-Energy
Facility No. 1

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 and 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

Rehabilitation of the three combustion chambers at the Tampa Municipal Incinerator and the construction of a fourth 250 TPD combustion chamber and the modification of the facility to a resource recovery facility.

Attachments:

1. McKay Bay Refuse-to-Energy Project, Application to Construct an Air Pollution Source, July, 1981.

2. McKay Bay Refuse-to-Energy Project, Application to Construct an Air Pollution Source, October, 1981.

3. Letter of Richard Garrity to Steve Smallwood, December 10, 1981, concerning effort to obtain emission offsets.

4. Letter of Richard Garrity to Clair Fancy, February 18, 1982, requesting hourly emission rate changes.

PERMIT NO.: AC 29-47277
APPLICANT: City of Tampa

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.

3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.

7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalities therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.

9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.

10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.

11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.

12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

13. This permit also constitutes:

[X] Determination of Best Available Control Technology (BACT)
[X] Determination of Prevention of Significant Deterioration (PSD)
[ ] Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 29-47277
APPLICANT: City of Tampa

SPECIFIC CONDITIONS:

1. The maximum allowable emissions from the resource recovery facility No. 1 shall be:

Pollutant	Emission Limitation	
Particulate	0.025 gr/dscf @12% CO_2	27.9 lb/hr
Sulfur Dioxide		170.0 lb/hr
Nitrogen Oxides		300.0 lb/hr
VOC		9.0 lb/hr

2. Municipal waste only shall be burned in the facility. Wastewater treatment plant sludges or hazardous wastes shall not be incinerated.

3. Hours of operation for the facility shall be 24 hours per day, 7 days per week, 52 weeks per year.

4. An operation and maintenance plan as contained in 17-2.13(7), FAC, shall be submitted with the operating permit applications and be made part of the operating permit.

5. Compliance testing for all criteria shall be conducted in accordance with the methods contained in 40 CFR 60 and 61. A source testing plan shall be submitted to the Department for approval 90 days prior to testing. The Department shall be notified of compliance testing at least 30 days prior to the testing.

6. During the particulate compliance testing, a visible emission standard shall be established by 40 CFR 60, Appendix A, Method 9, as a surrogate compliance method as contained in 17-2.23(3), FAC, and be made a condition of the operating permit.

7. Prior to ninty days before the expiration of this permit, a complete application for an operating permit shall be submitted to the DER Southwest District Office or its designee.

PERMIT NO.: AC 29-47277
APPLICANT: City of Tampa

8. The above stated emission limitations are based upon the best estimates of the permittee. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, the permitting authority may then institute procedures to amend the permit conditions.

Expiration Date: December 31, 1984

_____ Pages Attached.

Issued this 23 day of [illegible], 1992.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

[illegible]
Signature

Best Available Control Technology (BACT) Determination

Amendment

Hillsborough County

The City of Tampa proposes to construct a facility to incinerate municipal solid waste and use the resulting heat energy to produce electricity as a saleable by-product. The facility is to be located at the site of a previous incinerator installation which has been inoperative since December 1979. This venture, known as the McKay Bay Refuse-to-Energy project, is tentatively a two phase plan.

Phase one is the renovation and conversion of the three existing mass burn combustion furnaces into a state-of-the-art resource recovery system. A fourth combustion furnace will be installed plus waste heat boilers, electrostatic precipitators and a condensing steam turbine electric generator. When phase one is completed the facility will have the capability to burn approximately 300,000 tons per year of solid waste and generate 21 megawatts of electricity. This BACT determination applies to phase one of this project.

Phase two will be the installation of two new mass burn combustion furnaces, with heat recovery systems, and will be located adjacent to the renovated system. The new system will be capable of processing 1,000 tons per day of municipal solid waste and, in addition, to producing electricity will allow the recovery of recyclable materials, such as ferrous metals and aluminum. A BACT determination, if applicable, will be made when the plans for phase two of the project are finalized.

The McKay Bay Refuse-to-Energy project, when completed, will be capable of processing 2,000 tons per day of solid waste. The facility is scheduled to operate continuously with a 20 percent downtime allowance for maintenance.

Applicant's estimated net increase in air emissions (tons/year):

Pollutant	Phase I
Particulates	133
SO_2	745
NO_x	1314
CO	75
HC	39

had to consider the following:

1) Resource recovery facilities have a high potential for severely and adversely affecting air quality. Pollutants of concern are SO_2, NO_x, particulates, HC, HCL and HF acid gases.

2) The thermal destruction of municipal waste is a recognized method of disposal, and A. reduces landfill area requirements; B. eliminates a breeding ground for rodents; C. reduces possibility of ground water contamination; D. allows for the recovery of various metals for recycle.

3) Air pollution control technology is currently commercially available and capable of achieving the levels of control necessary to reduce most emissions from resource recovery facilities.

4) Calculation of sulfur dioxide emission factors for solid waste based upon the amount of SO_2 generated per million Btu of solid waste burned show the high value of the solid waste SO_2 emission to be slightly higher than the SO_2 emission factor for residual fuel oil containing 0.5 percent sulfur.

5) The technology for controlling NO_x emissions from resource recovery facilities is still in the experimental stage.

6) The land area needed for a landfill (dump) will be reduced approximately 90 percent. The residue (ash) to be disposed of in a landfill will be 15 percent of the mass but only 5 percent of the volume of waste collected and burned.

The applicant stated the SO_2 emissions would be 170 pounds per hour. This is analogous to burning oil with a sulfur content of 0.43 percent, which, in most cases, would be BACT for a boiler of this size not using a flue gas desulfurization system. Atmospheric dispersion modeling predicts no violation of the SO_2 increment at this rate of SO_2 emissions. The SO_2 emission limit of 170 pounds per hour, is therefore, determined to be BACT.

The emission of NO_x is the result of two chemical processes that occur during combustion. In one case the heat of combustion causes the oxidation of nitrogen in the air, called thermal NOx. The second case is when the nitrogen in the fuel becomes oxidized, called fuel NO_x. Some of the factors influencing the amount of

Lowest Achievable Emission Rate (LAER) Determination Amendment

City of Tampa

Hillsborough County

The City of Tampa proposes to construct a facility to incinerate municipal solid waste and use the resulting heat energy to produce electricity as a saleable by-product. The facility is to be located at the site of a previous incinerator installation which has been inoperative since December 1979. This venture, known as the McKay Bay Refuse-to-Energy project, is a two phase plan.

Phase one is the renovation and conversion of the three existing mass burn combustion furnaces into a state-of-the-art resource recovery system. A fourth combustion furnace will be installed plus waste heat boilers, electrostatic precipitators and a condensing steam turbine electric generator. When phase one is completed the facility will have the capability to burn approximately 300,000 tons per year of solid waste and generate 21 megawatts of electricity. This LAER determination applies to phase one of this project.

Phase two will be the installation of two new mass burn combustion furnaces, with heat recovery systems, and will be located adjacent to the renovated system. The new system will be capable of processing 1,000 tons per day of municipal solid waste and, in addition, to producing electricity will allow the recovery of recyclable materials, such as ferrous metals and aluminum. A LAER determination, if applicable, will be made when phase two plans are finalized.

The McKay Bay Refuse-to-Energy project, when completed, will be capable of processing 2,000 tons per day of solid waste. The land area needed for a landfill (dump) will be reduced approximately 90 percent. The residue (ash) to be disposed of in a landfill will be 15 percent of the mass but only 5 percent of the volume of waste collected and incinerated. The facility is scheduled to operate continuously with a 20 percent dowtime allowable for maintenance.

Applicant's Estimated net increase in air emissions (tons/year):

Pollutant	Phase I
Particulates	133
SO_2	745
NO_x	1314
CO	75
HC (VOC)	39

area requirements; B. eliminates a breeding ground for rodents; C. reduces possibility of ground water contamination; D. allows for the recovery of various metals for recycle.

3. Air pollution control technology is currently commercially available and capable of achieving the levels of control necessary to reduce most emissions from resource recovery facilities.

4. The construction of a new source, or modification, in a nonattainment area shall apply to the Department for a determination of the Lowest Achievable Emission Rate (LAER) that is applicable to the affected pollutant, which, in this case, is particulate matter (17-2.17(6)(a)FAC).

The Department has determined LAER for particulate matter to be 0.025 grains/DSCF, corrected to 12% CO_2. The emission limit is deemed to be achievable based on test data from a similar operating facility located in Nashville, Tennessee.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, LAER Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, FL 32301

Recommended By:

Lawrence G. George
for Steve Smallwood, Chief, BAQM

Date:

March 19, 1982

Approved:

Victoria Tschinkel
Victoria Tschinkel, Secretary

Date:

March 23, 1982

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33637-9544
813-985-7402
SunCom - 542-8000

PERMITTEE:
Ms. Nancy McCann
Urban Environmental Coordinator
Office of Environmental Coordination
City of Tampa
City Hall Plaza, 5N
Tampa, Florida 33602

PERMIT/CERTIFICATION
Permit No.: A029-114760
County: Hillsborough
Expiration Date: 2-11-92
Project: McKay Bay Refuse-to-Energy Facility Units 1 thru 4

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of four 250 TPD municipal waste incinerators designated as Units 1, 2, 3, and 4, respectively, from west to east. Each incinerator is equipped with a 37,430 dscfm F. L. Smidth Model F300, 2-field electrostatic precipitator to control particulate emissions. Units 1 and 2 share the same stack exhaust. Units 3 and 4 share the same stack exhaust. Each stack exhaust is equipped with a certified opacity monitor.

Location: 107 North 34th St., adjacent to McKay Bay, Tampa

UTM: 17-360.0E 3091.9N NEDS NO: 0127 Point ID:
01-Unit No. 1
02-Unit No. 2
03-Unit No. 3
04-Unit No. 4

Replaces Permit No.: AC29-47277

PERMITTEE:
City of Tampa

Permit/Certification No.: A029-114760
Project: McKay Bay Refuse-to-Energy Facility Units 1 thru 4

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate the enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.712(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by any order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as maybe required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes of;

a. Having access to and copying any records that must be kept under the conditions of the permit:

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

(a) a description of and cause of non-compliance; and

(b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

(X) Determination of Best Available Control Technology (BACT)

(X) Determination of Prevention of Significant Deterioration (PSD)

( ) Certification of Compliance with State Water Quality Standards (Section 401. PL 92-500)

(X) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

14. (con't)

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Total maximum allowable emissions from all four process lines shall be:

Pollutant	Emission Limitation
Particulate	0.025 gr/dscf, corrected to 12% CO2 and 27.9 lbs./hr.
Sulfur Dioxide	170.0 lbs./hr.
Nitrogen Oxides	300.0 lbs./hr.
VOC	9.0 lbs./hr.
Lead	3.1 lbs./hr.
Fluoride	6.0 lbs./hr.
Mercury (vaporous and particulate)	0.6 lbs./hr.
Beryllium	5 grams/24 hour period and 0.00046 lbs./hr.

2. Visible emissions from each exhaust stack shall not exceed 15% opacity.

3. Compliance with the emission limitations of Specific Conditions Nos. 1 and 2 shall be determined using EPA Methods 1, 2, 3, 5, 6, 7, 9, 12, 13A/13B, 25A/25B, 101A, and 104 contained in 40 CFR 60, Appendix A and/or adopted by reference in Section 17-2.700, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Section 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

4. Test the emissions for the following pollutant(s) at intervals of 12 months from the date September 18, 1986 and submit 2 copies of test data to the Air Section of the Hillsborough County Environmental Protection Commission Office within fourty-five days of such testing (Section 17-2.700(2), Florida Administrative Code (F.A.C.)). Testing of all four units for each pollutant shall be conducted in a consecutive five day period.

(X) Particulates
(X) Opacity*
(X) Sulfur Dioxide
(X) Nitrogen Oxides
(X) Lead

* The visible emissions test for each unit shall be at least 60 minutes in duration and shall be conducted simultaneously with the particulate stack test. Both units which share a common stack shall be in operation during the visible emission test.

5. Test the emissions from each unit for the following pollutant(s) six months prior to the expiration date of this permit and submit 2 copies of test data to the Air Section of the Hillsborough County Environmental Protection Commission within forty five days of such testing (Section 17-2.700 (2), Florida Administrative Code (F.A.C.)). Testing of all four units for each pollutant shall be conducted within a consecutive five day period.

(X) Volatile Organic Compounds
(X) Total Fluorides
(X) Mercury (vaporous and particulate)
(X) Beryllium

6. The Hillsborough County Environmental Protection Commission shall be notified in writing 15 days prior to compliance testing.

7. Testing of emissions from each unit must be accomplished within ±10% of the maximum charging rate of 10.5 TPH of municipal waste. The actual charging rate during each test run shall be specified in each test report. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data (Section 403.161(1)(c), Florida Statutes).

SPECIFIC CONDITIONS (con't):

8. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

Duplicate copies of all reports shall be submitted to the Hillsborough County Environmental Protection Commission.

9. Pursuant to 40 CFR 60.7, a written report of excess emissions shall be reported in a quarterly report. For purposes of this report, excess emissions shall be all air pollutant emissions in excess of the permitted levels stated in Specific Conditions 1 and 2 of this permit. Quarterly reports shall be submitted no later than 30 days from the end of each calendar quarter.

10. Four applications to renew this operating permit shall be submitted to the Hillsborough County Environmental Protection Commission 60 days prior to expiration date of this permit.

11. Pursuant to 40 CFR 60.53, Subpart E, the permittee shall record the daily charging rates and hours of operation of each unit.

12. A continous monitoring system to determine in-stack opacity from each exhaust stack shall be calibrated, operated, and maintained in accordance with Section 17-2.710(1), F.A.C.

13. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Section 17-2.610 (3), F.A.C.. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling.

14. Pursuant to Section 17-2.250(1), F.A.C., excess emissions resulting from start-up, shutdown, or malfunction of any unit shall be limited to a total of 2 hours in any 24 hour period provided best operational practices are adheared to and the duration of excess emissions are minimized. Best operational practices shall include but are not limited to :

SPECIFIC CONDITIONS (con't):

(1) Using the least pollution causing material available on site to charge the furnace on start-up.
(2) Turning on the electrostatic precipitator as soon as possible but no later than two hours after the furnace is ignited.

The permittee shall maintain a log detailing the following information on every start-up of a unit:

(1) Time (to the nearest minute) at which the furnace is ignited.
(2) Time (to the nearest minute) at which the electrostatic precipitator is turned on and operational.
(3) Temperature of the flue gas at the electrostatic precipitator inlet when it is turned on.
(4) Six minute opacity reading taken from the opacity monitor strip chart beginning at two hours following the ignition of the furnace.

These records are to be maintained for a period of two years and shall be accessible to representatives of the Department and the Environmental Protection Commission of Hillsborough County for their inspection.

15. Operation and Maintenance Plan for Particulate Control (Section 17-2.650(2), F.A.C.)

A. Process Parameters:

1. Source Designator: Units Nos. 1-4
2. Maximum Charging Rate: 250 tons per day per unit, 1000 tons per day total
3. Maximum Heat Input Rate: 2,500 MMBTU/day/line, 9,000 MMBTU/day total
4. Permitted Operating Schedule: 24 Hrs/day, 7 days/wk., 52 wks/yr.
5. Furnace Temperature: 2200-2400° F
6. Fuel Type: Unsorted Municipal Waste
7. Design Fuel Analysis: Carbon-25.6%, Nitrogen-0.58%, Hydrogen-3.7%, Sulfur-0.3%, Oxygen-22.75%, Moisture-30.0%, Non-combustibles-18.0%
8. Combustion Conditions: 50-80% excess air 7-11% O_2 in flue gas
9. Steam Pressure: 650 psig
10. Steam Temperature: 700°F
11. Steam Production: 208,400 lbs/hr. total normal flow rate
12. Maximum Permitted Electrical Output: 25 MW

SPECIFIC CONDITIONS (con't):

B. Pollution Control Equipment Parameters:
1. Control Equipment Type: 4 Electrostatic Precipitators
2. Model Name and No.: F. L. Smidth Model F300
3. Design Flow Rate: 37,430 dscfm/line, 75,000 dscfm/stack
4. Primary Voltage: 480V
5. Primary Current: 89A
6. Secondary Voltage: 25,000-45,000 VDC
7. Secondary Current: 800 mA
8. Design Collection Efficiency: 99.45%
9. Stack Height Above Ground: 160 ft/stack
10. Stack Diameter: 5.75 ft. each stack
11. Exit Gas Temperature: 540°F each stack
12. Exit Gas Moisture: 14%

C. The following observations, checks, and operations apply to this source and shall be conducted on the schedule specified.

Continuously Monitored
1. Opacity
2. Temperatures- a. ESP Inlet and Outlet
b. Furnace
c. Bypass
d. Kiln Outlet
e. Boiler Outlet
f. Primary and Secondary Superheater
3. Pressures- a. Primary Superheater Steam
b. Secondary Superheater Steam

Every Two Hours
1. Monitor/inspect fly ash removal equipment
2. Read Instruments on Automatic Voltage Controllers (A.V.C.)
3. Observe rapper operation
4. Observe pressures and temperatures throughout system
5. Observe visual emissions
6. Observe all fans for proper operation
7. Inspect precipitator externals for hot spots, air infiltration, etc.
8. Observe fly ash silo operation if in use.
9. Monitor ash temperature
10. Primary voltage
11. Primary current
12. Secondary voltage
13. Secondary current
14. Spark rate rapper frequency
15. Rapper vibrator frequency
16. Rapper vibrator duration

SPECIFIC CONDITIONS (con't):

D. Records:

Records of inspections, maintenance, and performance parameters shall be retained for a minimum of two years and shall be made available to the Department or the Hillsborough County Environmental Protection Commission upon request (Subsection 17-2.650(2)(g)5., F.A.C.)

16. Municipal waste and infectious waste ~~shall~~ be burned in the facility. Waste oil collected from spills cleaned up by the Port Authority not exceeding 10,000 gallons per day from tanker trucks or 10 tons per day of fiber drums shall also be burned. Wastewater treatment plant sludges or hazardous wastes shall not be incinerated.

17. Electrical output for sale to Tampa Electric Company (TECO) shall not exceed 25 MW.

Issued this 13 day of Feb
1987.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
District Manager

SPECIFIC CONDITIONS (con't):

Daily
1. Clean opacity monitor lenses
2. Monitor T/R temperature
3. Check gear box reservoir oil levels
4. Monitor charging rate per line
5. Monitor hours of operation per line

Weekly
1. Calibrate opacity monitor
2. Lubricate all external bearings, chains, idlers, sprockets
3. Lubricate fly ash collecting equipment

Quaterly (During Outages)
1. Inspect precipitators internals; observe dust build up, corrosion
2. Check alignment of plates and electrodes
3. Inspect rappers, observe for cracking on rapper frame assembly
4. Clean rapper insulator bushing
5. Clean electrode bushings
6. Check screw conveyor bearings
7. Inspect all field connections, door frames, duct connections for corrosion
8. Replace door frame gaskets as needed
9. Inspect internal structural members for corrosion and integrity
10. Clean relay cabinets, clean motor starter and relay contacts
11. Check hopper heaters for proper operation
12. Check insulator housing heaters for proper operation
13. Lubricate key interlock system
14. Check resistance to ground by meggering
15. Record all control points on AVC Microprocessor

Annual
1. Perform smoke bomb test on housing (optional)
2. Ultrasonic thickness test on hoppers, inlet distribution baffles.
3. Check thickness of inlet electrode wires
4. Check Filter Earth Connection (Ground)
5. Inspect collection plates for corrosion
6. Check external structure members for integrity
7. Scan surfaces with optical pyrometer, checking insulation (running)
8. Run T/R oil analysis

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

Sincerely,

James Wm. Estler
Air Permitting Engineer

JWE/js

cc: HCEPC

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on 2-13-87 to the listed persons.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(10), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Jean Sebesta
Clerk

2-13-87
Date

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33637-9544
813-985-7402
SunCom - 542-8000

PERMITTEE:
Ms. Nancy McCann
Urban Environmental Coordinator
Office of Environmental Coordination
City of Tampa
City Hall Plaza, 5N
Tampa, Florida 33602

PERMIT/CERTIFICATION
Permit No.: A029-114760
County: Hillsborough
Expiration Date: 2-11-92
Project: McKay Bay Refuse-to-Energy Facility Units 1 thru 4

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of four 250 TPD municipal waste incinerators designated as Units 1, 2, 3, and 4, respectively, from west to east. Each incinerator is equipped with a 37,430 dscfm F. L. Smidth Model F300, 2-field electrostatic precipitator to control particulate emissions. Units 1 and 2 share the same stack exhaust. Units 3 and 4 share the same stack exhaust. Each stack exhaust is equipped with a certified opacity monitor.

Location: 107 North 34th St., adjacent to McKay Bay, Tampa

UTM: 17-360.0E 3091.9N NEDS NO: 0127 Point ID:
01-Unit No. 1
02-Unit No. 2
03-Unit No. 3
04-Unit No. 4

Replaces Permit No.: AC29-47277

File Copy

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ROGER P. STEWART
EXECUTIVE DIRECTOR
ADMINISTRATIVE OFFICES
AND
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

October 19, 1992

Mr. Greg Groteclose
Office of Environmental Coordination
City of Tampa
City Hall Plaza, 5N
Tampa, FL 33602

Re: McKay Bay Refuse-to-Energy Facility
Permit No. AO29-205279

Dear Mr. Groteclose:

Per your request, this letter documents our conversation of October 8, 1992 in which I explained that the referenced permit does not allow the acceptance of oily rags from Tampa Electric generating plants.

The permit specifically allows inputs "resulting from the operation of residential, commercial, governmental or institutional establishments" and specifically disallows inputs "from industrial, mining, or agricultural operations." You stated that some aspects of utility regulation exempt utilities from regulations applicable to industries. Although a utility generating plant is not specifically addressed in the categories in this permit, in this air permitting context, a utility generating plant is clearly closer to an industrial category than to a commercial category (e.g., office buildings and retail trade).

Although there are other aspects of the permit we did not discuss, the above factor is sufficient to disallow the category of waste you proposed.

If you wish to apply for a revision to the current permit to allow this sort of input, an initial observation is that this would reopen your original permit and would not be a simple matter. If you wish to pursue this further, please notify us; a preapplication meeting would probably be appropriate.

If you should have any questions, please feel free to contact me at 272-5530.

Sincerely,

Gerald J. Kissel, P.E.
Chief, Air Permitting Section

bm

cc: Bruce Mitchell, DER - Tallahassee

CDM

environmental engineers, scientists, planners, & management consultants

CAMP DRESSER & McKEE INC.

One Tampa City Center, Suite 1750
Tampa, Florida 33602
813 221-2833 Fax 813 221-2279

8/27
Preston
Pls advise
Claire

August 24, 1992

Bruce
What do you
think
Preston
8/28

Mr. Claire Fancy
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301-2400

Re: City of Tampa DER File No: AO29-206279

Dear Mr. Fancy:

Several weeks ago you and I discussed several aspects of the pending City of Tampa Refuse to Energy Facility permit application.

Among the concerns I raised was one dealing with the authorization to incinerate waste oil from spills cleaned up by the Port of Tampa. My concern was that limiting such disposal to wastes cleaned up by a given entity was unnecessarily restrictive and had no bearing on the environmental impact of incinerating the waste material.

It was my understanding that you concurred with the concept that the words "by the Port of Tampa" could be stricken from this permit. It is my further understanding that you indicated that Jerry Campbell could give you a call to confirm our conversation.

If I have misunderstood or misconstrued your meaning, please advise me at your earliest convenience.

As always, it is a pleasure to work with you on these and other issues.

Sincerely,

CAMP DRESSER & McKEE, INC.

Daniel E. Strobridge
Associate

cc: Nancy McCann, City of Tampa
Jerry Campbell, EPC

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

April 28, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Nancy McCann
Urban Environmental Coordinator
City of Tampa
City Hall Plaza, 5N
Tampa, Florida 33602

Re: McKay Bay Refuse-to-Energy Facility
Permit No. AC 29-47277 Amendment Request

Dear Ms. McCann:

The Department has reviewed your February 7, 1992, and previous letters requesting several amendments to the above referenced construction permit. The following is our response:

1. **Request to increase maximum charging rate from 1000 TPD to 1065 TPD (7455 tons/wk).**

   Response: Any increase in the operation rate that results in an increase in actual emissions of any pollutant is a modification pursuant to F.A.C. Chapter 17-2 and 40 CFR 52. A modification process establishes federal enforceability through the public notice. Hence, you must submit a modification permit application along with the appropriate processing fee for the Department to consider this request.

2. **Request to change the charging rate from an hourly basis to a weekly basis.**

   Response: Permit applications are reviewed on the basis of the maximum emissions and the operation rate consistent with these emissions. Since the emissions are limited on an hourly basis, the operation rate must also be on an hourly basis. Otherwise the Department would not have reasonable assurance that the source is being operated and maintained as permitted.

3. **Request to conduct compliance testing at ±10% of the maximum charging rate.**

   Response: The Department recognizes the difficulty of a source to be maintained at exactly 100% capacity for the duration of compliance testing, therefore, compliance tests conducted at

the 90 to 100% of the maximum permitted capacity are acceptable. However, the Department considers it to be a violation for any source to operate in excess of the maximum permitted capacity at any time. Special emission tests may be conducted at higher rates only if prior authorization is obtained from the Department.

4. **Request to change the maximum permitted capacity from 20,834 lbs/hr (250 TPD) per boiler to 52,100 lbs/hr of steam per boiler.**

   Response: Your request for this change cannot be granted since the construction permit for each unit was based on a maximum charging rate of 250 TPD of waste stream and not on the amount of steam produced. The waste input rate is directly related to emissions because the combustion of the waste is what generates the pollutant emissions. Although steam production is relevant to the commercial operation of the facility, it is not directly related to the air quality impact of the source.

If you have any questions, please contact Mr. Mirza P. Baig at (904) 488-1344 or write me at the above address.

Your cooperation in this matter will be appreciated.

Sincerely,

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

CHF/MB/plm

c: Bill Thomas, SWD
Jerry Campbell, EPCHC
Jim Pennington, BAR
Brian Beals, EPA

P 710 058 458

Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Nancy McCann	
Street & No. UEC - City of Tampa	
P.O., State & ZIP Code Tampa, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date 4-28-92 AC 29-47277	

PS Form **3800**, June 1990

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Nancy McCann
Urban Env. Coord.
City of Tampa
City Hall Plaza 5N
Tampa, Fl 33602

4a. Article Number P 710 058 458

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery APR 30 1992

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form **3811**, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

RESOURCE RECOVERY FACILITIES
1100 TPD AND LARGER

NAME	TYPE	TPD	START	CONTROL
DADE CNTY	MB	3000	1982	ESP
PINELLAS	MB	3000	1983	ESP
HILLSBORO.	MB	1200	1987	ESP
PALM BE.	RDF	2000	1989	ESP/DS
S. BROWARD	MB	2250	1991	DS/BH
N. BROWARD	MB	2250	1991	DS/BH
LEE CNTY	MB	1800	1994	DS/BH/NOX

4 FAC. OPER.	9200
2 FAC. CONST.	4500
1 FAC. DES/P	1800

RESOURCE RECOVERY FACILITIES
250 - 1100 TPD

NAME	TYPE	TPD	START	CONTROL
LAKELAND	RDF-S	300	1984	ESP/DS
CITY TAMPA	MB	1000	1985	ESP
BAY CNTY	MB	510	1987	ESP
LAKE CNTY	MB	500	1990	DS/BH
PASCO CNTY	MB	900	1991	DS/BH
		---		
5 FAC. OPER.		3210		

RESOURCE RECOVERY FACILITIES
250 TPD OR LESS

NAME	TYPE	TPD	START	CONTROL
MAYPORT	MB	48	1979	CYCLONE
MIAMI AIRPT	MB	60	1984	AFTERBURN
KEY WEST	MB	150	1987	ESP
		258		

3 FAC. OPER.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

April 17, 1992

Ms. Nancy McCann
Urban Environmental Coordinator
City of Tampa
Solid Waste Department
City Hall Plaza 5N
Tampa, Florida 33602

Dear Ms. McCann:

Re: City of Tampa McKay Bay Resource Recovery Facility
DER Permit No. AO 29-114760

The Florida Department of Environmental Regulation has received and reviewed you letter dated December 16, 1991, concerning the disposal of waste tires at the City of Tampa's McKay Bay Resource Recovery Facility. The Department recognizes that waste tires frequently are disposed of at resource recovery (waste-to-energy) facilities in Florida. The Department does not object to the combustion of waste tires in resource recovery facilities at a maximum 3% level. The Department recently issued a memorandum dated April 16, 1992, which confirms our general policy concerning this issue.

In light of the Department's general policy, the Department does not object to the City of Tampa's historic practice of disposing of waste tires at the McKay Bay facility. We have reviewed the City's permit and confirmed that the City's permit does not expressly prohibit such practices. Given these facts, we have concluded that the City may lawfully dispose of waste tires at the McKay Bay facility, subject to the terms of the City's existing permit, so long as the quantity of waste tires does not exceed 3% of the total weight of waste material handled at the facility.

Sincerely,

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

CHF/kt

Enclosure

cc: J. Campbell
B. Thomas

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: District Waste Program Administrators
District Air Program Administrators
County Air Program Administrators

FROM: Steve Smallwood, Director
Division of Air Resources Management

John Ruddell, Director
Division of Waste Management

SUBJ: Tire Burning at Municipal Waste Combustors and Resource Recovery Facilities

DATE: April 16, 1992

This joint memorandum is to clarify the Division of Air Resources Management's and the Division of Waste Management's guidance on the use of municipal waste combustors and resource recovery facilities to dispose of tires through incineration.

Tires (shredded and whole) may be processed/fed to these units up to 3%, by weight, of the permitted capacity without any change in the existing permits.

However, any desire to process/feed tires above the 3% level will be considered a modification and the owner/operator of the source(s) will be required to obtain the necessary document(s) (i.e., construction permit modification) prior to increasing the processing/feed rate of the tires. This type of activity will require a Florida P.E. sealed application for a modification, processing fee, public notice, and additional air emission testing to determine the suitability of the unit for the processing of tires. The Air Construction Permit Modification will be processed by the Bureau of Air Regulation's Permitting and Standards Section. However, waste-to-energy facilities certified under the Power Plant Siting Act would require a modification of the certification. Submission of the same information by a Florida P.E. using the same forms you listed would be required. The $10,000 modification fee would apply in those cases.

If you have any questions on the above, please contact Barry Andrews at (904)488-1344 or SunCom 278-1344.

SS/BM/rbm

P 710 058 528

Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Ms. Nancy McCann, City of Tampa	
Street & No. City Hall Plaza 5N	
P.O., State & ZIP Code Tampa, FL 33602	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 4-17-92 Permit: AO 29-114670	

PS Form **3800**, June 1990

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Nancy McCann
Dity of Tampa
Solid Waste Department
City Hall Plaza 5N
Tampa, FL 33602

4a. Article Number
P 710 058 528

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
APR 20 1992

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

CITY OF TAMPA

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT
Office of Environmental Coordination

February 7, 1992

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
D. Homan, SWD
BA/PL

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 ±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

MCKAY BAY REFUSE-TO-ENERGY FACILITY
EMISSIONS SUMMARY

	Sept 1985	Oct 1987	Dec 1988	Oct 1989	Permit Limits
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	9.4 lb/hr 0.009 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	111.6 lb/hr	170.0 lb/hr
NO_x	94.8 lb/hr	135.8 lb/hr	173.2 lb/hr	230.7 lb/hr	300.0 lb/hr
Lead	0.4 lb/hr	0.3 lb/hr	0.3 lb/hr	.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	1051	
Estimated BTU Value	4230	4649	4650	4775	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUL 10 1990

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: McKay Bay Refuse-to-Energy Facility
Florida Power Corporation, Crystal River

Dear Mr. Fancy:

On June 28, 1990, Mr. Mirza Baig of you staff requested that we provide comments to you regarding the pending permit actions applicable to the above referenced facilities. Our comments on each project are as follows:

MCKAY BAY REFUSE-TO-ENERGY FACILITY

In a letter dated November 30, 1989, from McKay Bay to you, two modifications of the facility's Prevention of Significant Deterioration (PSD) permit are requested.

First, McKay Bay wishes to change the permitted charging rate of 1,000 tons per day to a rate of 7,455 tons per week. This is a similar request to their June 15, 1989, letter to you which McKay Bay requested an increase from a charging rate of 1,000 tons per day to 1,075 tons per day. As our records indicate, we provided you with comments on their June 15, 1989, request via an August 2, 1989, letter. In our letter we informed your agency that the requested increase would appear to trigger a PSD review for several pollutants. As you are aware, the calculation for determining applicability to PSD is based on the difference between old actual emission (the average rate in tons per year that the facility actually emitted the pollutants) and the new potential to emit (allowable emissions). We have not received any revised calculations from your agency or McKay Bay to show that PSD would be avoided if the requested charging rate increase were approved.

Second, McKay Bay has requested that compliance testing be based on a design steam flow of 52,100 pounds per hour per boiler instead of a maximum charging rate. Since the measurement of boiler steam production is a more accurate parameter than charging rate, we are not opposed to this request.

On a related matter concerning McKay Bay, our last conversations with your agency indicated that an annual testing requirement for measuring carbon monoxide emissions was to be added to the permit. We would appreciate any new information you may have on this matter.

FLORIDA POWER CORPORATION, CRYSTAL RIVER

Mr. Baig has asked us to review Florida Power Corporation's May 30, 1990, letter to you regarding the revised Technical Evaluation and Preliminary Determination for the Crystal River Units 1, 2, and 3 helper cooling towers. We have no comments on the Company's requested changes to your revised determination except to note that the appropriate source test method for particulate matter emissions should be an alternative of Method 5 with a deionized water probe wash. Please contact Paul Reinermann of my staff for more detail of this procedure.

If you have any additional questions, please call me at (404) 347-2864.

Sincerely,

Mark Armentrout

for Brian Beals, Chief
Source Evaluation Unit
Air, Pesticides and Toxics
Management Division

Copy: Clair Fancy
Mary Barry
Barry Andrews

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUG - 2 1989

4APT/APB-aes

Mr. Clair H. Fancy, P.E., Deputy Chief
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. AC 29-47277, PSD-FL-086

Dear Mr. Fancy:

This is to acknowledge receipt of the additional information regarding the proposed increase in throughput for McKay Bay Refuse-to-Energy Project and to confirm the July 18, 1989, telephone conversation between Pardeep Raval of your staff and Mark Armentrout of my staff. We have reviewed the additional information and have the following comments:

According to the definition of "major modification" and "net emissions increase" defined in the Federal and State Prevention of Significant Deterioration (PSD) regulations, it appears that the source will be required to undergo a PSD review, including a best available control technology (BACT) review for:

1. Particulate Matter (PM)
2. Lead (Pb)
3. Sulfur Dioxide (SO_2)
4. Nitrogen Oxides (NO_x)
5. Fluorides (Fl)
6. Mercury (Hg), and
7. Beryllium (Be)

As you know, a major modification is defined in the PSD regulations as:

> "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

A physical change or change in the method of operation does not include an increase in the production rate, "unless this change would be prohibited under any federally enforceable permit condition which

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ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

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Mr. Clair H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Control
FL Dept. of Environmental
Regulation
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or 40 CFR 51.166." Since the proposed increase in throughput would be prohibited under the existing permit conditions, we have concluded that PSD will apply to the aforementioned pollutants.

According to our calculations, a PSD review will be required unless allowable emission rates are lowered such that significance levels are not exceeded (see Table 1).

By copy of this letter we are notifying the City of Tampa of this matter.

If you have any questions or comments concerning our review, please feel free to contact me or Mark Armentrout of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxic
Management Division

cc: Ms. Nancy McCann
Urban Environmental Coordinator
City of Tampa
4010 W. Spruce Street
Tampa, Florida 33607

T A B L E 1

Data on Emissions for McKay Bay Refuse-to-Energy Project

Pollutant	Current Allowable lb/hr (TPY)	Average of Old Actual Emissions TPY	Current Allowables - Old Actual Emissions TPY	Significance Level TPY
PM	27.9 [122.2]	46.83	75.37	25.0
SO_2	170.0 [744.6]	455.1	289.5	40.0
NO_x	300.0 [1314]	589.5	724.5	40.0
Fl^-	6.0 [26.28]	10.1	16.18	3.0
Hg	0.6 [2.63]	1.6	0.7	0.1
VOC	9.0[39.42]	11.8	27.62	40.0
Be	4.6×10^{-4} [2×10^{-3}]	3.5×10^{-4}	1.65×10^{-3}	4×10^{-4}
CO	no limit	95.9	-	100.0
Pb	3.1 [13.6]	1.47	12.13	0.6

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

July 7, 1989

Mr. Wayne Aronson
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Aronson:

Re: Permit Amendment for McKay Bay Refuse-to-Energy Facility
Permit No. AC 29-47277, PSD-FL-086

Enclosed is additional information regarding the above referenced project located in Tampa, Hillsborough County, Florida. If you have any questions, please call Pradeep Raval at (904)488-1344 or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/PR/t

enclosure

cc: C. Shaver, NPS

CITY OF TAMPA

Sandra W. Freedman, Mayor

SOLID WASTE DEPARTMENT

Everett A. 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 ±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.

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 E Cann

Nancy McCann
Urban Environmental Coordinator

NMc/GG/me:32-29

xc: William D. Engel

McKAY BAY REFUSE TO ENERGY FACILITY

EMMISIONS ANALYSIS

	PART	LEAD	SO2	NOX	FLUORIDE	MERCURY	VOC	BERYLLIUM	CO
PERMIT LIMITS (LB/HR)	27.9	3.1	170.0	300.0	6.0	0.6	9.0	0.00046	NO LIMIT
1985	PART	LEAD	SO2	NOX	FLUORIDE	MERCURY	VOC	BERYLLIUM	CO
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	PART	LEAD	SO2	NOX	FLUORIDE	MERCURY	VOC	BERYLLIUM	CO
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	PART	LEAD	SO2	NOX	FLUORIDE	MERCURY	VOC	BERYLLIUM	CO
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 THRUPUT 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	7.56
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

	Sept 1985	Oct 1987	Dec 1988	Permit Limits
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	

SPECIFIC CONDITIONS

1. The maximum allowable emissions from the resource recovery facility no. 1 shall be:

Pollutant		Emission Limitation
Sulfur dioxide		170.0 lb/hr
Nitrogen Oxides		200.0 lb/hr
Lead		3.1 lb/hr
Fluoride		6.0 lb/hr
Mercury (vaporous and particulate)		0.6 lb/hr
Beryllium	5 grams/24-hour period	0.00046 lb/hr

2. Municipal waste only shall be burned in the facility. Wastewater treatment plant sludges or hazardous wastes shall not be incinerated.

3. Electric output for sale to Tampa Electric Company (TECO) shall not exceed 25 MW.

4. Hours of operation for the facility shall be 24 hours per day, 7 days per week, 52 weeks per year.

5. An operation and maintenance plan shall be submitted with the state operating permit application and be made part of this permit.

6. Compliance testing for all criteria and NESHAPS pollutants shall be conducted in accordance with the methods contained in 40 CFR 60 and 61. A source testing plan shall be submitted to the Department of Environmental Regulation for approval 90 days prior to testing. The Department shall be notified of compliance testing at least 30 days prior to the testing.

7. The applicant shall record and keep on file the daily charging rate of the facility and the hours of operation of the facility and shall report this information quarterly to the permitting authority.

8. The applicant shall install and operate continuous opacity monitoring equipment.

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.

2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.

3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.

4. The permittee shall retain records for all information resulting from monitoring activities and information indicating operating parameters as specified in the specific

conditions of this permit for a minimum of two (2) years from the date of recording.

5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within ten (10) business days of such conditions:

(a) description of noncomplying emission(s).

(b) cause of noncompliance,

(c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,

(d) steps taken by the permittee to reduce and eliminate the noncomplying emission,

and

(e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit

may then be made by the permitting authority to reflect any necessary changes in the permit conditions.

7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.

8. The permittee shall allow representatives of the State environmental control agency or representatives of the Environmental Protection Agency, upon the presentation of credentials:

(a) To be allowed reasonable access to the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;

(b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;

(c) to inspect at reasonable times any monitoring equipment of monitoring methods required in this permit;

(d) to sample at reasonable times any emission of pollutants; and

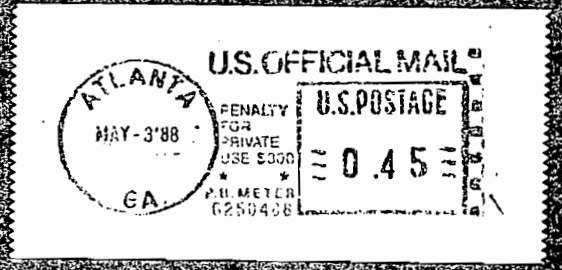
(e) to perform at reasonable times an operation and maintenance inspection of the permitted source.

9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to:

Chief, Air Management Branch
U. S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.



EPA

United States
Environmental Protection
Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

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Mr. Pradeep Raval
Florida Department of
Environmental Regulation
Twin Tiwers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

THROUGH: C. Fancy

THROUGH: B. Thomas

FROM: P. Raval

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

60.14 MODIFICATION CONT'D

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 (c) 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.

(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 Number[1]	*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 Coil
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 Slate[2]
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

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

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

PM
3.22.88
Atlanta. GA

file copy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAR 2 1 1988

RECEIVED
MAR 24 1988
DER - BAQM

4APT-APB

Margaret V. Janes, Planner
Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: McKay Bay Refuse to Energy Project (PSD-FL-086)

Dear Ms. Janes:

This is to acknowledge receipt of the additional information regarding the proposed increase in throughput for the McKay Bay Refuse to Energy Project and to confirm the March 4, 1988, telephone conversation between Pradeep Raval of your staff and Gary Ng of my staff. We have reviewed the additional information and have the following comments:

1) With regard to Attachment 1, the applicant is requesting that "emissions compliance testing be conducted within ±10% of the nominal steam flow rate . . . instead of ±10% of the maximum charging rate." In a telephone conversation between Greg Grotecloss of the City of Tampa and Gary Ng of my staff, Mr. Grotecloss revealed that the nominal flow rate is within 10% of the maximum steam flow rate. This is reasonably representative of the maximum steam flow rate. However, this flow rate may only be used in place of the maximum charging rate if a log of the amount of municipal waste being charged is kept concurrently with the steam flow rate. This is to ensure that the amount of municipal solid waste being burned does not exceed the permitted amount.

2) The question of the CO limit was also mentioned in both conversations. At this point, the source's compliance testing shows an annual CO emission rate of 96 tons per year. Mr. Grotecloss has also indicated that the exiting facility cannot guarantee an annual CO emission rate below the PSD significant level of 100 tons per year and that CO emissions will increase after the modification. Thus, it is apparent that a BACT analysis should have been done for CO and an emission limit should have been established in the original permit. Therefore, the source should proceed with the necessary PSD review procedures for CO and establish a BACT emission limit for that pollutant.

Thank you for the opportunity to provide you with our comments. Please address the above comments before issuing your preliminary determination. If you have any additional information or comments, please contact me or Gary Ng of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division

Copied: Pradeep Raval
Tom Rogus
CHF/BT
Barry Andrews
} 3-28-88

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

TO: McKay Bay Incinerator File AC29-47277, PSD-FL-086

THRU: Bill Thomas BT

FROM: Pradeep Raval PR

DATE: March 3, 1988

SUBJECT: Review of Application for Amendment of Permit Conditions

---

In discussing the above referenced project, where City of Tampa wishes to increase the MSW throughput in their McKay Bay facility, EPA Region IV had the following comments:

1) Gary Ng, the review engineer, agreed that allowable emissions in the original PSD permit could be used in place of actual emissions in determining PSD applicability in accordance with provisions in Chapter 17-2 of the Florida Administrative Code.

2) Wayne Aronson has urged DER take the final action on Mckay Bay review, even though the initial construction permit was issued by EPA. Referring to the delegation of permitting authority, he said, "Now that you have the ball...run with it."

In line with the communication from EPA, the Department will evaluate the request for amendment of permit conditions based on current allowable emissions and take final action on the construction permit. A copy of the amended permit will be sent for EPA's records.

PR/ss

File Copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

February 15, 1988

Mr. Wayne Aronson, Chief
Program Support Section
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Aronson:

RE: McKay Bay Refuse to Energy Project
Amendment of Construction Permit No. AC 29-47277
Federal Permit No.: PSD-FL-086
Operating Permit No.: AO 29-114760

Enclosed is additional information regarding the above referenced permit for the MSW Incinerators which McKay Bay Refuse to Energy Project proposes to install at their existing location in Tampa, Hillsborough County, Florida. If you have any comments, please contact Pradeep Raval or Bill Thomas at the above address or at (904)488-1344.

Sincerely,

M. V. Janes

Margaret V. Janes
Bureau of Air Quality
Management

/mj

Enclosures

File Copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

February 15, 1988

Mr. Miguel Flores, Chief
Permit Review and Technical
Support Branch
National Park Service - Air
Post Office Box 25287
Denver, Colorado 80225

Dear Mr. Flores:

RE: McKay Bay Refuse to Energy Project
Amendment of construction Permit No.: AC 29-47277
Federal Permit No.: PSD-FL-086
State Operating Permit No.: AO 29-114760

Enclosed is additional information regarding the above referenced permit for the MSW Incinerators which MaKay Bay Refuse to Energy Project proposes to install at their existing location in Tampa, Hillsborough County, Florida. If there are any comments or questions, please contact Pradeep Raval or Bill Thomas at the above address or at (904)488-1344.

Sincerely,

M V. Janes

Margaret V. Janes
Planner
Bureau of Air Quality
Management

/bm

Enclosures

ENVIRONMENTAL PROTECTION COMMISSION
OF
HILLSBOROUGH COUNTY
RODNEY COLSON
PAM IORIO
RUBIN E. PADGETT
JAN KAMINIS PLATT
HAVEN POE
JAMES D. SELVEY
PICKENS C. TALLEY II

ROGER P. STEWART
DIRECTOR

1900 - 9TH AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

DER

JUN 11 1987

BAQM

June 5, 1987

Ms. Nancy McCann
Urban Environmental Coordinator
Office of Environmental Coordination
McKay Bay Refuse to Energy Project
City Hall Plaza, 5N
Tampa, FL 33602

Dear Ms. McCann:

The staff of the Bureau of Air Quality Management and the Environmental Protection Commission of Hillsborough County (EPC of HC) has reviewed your May 13, 1987, letter which requests that three amendments be made to permit AO29-114760. This letter shall serve as a response from both Agencies.

In order to make your three amendment proposals federally enforceable, construction permit AC29-47277 must be amended to reflect the new changes. In order to amend the construction permit, both Agencies have determined that you must complete the enclosed application form and that you need to incorporate the three amendment proposals in it. Pursuant to Chapter 1-6 of the rules of the EPC of HC, the county requires a review fee of $340. Please write the check to the order of the Hillsborough Board of County Commissioners.

Furthermore, we request the following additional information:

1. The May 17 letter mentions that the increase in daily tonnage from 1000 to 1209 TPD is mostly comprised of water. Please provide justification for this claim.
2. The same letter mentions that the 1209 TPD charging rate had a corresponding heating value of 4230 BTU/lb during the acceptance test. Please explain how the heating value was derived.
3. Please provide a copy of the following data recorded during the incinerator capacity test.
   a. Tipping Floor Logs
   b. Test Data Sheets - Efficiency Test
   c. Refuse Elevation Data
   d. Volume Addition Calculation

Your cooperation in submitting the above additional information will be appreciated. Should you have any questions, please call me at (813) 272-5530.

Sincerely,

Victor San Agustin

Victor San Agustin
Senior Air Permit Engineer
Environmental Protection Commission
of Hillsborough County

Enclosure

cc: Pradeep Raval, BAQM
Bill Thomas, BAQM
Bill Thomas, SWFDER

VSA/ch

CITY OF TAMPA

Sandra W. Freedman, Mayor OFFICE OF ENVIRONMENTAL COORDINATION

Nancy McCann
Urban Environmental Coordinator

October 23, 1987

Mr. Victor San Agustin
Senior Air Permit Engineer
Environmental Protection Commission
1410 North 21st Street
Tampa, Florida 33605

Dear Mr. San Agustin:

This letter and attachments are the City of Tampa's response to your letter to myself dated June 5, 1987 (copy attached). The attachments should provide all the information requested. A signed and sealed construction permit application is enclosed that incorporates the three requested amendments to permits AC29-47277 and PSD-FL-086. A check for $340 is provided to cover the review fee.

I would like to respond to your request for additional information item by item:

1. The May 13, 1987 letter states that "much of the increased tonnage we are requesting will be water". Our point was that the facility has demonstrated the capability to process 1207 TPD of good quality fuel and meet all emissions limits. Since that time, the plant has been modified such that we believe it can process an additional 100 TPD of excess water. We have no explicit data or moisture content of the refuse for different rainfall conditions. Attached are two graphs and a rainfall chart that indicate during months of high rainfall, the average BTU value declines and the average weight per truck increases. We primarily attribute this to excess moisture. Please note that the "Tons per Truck" graph is for the 1987 fiscal year while the "BTU per month" graph is for fiscal year 1986.

2. Full documentation of how the heating value of the refuse was derived was transmitted with my May 13, 1987 letter to Mr. Clair Fancy. It can be found in the attachment marked "Section 2, Efficiency Test".

3. All requested data is attached. Greig Grotecloss has reconciled the tipping floor log with the scalehouse log so that the tipping floor log now accurately reflects the incoming tonnage for the three day acceptance test.

I trust the enclosures adequately respond to your request for additional information. Please contact 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:23-26

xc: Mike Salmon, City of Tampa
C.S. Lee, SWFDER
Bill Engel, TWMES
Peter Ware, TWMES
Marc Rogoff, HDR
Red McCormack, HDR

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610-9544

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
RICHARD D. GARRITY, PH.D.
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Resource Recovery Incinerator [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [X] Modification

COMPANY NAME: City of Tampa COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Tampa Incinerator Rehabilitation

SOURCE LOCATION: Street 107 N. 34th Street City Tampa

UTM: East 360000 North 3091900

Latitude 27 ° 56 ' 51 "N Longitude 82 ° 25 ' 14 "W

APPLICANT NAME AND TITLE: Nancy McCann, Urban Environmental Coordinator

APPLICANT ADDRESS: 5th Floor North, City Hall Plaza; Tampa, FL 33602

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of McKay Bay Refuse to Energy Project

I certify that the statements made in this application for a Modification of Constructi permit are true, correct and complete to the best of my knowledge and belief. Furthe I agree to maintain and operate the pollution control source and pollution contr facilities in such a manner as to comply with the provision of Chapter 403, Flori Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab and I will promptly notify the department upon sale or legal transfer of the permitt establishment.

*Attach letter of authorization

DER
FEB 5 1988
BAQM

Signed: Nancy McCann

Nancy McCann, Urban Environmental Coordinator
Name and Title (Please Type)

Date: _____ Telephone No. (813)223-8071

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project ha been designed/examined by me and found to be in conformity with modern engineeri principles applicable to the treatment and disposal of pollutants characterized in t permit application. There is reasonable assurance, in my professional judgment, th

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;
if power plant, hrs/yr 8736; if seasonal, describe: _____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? Yes-Chapter 3

   a. If yes, has "offset" been applied? Yes-Chapter 6

   b. If yes, has "Lowest Achievable Emission Rate" been applied? Yes-Chapter 5

   c. If yes, list non-attainment pollutants. Total suspended particulate and VOC

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes-Chapter 4

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. Yes-Chapter 3

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? Yes-Chapter 3

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? N/A

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

All pollutants covered by LAER or BACT.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

_____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

_____

_____

_____

_____

Brief description of operating characteristics of control devices:

Electrostatic precipitators work by electrostatic forces caused by charging the particles and collecting them on oppositely charged walls.

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

Ash to permitted landfill.

Cooling tower and boiler blowdown to sanitary sewer.

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: 150 ft.

b. Diameter: (2 stacks)5.75 ft.

c. Flow Rate: 65,000/unit ACFM

d. Temperature: 450 °F.

e. Velocity: 70 FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Wet scrubbers for SO_2, HF and gaseous Hg control.

b. Operating Principles: Gas intimately contacted with lime slurry.

c. Efficiency:[1] 90% or better; literature

d. Capital Cost: $5,280,000

e. Useful Life: 20 years

f. Operating Cost: $643,000/year

g. Energy:[2] 460 Kwh; literature

h. Maintenance Cost: $528,500/yr

i. Availability of construction materials and process chemicals:
Available with appropriate lead time.

j. Applicability to manufacturing processes:
Had not been used on U.S. solid waste incinerators at time of construction.

k. Ability to construct with control device, install in available space, and operate within proposed levels:
Could be installed and operated in space available.

2.

a. Control Device: Dry scrubber for SO_2, HF and gaseous Hg control.

b. Operating Principles: Lime slurry contacts gas. Particulate control by baghouse or

c. Efficiency:[1] 90-99%; literature

d. Capital Cost: $7,920,000

e. Useful Life: 20 years

f. Operating Cost: $322,000/year

g. Energy:[2] 482 Kwh; literature

h. Maintenance Cost: $264,000/year

i. Availability of construction materials and process chemicals:
Available with appropriate lead time.

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. ~~Company~~ HCEPC Monitored Data

1. 2 no. sites _____ TSP 63/115 (c) SO^{2}* 63 Wind spd/dir

Period of Monitoring 5 / / 80 to 5 / / 81
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

ATTACHMENT 1

The City of Tampa is requesting a special condition for this permit that does not fit into the standard application. We ask that emissions compliance testing be conducted within ±10% of the nominal steam flow rate of 52,100 pounds per hour per unit (instead of ±10% of the maximum charging rate). The maximum charging rate is highly variable for any given day depending on the BTU and moisture content of the refuse. Due to the highly variable qualities of municipal solid waste, it is very difficult to set one maximum charging rate that the plant can achieve every day of the year.

Addendum I

VOLUME REDUCTION METHODOLOGY

The level of the pit before and after the capacity test shall be agreed to by inspection and then measured by dropping a tape measure from the refuse crane to the refuse surface. Volumetric differences and therefore tonnage differences shall be calculated by cut and fill calculations, using the average end area method.

The following procedure shall be used:

1. Measuring Device

   WMI will supply two (2) 100' tapes attached to a 2' long wooden 2"x4".

2. Measuring Technique

   A. At the beginning of the test, a measurement will be taken from a reference point (i.e. top of handrail) on the refuse crane bridge to the top of refuse at each point shown on Addendum I Drawing 1. The data shall be recorded on the Refuse Elevation Data Initial Readings (Addendum I, Drawing 2.)

   B. At the conclusion of the test, measurements will be taken as described in Item 2A above and recorded on Addendum I, Drawing 3; Refuse Elevation Data Sheets Final Readings.

   C. Tonnage reduction calculation.

F.D.E.R. has data. Call if you have questions. RR

PROCEDURE USED TO CORRECT TIPPING FLOOR LOG

All tipping floor log entries shown under truck number 9999 are incorrect. That truck number means the scalehouse computer does not have a tare weight for the truck. I have entered the correct net weight for that truck under the remarks column. The number at the bottom of each page is the corrected total for that page. The following procedure was used to correct the tipping floor log:

1. Identify entries shown for truck number 9999 on the tipping floor log and record the ticket number.

2. Find that ticket number in the scalehouse log under transaction number and get the corresponding ticket number from the scalehouse log.

3. Find the new ticket number in the scalehouse log under transaction number and get the corresponding ticket number from the scalehouse log.

4. Find the newest ticket number in the scalehouse log under transaction number and get the corresponding value for net tons. This is the correct value that has been shown in the remarks column of the tipping floor log.

I have personally derived the totals shown on the tipping floor log and certify they are correct to the best of my knowledge. Please note the three day total must still be corrected for the difference in pit elevation.

Greig Grotecloss

Greig Grotecloss
Planning Research Analyst

F.D.E.R. has logs. Please call if you have questions. PR.

8/12/87
Atlanta, GA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUG 12 1987

DER

AUG 14 1987

BAQM

4APT-APB/eaw

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

Dear Mr. Fancy:

This is to confirm an August 5, 1987, telephone conversation between you and Mr. Wayne J. Aronson of my staff regarding his upcoming inspections of resource recovery facilities in the Tampa and Miami, Florida areas. The following schedule and list of facilities to be visited have been discussed with the appropriate local agency contacts:

August 24, 1987 - Pinellas County Resource Recovery Facility (RRF)
- McKay Bay RRF
- Hillsborough County RRF

August 25, 1987 - City of Lakeland
- Dade County RRF

August 26, 1987 - Palm Beach County RRF

If you have any questions regarding these upcoming inspections, please feel free to contact me or Wayne J. Aronson at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division

cc: Mr. Iwan Choronenko
Hillsborough County Environmental
Protection Commission

Mr. Patrick Wong
Dade County Environmental
Planning Division

Mr. Peter Hessling
Pinellas County Department of
Environmental Management

Mr. E. J. Sacco
Palm Beach County Health Department

Copied: CHF/BT
Barry Andrews } 8/17/87

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

July 10, 1987

Mr. Miguel Flores
Chief
Permit Review and Technical
Support Branch
National Park Service-Air
Post Office Box 25287
Denver, Colorado 80225

Dear Mr. Flores:

RE: PSD Permit Amendment Request
City of Tampa: McKay Bay Refuse-to-Energy Facility
PSD-FL-086

Enclosed for your review and comment is additional information on the above referenced permittee. If you have any comments or questions, please contact Pradeep Raval or Tom Rogers at the above address or at (904)488-1344.

Sincerely,

Margaret V. Janes

Margaret V. Janes
Planner
Bureau of Air Quality
Management

/mj

PM
Jul 87
Atlanta, GA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

DER

JUL 9 1987

BAQM

JUL 6 1987

4APT/APB-aes

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

RE: McKay Bay Refuse-to-Energy Facility

Dear Mr. Fancy:

This is to acknowledge receipt of your May 18, 1987, letter and to confirm the June 25, 1987, telephone conversation between Mr. Pradeep Raval of your staff and Mr. Gary Ng of my staff regarding an amendment on the above source's PSD permit.

We would like to reiterate the comments that were mentioned in the June 25th conversation:

1. Although the source claimed the proposed increase in refuse tonnage is attributed mainly to the moisture content in the refuse, you must ensure that there will be no significant increase of any of the regulated pollutants over the actual emissions or an increase in ambient impacts.

2. Although the source was not originally subject to PSD review for CO, we feel that the addition of a CO emission limitation (expressed in lb/hr) would be appropriate at this time. This is to ensure that potential CO emissions (96 tons per year) would remain below the PSD significant emissions rate of 100 tons per year.

If you have any questions regarding our comments, please contact me or Mr. Gary Ng of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division

Bill Thomas - 3W Dist
Miguel Flano - NPS
Jerry Campbell - HCEPC
Barry Andrews
CHF/BT
Pradeep Raval
Tom Rogers

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

AIR-4

U.S. OFFICIAL MAIL
ATLANTA JUL 87 GA
PENALTY FOR PRIVATE USE $300
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U.S. POSTAGE 0.22

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

File

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

July 9, 1987

Mr. Wayne Aronson
Chief
Program Support Section
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Aronson:

RE: PSD Permit Amendment Request
City of Tampa: McKay Bay Refuse-to-Energy Facility
PSD-FL-086

Enclosed for your review and comment is additional information on the above referenced permittee. If you have any comments or questions, please contact Pradeep Raval or Tom Rogers at the above address or at (904)488-1344.

Sincerely,

Margaret V Janes

Margaret V. Janes
Planner
Bureau of Air Quality
Management

/mj

PM
7/6/87
Columbus, GA

File Copy

United States Department of the Interior
FISH AND WILDLIFE SERVICE
75 SPRING STREET, S.W.
ATLANTA, GEORGIA 30303

July 2, 1987

Mr. R. Bruce Mitchell
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Mitchell:

We have reviewed the information you forwarded to us regarding the city of Tampa's request to modify their PSD permit for the McKay Bay Refuse-to-Energy Facility. The McKay Bay facility is located approximately 90 km south of Chassahowitzka National Wildlife Refuge, a PSD class I area administered by the U.S. Fish and Wildlife Service. We appreciate your prompt notification of permitting activities that have the potential to impact the air quality and air quality related values of Service lands.

To maintain proper steam flow rates when the fuel quality is low, the city of Tampa requests that (1) the maximum charging rate be increased from 1000 tons per day of refuse to 1300 tons per day, and (2) to reflect this higher charging rate, the maximum heat input be increased from $9,000 \times 10^6$ Btu per day to $11,700 \times 10^6$ Btu per day. Although the city of Tampa is proposing to burn more municipal waste than specified in their permit, there would be no increase in permitted emissions. Actual performance testing data indicate that the facility could burn the higher amount of fuel and still be well within the permitted emission rates.

The air quality modeling analysis for the city of Tampa's PSD permit was based on the rates ultimately specified in the permit. The results of this analysis indicate that neither the air quality nor the air quality related values at Chassahowitzka National Wildlife Refuge would be significantly impacted by the proposed emissions. Because the requested permit modifications will not result in any increases in permitted emissions, the proposed modifications should not have any significant effects on

the air quality or air quality related values of the refuge. Therefore, we do not oppose the city of Tampa's requested permit revisions.

If you have any questions regarding this matter, please contact Mr. John Bunyak at (303) 236-8765.

Sincerely yours,

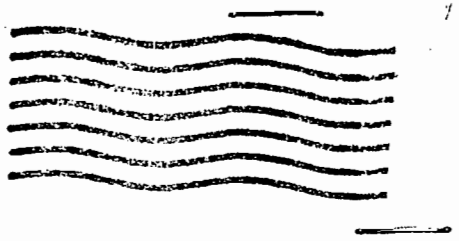
David B. Allen
Acting Regional Director

cc: Barry Andrews
CHF/BT
Pradeep Raval
Tom Pogue
Wayne Aronson - EPA
Jerry Campbell - HCEPC
Bill Thomas - SW

mailed
7/9/87 (m)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
75 Spring Street, SW.
Atlanta, GA 30303

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300



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U.S. DEPARTMENT OF THE INTERIOR
INT-423

Mr. R. Bruce Mitchell
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	Initial / Date
Mr. Miguel Flores	
2. Chief - Permit Review & Technical Support Branch	Initial / Date
3. National Park Service - Air	Initial / Date
4. P.O. Box 25287 Denver, Colorado 80225	Initial / Date

REMARKS:

F Y I.

McKay Bay Refuse-to-Energy

PSD-FL-086

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: C. H. Fancy

R. Bruce Mitchell

DATE 6-26-87

PHONE (904)488-1344

ROGER P. STEWART
DIRECTOR

1300 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

DER

JUN 11 1987

BAQM

nd the Environmental
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amendments be made
a response from both

erally enforceable,
eflect the new changes.
ncies have determined
m and that you need to
ursuant to Chapter 1-6
a review fee of $340.
ough Board of County

formation:
daily tonnage from
Please provide justi-

ging rate had a corres-
acceptance test.
d.
orded during the incin-

erator capacity test.

a. Tipping Floor Logs
b. Test Data Sheets - Efficiency Test
c. Refuse Elevation Data
d. Volume Addition Calculation

PM
6-8-87
Tampa, FL

File Copy

ENVIRONMENTAL PROTECTION COMMISSION
OF
HILLSBOROUGH COUNTY
RODNEY COLSON
PAM IORIO
RUBIN E. PADGETT
JAN KAMINIS PLATT
HAVEN POE
JAMES D. SELVEY
PICKENS C. TALLEY II

ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

DER

JUN 11 1987

BAQM

June 5, 1987

Ms. Nancy McCann
Urban Environmental Coordinator
Office of Environmental Coordination
McKay Bay Refuse to Energy Project
City Hall Plaza, 5N
Tampa, FL 33602

Dear Ms. McCann:

The staff of the Bureau of Air Quality Management and the Environmental Protection Commission of Hillsborough County (EPC of HC) has reviewed your May 13, 1987, letter which requests that three amendments be made to permit AO29-114760. This letter shall serve as a response from both Agencies.

In order to make your three amendment proposals federally enforceable, construction permit AC29-47277 must be amended to reflect the new changes. In order to amend the construction permit, both Agencies have determined that you must complete the enclosed application form and that you need to incorporate the three amendment proposals in it. Pursuant to Chapter 1-6 of the rules of the EPC of HC, the county requires a review fee of $340. Please write the check to the order of the Hillsborough Board of County Commissioners.

Furthermore, we request the following additional information:

1. The May 17 letter mentions that the increase in daily tonnage from 1000 to 1209 TPD is mostly comprised of water. Please provide justification for this claim.
2. The same letter mentions that the 1209 TPD charging rate had a corresponding heating value of 4230 BTU/lb during the acceptance test. Please explain how the heating value was derived.
3. Please provide a copy of the following data recorded during the incinerator capacity test.
   a. Tipping Floor Logs
   b. Test Data Sheets - Efficiency Test
   c. Refuse Elevation Data
   d. Volume Addition Calculation

Your cooperation in submitting the above additional information will be appreciated. Should you have any questions, please call me at (813) 272-5530.

Sincerely,

Victor San Agustin

Victor San Agustin
Senior Air Permit Engineer
Environmental Protection Commission
of Hillsborough County

Enclosure

cc: Pradeep Raval, BAQM 6-11-87 RRR
Bill Thomas, BAQM
Bill Thomas, SWFDER
Gary Ng, Program Support Section, EPA Region IV 6-26-87 RRR
VSA/ch

File Copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

May 18, 1987

Mr. Wayne Aronson
Chief
Program Support Section
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Aronson:

RE: PSD Permit Amendment Request
City of Tampa: McKay Bay Refuse-to-Energy Facility
PSD-FL-086

Enclosed for your review and comment is an admendment request package received from the above referenced permittee. If you have any comments or questions, please contact Pradeep Raval or Larry George at the above address or at (904)488-1344.

Sincerely,

R. Bruce Mitchell
Bureau of Air Quality
Management

/bm

File Copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

May 18, 1987

Mr. Miguel Flores
Chief, Permit Review and Technical
Support Branch
National Park Service-Air
Post Office Box 25287
Denver, Colorado 80225

Dear Mr. Flores:

RE: PSD Permit Amendment Request
City of Tampa: McKay Bay Refuse-to Energy Facility
PSD-FL-086

Enclosed for your review and comment is an amendment request package received from the above referenced permittee. If there are any questions, please call Pradeep Raval or Larry George at (904)488-1344 or write to them at the above address.

Sincerely,

R. Bruce Mitchell
Bureau of Air Quality
Management

/bm

cc: Russ Galipeau, SE Regional Office, NPS
Glen A. Carowan, Jr.,Chassahowitzka-National Wildlife Refuge
US Fish & Wildlife Service

~~Clair~~ Bill, 5/18

5-18-87

File Copy. I have copied: Pradeep, Barry, Larry, and Wayne Aronson - USEPA
Miguel Flores - National Park Service
Galen A. Carowan, Jr. - US Fish & Wildlife Service
Russ Caligeau - NPS, SE Regional Off
Bum

See if Barry took care of this
6-3-87

~~Barry Andrews plans to work with this.~~
6-4-87 inh
Pradeep Raval

From
Office of Environmental Coordination
306 E. Jackson Street
City Hall Plaza, 5N
Tampa, FL 33602

To
Mr. Clair Fancy
Bureau of Air Quality Management
Twin Towers Office Bldg.
2600 Blair Stone Rd.
Tallahassee, Fl 32301-8241

PM
5-14-87
Tampa, FL

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 ±10% of the nominal steam rate of 52,100 pounds per hour (instead of ±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.

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

McKAY BAY REFUSE-TO-ENERGY FACILITY
SUMMARY OF AIR EMISSIONS

POLLUTANT	PERMITTED DISCHARGE	ACTUAL DISCHARGE
Particulate	0.025 gr/dscf @ 12% CO_2 or 27.9 lb/hr	0.00088 gr/dscf @ 12% CO_2 or 8.07 lb/hr
VOC	9.0 lb/hr	2.7 lb/hr
SO_2	170.0 lb/hr	139.9 lb/hr
NO_x	300.0 lb/hr	94.8 lb/hr
Lead	3.1 lb/hr	0.40 lb/hr
Flouride	6.0 lb/hr	2.3 lb/hr
Mercury	0.6 lb/hr	0.36 lb/hr
Beryllium	0.00046 lb/hr	<0.00008 lb/hr
CO	no limits set	21.9 lb/hr (≈32 ppm dry)

The average flue gas parameters for the facility are:

350,000 actual cubic feet per minute
155,000 dry standard cubic feet per minute
545°F temperature
14% moisture content
12% oxygen content
8% CO_2 content

note: Unit 1 NO_x data and all Beryllium data from retesting, the September 1985 acceptance test was not valid for Beryllium or Unit 1 NO_x. All other data taken during acceptance testing.

Section 1

Incineration Capacity Test

From Aceeptance 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 an 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:

LINE	DATE	TIME	DURATION	REASON
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

LINE	TOTAL TIME	TIME ALLOWED
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
TOTAL PIT TONNAGE ADDITION - TONS	(264.04)
TOTAL PROCESS REJECTS - TONS	(1.59)
TOTAL PROCESSED - TONS	3,628.60

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.

VOLUME ADDITION CALCULATION

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

LOCATION	INITIAL ELEVATION A	B	C	FINAL ELEVATION A	B	C	AREA A-B	AREA B-C	TOTAL AREA	VOLUME
E. WALL	50.67	50.25	49.25	42.42	39.17	38.92	169.14	187.34	356.48	
										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
TOTAL BURNED (TONS)	3628.60

Section 2

EFFICIENCY TEST

From Acceptance Test Report

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 (± 5%) kwh per ton of reference composition processible waste as defined in Exhibit 10.2, Section C 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.

The test commenced at 10:28 a.m. on September 17, 1985, while the Incineration Capacity Test was in progress. At that time the residue conveyors were diverted to empty containers and the fly ash silo was emptied in accordance with the Acceptance Test Methodology. Data collection began and was recorded on the appropriate forms for the duration of the eight hour test. The data logger was also operational throughout the test period. At the conclusion of the efficiency test period at 6:28 p.m., the fly ash silo was discharged into an empty container. The bottom ash system was diverted to discharge directly onto the ground. All residue from the test was weighed at the City Scalehouse, prior to transport to landfill.

4. DATA

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

Control Room Data Sheets

T/B Area Data Sheets

Balance of Plant Data Sheets

Consumption Data Sheet

Residue Weight Data Sheet

Fly Ash Weight Data Sheet

Residue Sample Log

Boiler Area Sump Discharge Log

5. CALCULATIONS

Tabulated data and calculations follow:

A. TABLE OF VALUES

SYMBOL	DESCRIPTION	UNIT	VALUE	SOURCE
AAF	Excess air is the actual quantity of air used minus the theorectical air required divided by the theorectical air, and expressed as a percentage	per cent	132.78	
cpA	Mean specific heat of dry air at constant pressure	Btu per lb F	0.24	ASME PTC 4.1 Fig. 3
cpG	Mean specific heat of the flue gas	Btu per lb F	0.25	ASME PTC 4.1 Fig. 7
H	Hydrogen content of the flue gas	percent dry gas	3.70	Contract
hRW	Enthalpy of entering moisture	Btu per lb	50.43	ASME Steam Tables
hRv	Enthalpy of entering vapor	Btu per lb	1096.40	ASME Steam Tables
hs	Enthalpy of steam @ 625.46 psi & 681.61 °F	Btu per lb	1323.95	ASME Steam Tables
hFW	Enthalpy-Feedwater @ 1041.76 psi & 263.82 °F	Btu per lb	234.63	ASME Steam Tables
hGR	Enthalpy of vapor @ 558.76 °F & 1 psig	Btu per lb	1316.14	ASME Steam Tables
Lrc	Heat loss due to radiation and convection	percent	0.05	Contract
mFG	Moisture in flue gas	percent	13.60	Flue gas analysis
N2	Percent nitrogen per volume of dry flue gas. Determined by subtracting the sum of the measured quantities CO2, O2, and CO from 100	percent	79.90	
O2	Percent oxygen per volume of dry flue gas.	percent	12.03	Flue gas analysis
CO2	Percent carbon dioxide per volume of dry flue gas. Determined by flue gas anal.	percent	8.07	Flue gas analysis
PA	Atmospheric pressure	in HG	30.30	
Ps	Pressure of the steam measured at the superheater outlet	psig	615.74	Averaged test data
pf	Pressure of the feedwater @ BFP discharge	psig	1041.76	Averaged test data
tG	Temperature of the flue gas @ econ outlet	F	558.76	Averaged test data

A. TABLE OF VALUES (continued)

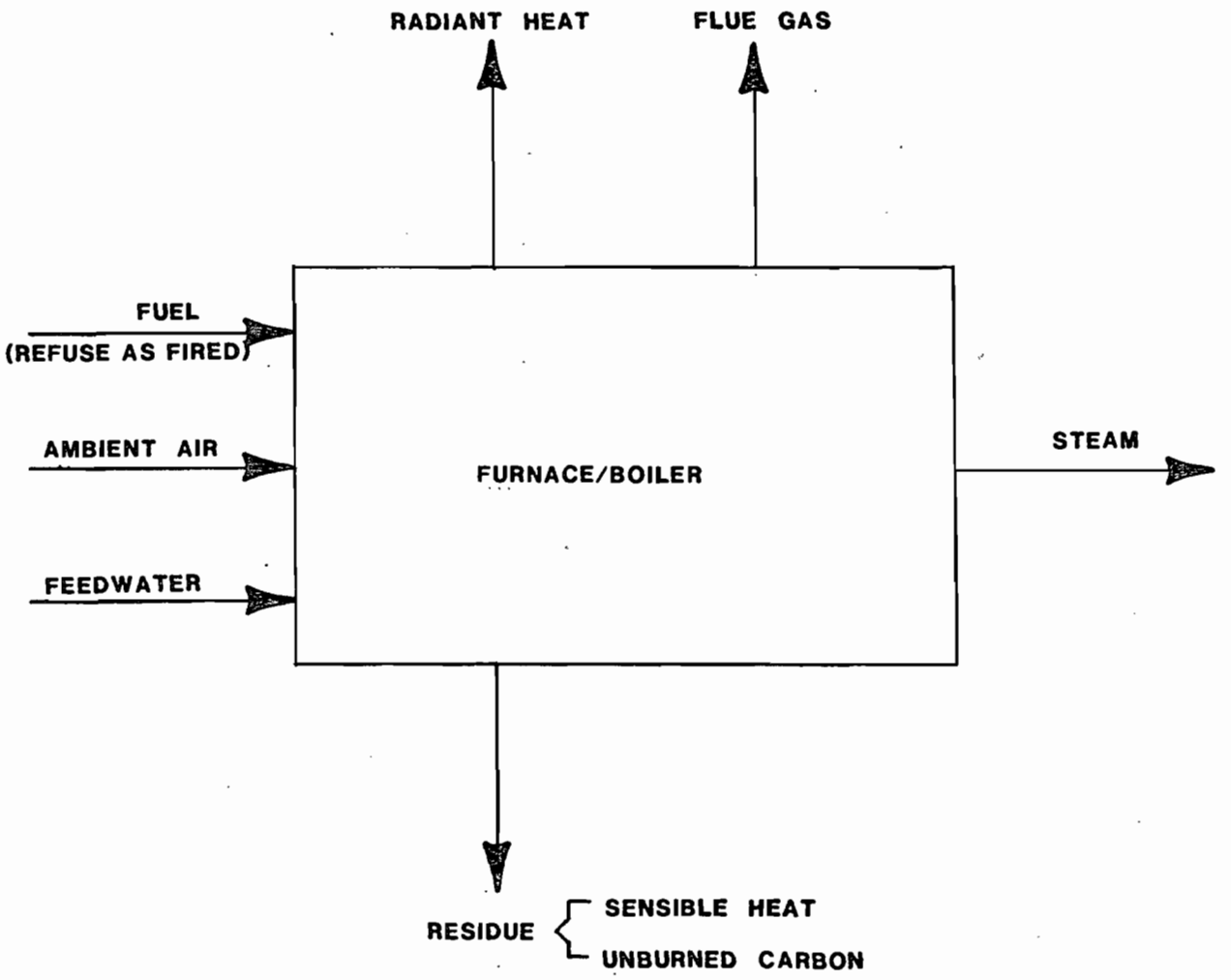
SYMBOL	DESCRIPTION	UNIT	VALUE	SOURCE
ts	Temperature of steam @ superheater outlet	F	655.88	Averaged test data
tw	Temperature of the feedwater	F	263.82	Averaged test data
WA	Pounds of dry air supplied per pound of as-fired" fuel	lb per lb of A.F. fuel	7.35	Calculated
Wfe	Pounds of refuse fired (rate)	lb per hr	97555.5	Calculated
Wse	Pounds of steam per hour flowing	lb per hr	222420.0	Calculated
	Pounds water per pound dry air	lb per lb	0.016	Physchrometric chart
	Drum pressure	psig	664.64	Averaged test data
	Dry bulb temperature	F	82.47	Averaged test data
	Wet bulb temperature	F	74.57	Averaged test data
	Boiler sump discharge temperature	F	96.05	Averaged test data
	Combustion air temperature	F	85.43	Averaged test data
	North bottom ash pit temperature	F	152.52	Averaged test data
	South bottom ash pit temperature	F	205.00	Averaged test data
	Bottom ash pit make-up water temperature	F	97.88	Averaged test data
	Blowdown	lb per hr	1168.00	Averaged test data

note: Turbine Generator Design Data

normal steam flow 208,400 pounds per hour

maximum steam flow 233,000 pounds per hour

COMBUSTION HEAT BALANCE - HEAT LOSS METHOD



McKAY BAY REFUSE TO ENERGY PROJECT

ACCEPTANCE TEST

SEPTEMBER 1985

B. FLUE GAS AND COMBUSTION ANALYSIS
(from Clean Air, Inc. Tests)

	% Vol Dry	% Vol Wet	Mol. Wt. lb/lb mole	R.W. Dry	R.W. Wet	% Wt. Dry	% Wt. Wet	lb./hr
CO_2	8.07	7.0	44.01	355.2	308.1	11.9	10.9	84,881
O_2	12.03	10.4	32.00	385.0	332.8	12.9	11.8	92,014
N_2	79.90	69.0	28.016	2238.5	1922.1	75.2	68.6	536,391
H_2O		13.6	18.016		245.0		8.7	67,969
	100.00			2978.7	2819.0	100.0	100.0	781,255 = lbs./hr. wet gas

C. DRY GAS CALCULATION

Molecular Weight = $.44\ (CO_2) + .32\ (O_2) + .28\ (N_2 + CO)$

$= .44\ (8.07) + .32\ (12.03) + .28\ (79.9)$

$= 29.77$ Mol. Wt.

$\frac{29.77}{359} \times \frac{492}{528} \times 154{,}817 \times 60 = 717{,}770$ lb./hr. Dry Gas

$\frac{717{,}770}{97{,}555.5} = 7.35$ lb. Gas/lb. Fuel

D. EXCESS AIR CALCULATION

$$\% \text{ Excess Air} = \frac{12.03 - 0}{(.264 \times 79.9) - 12.03} \times 100 = \frac{12.03}{9.06} = 132.78\%$$

N_2 in Flue Gas from Fuel = .0058 x 97555.5 = 565.82

N_2 in Flue Gas from Comb. Air = 536391 - 566 = 535,825

Comb. Air Supplied = 535,825 ÷ .7685 = 697,235/lb./hr.

Moisture Supplied/Air = .016 X 697,235 = 11,156 lb./hr.

E. POUNDS PER HOUR MOISTURE

Pounds per hour moisture: Wet Gas - Dry Gas - Moisture Comb. Air =

781,255 - 717,770 - 11,156 = 52,329 lb/hr

PERFORMANCE CALCULATIONS
BASED ON ACTUAL CONDITIONS

	Btu/lb	%
F. HEAT OUTPUT 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. HEAT LOSSES DUE TO -		
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_2O 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. HEAT LOSS DUE TO UNBURNED COMBUSTIBLES:		
= (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

		Btu/lb	%
I.	HEAT LOSS DUE TO RESIDUE SENSIBLE HEAT:		
	= (lb Bottom Ash/hr) X (sp. ht. residue) (T after kiln - T at Quench Pit) ÷ (lb. fuel)		
	= (20,732.5) X (0.25) X (1550.14 - 191) ÷ 97,555.5 =	72.21	0.17
	= (lb Fly Ash/hr) X (sp. ht. residue) T after kiln-T at Quench Pit) ÷ (lb fuel)		
	= (1532.5) X (0.25) X (1550.14-191) ÷ 97,555.5 =	5.34	0.12
		77.55	1.83
J.	SENSIBLE HEAT IN QUENCH VAPOR:		
	= (lb M-U Quench Water) (Enthalpy Vapor @ 558.76 Enthalpy MU Water) ÷ (lb 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.	HEAT CREDITS due to -		
	Dry combustion air sensible heat: (lb 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: (lb 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	0.004
		9.46	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		
O.	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 X 222,420 = 237,885 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 X23.6 = 189,008 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

origonal application for construction permit

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Resource Recovery Incinerator [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [X] Modification

COMPANY NAME: City of Tampa COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Tampa Incinerator Rehabilitation

SOURCE LOCATION: Street 14 Acre site adjacent to McKay Bay City Tampa

UTM: East 360000 North 3091900

Latitude 27 ° 56 ' 51 "N Longitude 82 ° 25 ' 14 "W

APPLICANT NAME AND TITLE: Dale H. Twachtmann, Administrator, Water Resources & Public Work

APPLICANT ADDRESS: 8th Floor - City Hall Plaza, Tampa, Florida 33602

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of McKay Bay Refuse-To-Energy Project

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Dale H. Twachtmann

Dale H. Twachtmann, Administrator, WR&P
Name and Title (Please Type)

Date: 23 July 81 Telephone No. 813-223-8771

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

(Affix Seal)

Signed: R. Lee Torrens

Ralph Lee Torrens
Name (Please Type)

Henningson, Durham & Richardson
Company Name (Please Type)

8404 Indian Hills Drive, Omaha, NE 68114
Mailing Address (Please Type)

Florida Registration No. 21274 Date: 7/23/81 Telephone No. 402-399-1000

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

Renovate existing incinerator, add heat recover for steam production for electricity generation, addition of electrostatic precipitators to control particulate emissions. The facility will operate in full compliance of all existing regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction Early 82 Completion of Construction Early 84

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Pollution Control $4,000,000-$7,000,000

Due to LAER requirements cost is not a factor in the technology choice.

See Chapter 5

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Tampa Incinerator was shut down in Dec 1979 under consent decree of EPA.

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes __X__ No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr 8760 ; if seasonal, describe: with approximately 20% down time for maintenance

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? yes - Chapter 3
   a. If yes, has "offset" been applied? yes - Chapter 6
   b. If yes, has "Lowest Achievable Emission Rate" been applied? yes - Chapter 5
   c. If yes, list non-attainment pollutants.
      total suspended particulate and VOC
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. yes - Chapter 4
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII. yes - Chapter 3
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? yes
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? yes - Chapter 3

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard

[4]Emission, if source operated without control (See Section V, Item 3)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

_____

F. If applicable, indicate the percent of fuel used for space heating. Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

_____

_____

_____

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated	5.7% $.473 \times 10^4$	29.5% 2.45×10^4	38.9% 3.23×10^4	9.6% $.797 \times 10^4$	None	None	16.3% 1.35×10^4

Description of Waste Municipal refuse collected within City of Tampa.

Total Weight Incinerated (lbs/hr) 8.3×10^4 Design Capacity (lbs/hr) 8.3×10^4

Approximate Number of Hours of Operation per day 24 days/week 7

Manufacturer Unknown - to be determined.

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber	N/A	3.56×10^8	solid waste	3.75×10^8	1600 - 1800° F
Secondary Chamber					

Stack Height: 150 ft. Stack Diameter 4 flues 4.43 ft Stack Temp. 450°F

Gas Flow Rate: 65,000 ACFM .03 gr/ DSCFM* Velocity 70 FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [X] Cyclone [ ] Wet Scrubber [ ] Afterburner [X] Other (specify) ESP

Brief description of operating characteristics of control devices: Electrostatic Precipitators work by electrostatic forces caused by charging the particles and collecting them on oppositely charged walls

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

Ash to permitted landfill

Cooling tower & boiler blowdown to sanitary sewer

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.,) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY *

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[X] Yes [ ] No

Contaminant	Rate or Concentration
Particulate	0.08 gr/dscf at 12% CO_2

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology? None

Contaminant	Rate or Concentration
all emission but particulate	at potential to emit rate = without controls
	See Chapters 3 and 4

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

*See Chapter 6

10. Stack Parameters

a. Height: 150 ft. b. Diameter: 4 x 4.43 ft ft.

c. Flow Rate: 65,000/unit ACFM d. Temperature: 450 °F

e. Velocity: 70 FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: wet scrubbers - for SO_2, HF, and gaseous Hg control

b. Operating Principles: gas intimately contacted with lime slurry. SO_2 and HF react and are removed. Hg condenses and is removed.

c. Efficiency*: 90% or better; literature d. Capital Cost: $5,280,000

e. Useful Life: 20 year f. Operating Cost: $643,000/yr

g. Energy*: 460 Kwh; literature h. Maintenance Cost: $528,500/yr

i. Availability of construction materials and process chemicals:
Available with appropriate lead time

j. Applicability to manufacturing processes: Has not been used on U.S. solid waste incineration

k. Ability to construct with control device, install in available space, and operate within proposed levels:
Could be installed and operated on space available. Has not been done on U.S. solid waste incinerator.

2.

a. Control Device: Dry scrubber - SO_2, HF, and gaseous Hg control

b. Operating Principles: lime slurry contacts gas and is dried by flue gas. Particulate control by baghouse on ESP

c. Efficiency*: 90-99%; literature d. Capital Cost: $7,920,000

e. Useful Life: projected for 20 yr f. Operating Cost: $ 322,000/yr

g. Energy**: 482 kwh; literature h. Maintenance Costs: $264,000/yr

i. Availability of construction materials and process chemicals:
Available with appropriate lead time

j. Applicability to manufacturing processes: has not been used on any combustion source in U.S. First unit to start up soon on coal-fired boiler.

k. Ability to construct with control device, install in available space, and operate within proposed levels:
Room to construct. Yet to be proven

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Low sulfur fuel - SO_2 control

b. Operating Principles: Lower sulfur content in fuel, lower SO_2 emission

c. Efficiency*: - d. Capital Cost: -

e. Life: - f. Operating Cost: -

g. Energy: 0 h. Maintenance Cost: -

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device: Ammonia injection, wet scrubbers and catalytic reduction for

b. Operating Principles: NO_x control

A laboratory control device - Described in Chapter 4

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

Not proven on any combustion source, not recommended

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: no additional collection device

2. Efficiency*: 0

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes: This BACT recommendation used on all solid waste-fired boilers in U.S.

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

See Chapters 4 and 5.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. HCEPC Monitored Data

1. 2 no sites ____ TSP 63/115 (C) SO^2* 63 Wind spd/dir

Period of monitoring 5 / / 80 (month / day / year) to 5 / / 81 (month / day / year)

Other data recorded ____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 (month / day / year) to 12 / 31 / 74 (month / day / year)

2. Surface data obtained from (location) Tampa International Airport

3. Upper air (mixing height) data obtained from (location) Tampa International Airport

4. Stability wind rose (STAR) data obtained from (location) ____

C. Computer Models Used

1. CRSTER Modified? If yes, attach description.

2. ____ Modified? If yes, attach description.

3. ____ Modified? If yes, attach description.

4. ____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	46 grams/sec
SO^2	20.8 grams/sec

E. Emission Data Used in Modeling

in Modeling Section

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review. See Chapter 3

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

See Other Impact Sections

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

From Appendix F of origonal 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

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-1 - HILLSBOROUGH COUNTY
1980 SOLID WASTE DATA BY MONTH

	Northwest Landfill		Hillsborough Heights	
	Estimated Cu. Yards	Est. Tons @ 350 lb/c.y.	Tons	Total Tons
Jan.	53,206	9,311	28,896	38,207
Feb.	52,827	9,244	10,791 (1)	30,035
Mar.	58,050	10,159	33,634	43,793
Apr.	56,871	9,952	37,557	47,509
May	56,418	9,874	36,916	46,790
June	57,818	10,119	37,162	47,281
July	60,440	10,577	39,402	49,979
Aug.	61,150	10,701	38,514	49,215
Sept.	60,501	10,588	37,953	48,541
Oct.	83,391	14,593	33,614	48,207
Nov.	55,002	9,625	33,472	43,097
Dec.	60,859	10,650	36,097	46,747
Total	716,533	125,392	414,008	539,400

(1) Waste Management, Inc. (WMI) assumed operational control of the landfill in 1980. Scales were installed on February 11, and only a partial month of scale data is available.

Table A-2 shows the total waste quantities going into each landfill for the years 1978 and 1979.

TABLE A-2 - TOTAL WASTE QUANTITIES FOR 1978 AND 1979

	1978 Cubic Yards	Tons	1979 Cubic Yards	Tons
Northwest Landfill	755,085	132,140	838,538	146,744
Taylor Road	1,026,286	179,600	912,434	159,675
Tampa Incinerator	---	180,000	---	188,738
Plant City	---	10,514	---	8,370 (1)
Ruskin	55,844 (2)	9,773	Closed	Closed
Total	1,837,215	512,027	1,750,972	503,527

(1) The Plant City Landfill closed October 1, 1979 and the waste was diverted to the Taylor Road Landfill.

(2) The Ruskin Landfill closed August 1, 1978 and the waste was diverted to the Taylor Road Landfill.

Special Note: Waste quantities contain some white goods, demolition waste and tires.

Another minor problem with the 1980 waste quantities is that not all incoming vehicles using the Hillsborough Heights Landfill crossed the scale. For example, some cars, some tire loads, and some cash customers bypassed the scales. Records indicate that an average of 3100 cars and pickup trucks bypassed the scales each month in 1980. The peak number of cars and pickup trucks that passed the scales was 3428 vehicles in August 1980. The least amount of cars and pickup trucks bypassing the scales occurred during November when 2765 vehicles were recorded. The quantities hauled by these types of vehicles was determined to be insignificant. But, beginning in 1981, all incoming wastes will be weighted at Hillsborough Heights. This operating requirement will improve the data for future solid waste management planning activities in Hillsborough County.

3. Population Projections

Table A-3 lists the estimated population projections for Hillsborough County. These projections were obtained from the Hillsborough County City-County Planning Commission publication entitled, "Population and Housing Estimates, April 1, 1970 - April 1, 1980."

TABLE A-3 - POPULATION PROJECTIONS FOR HILLSBOROUGH COUNTY

Year	Population Projection
1980	630,698
1985	757,300
1990	848,500
1995	939,300
2000	1,030,000

4. Unit Waste Generation Factor

The unit waste generation factor is simply a per capita waste generation rate. The factor is calculated by dividing the total tonnage of waste disposed by the contributing population. Using the data presented in Table 4 and a countywide population of 630,698, the County's unit waste generation factor for 1980 was computed to be 4.7 pounds per capita per day. The 1979 data indicated a 4.7 pounds per capita per day was computed. The 1978 data equated to 4.8 pounds per capita per day rate.

In previous analyses, a unit waste generation rate of 4.3 pounds per capita per day was determined. This rate is approximately 8.5% less than the rate computed by HDR and this differential is small when determining unit waste generation rates. To be conservative, the 4.3 pounds per capita per day rate will be used in projecting waste quantities delivered to resource recovery facilities.

From our perspective, the unit factor of 4.3 pounds per capita per day is a reasonable estimate when compared to unit waste generation factors found in other HDR projects such as Pinellas County, Florida; DeKalb County, Georgia; Fort Worth, Texas; and Phoenix, Arizona. Furthermore, it is assumed that the unit waste factors will remain constant in the future. This assumption provides a reasonable compromise between past predictions of rising per capita waste generation rates and some recent indication of the trend toward slight decreases in the per capita waste generation rates.

Table A-4 lists the solid waste tonnage projections for Hillsborough County. These projections are based on the population projections listed in Table 3 and a constant unit waste generation rate of both 4.7 and 4.3 pounds per capita per day.

TABLE A-4 - SOLID WASTE PROJECTIONS FOR HILLSBOROUGH COUNTY

Year	Waste Quantity (Tons) 4.7 lb/cap/day	Resource Recovery Quantity 4.3 lb/cap/day
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 II 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.

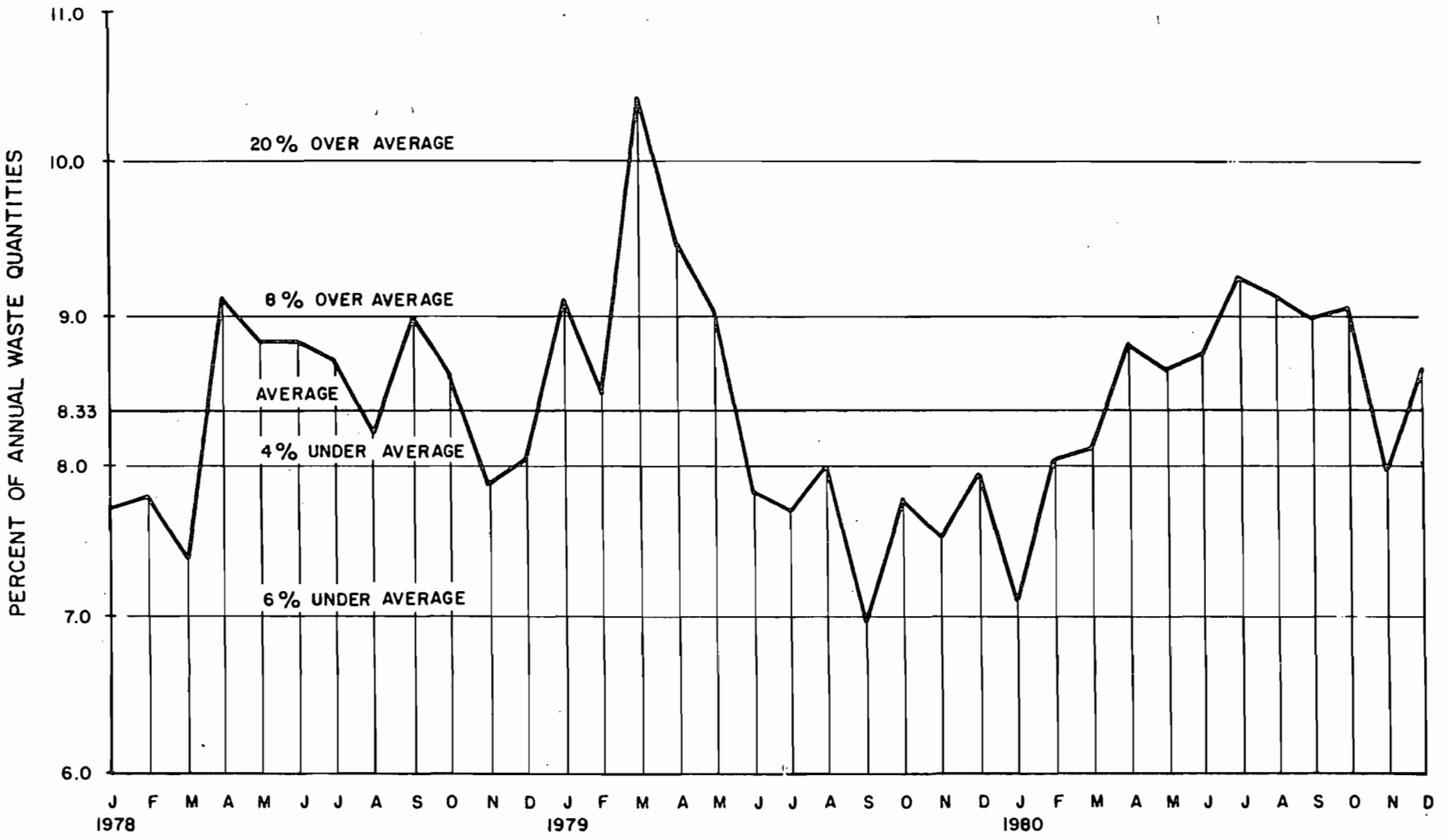


FIGURE A-1

SEASONAL VARIATIONS IN SOLID WASTE QUANTITIES
1978 - 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.

WASTE COMPOSITIONAL ANALYSES

SOLID WASTE COMPONENT	HDR STUDIES																					ALTERNATE SOURCE			
	IOWA		MINNESOTA			CALIFORNIA				MONTANA				MICHIGAN	ARIZONA		GEORGIA		FLORIDA	ILLINOIS					
	DUBUQUE (RES)	DUBUQUE (COMM)	ST CLOUD (RES)	ST. CLOUD (COMM)	OLMSTEAD CO. (RES-COMM)	COLTON (RES)	COLTON (COMM)	SAN DIEGO (RES)	SAN DIEGO (COMM)	MISSOULA	BUTTE	BILLINGS	GREAT FALLS	MARQUETTE (RES-COMM)	PHOENIX (RES)	PHOENIX (COMM)	DEKALB (RES)	DEKALB (COMM)	ST PETERSBURG (RES)	SPRINGFIELD (RES)	SPRINGFIELD (COMM)	SPRINGFIELD (RES-COMM)	WISCONSIN REGION I (RES)	WISCONSIN REGION I (COMM)	NCRR (RES-COMM)	EPA 4TH REPT
PAPER	37.0	42.2	37.0	36.1	33.4	26.9	35.4	38.6	44.1	25.0	24.3	24.9	26.9	46.6	43.7	50.8	37.3	58.2	31.4	27.6	21.7	25.9	25.4	27.4	42.7	33.0
CARDBOARD	3.5	11.0	14.0	22.6	12.8	6.2	20.4	6.8	22.8	10.3	7.0	10.1	8.2							4.2	22.7	9.4	10.2	36.1		
PLASTIC	5.5	7.8	4.4	3.7	5.6	2.8	4.5	3.6	7.5	4.3	6.1	6.1	4.2	7.0	4.1	5.3	3.5	4.5	1.3	5.3	5.1	5.3	3.2	3.3	1.7	3.8
WOOD	0.6	1.0	2.3	1.6	2.0	2.2	4.5	1.4	3.9	2.2	0.1	1.0	1.5	0.8	1.3	2.3	1.3	2.5	1.9	1.7	3.9	2.3	5.3	10.0	2.5	3.8
FOOD WASTE	10.6	7.4	17.5	11.7	14.6	3.4	2.6	2.8	5.5	12.9	21.9	20.5	13.6	13.8	12.2	12.5	3.9	2.7	0.8	15.5	18.6	16.4	17.2	11.0	14.6	14.9
YARD WASTE	25.1	7.2	0.6	0	9.1	40.8	13.6	33.7	2.3	29.6	14.3	12.2	28.0	10.0	17.2	6.9	26.6	0.5	46.7	21.0	2.3	15.6	24.1	–	12.5	16.3
TEXTILES	2.5	1.7	3.6	4.4	3.2	2.5	6.3	2.3	2.6	3.2	3.9	6.0	2.7	3.2	3.8	2.5	3.2	3.3	2.9	3.9	1.5	3.2	2.1	0.9	2.4	1.7
RUBBER (LEATHER)	0.2	0	1.0	1.6		0.9	1.3	1.1	0.7								0.7	0.6	0	0.4	0.1	0.3			1.8	2.6
RESIDUE			2.6		1.7										5.7	6.5	13.2	10.7		4.2	1.5	3.3	0.3	3.6		
TOTAL PERCENT COMBUSTIBLE	84.6	78.3	82.7	85.0	80.7	85.7	88.6	90.3	89.4	87.5	77.6	80.8	85.1	81.4	88.0	86.8	89.7	83.0	85.0	83.8	77.4	81.9	87.8	92.3	78.2	78.0
FERROUS	8.8	13.6	8.0	8.8	9.5	3.5	5.6	4.5	5.2	6.2	9.0	9.0	6.7	8.1	4.9	5.6	5.5	10.7	5.4	7.1	12.4	8.6	6.4	5.4	8.2	9.8
ALUMINUM	1.1	1.1	0.5	0.3	0.8	0.6	0.6	1.0	0.8	1.4	2.5	1.8	1.7	1.5	0.9	0.5	1.0	1.0	1.0	0.7	0.6	0.7	1.1	0.1	0.9	
GLASS	5.4	8.7	8.8	5.9	9.0	5.5	2.9	4.0	4.3	4.9	10.9	8.4	6.5	8.7	6.2	7.1	3.8	5.3	5.7	5.8	8.3	6.5	4.7	2.0	10.3	10.5
RESIDUE	0.1	0.5				2.7	2.3	0.2	0.5					0.5					2.9	2.8	1.3	2.3		0.2	2.4	1.6
TOTAL PERCENT NON COMBUSTIBLE	15.4	21.7	17.3	15.0	19.3	14.3	11.4	9.7	10.6	12.5	22.4	19.2	14.9	18.6	12.0	13.2	10.3	17.0	15.0	18.2	22.6	18.1	12.2	7.7	21.6	21.9
BTU/lb (AS RECEIVED)	3653	4796	3793	4155		4878.00		6456.00		AVG: 5038					5000		4810	5227		54700	49729	53308				
BTU/lb (DRY)	7010	8173								7746	7402	7739	7278							76803	79536	77568				
BTU/lb (AVERAGE)	3600	5300	4000																			5331				
% MOISTURE	41.1	36.6	39.4	33.6		28.0		21.9	20.9	37.8	26.6	41.3	34.9		29.1	32.5	37.1	32.1		28.6	37.5	34.1				
% RESIDUE	15.1	8.7	14.1	18.9						13.3	8.7	11.3	11.9				9.7			12.2	10.3	11.6				
CARBON	29.1	40.6	23.9	29.8						43.7	45.7	43.0	41.5							42.8	44.3	43.2				
HYDROGEN	2.3	2.2	5.1	3.3						6.2	6.6	6.2	5.8							5.2	5.1	5.2				
OXYGEN	11.6	11.2	18.5	18.7						35.2	39.1	37.5	39.6							39.6	39.4	39.6				
NITROGEN	0.52	0.37	0.64	0.56						0.88	1.01	1.07	0.88							0.6	0.6	0.6				
CHLORINE	0.17	0.15	0.25	1.47						0.60	0.49	0.75	0.45				0.04			0.09	0.06	0.08				
SULFUR	0.02	0.02	0.12	0.53						0.12	0.11	0.31	0.23				0.09			0.08	0.18	0.11				

This table shows the high variability of % moisture and heating value found in MSW

TABLE 4

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

	High Heat Value, Btu per Pound				
Category	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.

From Chapter 3 of origonal application submitted July 1981

AIR QUALITY ANALYSIS

The purpose of air quality analysis is to determine the effects this Project will have on the surrounding area and the attainment status of that area. This is done first determining a good estimate of the emissions from the Project, then modeling the emissions from this facility and finally adding the modeled emissions to the existing background concentration. The area of air quality analysis is less than a precise science and assumptions must be made. These assumptions include the use of air quality models. A fundamental assumption used in the analysis is that the facility is operating at full load, all day, everyday. This will lead to a more conservative analysis than will actually exist.

Facility Emissions and Monitoring

The emissions information for Facility 1 was obtained from Waste Management, Inc. (WMI), the current Volund technology licensee. The data represents the highest value obtained from stack tests done worldwide (see Appendix I). The expected emissions are shown in Table 3-1. The Project's emissions are compared to the PSD significance levels in Table 3-2.

Table 3-1
Emissions Expected from Project

	Facility 1		Facility 2		TOTAL
	gm/s	TPY	gm/s	TPY	TPY
Particulate (uncontrolled)	575	19970	400	13890	27350
Particulate (controlled)	4.6	160	3.2	109	269
Sulfur Dioxide	20.8	722	12.1	420	1142
Nitrogen Oxides	26.0	903	9.5	330	1233
Carbon Monoxide	1.68	58	5.8	200	258
Hydrocarbons	0.92	32	0.92	32	64
Lead	0.47	16.3	0.47	16.3	32.6
Mercury (vaporous)	0.05	1.8	0.05	1.8	3.6
Mercury (particulate)	2.3×10^{-3}	0.08	2.3×10^{-3}	0.08	0.16
Beryllium	4.0×10^{-5}	1.4×10^{-3}	4.0×10^{-5}	1.4×10^{-3}	2.8×10^{-3}
Flouride	0.53	18.4	.53	18.4	32.6
Hydrogen Chloride	23.7	823	23.7	823	1646

please note our actual stack test data shows lesser emissions at 1200TPD than origonally estimated for facility 1, the total for both facilities was used for air quality analysis

please note that TPY values are for 2 facilities while only 1 facility was constructed at McKay Bay

Table 3-2
Project Emissions Versus PSD Significance Levels

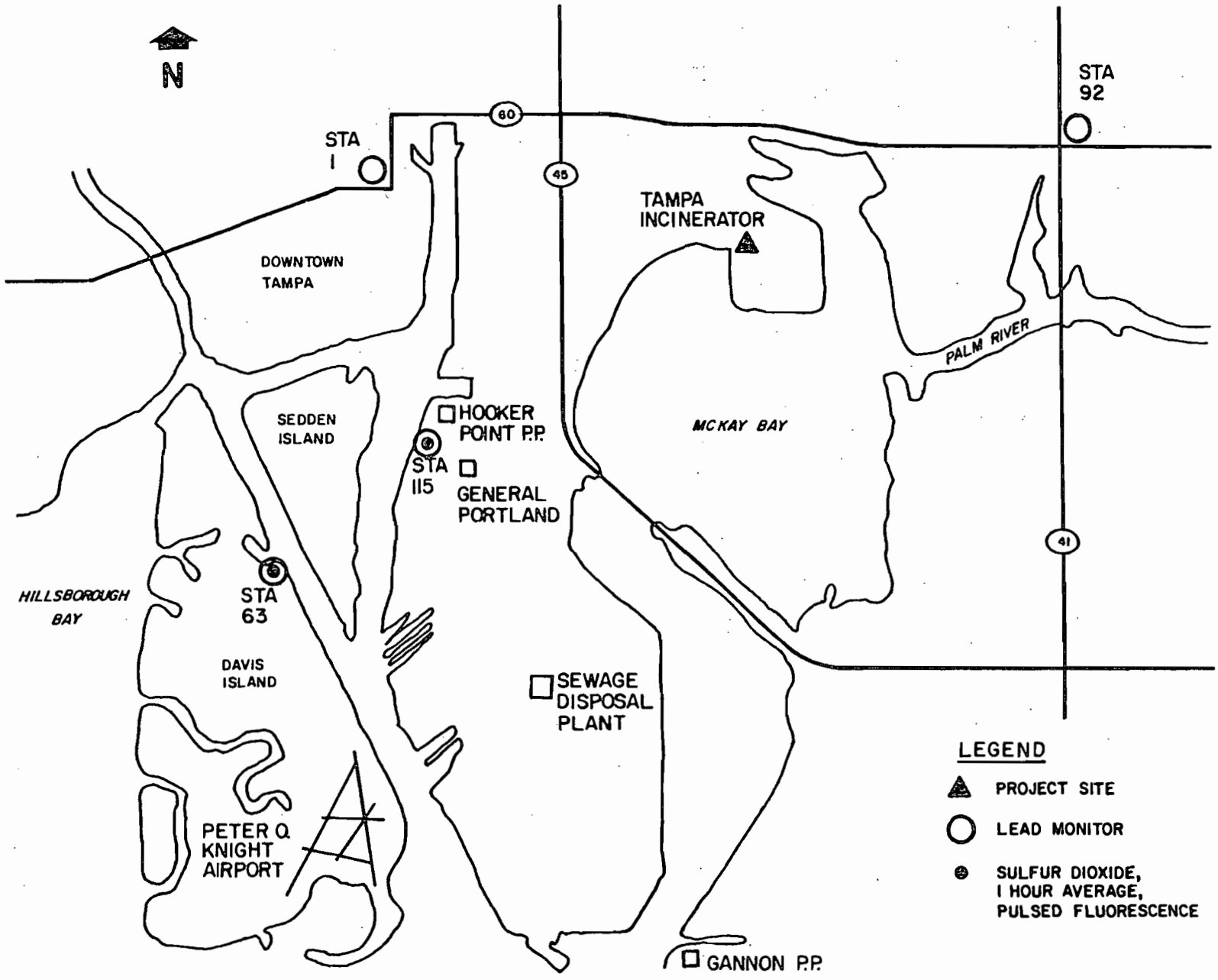
	TPY	Significance Level (TPY)	De minimus Impact Period (ug/m^3)	Worst Modeled Impact
Particulate (controlled)	269	25	10/24 hr.	5.8
Sulfur Dioxide	1142	40	13/24 hr.	24.8
Nitrogen Dioxide	1233	40	14/annual	2.3
Carbon Monoxide	258	100	575/8 hr.	11/3 hr.
Hydrocarbon	64	40	NV*	
Lead	32.6	0.6	0.1/24 hr.	0.7
Mercury (vaporous)	3.6	0.1	0.25/24 hr.	0.08
Mercury (particulate)	0.16			
Beryllium	$2.8x10^{-3}$	$4x10^{-4}$	$5x10^{-4}$/24 hr.	$6x10^{-5}$
Flourides	32.6	0.6	0.25/24 hr.	0.7

Worst 24-hour day - Day 175, 1972

*NV = No Value

The data in Table 3-2 indicate that the McKay Bay Refuse-to-Energy Project (Project) will be a major source for sulfur dioxide, carbon monoxide, nitrogen oxides, and a significant source for lead, mercury, hydrocarbons, beryllium and flouride. Based on the modeled impacts, monitoring data will be required for sulfur dioxide, lead and flourides.

To fulfill the monitoring requirements for sulfur dioxide and lead Hillsborough County Environmental Protection Commission (HCEPC) monitors have been used. Figure 3-1 shows the monitor location used in the analysis. The monitors are within the area of maximum impact. These monitors adequately reflect the air quality in the area except when the wind is from the southwestern quadrant. With southwesterly wind the effect of TECO's Gannon and Hooker's Point Powerplants and General Portland Cement Plant will be missed. To account for their effect these plants were modeled for specific days which coincided with the southwesterly quadrant maximum days and the impacts added to the Project's impact and the ambent concentrations.



MONITORING STATIONS

MCKAY BAY
REFUSE-TO-ENERGY PROJECT

FIGURE 3-1

The preamble to the August 7, 1980 PSD Rules states that, "For the noncriteria and hazardous pollutants, modeling, not monitoring, will be the mechanism used to perform most detailed air quality analyses. However, there may be circumstances where monitoring may be the only plan available to perform an adequate analysis ...", FR 52724, August 7, 1980 (in Appendix J). The flouride impact (in Table 3-2) is significant by the PSD rules, but negligible when compared to the Threshold Limiting Value (TLV) of 2 mg/m^3. Negotiations with the Florida DER have concluded that monitoring will not be required for flourides.

For acceptance testing at least EPA method 5 will be used. Any other emission test requested by the DER or EPA will also be performed.

Modeling

The CRSTER model was used to determine the effect of the sulfur dioxide emissions. These values were modified to develop modeled effects of the other pollutants. The meteorological input data was suppled by both the Florida Department of Environmental Regulation and the National Climatic Center (NCC). To reformat the NCC data to a form acceptable to the CRSTER, the preproscessor program RAMMET was used.

The modeled situation was six stacks colocated at Facility 1. The six stacks represent the four flues from Facility 1 and two flues from Facility 2. The parameters used are shown in Table 3-3. The ring distances were developed by the procedure outlined in the "Proposed Guideline to Air Pollution Models".

Table 3-3

Stack Parameters Modeled for Sulfur Dioxide

Stack	Emission Rate (gm/s)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/sec)	Exit Temp. (^{o}K)	Volumetric Flow Rate (m^3/s)
Facility 1						
1	5.2	45.72	1.35	21.3	500	30.49
2	5.2	45.72	1.35	21.3	500	30.49
3	5.2	45.72	1.35	21.3	500	30.49
4	5.2	45.72	1.35	21.3	500	30.49
Facility 2						
1	10.4	50.00	1.84	18.3	477	48.66
2	10.4	50.00	1.84	18.3	477	48.66

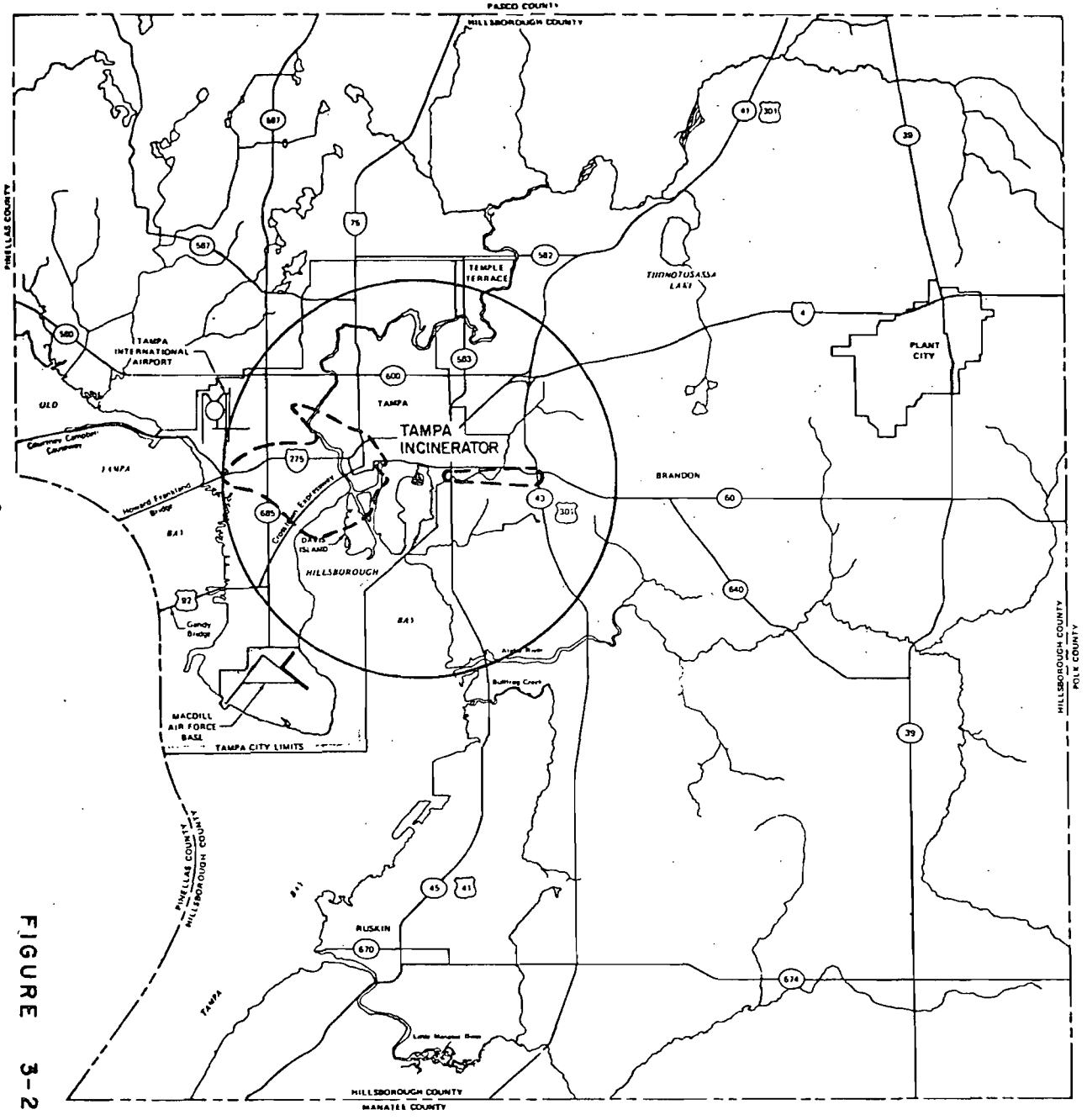
Ring Distances (km)= 0.5, 1.0, 1.2, 1.7, 2.2, 2.9. 3.8, 5.0, 6.6, 9.0

Impact Area

Based on the CRSTER model evaluation of 1970-74 the worst annual impact occurs in 1970. The impact area is shown in Figure 3-2 by a 10.2 km radius circle. The actual area of the 1 ug/m^3 impact is also shown on Figure 3-2.

Emission Inventories

The only facilities specifically inventoried were TECO's Gannon and Hooker Point Power plants, and General Portland Cement Plant. Additional data was obtained from the CONSRV PSD application recently submitted to DER. The TECO emissions were updated by conversations with TECO personnel. Other inventories were obtained from local agencies and are shown in Appendix A and B.



LEGEND

- - - ACTUAL IMPACT AREA
$1 \mu g/M^3$

——— PSD IMPACT AREA

N

SCALE IN MILES
0 1 2 3 4

SULFUR DIOXIDE
SIGNIFICANT IMPACT AREA

MCKAY BAY REFUSE-TO-ENERGY PROJECT

FIGURE 3-2

Project Impacts

Sulfur Dioxide Analysis

Hillsborough County is presently an attainment area for sulfur dioxide. All of the monitoring data presented was developed by the Hillsborough County Environmental Protection Commission (HCEPC) and is presented in Appendix C. The data is summarized annually in the HCEPC Environmental Quality series. Table 3-3 presents a summary of the sulfur dioxide monitoring data for 1978 and 1979.

Table 3-4
Sulfur Dioxide
(micrograms/cubic meter)
1-hr Averages from Continuous Analysis

1978

Station	# of Observations	Minimum Value	Arithmetic Mean	Geometric Mean	Maximum Value
63	7803	2.6	25.7	14.3	584
115	4158	2.6	22.2	10.3	342

1979

Station	# of Observations	Minimum Value	Arithmetic Mean	Geometric Mean	Maximum Value
63	7066	2.6	19.6	10.8	540
115	6466	2.6	25.6	12.3	525

The modeled impacts of the sulfur dioxide emissions are shown in Tables 3-5, 3-6 and 3-7. These values represent the highest values for each of the eight compass direction over the five years of modeling. Included in Tables 3-6 and 3-7 are some of the meteorological parameters associated with the modeled day and the day from which the monitored data was chosen. Every effort was taken to find the closest calendar day and similar wind characteristics so that seasonal variations would be

minimized. As a practical matter the high and 2nd high seldom differed by more than 3%.

Table 3-5
Sulfur Dioxide
Maximum Modeled Annual Impacts
(micrograms/cubic meter)

Direction	Concentration	Distance
N	0.7	1.7
NE	1.0	1.2
E	2.2	1.2
SE	0.8	2.9
S	0.7	2.9
SW	1.2	2.2
W	1.9	2.2
NW	1.2	1.7

The highest three hour impact occurs southwest of the Project. In this case the Project, TECO's Hooker Pt. Powerplant and General Portland Cement Plant are upwind of the Davis Island monitor, Station 63.

If the modeled impact from the Project is added to the highest monitored three hour value, a highest 3 hr. ambient concentration of 178 ug/m^3 occurs. This is significantly below the 3 hr. NAAQS of 1300 ug/m^3. The Project is modeled to provide 55 ug/m^3 of this amount. The highest three hour impact from the Project alone was modeled to be 77 ug/m^3 at 1.2 km east of the Project.

The highest ground level concentration is computed by adding the highest 24-hour southwest impact to the monitored data indicates a worst 24-hour average of 72 ug/m^3. The Projects highest twenty-four hour impact is predicted to be 24 ug/m^3 2.2 km east of the Project.

Table 3-6
24 Hour Comparison
Sulfur Dioxide Concentration
(micrograms/cubic meter)

Modeled Data				Meteorology Data			Monitored Data				
				Wind			Concentration			Wind	
Direction	Worst Conc.	Day	Yr.	Dir.	Spd. (m/s)	Stability	Sta. 63	Sta. 115	Date	Dir.	Spd. (m/s)
N 0, 360	12	175 6/25	74	S	7	4	16	32	7/2/80	SSW-SSE	3.1
NE 40, 50	12	158 6/7	74	S-SW	4	2-7	16	26	4/4/81	SE-SW	5
E 90	24	175 6/25	72	W	6	4-5	5.3	3.2	6/26/80	W	4.2
SE 130, 140	12	90 2/10	74	SE-NE	4	2-7	8	2.6	3/5/81	NNW	6
S 180	15	320 11/15	72	N-NW	5.5	4-6	37	5.3	11/2/80	N-ENE	ND*
SW 220, 230	22	270 9/1	71	NE	5	4-6	50	45	9/25/81	ENE	3.5
W 270	21	306 11/5	72	E	3.5	4-6	39	29	11/23/80	E	ND
NW 310, 320	16	136 5/15	74	ESE	5	3-6	18	ND	5/4/81	SE	2.7

*ND = No Data

Table 3-7
3 Hour Comparisons
Sulfur Dioxide Concentrations
(micrograms/cubic meter)

Modeled Data					Meteorology Data			Monitored Data					
	Worst				Wind			Concentration					
Direction	Conc. (ug/m^3)	Period	Day	Yr.	Dir.	Spd. (m/s)	Stability	Sta. 63	Sta. 115	Period	Date	Dir.	Spd. (m/s)
N 0, 360	51	4	33 2/3	74	S	4.3	3-7	21	26	5	3/15/81	S	4.5
NE 40, 50	75	5	90 3/31	74	SE-NW	3.3	2-7	71	ND*	2	5/10/81	SW	3.5
E 90	77	5	246 9/6	74	W-N	2	3-6	21	21	5	6/26/80	W	4
SE 130, 140	44	6	249 9/9	72	SW-SE	3	4-7	5.3	29	4	10/20/80	N	3.3
S 180	49	5	311 11/9	74	N-NE	5	3-5	26	42	3	11/29/80	N	ND*
SW 220, 230	55	4	172 6/20	74	N-NE	3	1-7	123	6	4	6/14/80	ENE	5
W 270	73	4	110 4/18	74	E	3.5	2-7	ND	29	5	5/27/81	ENE	4.5
NW 310, 320	67	4	64 3/3	74	E/W	3.2	2-6	37	ND	1	5/4/81	SE	1

*ND = No Data

The highest annual impact is 1.2 km to the east in 1974 with a value of 2.2 ug/m^3. The annual impacts for 1970-1974 varied from 1.3 to 2.2 ug/m^3. The monitored annual arithmetic average were 25.7 and 19.6 ug/m^3 in 1978 and and 1979 respectively at station 63. Station 115 registered annual averages of 22.2 and 25.0 ug/m^3 in 1978 and 1979 respectively. The summation of the annual impact and the monitored annual average leads to a highest annual concentration of about 30 ug/m^3. This is significantly below the federal secondary standard of 80 ug/m^3 and the Florida Standard of 60 ug/m^3.

There are significant sulfur dioxide sources to the east of the Project site. The recent CONSRV PSD application analysed the impact it plus other significant sources would have in various directions. The CONSRV case VI analysed a SSE wind. This would align several facilities with the project site. The CONSRV results indicate that there would be essentially no impact from those facilities on the projects impact area.

The only other increment consuming source affecting the impact area is TECO's Gannon Powerplant. This powerplant is modifying its fuel and was granted a PSD permit around the first of the year. A letter from EPA to Mayor Bob Martinez of a Public Notice of the change is found in Appendix E. The Public Notice indicated that the maximum increment consumed by the proposed modification is as follows:

	Annual	24 Hour	3 Hour
SO_2	5 %	38 %	32 %

A condensation of Tables 3-5, 3-6, and 3-7, shows that the project's maximum increment consumption of the total allowed will be:

Annual	24 Hour	3 Hour
2.1 ug/m^3	22 ug/m^3	77 ug/m^3
or	or	or
11 %	24 %	15 %

Baseline was set by the TECO modification. There are two new PSD sources proposed for Hillsborough County, CONSRV and the McKay Bay Refuse-to-Energy Project. CONSRV's data indicates no impact on the Project's impact area and TECO's impact was given above. Table 3-8 shows our projection of the increment that has or will be consumed.

Table 3-8
Total Increment Consumed

	Annual		24 Hour		3 Hour	
	ug/m^3	Percent	ug/m^3	Percent	ug/m^3	Percent
McKay Bay	2.1	11	22	24	77	15
CONSRV	0	0	0	0	0	0
TECO	1.0	5	35	38	164	32
Total	3.1	16	57	62	341	47
Allowed	20		91		512	

Table 3-9 shows the increment used by the project and TECO added to the HCEPC monitored ambient conditions. This assumes that the ambient maximums plus both source maximums occur at the same place and time.

Table 3-9
Highest Predicted Ambient Concentrations
Sulfur Dioxide
(micrograms/cubic meter)

	Annual	24 Hour	3 Hour
Ambient (1979)	25.5	126	597
TECO	1.0	35	164
Project	2.1	22	77
Total	28.6	183	838
Standards			
EPA	80	365	1300
Florida	50	265	1300

Summary of Sulfur Dioxide Analysis

As was shown in Tables 3-8 and 3-9 the McKay Bay Refuse-to-Energy Project will not violate the Class II increments nor will it lead to a violation of either national or state ambient air quality standards.

Lead Analysis

The ambient lead values have exceeded the NAAQS of 1.5 ug/m^3 on a quarterly average in the past but the most recent data does not indicate an attainment problem. The highest ambient lead value consistantly occurs at station 92 (the intersection of Hwys 60 and 41). In the past year the situation has significantly improved. This is shown in Table 3-10.

Table 3-10
Lead in Suspended Particulate Matter
Quarterly Average in Micrograms/Cubic Meter

	Station Number	Quarter 1	2	3	4	Annual Average
			1978			
Health Dept.	1	0.6	0.6	2.0	0.9	1.0
Davis Island	63	0.3	0.4	0.7	0.6	0.5
Hwys 60 & 41	92	0.8	1.3	2.4	1.4	1.5
Hooker's Pt.	115	---	---	2.4	0.9	---
			1979			
Health Dept.	1	0.9	0.6	0.7	0.7	0.7
Davis Island	63	0.6	0.5	0.7	0.7	0.6
Hwys 60 & 41	92	2.1	1.4	1.4	0.9	1.4
Hooker's Pt.	115	0.6	0.5	0.5	0.4	0.5
			1980 - 1981			
Health Dept.	1	0.43	0.5	0.35	0.23	0.38
Davis Island	63	0.15	0.24	0.2	0.14	0.18
Hwys 60 & 41	92	0.60	0.93	0.74	0.44	0.68
Hooker's Pt.	115	0.14	0.26	0.6	0.28	0.32

The CRSTER model does not generate 90 day averages. To demonstrate the insignificance of the lead emissions on Station 92 the the highest 24-hour value will be used.

Flouride Analysis

By proportioning the respective emission rates the modeled data can be used to determine the highest concentration of flourides expected from the Project. The flouride concentration should be 32.6 TPY/1142 TPY or 2.8% of the sulfur dioxide concentration. The maximum 1-hour concentration is modeled to be 2.8 ug/m^3. The Occupational Safety and Health Administration threshold limiting value (TLV) for hydrogen flouride is 2.0 mg/m^3. The Project's impact is less than 2/10 of 1% of the TLV, and will not be significant.

Nitrogen Oxides

The Hillsborough Environmental Protection Commission data indicate that the highest annual average between 1975 and 1979 is 68 ug/m^3 in 1977. By proportioning the modeling results by the emission rates the nitrogen oxides are equal to 1233 TPY/1142 TPY or 108% of the sulfur dioxide values. The maximum annual nitrogen oxide impact is modeled to be 2.4 ug/m^3. This value added to the highest annual average gives a maximum annual concentration of 70 ug/m^3. When compared to the federal standard of 100 ug/m^3 it can be seen that the area will remain attainment for nitrogen oxides.

Mercury and Beryllium

The projected impact from the emissions of Mercury and Beryllium were shown in Table 3-2. Their worst impact are 1/3 and 1/8 of the de minimis values. The de minimis values are determined to be that value below which no impact is assumed to occur and the commitment of applicant and review authority resources would not be productive.

The NESHAP rules for Beryllium (40CFR61.30) require that no more than 10 grams/day be emitted. The conservative data used in these estimates indicate an emission rate of less than seven (7) grams of Beryllium per day. The NESHAP rules for Mercury (40CFR61.50) are applicable to those sources that process mercury ore, use mercury chlor-alkali cells, or dry and/or incinerate wastewater treatment plant sludges. Neither Facility 1 nor the Facility 2 is planned to process or burn any wastewater treatment plant sludges.

please note these values are for 2 facilities while only 1 was constructed at McKay Bay

The highest annual sulfur dioxide value determined in 5 years of modeling occurs due east of the Project site near Station 92 and is 24 ug/m^3. The impact of lead can be proportioned by comparing the emission rates of lead to sulfur dioxide. The Project will emit 32.6 TPY of lead and 1142 TPY of sulfur dioxides. The lead impact will be 32.6/1142 or 2.9% of the sulfur dioxide impact. Thus the lead concentration at Station 92 is modeled to be 0.70 ug/m^3. When added to the past years highest quarterly average of 0.93 ug/m^3 value barely exceeds the standard. This assumes the highest 24-hour average modeled over 5 years would somehow be a quarterly average.

Summary - Lead Analysis

Based on the data this Project will not endanger the National Ambient Air Quality Standard of 1.5 ug/m^3.

Carbon Monoxide Analysis

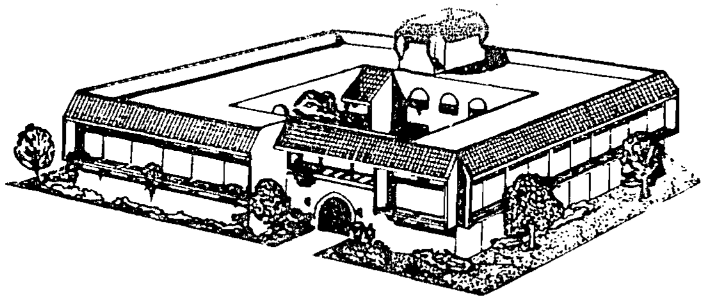
To determine the highest concentration of carbon monoxide attributable to the Project, the concentration modeled for sulfur dioxide will be proportioned by the emission rates 258 TPY/1142 TPY or 23% of the sulfur dioxide value. Table 3-11 shows the modeled impacts of the Project. To best utilize our modeling for a conservative analysis, the 8-hour values are actually the values modeled for a 3-hour average.

Table 3-11
Maximum Carbon Monoxide Concentrations
(micrograms/cubic meter)

	N	NE	E	SE	S	SW	W	NW
8 Hour (3-hr.)	12	17	18	10	11	13	17	15
1 Hour	21	23	22	19	19	23	23	23

The carbon monoxide NAAQS standards are 40,000 and 10,000 ug/mg for 1 hour and 8 hour average respectively. The area is attainment for carbon monoxide. The Project will not have a significant impact on the ambient levels of carbon monoxide.

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION
COMMISSION



ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

DER
FEB 2 1987
BAQM

Test Data from McKay Bay

MEMORANDUM

Date January 29, 1987

To Jim Estler thru Bill Thomas, DER

From Victor San Agustin VSA thru Jerry Campbell JC EPC

Subject: New Operating Permit for McKay Bay RTE Project

Performance tests performed on all units in September, 1985, Jan. (NOx) and Aug. (Be), 1986 indicate the following actual emissions:

Pollutant	Unit #1	Unit #2	Unit #3	Unit #4	Total Actual (lbs/hr)	Allowable (lbs/hr)	Stack lbs/MMBtu
	Actuals (lbs/hr)						
PM (gr/dscf)	0.015	0.022	0.0028	0.012	- -	0.025 gr/dscf	
SO2	28.21	33.3	27.53	50.85	139.9	170.0	.37
NOx	28.27	11.13	25.0	30.4	94.8	300.0	.25
VOC	0.87	0.37	0.71	0.72	2.67	9.0	.007
Pb	0.099	0.098	0.093	0.112	0.402	3.1	.0011
F	0.35	0.41	0.64	0.89	2.29	6.0	.0041
Hg	0.068	0.079	0.098	0.105	0.35	0.6	.0009
Be	0.000019	<0.000012	0.000034	<0.000012	<0.000077	0.00046	[illegible]
VE (%)*	1.5%		8.8%			- -	
CO	5.3	6.07	4.8	5.7	21.87	- -	0.058

*V.E.'s were performed when 1/2 and 3/4 were operating simultaneously. 1/2 share the same stack and so do 3/4.

You will note from the above that there is yet no applicable v.e. standard. The state construction permit requires that a standard be established as a surrogate compliance method in the operation permit. Furthermore, Bruce Miller of EPA informed City of Tampa in a February 14, 1986, letter (enclosed) that opacity is an indirect indication of compliance with McKay Bay RTE's particulate emission limit. The stack's visible emissions standard should therefore be based upon the results of simultaneous VE/TSP performance tests conducted in September, 1985. The values below indicate a correlation between mass and particulate emissions.

Date	Source/s	Time	Opacity	Mass Emissions
9/18/85	Units 3 and 4	11:30 AM-1:30 PM	8.8%	0.012 gr/dscf
9/19/85	Units 1 and 2	1:20 PM-3:20 PM	1.5%	0.013 gr/dscf

The next question which needs to be tackled is-knowing the mass emissions/ opacity correlation, how is the allowable opacity determined? Before this question is answered, I feel we should look at allowable opacity/mass emission standards implemented on other plants. Below is a listing obtained from BAQM's Barry Andrews:

RTE Facility Location	VE Standard	PM Mass Emission Standard gr/dscf
Pinellas County	10%	0.03
North Broward County	15%	0.015
South Broward County	15%	0.015
Lake County	15%	0.02
Collier County	15%	0.015
Palm Beach County	15%	0.015
Bay County	10%	0.015
Hillsborough County (Faulkenberg Road)	15%	0.021

Considering the above facts, I recommend we stipulate 15% as an indication of compliance with the particulate standard of 0.025 gr/dscf.

I recommend approval to issue an operating permit with the following conditions:

1. Total maximum allowable emissions from all four process lines shall be:

Pollutant	Emission Limitation
Particulate	0.025 gr/dscf, corrected to 12% CO2 and 27.9 lb/hr
Sulfur Dioxide	170.0 lb/hr
Nitrogen Oxides	300.0 lb/hr
VOC	9.0 lb/hr
Lead	3.1 lb/hr
Fluoride	6.0 lb/hr
Mercury (vaporous and particulate)	0.6 lb/hr
Beryllium	5 grams/24 hour period and 0.00046 lb/hr

2. Visible emissions from each exhaust stack shall not exceed 15% opacity.

3. Compliance with the emission limitations of Specific Conditions Nos. 1 & 2 shall be determined using EPA Methods 1, 2, 3, 5, 6, 7, 12, 13A/13B, 25A/ 25B, 101A and 104 contained in 40CFR60, Appendix A, and/or adopted by reference in Section 17-2.700, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Section 17-2.700, F.A.C. and 40CFR60, Appendix A. (DER #94).

4. Test the emissions from each unit for the following pollutants at intervals of 12 months from September 18, 1986 and submit 2 copies of test data to the Air Section of the Environmental Protection Commission of Hillsborough County within forty-five (45) days of testing. Testing procedures shall be consistent with the requirements of Section 17-2.700, F.A.C.

(X) Particulates
(X) Opacity*
(X) Sulfur Dioxide
(X) Nitrogen Oxides
( ) Volatile Organic Compounds
(X) Lead
( ) Total Fluorides
( ) Mercury (vaporous and particulate)
( ) Beryllium

*The visible emissions test for each unit shall be at least 60 minutes in duration and shall be conducted simultaneously with the particulate stack test. Additional visible emissions tests shall be performed on each stack exhaust during simultaneous operation of Units 1 & 2 and of 3 & 4.

5. The Hillsborough County Environmental Protection Commission shall be notified in writing 15 days in advance of any compliance test to be conducted on this source. (DER #100)

6. Testing of emissions from each unit must be accomplished within ± 10% of maximum charging rate of 10.5 TPH of municipal waste. The actual charging rate during each test run shall be specified in each test run. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data [Section 403.161(1)(c), Florida Statutes].(DER #72)

7. Submit for this facility, each calendar year, on or before March 1. an emission report for the preceding calendar year containing the following information as per Section 17.4.14, F.A.C.

   (A) Annual amount of materials and/or fuels utilized.
   (B) Annual emissions (note calculation basis).
   (C) Any changes in the information contained in the permit application.

   Duplicate copies of all reports shall be submitted to the Hillsborough County Environmental Protection Commission. (DER #102)

8. Pursuant to 40CFR60.7, a written report of excess emissions shall be reported in a quarterly report. For purposes of this report, excess emissions shall be all air pollutant emissions in excess of the permitted levels stated in conditions 1 and 2 of this permit. Quarterly reports shall be submitted no later than 30 days from the end of each calendar quarter.

9. Pursuant to Section 17-4.09, F.A.C., an application for renewal of permit to operate this source shall be submitted to the Hillsborough County Environmental Protection Commission at least 60 days prior to its expiration date. (DER #105)

10. Pursuant to 40CFR60.53, Subpart E, the permittee shall record the daily charging rates and hours of operation of each unit.

11. A continuous monitoring system to determine in-stack opacity from each exhaust stack shall be calibrated, operated, and maintained in accordance with Section 17-2.710(1), F.A.C.

12. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Section 17-2.610(3), F.A.C. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alterations, demolition of wrecking, or industrial related activities such as loading, unloading, storing and handling. (DER # 74)

13. Pursuant to Section 17-2.250(1), F.A.C., excess emissions resulting from start-up, shutdown, or malfunction of any unit shall be limited to a total of 2 hours in any 24 hour period provided best operational practices are adhered to and the duration of excess emissions are minimized. Best operational practices shall include but are not limited to ensuring that the control device (the electrostatic precipitator) is operational whenever material is being combusted in the furnace.

14. Operation and Maintenance Plan for Particulate Control [Section 17-2.650(2), F.A.C.].

A. Process Parameters:
1. Source Designator: Units #1 -4
2. Maximum Charging Rate: 250 tons per day per unit, 1000 tons per day total
3. Maximum Heat Input Rate: 2,250 MMBTU/day/line, 9,000 MMBTU/day total
4. Permitted Operating Schedule: 24 hrs/day, 7 days/wk, 52 wks/yr
5. Furnace Temperature: 2200-2400°F
6. Fuel Type: Unsorted Municipal Waste
7. Design Fuel Analysis: Carbon- 25.6%, Nitrogen- 0.58%, Hydrogen- 3.7%, Sulfur- 0.3%, Oxygen- 22.75%, Moisture- 30.0%, Non-combustibles- 18.0%
8. Combustion Conditions: 50-80% excess air 7-11% O2 in flue gas
9. Steam Pressure: 650 psig
10. Steam Temperature: 700 F
11. Steam Production: 208,400 lbs/hr total normal flow rate
12. Maximum Permitted Electrical Output: 25 MW

B. Pollution Control Equipment Parameters:
1. Control Equipment Type: 4 Electrostatic Precipitators
2. Model Name and No: F.L. Smidth Model F300
3. Design Flow Rate: 37,430 dscfm/line, 75,000 dscfm/stack
4. Primary Voltage: 480V
5. Primary Current: 89A
6. Secondary Voltage: 25,000 - 45,000 VDC
7. Secondary Current: 800 mA
8. Design Collection Efficiency: 99.45%
9. Stack height Above Ground: 160 ft/stack
10. Stack Diameter: 5.75 ft. each stack
11. Exit Gas Temperature: 540 F each stack

C. The following observations, checks, and operations apply to this source and shall be conducted on the schedule specified.

Continuously Monitored
1. Opacity
2. Temperatures- a. ESP Inlet and Outlet
   b. Furnace
   c. Bypass
   d. Kiln Outlet
   e. Boiler Inlet
   f. Primary and Secondary Superheater
3. Pressures - a. Primary Superheater Steam
   b. Secondary Superheater Steam

Every 2 Hours

1. Monitor/inspect fly ash removal equipment
2. Read instruments on A.V.C.'s
3. Observe rapper operation
4. Observe pressures and temperatures throughout system
5. Observe visual emissions
6. Observe all fans for proper operation
7. Inspect precipitator externals for hot spots, air infiltration, etc.
8. Observe fly ash silo operation
9. Monitor ash temperature
10. Primary Voltage
11. Primary Current
12. Secondary Voltage
13. Secondary Current
14. Spark Rate Rapper Frequency
15. Rapper Vibrator Frequency
16. Rapper Vibrator Duration

Daily

1. Clean opacity monitor lenses
2. Monitor T/R temperatures
3. Check gear box reservoir oil levels
4. Monitor charging rate per line
5. Monitor hours of operation per line

Weekly

1. Calibrate opacity monitor
2. Lubricate all external bearings, chains, idlers, sprockets
3. Lubricate fly ash collecting equipment

Quarterly (During Outages)

1. Inspect precipitator internals; observe dust build up, corrosion
2. Check alignment of plates and electrodes
3. Inspect rappers, observe for cracking on rapper frame assembly
4. Clean rapper insulator bushing
5. Clean electrode bushings
6. Check screw conveyor bearings
7. Inspect all field connections, door frames, duct connections for corrosion
8. Replace door frame gaskets as needed
9. Inspect internal structural members for corrosion and integrity
10. Clean relay cabinets, clean motor starter and relay contacts
11. Check hopper heaters for proper operation
12. Check insulator housing heaters for proper operation
13. Lubricate key interlock system
14. Check resistance to ground by meggering
15. Record all control points on AVC Microprocessor

Annually

1. Perform smoke bomb test on housing (optional)
2. Ultrasonic thickness test on hoppers, inlet distribution baffles
3. Check thickness of inlet electrode wires
4. Check Filter Earth Connection (Ground)
5. Inspect collecting plates for corrosion
6. Check external structural members for integrity
7. Scan surfaces with optical pyrometer, checking insulation (Running)
8. Run T/R oil analysis

D. Records
Records of inspection, maintenance, and performance parameters shall be retained for a minimum of two years and shall be made availble to the Department or Environmental Protection Commission of Hillsborough County upon request [Subsection 17-2.650(2)(g)5., F.A.C.]

15. Municipal waste and infectious waste shall burned in the facility. Waste oil collected from spills cleaned up by the Port Authority not exceeding 10,000 gallons per day from tanker trucks or 10 tons per day of fiber drums shall also be burned. Wastewater treatement plant sludges or hazardous wastes shall not be incinerated.

16. Electrical output for sale to Tampa Electric Company (TECO) shall not exceed 25 MW.

17. The above stated emission limitations are based upon the best estimates of the permittee. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, the permitting authority may then institute procedures to amend the permit conditions.

cc: Greg Grotecloss, City of Tampa
Bill Engel, TWMI

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610

813-985-7402
SunCom - 570-8000

PERMITTEE

Ms. Nancy McCann
Urban Environmental Coordinator
Office of Environmental Coordination
City of Tampa
City Hall Plaza, 5N
Tampa, FL 33602

PERMIT/CERTIFICATION

Permit No.:
County: Hillsborough
Expiration Date:
Project: McKay Bay Refuse-to-Energy Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of 4-250 TPD (each) municipal waste incinerators designated as Units 1, 2, 3, and 4 respectively from the west to east. Each incinerator is equipped with a 37,430 scfm F.L. Smidth Model F300, 2 field electrostatic precipitator to control particulate emissions. Units 1 and 2 share the same stack exhaust. Units 3 and 4 share the same stack exhaust. Each stack exhaust is equipped with a certified opacity monitor.

Location: 107 North 34th St., Adjacent to McKay Bay, Tampa

UTM: 17-360.0E 3091.9N NEDS NO: 0127 Point ID: 01-Unit #1
02-Unit #2
03-Unit #3
04-Unit #4

Replaces Permit No.: AC29-47277

P 062 921 924

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Daniel Strobridge	
Street and No. Camp, Dresser & McKee	
P.O., State and ZIP Code Tampa, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 11-20-92	

AO 29-206279

PS Form 3800, June 1991

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on th reverse side. Failure to do this will prevent this card f being returned to you. The return receipt fee will pr you the name of the person delivered to and the da delivery. For additional fees the following services ar available. Consult postmaster for fees and check box(es for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.
3. Article Addressed to:
Daniel Strobridge
Camp, Dresser & McKee, Inc
One Tampa City Ctr, Suite 1750
Tampa, Fl 33602

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P062 921 924

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X Michelle Steward
6. Signature – Agent
X
7. Date of Delivery NOV 23 1992
8. Addressee's Address *(ONLY if requested and fee paid)*

DOMESTIC RETURN RECEIPT

P 710 058 458

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Nancy McCann	
Street & No. UEC - City of Tampa	
P.O. State & ZIP Code Tampa, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date 4-28-92 AC29-47277	

PS Form **3800**, June 1990

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Nancy McCann
Urban Env. Coord.
City of Tampa
City Hall Plaza 5N
Tampa, Fl 33602

4a. Article Number P 710 058 458

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery APR 29 1992

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

P 710 058 528

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Ms. Nancy McCann, City of Tampa	
Street & No. City Hall Plaza 5N	
P.O., State & ZIP Code Tampa, FL 33602	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 4-17-92 Permit: AO 29-114670	

PS Form **3800**, June 1990

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Nancy McCann
Dity of Tampa
Solid Waste Department
City Hall Plaza 5N
Tampa, FL 33602

4a. Article Number
P 710 058 528

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
APR 20 1992

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET

ATLANTA, GEORGIA 30365

AUG - 2 1989

4APT/APB-aes

Mr. Clair H. Fancy, P.E., Deputy Chief
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. AC 29-47277, PSD-FL-086

Dear Mr. Fancy:

This is to acknowledge receipt of the additional information regarding the proposed increase in throughput for McKay Bay Refuse-to-Energy Project and to confirm the July 18, 1989, telephone conversation between Pardeep Raval of your staff and Mark Armentrout of my staff. We have reviewed the additional information and have the following comments:

According to the definition of "major modification" and "net emissions increase" defined in the Federal and State Prevention of Significant Deterioration (PSD) regulations, it appears that the source will be required to undergo a PSD review, including a best available control technology (BACT) review for:

1. Particulate Matter (PM)
2. Lead (Pb)
3. Sulfur Dioxide (SO_2)
4. Nitrogen Oxides (NO_x)
5. Fluorides (Fl)
6. Mercury (Hg), and
7. Beryllium (Be)

As you know, a major modification is defined in the PSD regulations as:

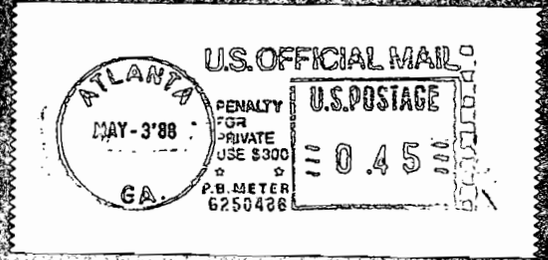
> "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

A physical change or change in the method of operation does not include an increase in the production rate, "unless this change would be prohibited under any federally enforceable permit condition which

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

Mr. Clair H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Control
FL Dept. of Environmental
Regulation
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400



EPA

United States
Environmental Protection
Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Official Business
Penalty for Private Use
$300

Mr. Pradeep Raval
Florida Department of
Environmental Regulation
Twin Tiwers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

PM
Jul 87
Atlanta, GA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

DER

JUL 9 1987

BAQM

JUL 6 1987

4APT/APB-aes

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

RE: McKay Bay Refuse-to-Energy Facility

Dear Mr. Fancy:

This is to acknowledge receipt of your May 18, 1987, letter and to confirm the June 25, 1987, telephone conversation between Mr. Pradeep Raval of your staff and Mr. Gary Ng of my staff regarding an amendment on the above source's PSD permit.

We would like to reiterate the comments that were mentioned in the June 25th conversation:

1. Although the source claimed the proposed increase in refuse tonnage is attributed mainly to the moisture content in the refuse, you must ensure that there will be no significant increase of any of the regulated pollutants over the actual emissions or an increase in ambient impacts.

2. Although the source was not originally subject to PSD review for CO, we feel that the addition of a CO emission limitation (expressed in lb/hr) would be appropriate at this time. This is to ensure that potential CO emissions (96 tons per year) would remain below the PSD significant emissions rate of 100 tons per year.

If you have any questions regarding our comments, please contact me or Mr. Gary Ng of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

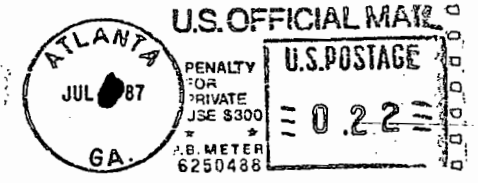
Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division

Bill Thomas - SW Dist
Miguel Flores - NPS
Jerry Campbell - HCEPC
Barry Andrews
CHF/BT
Pradeep Raval
Tom Rogers

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

AIR-4



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

the air quality or air quality related values of the refuge. Therefore, we do not oppose the city of Tampa's requested permit revisions.

If you have any questions regarding this matter, please contact Mr. John Bunyak at (303) 236-8765.

Sincerely yours,

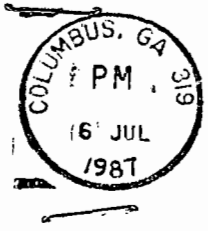
David B. Allen
Acting Regional Director

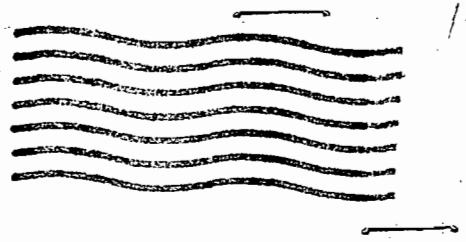
CC: Barry Andrews
CHF/BT
Pradeep Raval
Tom Rogero
Wayne Aronson - EPA
Jerry Campbell - HCEPC
Bill Thomas - SW

Mailed
7/9/87 mr

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
75 Spring Street, SW.
Atlanta, GA 30303

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300





POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT-423

Mr. R. Bruce Mitchell
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

~~Clair, 5/18~~
Bill, 5/18

5-18-87

File Copy. I have
copied: Pradeep, Barry, Larry,
and Wayne Aronson - USEPA
Miguel Flores - National Park Service
Galen A. Canaway, Jr. - US Fish & Wildlife Service
Russ Galipeau - NPS, SE Regional Office

Ben

See if Barry took
care of this
6-3-87
Barry Andrews
plans to look
into this.
6-4-87
Pradeep handling

From

Office of Environmental Coordination
306 E. Jackson Street
City Hall Plaza, 5N
Tampa, FL 33602

To

Mr. Clair Fancy
Bureau of Air Quality Management
Twin Towers Office Bldg.
2600 Blair Stone Rd.
Tallahassee, Fl 32301-8241

WASTE COMPOSITIONAL ANALYSES

SOLID WASTE COMPONENT	HDR STUDIES																					ALTERNATE SOURCE			
	IOWA		MINNESOTA			CALIFORNIA				MONTANA				MICHIGAN	ARIZONA		GEORGIA		FLORIDA	ILLINOIS			WISCONSIN REGION I (RES)	WISCONSIN REGION I (COMM)	NCRR (RES-COMM)	EPA 4TH REPT
	DUBUQUE (RES)	DUBUQUE (COMM)	ST. CLOUD (RES)	ST. CLOUD (COMM)	OLMSTEAD CO. (RES-COMM)	COLTON (RES)	COLTON (COMM)	SAN DIEGO (RES)	SAN DIEGO (COMM)	MISSOULA	BUTTE	BILLINGS	GREAT FALLS	MARQUETTE (RES-COMM)	PHOENIX (RES)	PHOENIX (COMM)	DEKALB (RES)	DEKALB (COMM)	ST. PETERSBURG (RES)	SPRINGFIELD (RES)	SPRINGFIELD (COMM)	SPRINGFIELD (RES-COMM)				
PAPER	37.0	42.2	37.0	36.1	33.4	26.9	35.4	38.6	44.1	25.0	24.3	24.9	26.9	46.6	43.7	50.8	37.3	58.2	31.4	27.6	21.7	25.9	25.4	27.4	42.7	35.0
CARDBOARD	3.5	11.0	14.0	22.6	12.8	6.2	20.4	6.8	22.8	10.3	7.0	10.1	8.2							4.2	22.7	9.4	10.2	36.1		
PLASTIC	5.3	7.8	4.4	3.7	5.6	2.8	4.5	3.6	7.5	4.3	6.1	6.1	4.2	7.0	4.1	5.3	3.5	4.5	1.3	5.3	5.1	5.3	3.2	3.3	1.7	3.8
WOOD	0.6	1.0	2.3	1.6	2.0	2.2	4.5	1.4	3.9	2.2	0.1	1.0	1.5	0.8	1.3	2.3	1.3	2.5	1.9	1.7	3.9	2.3	5.3	10.0	2.5	3.8
FOOD WASTE	10.6	7.4	17.5	11.7	14.6	3.4	2.6	2.8	5.5	12.9	21.9	20.5	13.6	13.8	12.2	12.5	3.9	2.7	0.8	15.5	18.6	16.4	17.2	11.0	14.6	14.9
YARD WASTE	25.1	7.2	0.6	0	9.1	40.8	13.6	33.7	2.3	29.6	14.3	12.2	28.0	10.0	17.2	6.9	26.6	0.5	46.7	21.0	2.3	15.6	24.1	–	12.5	16.3
TEXTILES	2.3	1.7	3.6	4.4	3.2	2.5	6.3	2.3	2.6	3.2	3.9	6.0	2.7	3.2	3.8	2.5	3.2	3.3	2.9	3.9	1.5	3.2	2.1	0.9	2.4	1.7
RUBBER (LEATHER)	0.2	0	1.0	1.6		0.9	1.3	1.1	0.7								0.7	0.6	0	0.4	0.1	0.3				
RESIDUE			2.6		1.7										5.7	6.5	13.2	10.7		4.2	1.5	3.3	0.3	3.6	1.8	2.6
TOTAL PERCENT COMBUSTIBLE	84.6	78.3	82.7	85.0	80.7	85.7	88.6	90.3	89.4	87.5	77.6	80.8	85.1	81.4	88.0	86.8	89.7	83.0	85.0	83.8	77.4	81.9	87.8	92.3	78.2	78.0
FERROUS	8.8	13.6	8.0	8.8	9.5	5.5	5.6	4.5	5.2	6.2	9.0	9.0	6.7	8.1	4.9	5.6	5.5	10.7	5.4	7.1	12.4	8.6	6.4	5.4	8.2	9.8
ALUMINUM	1.1	1.1	0.5	0.3	0.8	0.6	0.6	1.0	0.8	1.4	2.5	1.8	1.7	1.3	0.9	0.5	1.0	1.0	1.0	0.7	0.6	0.7	1.1	0.1	0.9	
GLASS	5.4	6.7	8.8	5.9	9.0	5.5	2.9	4.0	4.3	4.9	10.9	8.4	6.5	8.7	6.2	7.1	3.8	5.3	5.7	5.8	8.3	6.5	4.7	2.0	10.3	10.5
RESIDUE	0.1	0.3				2.7	2.3	0.2	0.3					0.5					2.9	2.6	1.3	2.3		0.2	2.4	1.6
TOTAL PERCENT NON COMBUSTIBLE	15.4	21.7	17.3	15.0	19.3	14.3	11.4	9.7	10.6	12.5	22.4	19.2	14.9	18.6	12.0	13.2	10.3	17.0	15.0	16.2	22.6	18.1	12.2	7.7	21.8	21.9
BTU/lb (AS RECEIVED)	3653	4796	3793	4155		4878.00		6456.00		AVG: 5039 4843	6049	4519	4748		5000		4810	5227		5470.0	4972.9	5330.8				
BTU/lb (DRY)	7010	8173								7746	7402	7739	7278							7680.3	7953.6	7756.8				
BTU/lb (AVERAGE)	3600	5300	4000																			5334				
% MOISTURE	41.1	36.6	39.4	33.6		28.0		21.9	20.9	37.8	26.6	41.3	34.9		29.1	32.5	37.1	32.1		28.6	37.5	34.1				
% RESIDUE	15.1	8.7	14.1	18.9						13.3	8.7	11.3	11.9				9.7			12.2	10.3	11.6				
CARBON	29.1	40.8	23.9	29.9						43.7	45.7	43.0	41.5							42.8	44.3	43.2				
HYDROGEN	2.3	2.2	5.1	3.3						6.2	6.6	6.2	5.6							5.2	5.1	5.2				
OXYGEN	11.6	11.2	16.5	16.7						35.2	39.1	37.5	39.6							39.6	39.4	39.6				
NITROGEN	0.52	0.37	0.64	0.56						0.88	1.01	1.07	0.68							0.6	0.6	0.6				
CHLORINE	0.17	0.15	0.25	1.47						0.60	0.49	0.75	0.45				0.04			0.09	0.06	0.08				
SULFUR	0.02	0.02	0.12	0.53						0.12	0.11	0.31	0.23				0.09			0.08	0.18	0.11				

This table shows the high variability of % moisture and heating value found in MSW

TABLE 4

Check Sheet

Company Name: McKay Bay RRF
Permit Number: AC 16-477277, -477278
PSD Number: 080 4W1
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [x] Responses
  - [x] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:

- [ ] AC 29-115379
- [ ]
- [ ]

Intent:

- [ ] Intent to Issue
- [ ] Notice of Intent to Issue
- [ ] Technical Evaluation
- [ ] BACT Determination
- [ ] Unsigned Permit
- Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] Other
- [ ] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [ ] Other

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [x] Extensions/Amendments/Modifications
- [ ] Other