


Memorandum

**Florida Department of
Environmental Protection**

TO: Teresa Heron, NSR
John Reynolds, NSR

FROM: Michael Hewett, OPAPM 

DATE: September 22, 1997.

SUBJECT: 40 CFR 60 Subpart Cb Implementation Plan

Attached are parts of the Subpart Cb implementation plan which I feel might be useful when drafting construction permits for large municipal waste combustors (MWC). Due to recent amendments to Subpart Cb, the standards only apply to units with maximum capacity to incinerate more than 250 tons per day. This includes the MWC units at:

| | |
|----------------------|----------------------|
| Dade County | North Broward County |
| South Broward County | Palm Beach County |
| Pinellas County | Hillsborough County |
| McKay Bay | Pasco County |
| Lake County | Lee County |

The MWC units at the Key West facility and the Miami International Airport are all considered small (250 TPD or less). Bay County is currently trying to derate their MWC units so that the Subpart Cb standards will not affect them. I should know by next month whether the Bay County units will be considered large or small.

Included in the attachment are all of the retrofit schedules for the existing MWC units. Even though the implementation plan schedules are already enforceable, I think it would be a good idea to include the schedules with the increments of progress in the appropriate construction permits.

Please let me know if you have any questions.

/mh

attachment

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Executive Summary

On December 19, 1995, the U.S. Environmental Protection Agency (EPA) adopted into the Code of Federal Regulations (CFR), Chapter 40, Part 60, Subparts Cb and Eb, Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources, Municipal Waste Combustors (MWCs). Developed under Sections 111 and 129 of the Clean Air Act, Subpart Cb applies to existing MWCs, constructed before September 20, 1994, located at MWC facilities with an aggregate combustion capacity to burn more than 35 megagrams per day (approximately 39 tons per day) of municipal solid waste. Furthermore, any state with MWCs meeting this criteria must develop and submit to the EPA a "State Plan" to implement the emission guidelines. Subparts B and Cb, specify the content and the conditions for developing and adopting a State Plan.

This document, developed under Sections 111(d) and 129 of the Clean Air Act and complying with all of the standards and conditions of 40 CFR 60, Subparts B and Cb, is the Florida State Plan. This plan includes a demonstration of legal authority, identification of enforceable mechanisms, an inventory of MWC units and emissions, compliance schedules, emissions limitations, testing, monitoring, recordkeeping, and reporting requirements, a record of the public hearing, and provisions for state reports to EPA on the progress of compliance.

2.0 Enforceable Mechanism

An enforceable mechanism is a legal instrument by which the Department can enforce a set of standards and conditions. In February 1996, the Department chose to begin work on adopting the requirements of 40 CFR 60, Subpart Cb, into Chapter 62-204 of the Florida Administrative Code (F.A.C.), thereby making it an enforceable rule. The Department also decided to amend the existing Rule 62-296.416, F.A.C., which sets a mercury emission limiting standard more restrictive than Subpart Cb. These rules are the Department's "enforceable mechanism." By adopting all of the standards and conditions of Subpart Cb and amending the existing Rule 62-296.416, F.A.C., the Department contends that the emission limitations adopted by the State of Florida are at least as protective as those in the emission guidelines of Subpart Cb.

Following the guidelines set forth in ss. 120.54 and 403.8055, F.S., the Department provided notice of two public workshops and provided all affected parties the opportunity for a public hearing on Rule 62-296.416, F.A.C. The first workshop occurred on April 24 and the second on June 19. Both were held in Tampa, Florida. No request for hearing was received and, subsequently, no hearing was held.

2.1 Rule 62-204.800(8), F.A.C., Chapter 40, Code of Federal Regulations, Part 60, Subpart C, Emission Guidelines and Compliance Times

A new paragraph (8) was added to Rule 62-204.800, F.A.C., in order to adopt future 40 CFR 60, Subpart C, emission guidelines. Paragraph (8)(a) establishes the general applicability and definitions for all of Subpart C regulations while paragraph (8)(b) adopts the standards and conditions of Subpart Cb, Emissions Guidelines and

Compliance Schedules for Municipal Waste Combustors. The full text the new rule, as adopted on October 7, 1996, is provided below.

62-204.800 Federal Regulations Adopted by Reference.

(8) Chapter 40, Code of Federal Regulations, Part 60, Subpart C, Emission Guidelines and Compliance Times.

(a) General Applicability and Definitions.

1. The Emission Guidelines for Existing Sources adopted by reference in this rule shall be controlling over other standards in the air pollution rules of the Department except that any emissions limiting standard contained in or determined pursuant to the air pollution rules of the Department which is more stringent than one contained in an Emission Guideline, or which regulates emissions of pollutants or emissions units not regulated by an applicable Emission Guideline, shall apply.

2. For the purposes of Rule 62-204.800(8), F.A.C., the definitions contained in the various provisions of 40 CFR Part 60, adopted herein shall apply except that the term "Administrator" when used in 40 CFR Part 60, shall mean the Secretary or the Secretary's designee.

(b) Municipal Waste Combustors. 40 CFR 60, Subpart Cb, Emission Guidelines and Compliance Schedules for Municipal Waste Combustors, promulgated December 19, 1995, 60 FR 65414, is hereby adopted and incorporated by reference, subject to the following provisions.

1. Applicability. The applicability of Rule 62-204.800(8)(b), F.A.C., shall be the same as set forth in 40 CFR 60.32b.

2. Definitions. For purposes of Rule 62-204.800(8)(b), F.A.C., the definitions in 40 CFR 60.51b shall apply except for the terms "municipal waste combustor plant" and "municipal waste combustor plant capacity" which shall have the same meaning as defined in 40 CFR 60.31b.

3. Emission Limiting Standards.

a. The emission limit for particulate matter shall be the same as set forth in 40 CFR 60.33b(a)(1)(i) and (ii).

b. The opacity limit shall be the same as set forth in 40 CFR 60.33b(a)(1)(iii).

c. The emission limits for cadmium and lead shall be the same as set forth in 40 CFR 60.33b(a)(2)(i) through (iv).

d. The emission limit for mercury shall be the same as set forth in 40 CFR 60.33b(a)(3) except that, where applicable, the emission limiting standards of Rule 62-296.416, F.A.C., also shall apply.

e. The emission limit for sulfur dioxide shall be the same as set forth in 40 CFR 60.33b(b)(1)(i) and (ii).

f. The emission limit for hydrogen chloride shall be the same as set forth in 40 CFR 60.33b(b)(2)(i) and (ii).

g. The emission limit for total mass dioxin/furans (tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans) shall be the same as set forth in 40 CFR 60.33b(c)(1)(i) through 60.33b(c)(2).

h. The emission limit for nitrogen oxides shall be the same as set forth in 40 CFR 60.33b(d), except that 60.33b(d)(2) shall not apply.

i. The emission limit for carbon monoxide shall be the same as set forth in 40 CFR 60.34b(a).

4. Operating Practices. The operating practices applicable to each municipal waste combustor unit subject to Rule 62-204.800(8)(b), F.A.C., shall be the same as forth in 40 CFR 60.53b(b) and (c).

5. Operator Training. The operator training and certification requirements of 40 CFR 60.54b shall apply to all municipal waste combustor units subject to Rule 62-204.800(8)(b), F.A.C. Compliance with these requirements shall be conducted according to the schedule specified in 40 CFR 60.39b(c)(4).

6. Fugitive Ash Emissions. The fugitive ash emissions requirements applicable to each municipal waste combustor unit subject to Rule 62-204.800(8)(b), F.A.C., shall be the same as forth in 40 CFR 60.55b.

7. Compliance and Performance Testing. The compliance and performance testing requirements applicable to each municipal waste combustor unit subject to Rule 62-204.800(8)(b), F.A.C., shall be the same as set forth in 40 CFR 60.58b, except as provided for under 40 CFR 60.24(b)(2) and Rule 62-204.800(8)(b)7., F.A.C.

a. The alternative performance testing schedule for dioxins/furans specified in 40 CFR 60.58b(g)(5)(iii) shall apply to large municipal waste combustor plants that achieve a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter, corrected to 7 percent oxygen.

b. The alternative performance testing schedule for dioxins/furans specified in 40 CFR 60.58b(g)(5)(iii) shall apply to small municipal waste combustor plants that achieve a dioxin/furan emission level less than or equal to 30 nanograms per dry standard cubic meter, corrected to 7 percent oxygen.

8. Reporting and Recordkeeping. The reporting and recordkeeping requirements applicable to each municipal waste combustor unit subject to Rule 62-204.800(8)(b), F.A.C., shall be the same as set forth in 40 CFR 60.59b, except for the siting requirements under 40 CFR 60.59b(a), (b)(5) and (d)(11).

9. Compliance Schedules.

a. All small municipal waste combustor plants subject to Rule 62-204.800(8)(b), F.A.C., shall comply with the compliance schedule specified in 40 CFR 60.39b(c)(3).

b. All large municipal waste combustor plants subject to Rule 62-204.800(8)(b), F.A.C., shall comply with the compliance schedule specified in 40 CFR 60.39b(c)(1) and, where applicable, the compliance

schedule specified in 40 CFR 60.39b(c)(5). The owners or operators of those facilities for which 40 CFR 60.39b(c)(1)(i) or (ii) applies shall, no later than September 16, 1996, submit to the Department either a closure agreement or a schedule for compliance with all applicable standards and conditions of Rule 62-204.800(8)(b), F.A.C. The schedule shall include dates of achievement for each of the increments of progress specified in 40 CFR 60.21(h)(1) through (5), hereby adopted and incorporated by reference.

10. Permit Application Deadline. Any municipal waste combustor plant which contains a municipal waste combustor unit subject to 40 CFR 60, Subpart Cb, is subject to the permitting requirements of Chapter 62-213, F.A.C. Any municipal waste combustor plant subject to the permitting requirements of Chapter 62-213, F.A.C., solely because it is subject to 40 CFR 60, Subpart Cb, shall file an application for an operation permit under the requirements of Chapter 62-213, F.A.C., no later than July 15, 1997.

Specific Authority 403.061, FS. Law Implemented 403.021, 403.031, 403.061, 403.087, FS. History New 3-13-96 Amended 6-25-96, 10-7-96.

2.2 Rule 62-296.416, F.A.C., Waste-to-Energy Facilities

During a public hearing in August 1993, the Florida Environmental Regulation Commission adopted a Department rule which set a mercury emission limit for MWCs with charging rates equal to or greater than 40 tons per day (approximately 36 megagrams per day). Knowing that the flue gas temperature reduction necessary for mercury removal to be effective could only be achieved by those facilities with acid gas scrubbers, the Department decided to only apply the mercury emission limit to those MWC facilities with scrubbers. In doing this, the rule anticipated the eventual adoption of 40 CFR 60, Subpart Cb. The intent of the rule was to avoid subjecting the MWC facilities to double

jeopardy by adopting acid gas emission limits in 1993 in order to force the installation of mercury controls, knowing that the EPA would soon adopt its own set of standards. In order to ensure that all MWC facilities would eventually be subject to the mercury emission limit, the rule also mandated that if the EPA had not proposed emission guidelines for MWCs by December 1, 1994, the Department would begin to develop acid gas standards. The EPA proposed the Subpart Cb standards on September 20, 1994. Subsequently, the language mandating the Department to develop acid gas standards was removed. The full text of the amended rule, as adopted on October 20, 1996, is provided below.

62-296.416 Waste-to-Energy Facilities.

(1) Applicability. The requirements of this rule apply to all waste-to-energy facilities with charging rates of 40 tons per day or more. For those facilities subject to this rule and Rule 62-204.800(8)(b), F.A.C., the mercury emissions limiting standards in this rule shall apply in place of the less restrictive mercury emission limiting standard set forth at Rule 62-204.800(8)(b), F.A.C. However, the mercury percent reduction standard (85 percent) in Rule 62-204.800(8)(b), F.A.C., shall apply in place of the less restrictive mercury percent reduction standard (80 percent) set forth in this rule.

(2) Relationship to Best Available Control Technology. The emission limitations in this rule supersede any less stringent emission limitations including those based on a best available control technology (BACT) determination made pursuant to Rule 62-212.400, F.A.C., or 40 CFR 52.21. The application of BACT shall not result in emissions of any air contaminant which exceeds the emission limits set forth in this rule.

(3) Mercury Emissions Limiting Standards. Waste-to-energy facilities subject to the requirements of this rule shall comply with the

mercury emission limiting standards of Rule 62-296.416(3)(a) or (b), F.A.C., depending on whether the facility chooses to control mercury emissions through the use of post-combustion control equipment designed to remove mercury from flue gases or mercury waste separation, respectively. Facilities choosing to control mercury emissions through the use of mercury control equipment must also comply with the flue gas temperature standard of Rule 62-296.416(4), F.A.C.

(a) Emissions Standard for Facilities Using Mercury Control Equipment.

1. Mercury emissions from facilities using post-combustion control equipment designed to remove mercury from flue gases shall not exceed 70 micrograms per dry standard cubic meter of flue gas, corrected to 7 percent O₂, or 20 percent by weight of the mercury in the flue gas upstream of the mercury control device (80 percent reduction by weight), whichever occurs first.

2. Facilities with sulfur dioxide and hydrogen chloride control equipment in place or under construction as of July 1, 1993, and which choose to control mercury emissions through the use of mercury control equipment, shall comply with the mercury emissions limiting standard of Rule 62-296.416(3)(a)1., F.A.C., by July 1, 1995. All other facilities choosing to control mercury emissions through the use of mercury control equipment shall comply with the mercury emissions limiting standard of Rule 62-296.416(3)(a)1., F.A.C., by the date that the facility is required to demonstrate compliance with sulfur dioxide and hydrogen chloride emission limits, which limits are established at Rule 62-204.800(8)(b), F.A.C.

3. Facilities subject to the mercury emissions limiting standard of Rule 62-296.416(3)(a)1., F.A.C., shall demonstrate individual emissions unit compliance by the compliance date specified in Rule 62-296.416(3)(a)2., F.A.C., and annually thereafter.

(b) Emissions Standards for Facilities Using Waste Separation. The Department recognizes that reduction of mercury emissions from waste-to-energy facilities may be achieved by implementation of mercury waste separation programs. Such programs would require removal of objects containing mercury from the waste stream before the waste is used as a fuel.

1. Facilities with sulfur dioxide and hydrogen chloride control equipment in place or under construction as of July 1, 1993, and which choose to control mercury emissions exclusively through the use of a waste separation program, shall submit a program plan to the Department by March 1, 1994, and shall comply with the following emissions limiting schedule.

a. After July 1, 1995, mercury emissions shall not exceed 140 micrograms per dry standard cubic meter of flue gas, corrected to 7 percent O₂.

b. After July 1, 1997, mercury emissions shall not exceed 70 micrograms per dry standard cubic meter of flue gas, corrected to 7 percent O₂.

2. Beginning no later than July 1, 1994, facilities subject to Rule 62-296.416(3)(b)1., F.A.C., shall perform semiannual individual emissions unit mercury emissions tests. Facilities shall stagger the semiannual testing of individual emissions units such that at least one test is performed quarterly. All tests conducted after July 1, 1995, shall be used to demonstrate compliance with the mercury emissions limiting standards of Rule 62-296.416(3)(b)1., F.A.C.

3. Facilities which do not have sulfur dioxide and hydrogen chloride control equipment in place or under construction as of July 1, 1993, and which choose to control mercury emissions exclusively through the use of a waste separation program, shall comply with a mercury emission limitation of 70 micrograms per dry standard cubic meter of flue gas,

corrected to 7 percent O₂, by the later of July 1, 1997, or the date that the facility is required to demonstrate compliance with sulfur dioxide and hydrogen chloride emission limits, which limits are established after July 1, 1993. If the facility is required to demonstrate compliance with sulfur dioxide and hydrogen chloride emission limits by a date prior to July 1, 1997, it shall comply with a mercury emission limitation of 140 micrograms per dry standard cubic meter of flue gas, corrected to 7 percent O₂, by that date and until July 1, 1997.

4. Facilities subject to Rule 62-296.416(3)(b)3., F.A.C., shall demonstrate individual emissions unit compliance with the mercury emission limiting standard by the date specified therein and semiannually thereafter. Facilities shall stagger the semiannual testing of individual emissions units such that at least one test is performed quarterly.

(c) Mercury Emissions Inventory. For emissions inventory purposes, all waste-to-energy facilities with charging rates of 40 tons or more per day shall perform annual individual emissions unit mercury emissions tests and report the results to the Department. This testing shall begin during calendar year 1993 and end upon initiation of mercury testing pursuant to Rule 62-296.416(3)(a) or (b), F.A.C.

(d) Mercury Emissions Test Method and Procedures. All mercury emissions tests performed pursuant to the requirements of this rule shall comply with the following provisions.

1. The test method for mercury shall be EPA Method 29 adopted in Rule 62-297, F.A.C.

2. Test procedures shall meet all applicable requirements of Rule 62-297, F.A.C.

(4) Flue Gas Temperature Standard. Waste-to-energy facilities choosing to control mercury emissions through the use of post-combustion control equipment designed to remove mercury from flue gases shall

comply with the flue gas temperature standard of Rule 62-296.416(4)(a), F.A.C.

(a) Temperature Standard. The flue gas temperature standard set forth in 40 CFR 60.53b(c), incorporated by reference in Rule 62.204.800, F.A.C., shall apply.

(b) Temperature Monitoring. The temperature monitoring requirements set forth in 40 CFR 60.58b(i), incorporated by reference in Rule 62-204.800, F.A.C., shall apply.

(5) Carbon Usage Rate. The carbon injection rate operating standard and monitoring requirements set forth in 40 CFR 60.58b(m), incorporated by reference in Rule 62-204.800, F.A.C., shall apply.

(6) Review of Standards. The Department shall review the mercury emission limits contained in Rule 62-296.416(3), F.A.C., and make recommendations to the Environmental Regulation Commission on revising the mercury emission limits no later than July 1, 1998. The review shall include an examination of available mercury emissions data and advances in mercury control technologies and mercury source separation techniques.

Specific Authority 403.061 Law Implemented 403.021, 403.031, 403.061, 403.087, FS. History New 10-5-93 Formerly 17-296.416 Amended 11-23-94, 1-1-96, 10-20-96.

3.0 Inventory of MWC Units

The following table is an inventory of the 35 MWC units in Florida affected by 40 CFR 60, Subpart Cb. All of the units listed are operating. Any nonoperational MWC units have been either partially or totally dismantled. An explanation of combustor unit type and air pollution controls is not provided in this plan.

Table 3-1. MWC Unit Inventory

| Facility Name | Location | Unit | Capacity (MPD) ^a | Unit Type ^b | APC ^c |
|-------------------------------|-------------|------|-----------------------------|------------------------|------------------|
| Bay County Energy Systems | Panama City | 1 | 231 | MB/RW | ESP |
| | | 2 | 231 | MB/RW | ESP |
| Lake County Resource Recovery | Okahumpka | 1 | 261 | MB/WW | FF, SD, CI |
| | | 2 | 261 | MB/WW | FF, SD, CI |
| Pasco County Solid Waste | Hudson | 1 | 317 | MB/WW | FF, SD, CI |
| | | 2 | 317 | MB/WW | FF, SD, CI |
| | | 3 | 317 | MB/WW | FF, SD, CI |

Table 3-1 (continued). MWC Unit Inventory

| Facility Name | Location | Unit | Capacity (MPD) ^a | Unit Type ^b | APC ^c |
|---------------------------------------|-----------------|------|-----------------------------|------------------------|------------------|
| Hillsborough County Resource Recovery | Tampa | 1 | 363 | MB/WW | ESP |
| | | 2 | 363 | MB/WW | ESP |
| | | 3 | 363 <i>Tons/day</i> | MB/WW | ESP |
| McKay Bay Refuse-to-Energy | Tampa | 1 | 225 <i>248</i> | MB/WW | ESP |
| | | 2 | 225 <i>248</i> | MB/WW | ESP |
| | | 3 | 225 <i>248</i> | MB/WW | ESP |
| | | 4 | 225 <i>248</i> | MB/WW | ESP |
| Pinellas Resource Recovery | St. Petersburg | 1 | 907 | MB/WW | ESP |
| | | 2 | 907 | MB/WW | ESP |
| | | 3 | 907 | MB/WW | ESP |
| Lee County Resource Recovery | Fort Myers | 1 | 599 | MB/WW | FF, SD, SNCR, CI |
| | | 2 | 599 | MB/WW | FF, SD, SNCR, CI |
| Palm Beach Solid Waste Authority | West Palm Beach | 1 | 907 | RDF | ESP, SD |
| | | 2 | 907 | RDF | ESP, SD |
| North Broward Co. Resource Recovery | Pompano Beach | 1 | 680 | MB/WW | FF, SD |
| | | 2 | 680 | MB/WW | FF, SD |
| | | 3 | 680 | MB/WW | FF, SD |
| South Broward Co. Resource Recovery | Fort Lauderdale | 1 | 680 | MB/WW | FF, SD |
| | | 2 | 680 | MB/WW | FF, SD |
| | | 3 | 680 | MB/WW | FF, SD |
| Dade County Resource Recovery | Miami | 1 | 680 | RDF | ESP |
| | | 2 | 680 | RDF | ESP |
| | | 3 | 680 | RDF | ESP |
| | | 4 | 680 | RDF | ESP |
| Dade County Aviation Department | Miami | 1 | 27 | MOD/SA | None |
| | | 2 | 27 | MOD/SA | None |
| Southernmost Waste-to-Energy | Key West | 1 | 68 | MB/WW | ESP |
| | | 2 | 68 | MB/WW | ESP |

Notes:

- ^a The capacity is expressed in **Megagrams per Day (MPD)** of refuse
- ^b The type of combustion unit is either Mass Burn/Waterwall (MB/WW), Mass Burn/Rotary Waterwall (MB/RW), Refuse Derived Fuel (RDF) or Modular/Starved Air (MOD/SA)
- ^c The Air Pollution Controls (APC) listed are:
 Electrostatic Precipitator (ESP)
 Fabric Filter (FF)
 Spray Dryer (SD) "Scrubber"
 Selective Non-Catalytic Reduction (SNCR)
 Carbon Injection (CI)

5.0 Compliance Schedules and Closure Agreements

Under the provisions of 40 CFR 60.24, the Department must include compliance schedules for each affected MWC facility. Furthermore, in 40 CFR 60.39b, small facilities (more than 35 but less than or equal to 225 megagrams per day) must comply with all of the standards and conditions of Subpart Cb within three years of EPA approval of this plan, while large facilities (greater than 225 megagrams per day) must comply within one to three years. If the compliance schedule for a large facility extends beyond one year, the schedule must include the measurable and enforceable incremental steps of progress specified in 40 CFR 60.21(h). The five increments of progress are:

Increment 1: Submittal of a final control plan for the designated facility to the appropriate air pollution control agency.

Increment 2: Awarding of contracts for emission control systems or for process modifications, or issuance of orders for the purchase of component parts to accomplish emission control or process modification.

Increment 3: Initiation of on-site construction or installation of emission control equipment or process change.

Increment 4: Completion of on-site construction or installation of emission control equipment or process change.

Increment 5: Final compliance.

Under the provisions of 40 CFR 60.39b, and in accordance with the July 1996 EPA document, *Municipal Waste Combustion: Summary of the Requirements for Section 111(d)/129 State Plans for Implementing the Municipal Waste Combustor Emission Guidelines*, a State plan may include provisions for an MWC unit to cease operation and restart as part of its retrofit schedule. In a case where an MWC facility (which may include multiple units) requires such extensive construction that the work cannot be

completed within a three-year time frame, a closure agreement may be included in the plan which would require the unfinished MWC unit(s) to close at the end of three years and not reopen until construction is complete. Performance testing of the unit(s) covered by the closure agreement must be completed within 180 days of reopening.

Sections 5.1 through 5.13 of this plan present the compliance schedules and, where applicable, the closure agreements for each MWC unit at every affected facility.

5.1 Bay County Energy Systems

The municipal waste combustion facility in Bay County consists of two mass burn units. Each unit can burn 231 megagrams per day (approximate total: 510 tons per day) of waste and uses an electrostatic precipitator to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will be retrofitted concurrently. Therefore, both units will meet the following compliance schedule.

Increment 1: 3 months after EPA approval of this plan.

Increment 2: 7 months after EPA approval of this plan.

Increment 3: 19 months after EPA approval of this plan.

Increment 4: 32 months after EPA approval of this plan.

Increment 5: 36 months after EPA approval of this plan or December 19, 2000, whichever is earlier.

5.2 Lake County Resource Recovery

The municipal waste combustion facility in Lake County consists of two mass burn units. Each unit can burn 261 megagrams per day (approximate total: 576 tons per day) of waste and uses a spray dryer, carbon injection and fabric filter to control gaseous

emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will be retrofitted concurrently. Therefore, both units will meet the following compliance schedule.

Increment 1: 3 months after EPA approval of this plan.

Increment 2: 15 months after EPA approval of this plan.

Increment 3: 21 months after EPA approval of this plan.

Increment 4: 25 months after EPA approval of this plan.

Increment 5: 36 months after EPA approval of this plan or December 19, 2000, whichever is earlier.

5.3 Pasco County Solid Waste

The municipal waste combustion facility in Pasco County consists of three mass burn units. Each unit can burn 317 megagrams per day (approximate total: 1050 tons per day) of waste and uses a spray dryer, carbon injection and fabric filter to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will be retrofitted concurrently. Therefore, all three units will meet the following compliance schedule.

Increment 1: 3 months after EPA approval of this plan.

Increment 2: December 31, 1998.

Increment 3: November 15, 1999.

Increment 4: March 30, 2000.

Increment 5: 36 months after EPA approval of this plan or April 19, 2000, whichever is earlier.

5.4 Hillsborough County Resource Recovery

The municipal waste combustion facility in Hillsborough County consists of three mass burn units. Each unit can burn 363 megagrams per day (approximate total: 1200 tons per day) of waste and uses an electrostatic precipitator to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will have a slightly different compliance schedule, and it is likely that the retrofit of one or more units may extend beyond the three-year compliance deadline. Therefore, a closure agreement between the County and State is included in Appendix C of this plan. The compliance schedule is provided below.

Increment 1: December 31, 1996 - applicable to units 1, 2 and 3.

Increment 2: December 31, 1997 - applicable to units 1, 2 and 3.

Increment 3: February 28, 1999 - applicable to the first unit. July 30, 1999 - applicable to the second unit. April 30, 2000 - applicable to the third unit. The order of the construction schedule (i.e. which unit is first, second and third) will be identified in the final control plan.

Increment 4: September 30, 2000 - applicable to units 1, 2 and 3.

Increment 5: December 10, 2000 - applicable to units 1, 2 and 3.

Closure Agreement: 36 months after EPA approval of this plan the County will cease operation of any unit that has not completed on-site construction or installation of emission control equipment and is not involved in performance testing. After closure, said units may commence startup, shakedown and performance/compliance testing per the closure agreement. Performance/compliance tests must be completed within 180 days of startup.

5.5 McKay Bay Refuse-to-Energy

The municipal waste combustion facility in Tampa consists of four mass burn units. Each unit can burn 225 megagrams per day (approximate total: 1000 tons per day) of waste and uses an electrostatic precipitator to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Two sets of two units will have slightly different compliance schedules, and it is likely that the retrofit of one or more units may extend beyond the three-year compliance deadline. Therefore, a closure agreement between the City and State is included in Appendix C of this plan. The compliance schedule is provided below.

- Increment 1: 12 months after EPA approval of this plan - applicable to units 1, 2, 3 and 4.
- Increment 2: 20 months after EPA approval of this plan - applicable to units 1, 2, 3 and 4.
- Increment 3: 24 months after EPA approval of this plan - applicable to units 1, 2, 3 and 4.
- Increment 4: 36 months after EPA approval of this plan - applicable to the first and second unit. 48 months after EPA approval of this plan - applicable to the third and fourth units. The order of the construction schedule (i.e. which units complete construction by 36 months and which by 48 months) will be identified in the final control plan.
- Increment 5: 42 months after EPA approval of this plan - applicable to the first and second unit. 54 months after EPA approval of this plan - applicable to the third and fourth units. The order of final compliance (i.e. which units demonstrate final compliance by 42 months and which by 54 months) will be identified in the final control plan.

Closure Agreement: 36 months after EPA approval of this plan or December 19, 2000, whichever occurs first, the County will cease operation of any unit that has not completed on-site construction or installation of emission control equipment and is not involved in performance testing. After closure, said units may commence startup, shakedown and performance/compliance testing per the closure agreement. Performance/compliance tests must be completed within 180 days of startup.

5.6 Pinellas Resource Recovery

The municipal waste combustion facility in Pinellas County consists of three mass burn units. Each unit can burn 907 megagrams per day (approximate total: 3000 tons per day) of waste and uses an electrostatic precipitator to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will have a different compliance schedule and it is likely that the retrofit of one or more units may extend beyond the three-year compliance deadline. Therefore, a closure agreement between the County and State is included in Appendix C of this plan. The compliance schedule is provided below.

Increment 1: January 1, 1997 - applicable to units 1, 2 and 3.

Increment 2: January 1, 1997 - applicable to units 1, 2 and 3.

Increment 3: June 19, 1997 - applicable to units 1, 2 and 3.

Increment 4: June 19, 1999 - applicable to unit 3. December 19, 1999 - applicable to unit 2. June 19, 2000 - applicable to unit 1.

Increment 5: December 19, 1999 - applicable to unit 3. June 19, 2000 - applicable to unit 2. December 19, 2000 - applicable to unit 1.

Closure Agreement: 36 months after EPA approval of this plan the County will cease operation of any unit that has not completed on-site construction or installation of emission control equipment and is not involved in performance testing. After closure, said units may commence startup, shakedown and performance/compliance testing per the closure agreement. Performance/compliance tests must be completed within 180 days of startup.

5.7 Lee County Resource Recovery

The municipal waste combustion facility in Lee County consists of two mass burn units. Each unit can burn 599 megagrams per day (approximate total: 1320 tons per day) of waste and uses a spray dryer, carbon injection, selective non-catalytic reduction and fabric filter to control gaseous emissions. The facility does not require any new pollution control devices or installation any new equipment to meet the applicable standards. Therefore, both MWC units at the Lee County Resource Recovery Facility will demonstrate compliance with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C, within 12 months of EPA approving this plan.

5.8 Palm Beach Solid Waste Authority

The municipal waste combustion facility in Palm Beach County burns processed municipal solid waste which is called “refuse derived fuel” (RDF). Each of the two units can burn 907 megagrams per day (approximate total: 2000 tons per day) of RDF and uses a spray dryer and electrostatic precipitator to control gaseous emissions. The facility is currently in substantial compliance with the applicable standards. Therefore, both MWC units at the Palm Beach Solid Waste Authority Resource Recovery Facility will

demonstrate compliance with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C, within 12 months of EPA approving this plan.

5.9 North Broward County Resource Recovery

The municipal waste combustion facility in North Broward County consists of three mass burn units. Each unit can burn 680 megagrams per day (approximate total: 2250 tons per day) of waste and uses a spray dryer and fabric filter to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will be retrofitted concurrently. Therefore, all three units will meet the following compliance schedule.

Increment 1: 2 months after EPA approval of this plan.

Increment 2: 8 months after EPA approval of this plan.

Increment 3: 24 months after EPA approval of this plan.

Increment 4: 34 months after EPA approval of this plan.

Increment 5: 36 months after EPA approval of this plan or by December 19, 2000, whichever is earlier.

5.10 South Broward County Resource Recovery

The municipal waste combustion facility in South Broward County consists of three mass burn units. Each unit can burn 680 megagrams per day (approximate total: 2250 tons per day) of waste and uses a spray dryer and fabric filter to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will be retrofitted concurrently. Therefore, all three units will meet the following compliance schedule.

- Increment 1: 2 months after EPA approval of this plan.
- Increment 2: 8 months after EPA approval of this plan.
- Increment 3: 24 months after EPA approval of this plan.
- Increment 4: 34 months after EPA approval of this plan.
- Increment 5: 36 months after EPA approval of this plan or by December 19, 2000, whichever is earlier.

5.11 Dade County Resource Recovery

The municipal waste combustion facility in Dade County burns processed municipal solid waste which is called "refuse derived fuel" (RDF). Each of the four units can burn 680 megagrams per day (approximate total: 3000 tons per day) of RDF and uses an electrostatic precipitator to control gaseous emissions. The facility is large and is already in the process of complying with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. The new air pollution control system has been designed and purchased. Onsite construction of related facilities has begun while onsite construction of the air pollution control system is scheduled to begin in early 1997. Because of the work that has been done, the first two increments have already been achieved by the county. However, due to the extent of the retrofit, more than one year after EPA approval of this plan will be required to achieve full compliance. Each unit will be retrofitted concurrently. Therefore, all four units will meet the following compliance schedule.

- Increment 1: June 14, 1996.
- Increment 2: January 31, 1996.
- Increment 3: February 28, 1997.
- Increment 4: 32 months after EPA approval of this plan.
- Increment 5: 36 months after EPA approval of this plan or December 19, 2000,

whichever occurs first.

5.12 Dade County Aviation Department

The Dade County Aviation Department owns and operates two modular type MWC units which are used to burn waste from the Miami International Airport. Each unit can burn 27 megagrams per day (approximate total: 60 tons per day) of waste and uses no post-combustion equipment to control gaseous emissions. The facility will comply with all applicable standards either by retrofitting the existing units or by replacing the existing units with new ones. If the Dade County Aviation Department chooses to replace the existing units, the facility will be subject to the New Source Performance Standards of 40 CFR 60, Subpart Eb, instead of the Emission Guidelines of Subpart Cb. Therefore, the facility will either be in compliance with all of the applicable standards and conditions of Rules 62-204.800(8)(b) and 62-296.416, F.A.C., no later than 36 months after EPA approval of this plan, or build a “new” facility subject to Subpart Eb, or shut down. Because the facility is small, no detailed compliance schedule and no closure agreement is required.

5.13 Southernmost Waste-to-Energy

The municipal waste combustion facility in Key West consists of two mass burn units. Each unit can burn 68 megagrams per day (approximate total: 150 tons per day) of waste and uses an electrostatic precipitator to control gaseous emissions. The facility is small and is not required to have a detailed compliance schedule. The facility will be in compliance with all of the applicable standards and conditions of Rules 62-204.800(8)(b)

and 62-296.416, F.A.C., no later than 36 months after EPA approval of this plan or by December 19, 2000, whichever is earlier.

6.0 Testing, Monitoring, Recordkeeping and Reporting

Under the provisions of 40 CFR 60.25, a State plan must provide for the ongoing testing, monitoring, recordkeeping and reporting of post-retrofit emissions from affected MWC facilities. As stated in 60.25 of Subpart B, the State plan requirements for monitoring compliance must include the following:

- Legally enforceable requirements that require owners and operators to keep records of the nature and amount of emissions and any other information that may be necessary to enable the state to judge compliance. This information must be reported periodically to the state.
- Legally enforceable requirements that provide for periodic inspection and testing.
- Provisions for making reports of emission data, correlated with the emission standards that apply, available to the general public.

In Rule 62-204.800(8)(b), F.A.C., the Department adopted the compliance and performance testing requirements of 40 CFR 60.58, and the reporting and recordkeeping requirements of 40 CFR 60.59. By adopting these compliance conditions, the Department has satisfied the Subpart B requirements for legally enforceable testing, monitoring, recordkeeping and inspections. All of these compliance data are entered into the Department's Air Resources Management System (ARMS) database. Information can be retrieved from the database in summary report format for a single facility or for an entire source category. Thus, the data are available to the general public.

Florida Department of
Environmental Protection

Memorandum

TO: Al Linero
THROUGH: Mike Harley *ML*
FROM: Louis Nichols *LN*
DATE: September 25, 1997
SUBJECT: Monitoring Plan for McKay Bay Refuse-to-Energy Facility

I have reviewed the monitoring plan for McKay Bay Refuse-to-Energy Facility. The monitoring plan commits the City of Tampa to the installation of monitoring equipment and the use of QA pursuant to the requirements of 40 CFR 60, Subpart Cb. It does not reference any specific monitors, monitoring locations, or monitoring techniques. They have neither committed to the type of combustion units that they will construct, nor provided information concerning monitoring equipment and monitoring locations. They should be asked to provide this prior to the issuance of the permit.

CC: Dotty Diltz

3 hr. -startup

VE in lieu of P.M.

Method 22 vs. 9

----- TOP -----

I N T E R O F F I C E M E M O R A N D U M

Date: 23-Sep-1997 09:25am EST
From: Lennon Anderson TAL
ANDERSON L
Dept: Air Resources Management
Tel No: 850/488-1344
SUNCOM: 278-1344

TO: John Reynolds TAL (REYNOLDS_J)

CC: Cindy Phillips TAL (PHILLIPS_C)

Subject: Applicability of 112(g) [MACT]

The Air Toxics Permitting Unit received and reviewed the City of Tampa Facility Application for a MACT Determination.

Based on the information provided, the Facility may be subject to review under 112(g) for the reasons below:

- Upgrading the existing four mass-burn combustion units to achieve greater combustion control and improve combustion efficiency could meet the definition of "reconstruct a major source".

- HCL and HF will exceed the 10 TPY threshold for major source.

In order to determine if 112(g) applies, the following information is needed:

- The cost of four new mass-burn combustion units.
- The cost of the components to upgrade each existing mass-burn combustion units.

----- BOTTOM -----

Press RETURN to continue, GOLD MENU for options or EXIT to cancel

Date: 9/16/97 10:58:23 AM
From: Patricia Comer TAL
Subject: Re: City of Tampa McKay Bay Refuse to Energy Facility
To: Alvaro Linero TAL
CC: Doug Beason TAL

There is pending litigation that may affect the legal questions of what is muni solid waste. The Ogden case should have a decision in the near future. I'd be careful about making any interpretations until then.

Date: 9/16/97 10:25:25 AM
From: Alvaro Linero TAL
Subject: City of Tampa McKay Bay Refuse to Energy Facility

We received an application for an Air Pollution and Facility Improvement Project at Tampa McKay Bay. The project involves major improvements in the 4 x 250 TPD mass burn units and addition of air pollution control equipment including replacement of ESP's, carbon injection, SNCR, spray dryer absorber and fabric filters. CEMS will be added and the stacks will be replaced.

Based on previous meetings, the issues are (were): processing the application quickly, if it is only an air pollution control project; defining operating windows; definition of waste; basis of throughput (trash or steam); RACT for particulate; MACT for MWCs.

Teresa Heron will verify the fee and handle the permitting, which is actually a request to modify the operation permit. We may consider doing a construction permit instead. Kim. Log into ARMS. Copy SWD and EPA requesting comments. Hillsborough has a copy.

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

Mike Harley. Please have a look at monitoring and compliance plans and comment. I left a copy on your desk. Let me have it back when you are done.

Pat. There is a very long legal and rules section. It would be worth looking at. I see a lot of stuff related to what is municipal solid waste. Please have a look at it sometime. Kim or Teresa can provide copy.

Send all comments directly to Teresa. I would like to send the City comments within two weeks if possible. An application to upgrade the larger Hillsborough County facility is expected shortly. Thanks. Al Linero.

Date: 10/7/97 9:05:45 AM
From: Louis Nichols TAL
Subject: FYI McKay Bay
To: John Reynolds TAL

For your information, there is a list of exceptions that the City of Tampa listed on page 8-3 of Volume I of their application for McKay Bay RRF. They requested a 3-hour startup, Method 9 in lieu of a particulate test for the lime and carbon silo dust collectors, the EG guidelines for visible emissions for the ash handling system, and Method 22 for the fugitive emissions for the ash handling system. Mike believes some of these may require an ASP. Some of the other may be handled by permit. Just letting you know. Thanks.

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LANDERS & PARSONS

ATTORNEYS AT LAW

CINDY L. BARTIN
DAVID S. DEE
JOSEPH W. LANDERS, JR.
JOHN T. LAVIA, III
RICHARD A. LOTSPEICH
FRED A. MCCORMACK
PHILIP S. PARSONS
ROBERT SCHEFFEL WRIGHT

HOWELL L. FERGUSON
OF COUNSEL

VICTORIA J. TSCHINKEL
SENIOR CONSULTANT
(NOT A MEMBER OF THE FLORIDA BARI)

310 WEST COLLEGE AVENUE
POST OFFICE BOX 271
TALLAHASSEE, FLORIDA 32302
TELEPHONE (904) 681-0311
TELECOPY (904) 224-5595

April 2, 1996

Winston Smith
Director
Division of Air, Pesticides and
Toxic Management
United States Environmental
Protection Agency
345 Courtland Avenue, NE
Atlanta, Georgia 30365

RECEIVED

OCT 01 1997

BUREAU OF
AIR REGULATION

Re: Tampa's McKay Bay Refuse-To-Energy Facility

Dear Mr. Smith:

This law firm assists the City of Tampa, Florida, with environmental law issues affecting the City's McKay Bay Refuse-to-Energy Facility (Facility). On behalf of the City, we are sending you this letter to formally request a written determination by the U. S. Environmental Protection Agency (EPA), pursuant to 40 CFR Section 60.5, that the installation of new air pollution control equipment and other improvements to the City's Facility will not constitute "reconstruction," as that term is defined in EPA's regulations, and will not subject the City's Facility to the requirements contained in EPA's New Source Performance Standards for Municipal Waste Combustors (40 CFR 60, Subpart Eb).¹

¹ We previously discussed these issues with Mr. Fred Porter, Mr. Walt Stevenson, and Mr. George Smith at EPA's offices in Research Triangle Park, North Carolina. Mr. Brian Beals and Mr. Scott Davis from EPA-Region-IV participated in the meeting via telephonic conference call. In compliance with the suggestions we received from EPA at that meeting, we are now submitting these issues to EPA for a written determination pursuant to 40 CFR Section 60.5. The City would like to receive a prompt response to this letter, but the City recognizes that EPA may not be able to respond within 30 days, as required by 40 CFR Section 60.5(b).

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The issues presented in this letter are extremely important to the City of Tampa. The City is trying to determine whether it should (a) install new air pollution control systems in the existing Facility or (b) construct a new municipal waste combustor. EPA's response to this letter will help the City determine whether its Facility will be subject to the requirements in EPA's Emissions Guidelines (EG) or, instead, the New Source Performance Standards (NSPS) for Municipal Waste Combustors (MWC), which are codified at 40 CFR Part 60, Subparts Cb and Eb, respectively. With EPA's response, the City will be able to evaluate more precisely the advantages and disadvantages of its options.

TAMPA'S REQUEST FOR A FORMAL DETERMINATION BY EPA

The Factual Background

The City of Tampa's McKay Bay Refuse-To-Energy Facility is located at a site that has been used for the incineration of municipal solid waste (MSW) for approximately 29 years. This site was first used in 1967, when the City built an incinerator capable of burning 750 tons per day (tpd) of MSW. The City's incinerator had three combustion units and each unit was rated at 250 tpd. The incinerator did not include any equipment to recover heat or generate electricity. Wet scrubbers were used to control the airborne emissions from the incinerator. The incinerator was closed in 1979 because it was unable to comply with newly adopted environmental regulations.

The City subsequently decided to convert the incinerator into a waste-to-energy facility, which began commercial operations in 1985 as the McKay Bay Refuse-to-Energy Facility. The waste-to-energy facility is located in the same building that housed the incinerator. The waste-to-energy facility also uses other components of the incinerator, including the tipping floor, the refuse pit, the access roads, and portions of the ash handling system.

Although some parts of the incinerator were used in the waste-to-energy facility, significant changes to the incinerator were necessary. Volund rotary kilns were used in the City's incinerator. New Volund kilns were installed when the incinerator was converted to a waste-to-energy facility. A

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fourth combustion unit (250 tpd) was added, which increased the Facility's total capacity to 1,000 tpd. A waste heat recovery system and a turbine generator were installed. The wet scrubbers were removed and electrostatic precipitators (ESP) were installed.

The Facility was a state-of-the-art design for the late 1970s and it has operated relatively well. The Facility has consistently met the emissions limitations contained in the City's permits (PSD-FL-086; FDEP AO29-206279)².

The City is in the process of identifying the specific improvements that must be made to the Facility to comply with the newly adopted EPA regulations for MWCs. In general, the City's consultants have concluded that the Facility will not satisfy the requirements in EPA's Emission Guidelines for MWCs unless the City removes the existing kilns and installs new air pollution control systems, furnaces, grates, auxiliary burners, continuous emissions monitors, and other equipment. The City also must improve the Facility's heat recovery system, the electrical system, and the instrumentation and control system. These proposed improvements to the Facility are necessary to ensure the Facility's compliance with the Emission Guidelines, but the City will not increase the Facility's maximum MSW throughput or electrical output.

The Applicable EPA Regulations

On December 19, 1995, EPA promulgated new regulations for municipal waste combustors, including the City of Tampa's Facility. The new regulations are codified in 40 CFR, Part 60, and they include:

(a) Subpart Eb, which establishes the new source performance standards (NSPS) that govern MWCs built after September 20, 1994; and

(b) Subpart Cb, which establishes the emission guidelines (EG) that govern existing MWCs.

² A PSD permit (PSD-FL-086) was issued by EPA Region IV on July 2, 1982 for the construction of the Facility.

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The NSPS apply not only to new MWCs, but also to "each municipal waste combustor unit . . . for which modification or reconstruction is commenced . . ." after June 19, 1996. 40 CFR 60, Subpart Eb, Section 60.50b(a). Thus, the NSPS for MWCs would apply to the City's Facility if a "modification" or "reconstruction" of the Facility occurred after June 19, 1996.

In the NSPS for MWCs, "reconstruction" is defined as:

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

40 CFR 60, Subpart Eb, §60.51b. For convenience, we will refer to the foregoing requirement as EPA's "50% Rule." This 50% Rule also is included in the NSPS definition of a "modification," which is set forth in Section 60.51b.³

These definitions of "reconstruction" and "modification" only apply to changes to the "municipal waste combustor unit." In the NSPS, the "municipal waste combustor unit" is defined to include:

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

³ In 40 CFR 60, Subpart Eb, Section 60.51b, a "modification" is defined to include any physical or operational change in a MWC unit that "increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111" of the Clean Air Act. This definition of a modification is not discussed in the body of this letter because the City assumes that the proposed improvements to the Facility will not cause an increase in the Facility's emissions of any air pollutant for which standards have been established under sections 129 or 111.

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

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

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

(3) The municipal waste combustor unit does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set."

Section 60.51b.

Based on our review of EPA's regulations and our discussions with EPA's staff, it is clear that there are limitations on the application of the 50% Rule. First, the 50% Rule does not apply to the cost of changes that do not involve the MWC unit. Since some components of the MWC (e.g, the stack) are excluded from the definition of an "MWC unit," changes to those components of the MWC are not considered when determining whether there has been a modification or reconstruction of the MWC unit.

Second, the NSPS provide that:

"Physical or operational changes made to an existing municipal waste combustor unit primarily for the purpose of complying with emission guidelines under subpart Cb are not considered a modification or reconstruction and do not result in an existing municipal waste combustor unit becoming subject to this subpart [i.e., the NSPS in Subpart Eb]."

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Section 60.50b(d). Therefore, if the City makes physical or operational changes to its Facility primarily for the purpose of complying with EPA's new emission guidelines, the cost of those changes cannot be considered by EPA when determining whether there has been a modification or reconstruction of the City's Facility.

The Basic Issue For Tampa

The basic issue in this case is simple: How will EPA categorize the improvements that the City must make to its Facility? For each one of the proposed improvements, the City needs to know whether the cost of the proposed improvement must be included in the calculations that are to be performed under the 50% Rule when determining whether there has been a modification or reconstruction of the Facility. After EPA provides the City with its response concerning each one of the proposed improvements, the City can calculate whether the total cost of the improvements will exceed the threshold in the 50% Rule. The City then will know whether the Facility will be subject to the requirements in the EG or NSPS.

To fully respond to this letter, EPA will need to categorize each one of the City's proposed improvements. First, EPA must determine whether the proposed improvement (e.g., new stack) is part of the "MWC unit," as defined in the NSPS. If the improvement is not part of the MWC unit, then the cost of the improvement should not be included in the calculations under the 50% Rule. Similarly, EPA must determine whether the proposed improvement to the City's Facility is necessary "primarily" for the purpose of complying with the MWC Emission Guidelines in Subpart Cb. If so, the cost of the improvement should not be included in the calculations under the 50% Rule.

The Improvements to the City's Facility

The City of Tampa's Facility has operated satisfactorily and been in compliance with the applicable permit limits from 1985 to the present. Nonetheless, the City now must upgrade its Facility to comply with the requirements of EPA's Emissions Guidelines. The City believes that the improvements to the Facility do not constitute reconstruction and do not trigger the requirements of EPA's NSPS for MWC.

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For ease of reference, the City has prepared a separate document (Exhibit "A") that identifies each of the necessary improvements to the City's Facility and explains why the improvements should not be classified as reconstruction of the Facility. The City also prepared a table (Exhibit "B") of the improvements to the Facility and categorized them. Copies of Exhibits "A" and "B" are attached to this letter.

Also attached is Exhibit "C", a report dated March 1996 that was prepared by one of the City's consulting firms, Sjoberg Ventures, Inc. (SVI). SVI's report describes the improvements that the City must make to its Facility and the reasons why the improvements are necessary. SVI's report contains diagrams and plot plans for the existing Facility, as well as conceptual diagrams and plot plans for the Facility as it may look in the future.

RELATED ISSUES

Updated Costs

When determining whether reconstruction has occurred under EPA's 50% Rule, the facility owner or operator must look at "the original cost of construction and installation of the unit . . . updated to current costs (current dollars)." The EG do not indicate how the costs are to be updated. The City assumes that it should use the ENR Construction Price Index, but it would like to receive EPA's confirmation that this assumption is correct.

Basis of Cost Comparison

The City of Tampa is concerned about the basic facts that will be used to determine whether its improvements to the Facility will constitute reconstruction. To determine whether reconstruction has occurred, the Emission Guidelines indicate that the facility owner or operator must determine the "original cost of construction and installation of the unit." ⁴ This requirement for MWCs appears to be different than the general

⁴ See the definition of "reconstruction" in the MWC NSPS. 40 CFR 60, Subpart Eb, Section 60.51b.

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requirements in 40 CFR Part 60 that apply to all other stationary sources. To determine whether reconstruction has occurred under 40 CFR §60.15(b), the facility owner looks to the "fixed capital cost that would be required to construct a comparable entirely new facility."

It will be extremely difficult or impossible for the City to accurately determine the "original cost" of the City's Facility. As indicated above, the City's Facility contains significant components of the City's 1967 incinerator, as well as components of a 1985 WTE facility. Construction of the Facility occurred on two separate occasions, many years apart. The individual components of the Facility were not the subject of separate bids, so the City never had detailed records concerning the cost of the individual components of the Facility. The City's records today are even less complete and cannot be relied upon to establish the actual cost of the Facility. Consequently, it would be very difficult to attempt to segregate the Facility into 1967 and 1985 components and then prepare a reasonable estimate of the "original cost." Even if estimates could be prepared for the costs in 1967 and 1985, those estimates then would have to be adjusted for inflation, which would add more uncertainty to the analysis. For all of these reasons, the City believes that the "original cost" should not be used in this case as the basis for comparison.

The City would like to have the flexibility to use the approach authorized in 40 CFR 60.15(b), which focuses on the cost of a comparable entirely new facility. It would be much easier and more accurate to determine the cost of the components in a modern 1,000 tpd MWC. This approach apparently is available to any stationary source of airborne emissions. Accordingly, the City respectfully requests EPA's approval to use the approach authorized in 40 CFR 60.15(b) when conducting the cost comparison under EPA's 50% Rule.

Conclusion

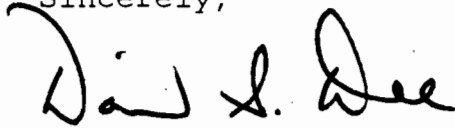
On behalf of the City of Tampa, we want to thank you for your assistance with the issues addressed in this letter. We hope that EPA will exercise its discretion in a manner that provides some flexibility to the City as it tries to evaluate its options for complying with the new MWC Emission Guidelines. The City is willing to make *the* necessary improvements to its

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Facility to comply with the EG, but the City does not want these improvements to be used as the basis for imposing the NSPS on the City's Facility. The City believes EPA should use its discretion when responding to this letter and thereby help ensure that the City and other similarly situated communities are not unduly penalized when they attempt to retrofit their MWCs and come into compliance with the new Emission Guidelines.

Please call me if you have any questions.

Sincerely,



David S. Dee

cc: Fred Porter
Walt Stevenson (w/attachments)
Brian Beals (w/attachments)
Scott Davis
Howard Rhodes
Clair Fancy (w/attachments)
Bill Thomas
Jerry Campbell (w/attachments)
Sam Halter
James Palermo
Mike Salmon (w/attachments)
Wayne Brookins
Nancy McCann
Julie Andresen (w/attachments)
Andrew Nguyen (w/attachments)

/vc:TAMPA20

EXHIBIT "A"

THE PROPOSED IMPROVEMENTS TO THE CITY'S FACILITY

This document identifies the improvements that the City of Tampa (City) must make to the McKay Bay Refuse-To-Energy Facility (Facility) to comply with the requirements of the Emissions Guidelines (EG) for municipal waste combustors (MWC). 40 CFR 60, Subpart Cb. This document explains why the City believes these improvements do not constitute reconstruction or modification of the Facility. The technical and engineering reasons for the improvements are described in a report dated March 1996, prepared by Sjoberg Ventures, Inc. (SVI). The SVI report is attached hereto.

I. Air Pollution Control Equipment

To comply with the Emissions Guidelines (EG), the City will need to replace the Facility's electrostatic precipitators with new air pollution control equipment, which likely will include dry scrubbers, fabric filters, carbon injection systems, and perhaps selective non-catalytic reduction systems.

The installation of new air pollution control (APC) equipment does not constitute reconstruction or modification of an MWC unit at the Facility because EPA's definition of an MWC unit expressly excludes "air pollution control equipment." 40 CFR 60, §60.51b. Moreover, the installation of new APC systems does not constitute reconstruction because the APC systems are being installed solely for the purpose of complying with EPA's EG. See 40 CFR 60, §60.50b(d). For both of these reasons, the cost of the new air pollution control systems should not be included in any calculation of "reconstruction" under EPA's 50% Rule.

II. Continuous Emissions Monitors

The City's Facility has continuous opacity monitors (COMs), but the City will need to install several new continuous emissions monitoring systems (CEMS) to comply with the EG. The EG require the use of COMs to monitor opacity, plus CEMS to monitor carbon monoxide, sulfur dioxide, and oxides of nitrogen.

Since the City must install this new monitoring equipment to comply with the EG, the cost of the new equipment should not be included in any calculations under the 50% Rule.

III. Auxiliary Burners

EPA's EG are based on the use of "good combustion practices." Among other things, good combustion practices (GCP) require the owner or operator of a modern MWC unit to use auxiliary fuel to heat the furnace before and during startup operations. Auxiliary burners also should be used during shutdowns and other occasions when it is necessary to maintain minimum temperatures in the MWC unit. This GCP requirement is designed to minimize emissions, especially dioxin emissions, by ensuring that certain minimum temperatures are maintained whenever municipal solid waste (MSW) is burned in the MWC unit. Further, the use of auxiliary burners minimizes the likelihood that the fabric filters will be "blinded" during "cold start" conditions. In effect, the auxiliary burners serve as a type of "air pollution control equipment," which is excluded from the definition of an MWC unit.

The City's Facility currently does not have auxiliary burners. Since auxiliary burners must be installed at the Facility to ensure compliance with the emissions limits in the EG, the cost of installing the auxiliary burners should not be included in any calculations under the 50% Rule.

IV. ID Fans

The City will need to install new induced draft (ID) fans at the Facility when it installs the new air pollution control systems that are required by the Emissions Guidelines. The existing ID fans are adequate for use with the Facility's electrostatic precipitator, but the existing ID fans will not be sufficient to overcome the pressure drop that will occur in the flue gas system after the new fabric filters are installed. Larger ID fans will be required to operate the Facility with the new APC system.

The new ID fans will be installed solely for the purpose of enabling the Facility to comply with the EG. Moreover, the ID fans are not part of the "MWC unit". The fans are located downstream of the "heat recovery equipment," which is defined by EPA as the end of the MWC unit. For both of these reasons, the cost of the new ID fans should not be included in the calculations under the 50% Rule concerning reconstruction.

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V. General Equipment and Maintenance Building

The City intends to purchase new shop tools, rolling stock (e.g., front end loaders), office computers, and related equipment when the City constructs the improvements to the Facility. The City will construct a maintenance building, where equipment can be stored and repaired. The City believes that this equipment and the maintenance building do not comprise part of the "MWC unit" and thus do not need to be included in any calculation performed under the 50% Rule.

VI. The Furnaces, Grates, and Kilns

The City will need to replace the Facility's furnaces, grates and kilns to comply with the emissions limitations in EPA's Emissions Guidelines for MWCs.

The City's Facility uses Volund furnaces, grates and rotary kilns, which were based on the technology of the 1970's. The Facility's furnaces, grates and kilns do not have the sophisticated combustion controls that are needed to meet the emissions limitations in the EG for dioxin and carbon monoxide. The underfire air and the secondary air in the grate section of the furnace cannot be adequately controlled from the Facility's control room. The air and the combustion in the kiln cannot be controlled in any fashion.

The City's consultants have concluded that the Facility will not be able to comply with the EG's emission limits for dioxin and carbon monoxide unless the kilns are removed and new furnace and grate systems are installed. New furnaces and grates are necessary to ensure that there will be sufficient turbulence in the combustion air for the complete combustion of the MSW and other products of combustion, which will greatly reduce the dioxin concentrations in the flue gas reaching the air pollution control system. The City must take steps to destroy dioxin and dioxin precursors in the combustion process or else the new air pollution control systems will be insufficient to ensure continuous compliance with the EG.

The City's consultants believe it would be extremely difficult or impossible for the City to obtain a performance guarantee for dioxin unless the improvements to the Facility include the removal of the kilns and the installation of new furnaces and grates. No creditworthy vendor or engineering firm will guarantee that the Facility will satisfy the new emissions limitations for dioxin without these improvements. Unless the City can obtain a vendor's guarantee and an appropriate opinion from its consulting engineers, the City will not be able to sell bonds to finance the construction of the improvements to the Facility.

Since the City must improve the Facility's furnace, grates and kiln to comply with the EG, the cost of these improvements should not be included in any calculations concerning the 50% Rule.

VII. Furnace Configuration

As previously noted, the City will need to replace the Facility's furnaces to reduce the Facility's dioxin emissions and comply with the EG. When evaluating the City's options, the City has tried to determine whether it would be more economical or otherwise beneficial to reduce the number of furnaces at the Facility. The Facility currently has four furnaces and kilns that have a total MSW processing capacity of 1,000 tons per day. It may be desirable to replace the Facility's present system with two 500 tpd or three 333 tpd furnaces.

The City is not evaluating this issue for the purpose of increasing the Facility's maximum MSW processing capacity or electrical output. The City is trying to determine whether it could reduce the City's capital, operating or maintenance costs by reducing the number of furnaces at the Facility. It also may be possible to improve the Facility's operations or emissions by using fewer furnaces.

The City should have the flexibility to choose the most desirable and cost-effective method of coming into compliance with the EG. Since the City must install new furnaces at the Facility to comply with the EG, the cost of the furnaces should not be counted toward the cost of reconstruction, regardless of the number of furnaces that are used in the retrofit. Accordingly, the City believes that it may replace the four existing furnaces with two (or three) new furnaces, without including the cost of the new furnaces in the City's calculations under the 50% Rule.

VIII. Boiler and Economizer

The City must make certain changes to the Facility's heat recovery system, including the boiler and economizer, to help the Facility come into compliance with the dioxin emission limits in EPA's Emission Guidelines. The City must reduce the temperature of the Facility's flue gas if the City is to minimize the potential for dioxin reformation downstream of the Facility's furnaces. The Facility's flue gas sometimes exceeds 600° fahrenheit when it leaves the boiler. At these temperatures, there is the potential for dioxin reformation to occur before the flue gas reaches the APC equipment. The current configuration of the Facility's heat recovery system is inadequate to reduce the

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temperature of the Facility's flue gas to more appropriate levels. The Facility's heat recovery system must be changed to obtain the necessary reductions in the temperature of the flue gas and, in turn, to reduce the potential for dioxin reformation.

Some boiler modifications also will be necessary when the kilns are removed and the furnaces replaced. The heat recovery system is an integral component of the combustion unit. The proposed changes to the furnace, grate and kiln will require corresponding modifications to the heat recovery system to ensure that both systems are compatible.

Since the improvements to the Facility's heat recovery system are necessary to comply with the EG, the cost of these improvements should not be included in any calculations under the 50% Rule to determine whether reconstruction has occurred at the Facility.

IX. Electrical System

The existing electrical control and distribution systems at the Facility are adequate for the Facility's current mode of operation. However, when the new air pollution control (APC) systems and ancillary equipment are installed at the Facility to comply with the EG, the City will need to install new electrical control systems that are compatible with the new APC systems. New electrical systems will be needed to handle the additional loads from the new pumps, motors and other equipment associated with the new APC systems. For example, there will be: (a) new, larger motors for the ID fans; (b) new motors and pumps for the lime slaker and carbon injection systems; and (c) new motors and controls for the combustion air control systems.

The cost of the improvements to the Facility's electrical system should not be included in the calculation of reconstruction because the improvements to the Facility are necessary to ensure compliance with the EG. These improvements to the Facility would not be made if EPA had not promulgated the EG.

X. Control Systems

The control systems at the City's Facility are adequate to operate the Facility in its existing configuration. However, the existing control systems cannot closely monitor or regulate the combustion process. The existing control systems are not adequate to operate (or compatible with) the new air pollution control equipment, furnaces, grates, and combustion air systems that will be installed to comply with the EG. Since the City must upgrade the Facility's control systems to ensure that the

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Facility is operated in compliance with the EG, the cost of the new control systems should not count as reconstruction.

XI. Ash Building and Enclosures

When the City upgrades the Facility to comply with the EG, the City will need to construct a building where the City can process, treat, store, load and otherwise manage the Facility's ash. The ash management building will be fully enclosed to minimize the potential for fugitive emissions of MWC ash. Similarly, the City will need to build enclosures around the Facility's ash conveyor system to ensure that there are no fugitive emissions of ash from the conveyor system.

These improvements to the Facility will be necessary to comply with EPA's Emission Guidelines, which strictly limit fugitive emissions of ash. 40 CFR 60, §§60.36b and 60.55b. The proposed ash management building and enclosures will serve, in effect, as air pollution control equipment because they will minimize the Facility's fugitive emissions of ash.

The City believes the cost of the proposed ash management building and enclosures should not be included in the calculations under EPA's 50% Rule. These improvements: (a) are primarily to ensure compliance with the EG; (b) serve as air pollution control equipment, which is not part of an MWC unit; and (c) are not expressly or implicitly included in the definition of the MWC unit.

XII. Ash Conveyor System

The Facility's fly and bottom ash conveyor systems will need to be relocated when the City retrofits the Facility. The bottom ash conveyors will need to be disconnected and relocated when the City works on the furnaces, kilns and grate. The fly ash conveyors will need to be disconnected and relocated when the City replaces the Facility's air pollution control (APC) equipment. The ash conveyors will need to be modified to be compatible with the new furnace and APC equipment.

The ash conveyors also will need to be redirected to a new ash management area. The existing ash management area will be used for staging and other purposes during the construction of the new improvements to the Facility. The existing ash yard also must be relocated so that the City can gain access to the furnaces. The new ash conveyor system is expected to be longer than the existing system because the new ash management building probably will be further away from the APC unit than the existing ash yard. The location of the existing ash management area and the proposed ash management building are shown in EVID's report,

which is attached hereto as Exhibit "C".

The City believes the cost of the new ash conveyor systems should not be included in the calculations under EPA's 50% Rule. The proposed changes to the ash conveyor system are necessary to enable the Facility to come into compliance with the EG.¹

XIII. Ash Treatment System

The City is considering the possibility of installing a permanent ash treatment system inside the proposed ash management building. The City would like to have a WES-PHix or equivalent ash treatment system available for use, if necessary, to stabilize any metals in the Facility's ash. With the proposed system, the Facility's fly ash would be treated and then combined with the bottom ash. The combined fly and bottom ash would be placed in a pile, where the ash would dewater until it was loaded into transport trucks for hauling to an appropriate disposal site.

EPA's definition of an MWC unit does not expressly refer to ash treatment systems. We recognize that EPA defines an MWC unit to include "all ash handling systems that are connected to the bottom ash handling systems," but we believe the City's proposed ash treatment system is fundamentally different than the ash handling systems described in EPA's definition. An ash handling system is essential to the operation of any MWC unit. The City's proposed ash treatment system is not essential to the operation of the City's Facility.

The City believes that the ash treatment system will not need to be used during the Facility's normal operations. Based on the TCLP test data collected at MWC facilities in Florida, it is clear that combined ash will routinely pass the TCLP test if the ash is obtained from an MWC facility that is equipped with an acid gas scrubber system. Indeed, ash from several MWC facilities in Florida passed the TCLP test even though the

¹ If EPA disagrees with the City on this issue, EPA should consider a related issue: When using the 50% Rule to determine whether reconstruction has occurred, is it fair to compare the cost of the existing (i.e., shorter) ash conveyor system to the cost of a longer system, which is being installed to enable the City to comply with the EG? Under the present circumstances, the City believes it would not be fair to compare the cost of the shorter system with the cost of a longer system.

facilities do not have acid gas control systems. These data suggest that the combined, untreated ash from the City's Facility will pass the TCLP test after the Facility's new air pollution control systems are operational.

Nonetheless, the City is considering the possibility of installing an ash treatment system because it will provide extra protection ("insurance") against unanticipated conditions or new regulations that might disrupt the City's ash management operations. The ash treatment system appears to be a prudent, but purely optional addition to the Facility. In this regard, the City's proposed ash treatment system is fundamentally different than the ash handling systems that are described in the EG.

For these reasons, the City believes that its proposed ash treatment system is not part of the Facility's "MWC unit" and, therefore, the cost of installing an ash treatment system should not be included in any calculation concerning reconstruction. If EPA reaches a different conclusion about this issue, EPA's decision will have the practical effect of discouraging the City from installing a system that EPA presumably would like to have available at all MWC facilities.

XIV. The Tipping Floor

The City may need to regrade and repave the "tipping floor" of the Facility. The tipping floor is the area located next to the refuse pit. The garbage trucks drive to the Facility on a paved access road, which leads into the paved tipping floor, where the trucks dump (i.e., tip) the municipal solid waste (MSW) into the pit. The MSW is stored in the pit until it is ready to be loaded into the hoppers and fed into the combustion unit.

In many respects, the paved tipping floor is simply an extension of the paved access road that leads to the Facility. The tipping floor also appears to be similar to a paved parking lot where trucks unload their cargo. A number of MWCs do not have tipping floors per se, which suggests that the tipping floor is not an essential part of an MWC unit. Theoretically, fuel could be loaded into the hopper directly from delivery trucks or, in the alternative, fuel could be loaded into the hopper with a conveyor system from a remote fuel storage area.

It is our understanding that when EPA evaluates whether reconstruction has occurred at a utility boiler, EPA does not include coal loading and unloading systems within its definition of a utility boiler. If a coal loading system is not deemed to be part of a utility boiler, we would assume that a tipping floor would not be included within the definition of an MWC unit.

For these reasons, the City believes the tipping floor is not part of an MWC unit and, therefore, the cost of the proposed improvements to the Facility's tipping floor should not be included in the calculations under the 50% Rule.

XV. The Pit

The City of Tampa will need to reinforce the concrete and steel (i.e., rebar) in the pit where the MSW is stored.

EPA's NSPS are not clear as to whether the MWC unit includes the pit. The definition of "municipal waste combustor unit" in Section 60.51b states that the "municipal waste combustor boundary starts at the municipal waste pit or hopper and extends through" the combustion system.

Given the ambiguity in the NSPS, we suggest that the MWC units at Tampa's Facility should be deemed to start at the hopper (i.e., the chute) where the MSW fuel is loaded into the MWC unit. The hopper conveys the fuel directly into the furnace. The hopper is an integral part of the system and is physically connected to the MWC unit. Consequently, there is a strong argument that the hopper is the first component of the MWC unit that is essential to the unit's operation. Conversely, the pit is not essential to the operation of the MWC unit. The MWC units could continue to operate even if the pit were eliminated at the Facility. Accordingly, the City believes the pit should not be classified as part of the "fuel feed system" and should not be categorized as part of the MWC unit. Improvements to the pit should not constitute reconstruction of the MWC unit.

XVI. The Cranes

The City probably will refurbish the Facility's cranes when it installs the new APC system at the Facility.

EPA's definition of the MWC unit does not expressly refer to cranes. The definition of an MWC unit states that the MWC unit includes the "fuel feed system," but there is no definition or description of the fuel feed system. Given this ambiguity in the EPA regulations, the City has concluded that the cranes at the Facility are not part of the MWC unit.

The cranes, like the pit, are not an essential component of the MWC unit and they are not physically connected to the MWC unit. The cranes, like the pit, would be superfluous if the delivery trucks unloaded directly into the hopper or the fuel were supplied by a conveyor system from a distant fuel storage

pile. Further, if the MWC unit starts at the hopper, then the fuel feed system is the hydraulic ram or gravity chute into the furnace. The crane, however, is outside the hopper.

For these reasons, the City believes that the cost of refurbishing the Facility's cranes should not be considered under the 50% Rule.

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EXHIBIT "B"
MCKAY BAY REFUSE TO ENERGY FACILITY

| Potential Facility Improvements | Part of MWC Unit? | For EG Compliance? | Reconstruction? |
|---|-------------------|--------------------|-----------------|
| 1. Air Pollution Control Equipment | No | Yes | No |
| 2. Continuous Emission Monitors | No | Yes | No |
| 3. Auxiliary Burners | Yes | Yes | No |
| 4. ID Fans | No | Yes | No |
| 5. General Equipment and Maintenance Building | No | No | No |
| 6. Furnaces, Grates & Kilns | Yes | Yes | No |
| 7. Furnace Configuration | Yes | Yes | No |
| 8. Boiler and Economizer | Yes | Yes | No |
| 9. Electrical System | Yes | Yes | No |
| 10. Control Systems | Yes | Yes | No |
| 11. Ash Building and Enclosures | No | Yes | No |
| 12. Ash Conveyor System | Yes | Yes | No |
| Potential Facility Improvements | Part of MWC Unit? | For EG Compliance? | Reconstruction? |

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| | | | |
|--------------------------|----|----|----|
| 13. Ash Treatment System | No | No | No |
| 14. Tipping Floor | No | No | No |
| 15. Pit | No | No | No |
| 16. Cranes | No | No | No |

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

Prepared by SVI

March 1996

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

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

SUMMARY: This review addresses the changes to the principal areas of the facility, as detailed below, required to bring it into compliance with the new USEPA Emission Guidelines. The estimate is not provided to delineate the incumbent costs associated with the retrofit program.

COMPLIANCE REVIEW

ARCHITECTURAL/STRUCTURAL/CIVIL

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

PROCESS EQUIPMENT

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

COMBUSTION SYSTEM

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

HEAT RECOVERY SYSTEM

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

ASH SYSTEM

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

AIR POLLUTION CONTROL SYSTEM

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

COST ESTIMATE

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

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

Compliance Review:**ARCHITECTURAL / STRUCTURAL / CIVIL**◇ **SITE**

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

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

◇ **PROCESS BUILDING**

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

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

* **Tipping Area and Pit**

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

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

* **Control Room**

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

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

◇ **MAINTENANCE BUILDING**

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

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

◇ **TRANSFER STATION**

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

Action: Some refurbishment may be necessary.

◇ **SCALE HOUSE**

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

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

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Figure 1

**McKay / [unclear] / [unclear]
Current Layout**

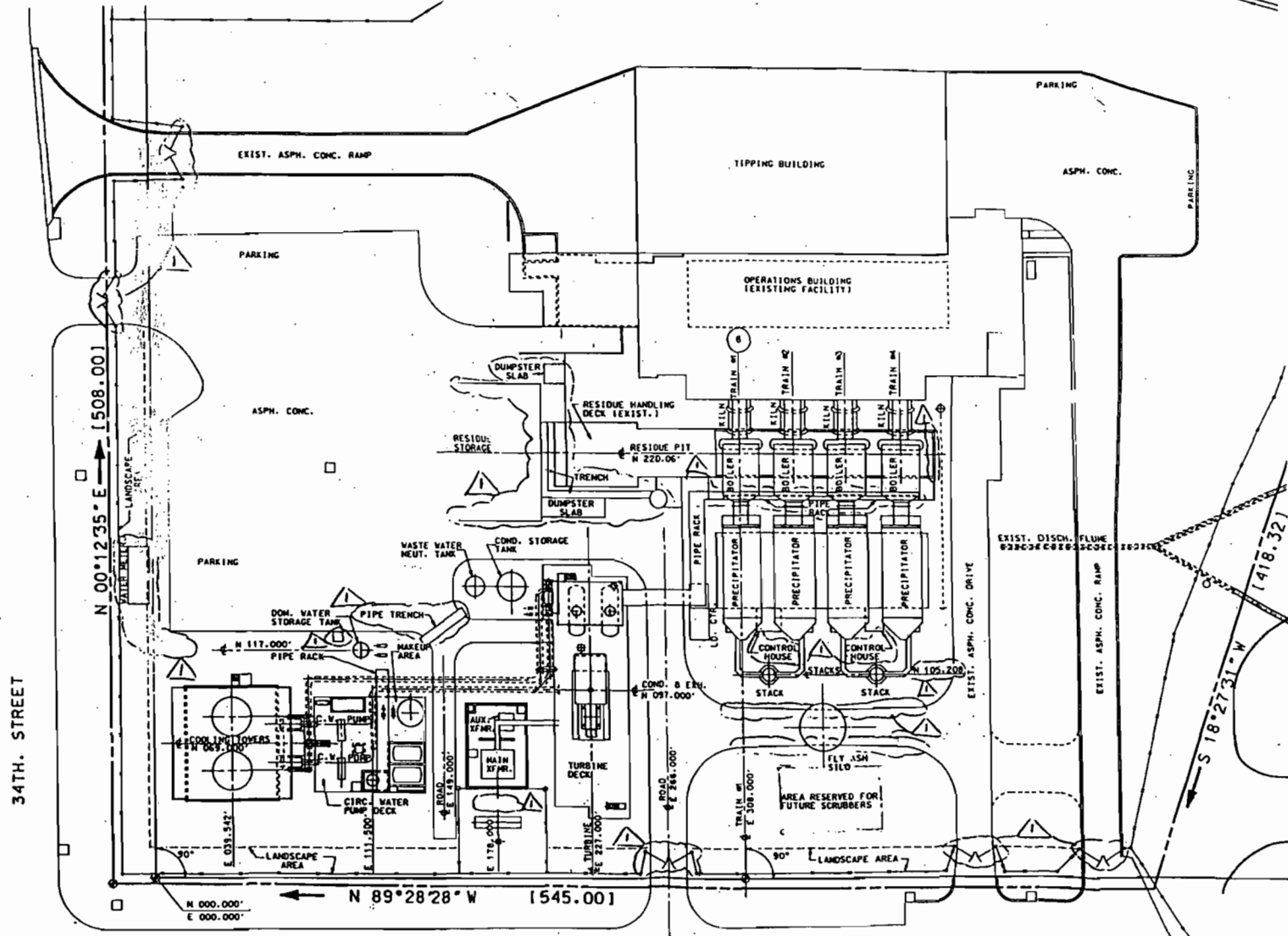


Figure 1

McKay Bay - Plot Plan

Current Layout

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Figure 2

**Mickey Bay Plot Plan
Proposed Layout**

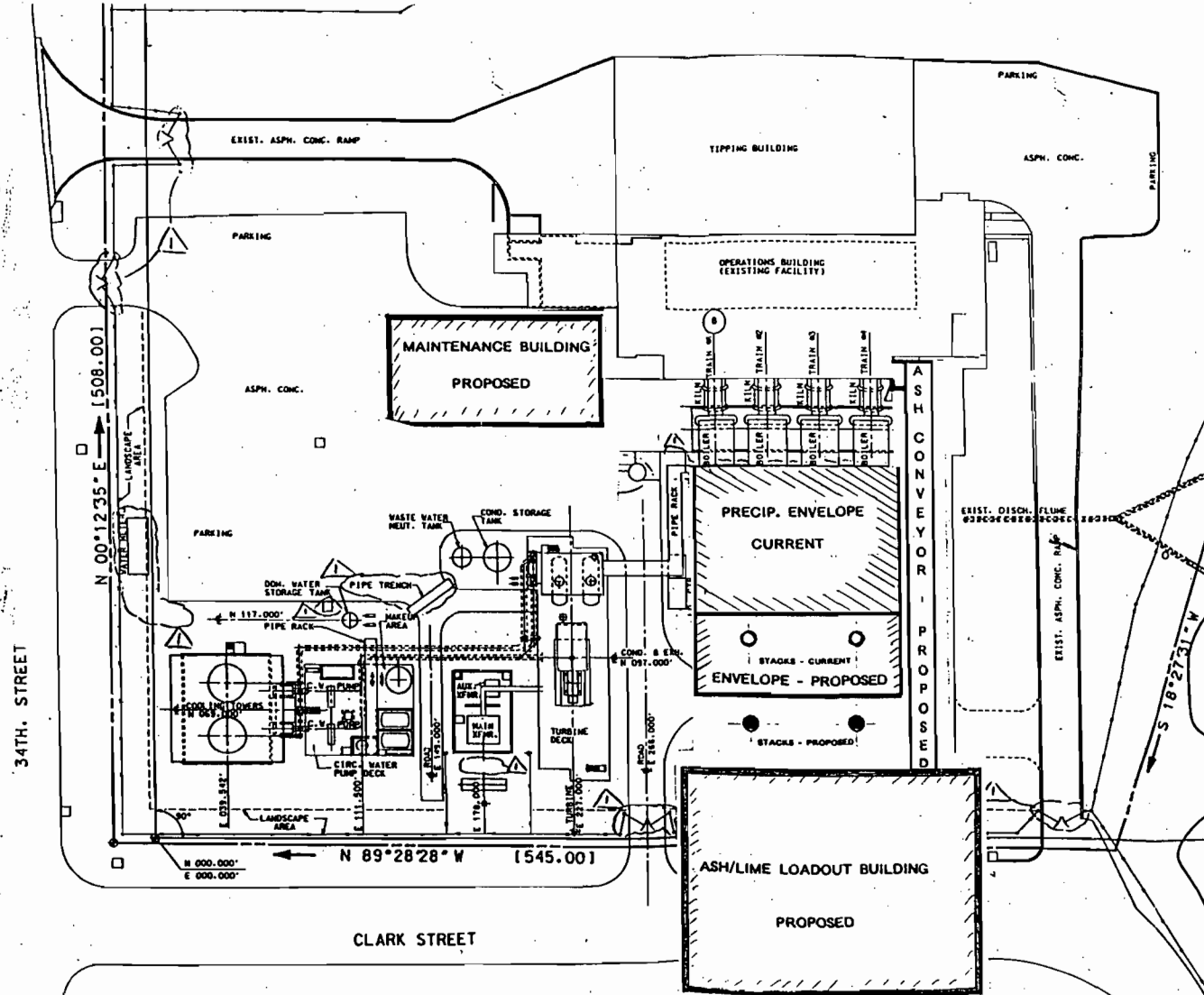


Figure 2
McKay Bay - Plot Plan
Proposed Layout

PROCESSING EQUIPMENT

◇ **CRANES**

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

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

◇ **AIR HANDLING**

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

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

◇ **ELECTRICAL DISTRIBUTION**

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

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

◇ **TOOLS**

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

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

COMBUSTION SYSTEM**FURNACE**

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

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

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

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

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

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

◇ **PREHEAT SYSTEM**

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

Figure 3

Mickay Bay Cross Section

Current Configuration

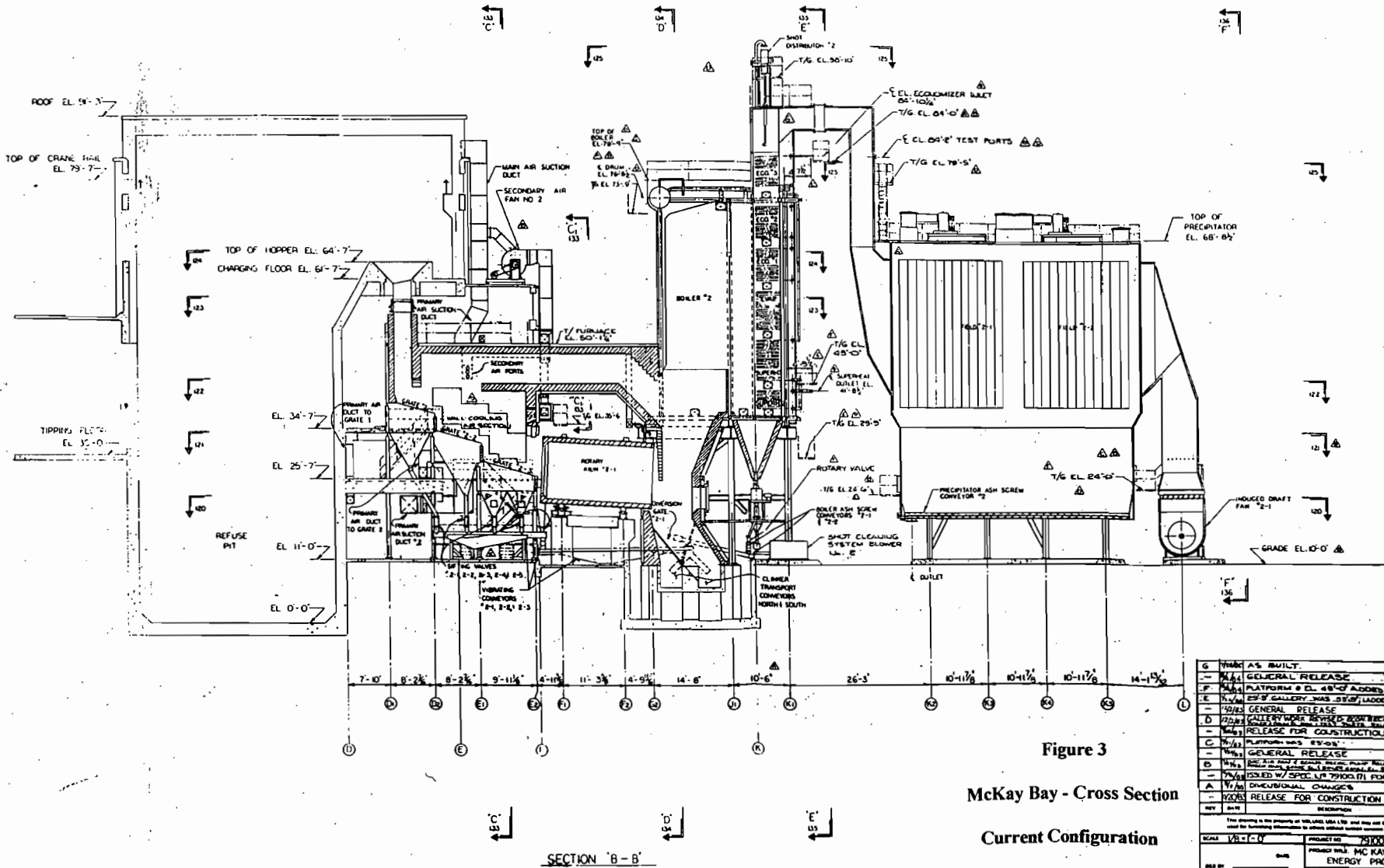
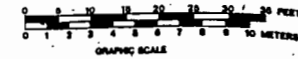


Figure 3

McKay Bay - Cross Section
Current Configuration



| | | | |
|---|---------|---|----------|
| G | W/10/83 | AS BUILT | 10/10/83 |
| H | W/11/83 | GENERAL RELEASE | 11/10/83 |
| I | W/12/83 | PLATFORM 8 D. 48" O.D. ADDED; EL. 5' FROM | 12/10/83 |
| J | W/1/84 | ESP'S GALLERY WAS 25'0" LOWER; RELOCATED | 1/10/84 |
| K | W/2/84 | GENERAL RELEASE | 2/10/84 |
| L | W/3/84 | GALLERY WAS REVERSED; ROOFING REFORMED; | 3/10/84 |
| M | W/4/84 | RELEASE FOR CONSTRUCTION PERMIT | 4/10/84 |
| N | W/5/84 | PLATFORM WAS 8'5" ON | 5/10/84 |
| O | W/6/84 | GENERAL RELEASE | 6/10/84 |
| P | W/7/84 | DESIGN FOR 25'0" LOWER; RELOCATED | 7/10/84 |
| Q | W/8/84 | DESIGN FOR 25'0" LOWER; RELOCATED | 8/10/84 |
| R | W/9/84 | DESIGN FOR 25'0" LOWER; RELOCATED | 9/10/84 |
| S | W/10/84 | DESIGN FOR 25'0" LOWER; RELOCATED | 10/10/84 |
| T | W/11/84 | DESIGN FOR 25'0" LOWER; RELOCATED | 11/10/84 |
| U | W/12/84 | DESIGN FOR 25'0" LOWER; RELOCATED | 12/10/84 |
| V | W/1/85 | DESIGN FOR 25'0" LOWER; RELOCATED | 1/10/85 |
| W | W/2/85 | DESIGN FOR 25'0" LOWER; RELOCATED | 2/10/85 |
| X | W/3/85 | DESIGN FOR 25'0" LOWER; RELOCATED | 3/10/85 |
| Y | W/4/85 | DESIGN FOR 25'0" LOWER; RELOCATED | 4/10/85 |
| Z | W/5/85 | DESIGN FOR 25'0" LOWER; RELOCATED | 5/10/85 |

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| | | | |
|-----------|--------------|--------------|---|
| SCALE | 1/2" = 1'-0" | PROJECT NO. | 7500 |
| DATE | | PROJECT NAME | MC KAY BAY REFUSE TO ENERGY PROJECT, TAMPA, FLORIDA |
| DESIGN BY | G.L.S. 10/83 | SHEET TITLE | GENERAL ARRANGEMENT SECTION 'B-B' |
| CHECK BY | G.L.S. 11/83 | | |
| DATE | 11/10/83 | | |

Volund 80 JOSE BOULEVARD, SUITE 3000, TAMPA, FLORIDA 33606

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Figure 4

McKay Bay - Cross Section

Proposed Configuration

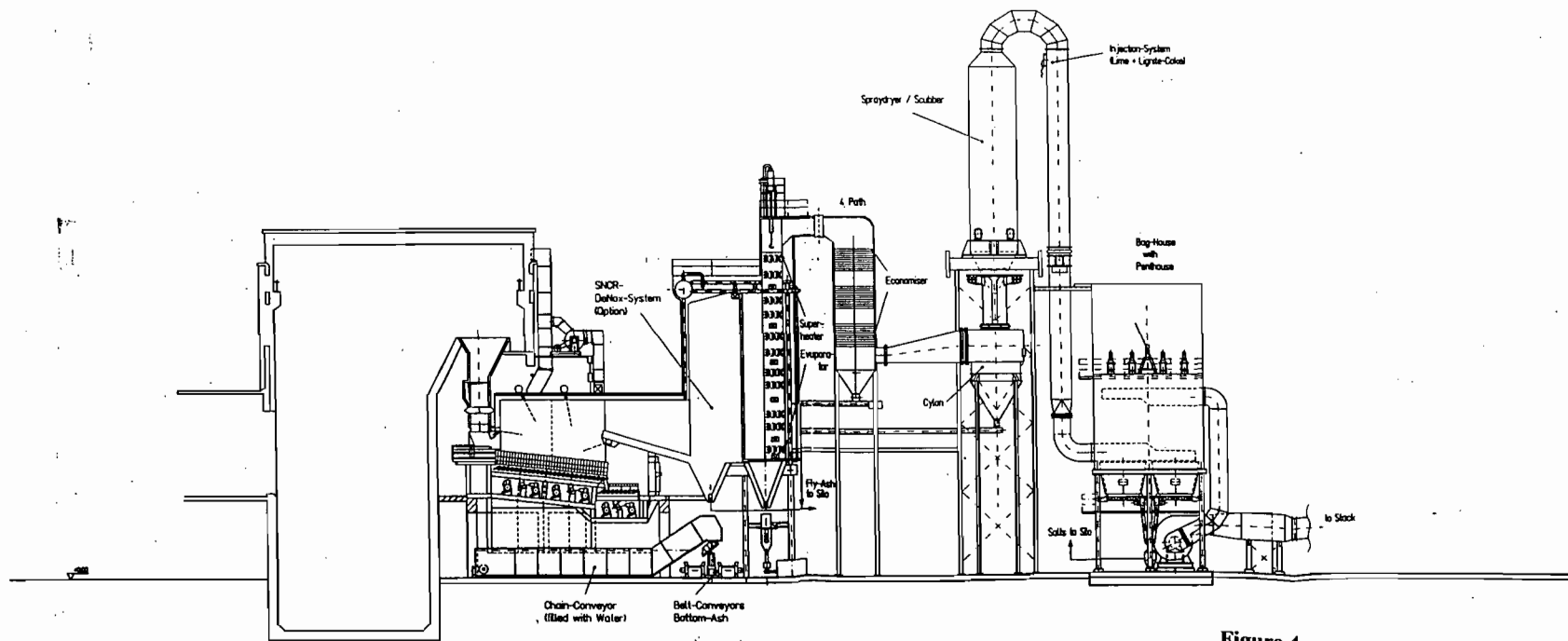


Figure 4

McKay Bay - Cross Section

Proposed Configuration

KcKay Bay, Tampa
Trash-to-Energy Plant
General Modification



HEAT RECOVERY SYSTEM

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

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

ASH SYSTEM

◇ **ASH/LIME PROCESSING BUILDING**

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

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

◇ **BOTTOM ASH**

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

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

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AIR POLLUTION CONTROL SYSTEM

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

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

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Cost Estimate

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

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



CITY OF TAMPA

Dick A. Greco, Mayor

Department of Solid Waste
Office of Environmental Coordination

August 21, 1996

David Dee, Esquire
Landers & Parsons
P.O. Box 271
Tallahassee, FL 32302

Dear David:

I have worked with the McKay Bay Refuse-to-Energy Facility Project since 1985. The facility was about done construction when I began working with the City of Tampa. I can reaffirm your understanding that all four of the municipal waste combustion units were newly constructed in 1983-1985 from chute to stack, including new cranes, charging chutes, furnaces, kilns, boilers, electrostatic precipitators and stacks. The ash handling system, the waste pit and the shell of the existing administration building were the only components of the 1967 incinerator that were incorporated into the 1985 refuse-to-energy facility.

The air construction permits were prepared before the City awarded contracts for the construction and operation of the facility. At that time, the City was planning on rehabilitating the three existing units (1967) and adding a fourth new unit. The request for proposals for the work was a performance based specification. The two vendors eligible to supply Volund equipment were allowed to use as much, or as little, of the existing equipment as they desired. International Incinerator submitted a proposal based on rehabilitating the existing three units and adding a fourth unit while Waste Management's proposal was based on four new units from chute to stack (except the ash handling system). Waste Management's proposal was accepted based on lower operating and maintenance costs over the life of the facility.



City Hall Plaza, 5N • Tampa, Florida 33602 • 813/274-8071

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A copy of "Rehabilitating the Tampa Incinerator to a Refuse-to-Energy Facility" is attached which explains the history of the project in more detail and confirms that Waste Management chose to entirely replace the combustion trains (see page 2). I have other references to this fact in the official statement for the 1983 bonds and the Design and Construction Contract payment schedule. These references are not suitable for FAX transmittal but can be made available if you request. I am certain Dr. Rick Garrity of the Florida Department of Environmental Protection would also confirm all four units were new in 1985 as he was the project manager at that time.

Please call me at (813) 242-5408 if you have any additional questions or require additional documentation.

Sincerely,

Greig Grotecloss
Greig Grotecloss
Engineer

GG/md

g:dec