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DEPARTMENT OF
ENVIRONMENTAL PROTECTION

REPORT ON

SOLID WASTE

REQUEST FOR MODIFICATION
OF
SITE CERTIFICATION PA86-22
NORTH BROWARD COUNTY RESOURCE
RECOVERY FACILITY

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1.0 INTRODUCTION AND APPLICANT

Wheelabrator North Broward, Inc. is the operator of the North Broward Resource Recovery Facility located in unincorporated northern Broward County, Florida (see Figure 1-1). The facility received certification under the Florida Power Plant Siting Act (PPSA) in 1986 for the construction and operation of a mass burn resource recovery facility (Site Certification No. PA-86-22; and amendments). The facility was permitted to process 2,250 ton/day (nominal rating) of municipal solid waste in 3 mass burn refuse boilers. Each boiler is permitted to burn up to 806 tons/day.

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Wheelabrator is submitting a Request for Modification of the Site Certification for the following:

- a clarification of the fuels allowed to be used in the facility
- the addition of a metal recovery facility
- the addition of Selective Non-Catalytic Reduction (SNCR) required to meet 40 Code of Federal Regulations (CFR) Part 60, Subpart Cb as adopted by reference in Rule 62-204(7)(b) Florida Administrative Code (F.A.C.)
- a new permit condition for the fabric filter outlet temperature in accordance with Cb Emission Guideline requirements
- Elimination of furnace temperature limits
- incorporate Good Combustion Practice (GCP) requirements of Subpart Cb

In addition to the Request for Modification of the Site Certification, Wheelabrator is simultaneously requesting a revision of the Prevention of Significant Deterioration approval issued in 1987 (PSD-FL-112) to incorporate those portions of the modification request related to air emissions and fuels, including the 40 CFR Part 60 Subpart Cb requirements.

2.0 ALLOWABLE FUELS

2.1 BACKGROUND

In its site certification application, Wheelabrator identified its primary fuel as process waste, including "all forms of garbage, commercial waste, rubbish, leaves and brush, paper and cardboard, plastics, wood and lumber, rags, carpeting, a limited amount of tires, wood furniture, mattresses, stumps, wood pallets, timber, tree limbs, ties, and logs, not separated and recycled at the source of generation, and minor amounts of pathological and biological wastes." The Site Certification issued in 1986, as well as the PSD approval issued in 1987, permitted the facility to burn "refuse such as garbage and trash as defined in Chapter 17-7 Florida Administrative Code," but not grease, scum, grit screenings or sewage sludge. Chapter 17-7 did not define "refuse," nor did any other environmental statute or regulation. Because several other resource recovery facilities also have permits which use the undefined term "refuse," the FDEP has recently sought to clarify the allowable fuels at such facilities. Wheelabrator is seeking from FDEP a clarification of its site certification and PSD approval consistent with the approach used by FDEP at other similarly situated resource recovery facilities.

2.2 RECENT PERMIT CLARIFICATIONS

Recent permitting actions by FDEP have clarified the allowable fuels for several resource recovery facilities, including the City of Tampa McKay Bay Resource Recovery Facility and the Hillsborough County Resource Recovery Facility. Permit clarifications were issued by FDEP for both facilities [McKay Bay Permit No. 0570127-002-AC/PSD-FL-086(A) and Hillsborough County PSD-FL-121(B)]. The request made herein is consistent with the clarifications made for these facilities, given the particular circumstances of the North Broward County Resource Recovery Facility.

2.3 PROPOSED PERMIT LANGUAGE

The proposed permit language requested by Wheelabrator is presented below. This language was developed from the permit language for the McKay Bay and Hillsborough County facilities.

A.1 Fuels

The primary fuel for the facility is solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (1995).

A.1.1 Subject to the limitations contained in this permit, the authorized fuels for the facility also include other solid wastes that are not MSW which are described below. However, the facility shall not burn:

- (a) those materials that are prohibited by state or federal law;
- (b) those materials that are prohibited by this permit;
- (c) lead acid batteries;
- (d) hazardous waste;
- (e) nuclear waste;
- (f) radioactive waste;
- (g) sewage sludge;
- (h) explosives.

A.1.2 The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is segregated non-MSW material, the fuel shall be either:

- (a) well mixed with MSW in the refuse pit; or
- (b) alternately charged with MSW in the hopper.

A.1.3 The facility owner/operator shall prepare and maintain records concerning the description and quantities of all segregated loads of non-MSW material which are received and used as fuel at the facility, and subject to a percentage weight limitation, below (A.1.6. and A.1.7). For the purposes of this permit, a segregated load is defined to mean a container or truck that is primarily or exclusively filled with a single item or homogenous composition waste material as determined by visual inspection.

A.1.4 To ensure that the facility's fuel does not adversely affect the facility's combustion process or emissions, the facility shall:

- (a) comply with good combustion operating practices in accordance with 40 CFR 60.53b;
- (b) install, operate and maintain continuous emissions monitors (CEMS) for oxygen, carbon monoxide, sulfur dioxide, oxides of nitrogen and particulate control device inlet temperature in accordance with 40 CFR 60.58b; and
- (c) record and maintain the CEMS data in accordance with 40 CFR 60.59b.

These steps shall be used to ensure and verify continuous compliance with the emissions limitations in this permit.

Natural gas may be used as fuel during warm-up, startup, shutdown, and malfunction periods, and at other times when necessary and consistent with good combustion practices. The facility may also use landfill gas as fuel.

A.1.5 Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility:

- (a) Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, ~~coupons, credit cards, magnetic tape~~ and microfilm);
- (b) Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
- (c) Wood pallets, clean wood, land clearing debris and ~~combustible-construction and demolition debris~~;
- (d) Packaging materials and containers;

- (e) Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or
- (f) Rugs, carpets, and floor coverings, but not asbestos-containing materials. *polyurethane vinyl floor covering*

A.1.6 Subject to the conditions and limitations contained in this permit waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 3 percent, by weight, of the facility's total fuel. Compliance with this limitation shall be determined by using a rolling 30 day average in accordance with specific condition A.1.8.

A.1.7 Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e. the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received ~~as segregated loads~~ and burned at the facility shall not exceed 5 percent, by weight, of the facility's total fuel. Compliance with this limitation shall be determined by using a rolling 30 day average in accordance with specific condition No. A.1.8 below.

- (a) Non-combustible construction and demolition debris.
- (b) Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.
- (c) Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal-care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.
- (d) Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.

- (e) Waste materials that:
 - (i) are generated in the manufacture of items in categories (c) or (d), above and are functionally or commercially useless (expired, rejected or spent);
or
 - (ii) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.
- (f) Waste materials that contain oil from:
 - (i) the routine cleanup of industrial or commercial establishments and machinery; or
 - (ii) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.
- (g) Used oil and used oil filters. Used oil containing a PCB concentration equal or greater than 50 ppm shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).
- (h) Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW, subject to prior approval of the Department.

A.1.8 Segregated Solid Waste Record Keeping: The following records shall be made and kept to demonstrate compliance with the segregated non-MSW percentage limitations of specific condition A.1.6 and A.1.7.

Each segregated load of non-MSW materials, that is subject to the percentage weight limitation of specific conditions A.1.6 and A.1.7, which is received for processing shall be documented as to waste description and weight. The weight of all waste materials received for processing shall be measured using the facility truck scale and recorded.

Each day the total weight of segregated tires received shall be computed, and the daily total shall be added to the sum of the daily totals from the previous 29 days. The resultant 30 day total weight of tires shall be divided by the total weight of all waste materials received in the same 30 day period, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 3 percent limitation.

Each day the total weight of segregated non-MSW materials received that are subject to the 5% restriction shall be computed, and the daily total shall be added to the sum of the daily totals from the previous 29 days. The resultant 30 day total weight of segregated non-MSW materials shall be divided by the total weight of all waste materials received in the same 30 day period, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5 percent limitation.

2.4 PSD APPLICABILITY

The requested clarification is not subject to the Department's Rules in 62-212.400 F.A.C. regarding Prevention of Significant Deterioration (PSD) approval because the clarification is not classified as a "modification" as defined in Rule 62-210.200(187) F.A.C. A modification is defined as any physical change or change in the method of operation which would result in an increase in the actual emissions of any regulated air pollutant. The requested change simply identifies more specifically the fuels that are acceptable at the facility under the existing site certification and PSD approval. Accordingly, this clarification does not constitute a physical change or a change in the method of operation subject to PSD review.

40CFR279, 40CFR 273, 40CFR261

3.0 METALS RECOVERY

3.1 PROJECT OVERVIEW

The proposed metal recovery system involves a series of conveyors and mechanical devices that will separate the ferrous and non-ferrous metals from the bottom ash of the MSW fired boilers. The processing will occur in a new building to be constructed adjacent to and in the existing ash loadout building at the site and represent an extension of the ash handling system (see Figures 3-1, 3-2, and 3-3).

The building will be enclosed, with three or more exit doors for removal of ash and recovered metals. The building will add approximately 5,400 square feet (ft²) and range in height from 26 to 36 feet, in order to accommodate the height of the conveyors and processing equipment. The ferrous and non-ferrous material will be removed using a grizzly, magnet, eddy current separator, and associated conveyors or similar equipment.

Metals recovered from the system will be discharged into a concrete bunker. Metals will then be transferred using a front end loader to trucks parked outside the building. The metals are not expected to contain significant amounts of dust and will therefore not generate fugitive emissions during loading in this outdoor area. If needed to prevent dust, a water spray will be applied to the recovered metal prior to loading out.

The loaded trucks will be covered with a tarp before leaving the site. The trucks will deliver the metals to a separately-owned, operated, and permitted metal processing facility. It is expected that the metal recovery process will generate an additional four to six trucks per day, six days per week, coming to and leaving the site. Currently, there are three to four trucks per day over six days per week that are used to ship recovered metals. The current operation involves removal of ferrous metals from the bottom ash conveyor with a cross belt magnet. These truck trips would generally be scheduled during daylight hours, usually to avoid peak traffic hours on local roadways. The number of loads of ash to be handled will be offset accordingly, reducing the potential for other fugitive dust generation.

Construction of the new building will not increase the impervious area around the site. The areas for the metal recovery building are currently open pavement. These areas have been previously altered (graded with fill added and paved) during the construction of the facility. Foundations for the metal recovery building may require piling and a methane protection system.

The only wastewater that will be generated from the metal recovery operation will be periodic washdown waters, which will be directed to new U-drains connected to the existing facility wastewater collection and re-use system.

3.2 MATERIAL RECOVERY

Wheelabrator North Broward Inc. is proposing to install equipment and facilities to expand the removal of recoverable metals from the bottom ash generated by the facility. Since the construction and operation of the North Broward County Resource Recovery Facility, Rule 62-701.700 F.A.C. has been promulgated for FDEP to approve and require conditions for material recovery facilities. A material recovery facility is defined as a solid waste management facility that provides for the extraction of recyclable materials, materials suitable for use as a fuel or soil amendment, or any combination of such materials from solid waste. Under this broad definition, the proposed metal recovery operation for the North Broward Resource Recovery Facility would be classified as a material recovery facility under the Department Rules in 62-701.700 F.A.C. This section provides the Engineering Report as specified in Rule 62-701.700 (2) F.A.C. The following outlines the information being provided to address the requirements of this rule.

62-701.700(2)(a) As discussed in Section 3.1, the metal recovery facility will only process bottom ash generated by the facility.

62-701.700(2)(b) Section 3.1 presented a description of the operation of the equipment. As discussed, only bottom ash will be processed. Currently, the bottom ash and non-ferrous metals are transported to the landfill. Ferrous metals are removed from the bottom ash with a cross belt magnet prior to transport. Any shutdowns

or malfunctions may result in the transport of bottom ash including metals to the landfill, as is the current practice. Potential hazards, such as fire, are not applicable to the bottom ash since this material has undergone high temperature reduction of the combustible components.

62-701.700(2)(c) Section 3.1 presented a description of the loading, unloading and processing area. All processing will occur in a building with a concrete floor that will not result in leachate formation. Wash down water will be routed to the existing contact water system for re-use. Volumes of wash down water are presented in Section 3.4.

62-701.700(2)(d) There will be no temporary on-site storage facilities associated with the metal recovery operation.

62-701.700(2)(e) As discussed above, all processing will be performed within a building with no leachate generation.

62-701.700(2)(f) Potential groundwater and surface contamination will not result from the metal recovery operation.

62-701.700(2)(g) Any metals not recovered from the operation that are included with the other components of the bottom ash will be transported to the landfill as is the current practice. The bottom ash contains low amounts of putrescible wastes due to the combustion process. Control of vectors and odors would be provided as necessary.

The operational requirements of Rule 62-701.700(3) are not applicable to the metal recovery operation since the existing facility has included provisions for operation and maintenance, waste screening, contingency plans and closure plan. The financial responsibility of Rule 62-701.700(4) is not applicable since the facility is currently operating and authorized to handle MSW and does not pose an environmental threat.

Stormwater, as specified in Rule 62-701.700(5) is addressed in Section 3.5. There will not be any contact stormwater generated as a result of adding the metal recovery operation.

3.3 AIR EMISSIONS

The metals recovery area will be enclosed in a building adjacent to the existing ash loadout area. All bottom ash is currently quenched with water after leaving each boiler. The resulting bottom ash will be about 20 to 30 percent moisture and will not generate fugitive dust.

3.4 WATER USE

The current water use will not be affected by the installation of metals recovery. The bottom ash to be processed is sufficiently moist so that additional water for dust control will not be required. Periodically, the area will be washed with the wash water handled in the same manner as that currently performed with the existing ash handling facilities. Water for washing would not exceed about 1,000 gallons per day. Currently, waste water goes to a contact sump where it is subsequently stored and reused in ash quenching and flue gas cooling.

3.5 STORMWATER

The installation of the metal recovery building will not result in an increase in the impervious surface.

3.6 ASH MANAGEMENT PLAN

The facility is currently operating with an ash management plan that has been submitted to the FDEP Southern District Solid Waste Section. This plan will be updated and submitted to FDEP when the system is constructed and initially operated.

3.7 TRANSPORTATION

The existing facility has an average daily truck traffic of about 248 vehicle trips per day with a peak of about 320 trips per day and an average maximum ranging from 250 to 300 trips per day. The increase of 4 to 6 trips per day would be insignificant relative to

the current operation. The plant access road has sufficient capacity to accommodate the small increase in truck traffic. In addition, a majority of the additional truck traffic would occur over the day with limited impacts to peak traffic flow periods.

3.8 LOCAL APPROVALS

Any required local approvals such as building permits and site plan approval will be obtained directly from the Broward County local government.

3.9 PROPOSED CONDITIONS OF CERTIFICATION

Wheelabrator North Broward proposes a descriptive condition be added to allow for the installation of the system. A proposed condition is as follows:

"The North Broward County Resource Recovery Facility may install a Metal Recovery system to process bottom ash for removal of ferrous and non-ferrous metals. The Metal Recovery system must comply with the applicable conditions in this certification as it pertains to the facility as a whole."

4.0 40 CFR SUBPART Cb EMISSION GUIDELINE REQUIREMENTS

4.1 EXISTING FACILITY DESCRIPTION

The facility currently consists of 3 mass burn combustion units each rated nominally at 750 tons per day and a generator nameplate rating of 67.6 MW for the facility. Each combustion unit consists of a mass-burn grate furnace, boiler, spray dryer absorber (SDA) and baghouse (FF). Flue gas exiting each individual baghouse is directed to a common stack with separate flues for all three (3) units. The SDA/FF air pollution control technology installed on each unit controls particulate matter, acid gasses, metals and dioxin. To meet the emission limitations for NO_x pursuant to 40 CFR 60 Subpart Cb the facility is proposing to install a selective non-catalytic reduction (SNCR) system.

The facility is classified as an existing resource recovery facility (waste-to-energy facility) and is subject to 40 CFR 60 Subpart Cb emission limits and other requirements adopted in the Florida Administrative Code (F.A.C.) including Rule 62-296.416 (Waste to Energy Rule) and Rule 62-204.800 which incorporates 40 CFR 60 Subpart Db, Subpart Cb, Subpart E, and Subpart Eb. Table 4-1 provides a compliance summary of 40 CFR Part 60 Subpart Cb emission limits and the status of the control technology installed at the facility. The installation of the SNCR system will not subject the facility to PSD review under Rule 62-212-400 F.A.C., since there will not be an increase in actual emissions.

The proposed addition of the SNCR system will result in the facility's compliance with EPA's emission limits in 40 CFR 60, subpart Cb for NO_x. The facility's existing pollution control equipment reduces emissions of particulate matter, acid gases, metals and organics. Due to flue gas cooling, organics condense as PM, and are captured by the fabric filters (FF). The flue gas cooling also minimizes the post combustion formation of organics. The SDA's currently achieve 29 PPM (corrected to 7 percent O₂ dry) or a 75 percent reduction of SO₂ and will achieve the 29 PPM (corrected to 7 percent O₂ dry) or 95 percent removal for HCL, as specified in Subpart Cb.

The facility, since it has been operating, has demonstrated compliance with the limits contained in the PSD approval, the Conditions of Certification, and the Florida Mercury

Rule (Section 62-296.416 F.A.C.). The addition of the SNCR system for NO_x control is needed to meet the Subpart Cb requirements. The facility will also implement as necessary the other requirements of Subpart Cb including good combustion practice, compliance and performance testing, monitoring, and recordkeeping and reporting.

Table 4-2 presents a comparison of the current emission limits, which include those in the PSD approval, the Conditions of Certification (PPSC) and Florida Rules, and those required by Subpart Cb (See Attachment A for calculations). Since the various emissions limits are expressed in different units, the current PPSC and PSD limits were converted to the applicable Subpart Cb units using the EPA F-Factor method as provided in EPA method 19 (see Attachment A). As shown in Table 4-2, the Subpart Cb limits are more stringent than the current limits for SO₂, PM, visible emissions, NO_x, and Pb. There are no current PSD or PPSC emission limits for cadmium (Cd), hydrogen chloride (HCL), and dioxins/furans as contained in Subpart Cb. PSD and PPSC limits exist for sulfuric acid mist, beryllium (Be), VOC, and total fluorides (HF) however, there are no limits specified in Subpart Cb for these pollutants.

Table 4-3 provides the most recent stack test data and compares results with 40 CFR Part 60 Subpart Cb emission limits for those emissions where testing was performed. The test results are presented in the same units as those for Subpart Cb for comparison. From the table, all pollutants listed are well below the Subpart Cb emission limits for all three units with the exception of NO_x. The NO_x emission limits in Subpart Cb requirements (205 ppm corrected to 7% O dry) will be achieved with the addition of an SNCR system.

4.2 DESCRIPTION OF SNCR SYSTEM

To comply with the NO_x emission limits specified in Subpart Cb, the North Broward facility is proposing to install a selective non-catalytic reduction (SNCR) system. The proposed retrofit will store, convey, and inject aqueous urea into the furnace of each boiler immediately above the over fire air zone. The SNCR system will use urea, instead of ammonia, to provide the reducing reaction with NO_x forming nitrogen and

water. The reaction occurs across a wider temperature range than ammonia and reduces the potential health and safety risks associated with the release of ammonia during handling or storage. Ammonia slip is generally controlled to less than 50 ppmvd at 7 percent O₂.

The SNCR unit will be designed to allow the concentrated reagent to be delivered to the facility in a heated, self-unloading tanker truck and transferred to a heated fiberglass reinforced plastic tank for on site storage. The tank will provide approximately one - two weeks of storage capacity under normal operating conditions.

A common circulation module transfers the chemical from the storage tank to the individual boiler metering modules. A recirculation pump and a supplemental electric heater, both located on the circulation module, provide agitation and heating capability. Flow and pressure control of the urea and dilution water fluids used in the SNCR process is performed with the metering modules. Metering of the concentrated reagent, dilution of the reagent with water and mixing of the resulting solution is also accomplished at these modules. The diluted reagent is pumped to the distribution modules where the individual distribution panels are located. The panel regulates the compressed air and diluted reagent flows to the individual fluid injection nozzles. Vendor information, including flow diagrams, is presented in Attachment B.

4.3 PROPOSED PERMIT CONDITIONS

4.3.1 Emissions Limits

The proposed permit conditions are presented in Table 4-4. Wheelabrator North Broward proposes that the current PPSC and PSD limits be replaced with the Subpart Cb limits for those emissions where the Subpart Cb limits are more stringent. These emissions include: PM, visible emissions, NO_x, SO₂, CO, Pb and Hg. The Subpart Cb performance test and continuous monitoring requirements under 40 CFR 60.58 would be used to simultaneously demonstrate compliance with Subpart Cb limits and therefore the amended PSD and PPSC limits. It is also proposed that the current emission limits for sulfuric acid mist and fluorides (as HF) be deleted. The facility has

continuously demonstrated compliance with the limits for these emissions and compliance with the lower SO₂ and new HCl Subpart Cb limits would further reduce emissions of sulfuric acid mist and HF. The PPSC and PSD limits for CO are proposed to be replaced with the Subpart Cb Good Combustion Practice (GCP) requirements. However, the GCP CO emission limit would be 87 ppm @ 7% O₂ 4 hour block average based on CEM. This new limit is derived from the 0.09 lb/MMBtu PPSC/PSD limit based on a 4 day rolling average. Amending the current PSD/PPSC limits to reflect the more stringent Subpart Cb limits also would establish a direct and consistent approach to demonstrating compliance by incorporating emission limit units of ug/dscm @ 7% O₂ and ppm @ 7% O₂. This would eliminate the current lb/MMBtu and/or ppm at 12% CO₂ dual emission limit units and the reliance on calculating test specific F factors. The current beryllium limit would be converted to a ug/dscm limit for consistency with the Subpart Cb Pb, Cd and Hg limits.

It is also requested that with GCP, the emission limit for VOC should be deleted since the CO limit would provide the FDEP assurance that emissions of VOC remain low. This approach has been used by the Department in many previous permits. In addition, since arsenic is no longer considered a PSD pollutant pursuant to F.A.C 62-212.400, it is requested that the arsenic emission limit be deleted from the permit. The FDEP Air Permit application is contained in Attachment C.

4.3.2 Removal of 300°F SDA/FF Outlet Temperature Limit

It is also proposed that the existing 300°F PPSC temperature limit at the acid gas control device exit (fabric filter outlet) be replaced with the Subpart Cb particulate control device inlet temperature limit. The Subpart Cb temperature limit is determined during annual compliance testing and therefore it is directly tied to actual emissions performance of the boiler and air pollution control equipment. The current, PPSC limit of 300°F at the exit of the acid gas control device was primarily intended to ensure that the acid gas control device would achieve at least 90 percent removal of acid gasses and secondarily to ensure that trace metals and semivolatile organics such as dioxins would be condensed onto particulate and therefore collected in the particulate control device.

The 90 percent removal of acid gasses design requirement in the PPSC presumably referred to hydrogen chloride (HCl) since SO₂ had a specific limit of 0.14 lb/mmBtu or 65 percent removal. Subpart Cb incorporates emission limits for MWC acid gasses (HCl and SO₂). The HCl limit of 29 ppm at 7 percent O₂ or 95 percent removal is based on annual stack testing. The Subpart Cb, HCl limit can be continuously achieved by SDA/FF air pollution control equipment irrespective of a 300°F temperature limit. Additionally, the Subpart Cb temperature limit derived directly from annual compliance tests ensures that control of trace metals and dioxins or other organics will be continuously achieved. The regulated metals, including cadmium, lead, and beryllium, condense onto particulate at temperatures well above 300°F in the convective sections of the boiler. Consequently maintaining a 300°F FF outlet temperature provides no additional control for these metals. Mercury control will increase at lower fabric filter temperatures but test data has shown little difference in mercury removal at temperatures less than 350°F.

Based on the above, the substitution of the Subpart Cb particulate control device inlet temperature limit for the existing 300°F limit will ensure that high removal levels of all metals and semivolatile organics will be continuously achieved. Operating at a higher temperature will also reduce FF maintenance due to higher corrosion levels attributed to operating at a lower temperature.

4.3.3 Furnace Temperature Requirements

The PPSC requires that the furnace temperature be monitored and maintained above 1,800°F. The furnace temperature and monitoring requirements can be eliminated with the incorporation of the good Combustion Practice (GCP) operational requirements specified in Subpart Cb.

The original objective of furnace temperature requirements was to assure combustion conditions were sufficient for maximum destruction of organics in the combustion zone. USEPA, in the development of the MWC standards and Emissions Guidelines under Subpart Eb and Cb, was concerned that imposing furnace temperature requirements

could be counter productive since air/fuel mixing would be adversely impacted. To maintain furnace temperature at full boiler load generally requires a decrease in total boiler excess air, which is accomplished by decreasing the relative amount of overfire air. With decreasing overfire air, overfire air penetration into the secondary combustion zone will be reduced. Consequently, air/fuel mixing will be reduced, which results in reduced oxidation/destruction potential for organics.

Importantly, a furnace temperature requirement does not address the secondary formation of dioxins on flyash or particulate matter in the low temperature sections of the boiler and particulate control equipment. This secondary formation of dioxins has the largest potential impact on boiler dioxin emissions and is directly addressed by limiting carryover of particulate matter/flyash and minimizing operating temperature of the particulate control equipment, which compliance with the Subpart Cb GCP requirements ensure.

USEPA concluded that the three major components of the GCP standard under NSPS Subparts Ea, Eb, and Cb are the most effective mechanisms for ensuring optimum combustion conditions, maximizing organic destruction, and minimizing the potential for post-combustion zone formation of organics. The three components of GCP include 1) a short term CO emission limit, 2) restricting maximum boiler operating conditions using a steam flow limit and 3) restricting operating temperatures in the particulate control equipment.

Complying with the Subpart Cb CO limit ensures that both optimum furnace/temperature conditions and good air/fuel mixing are being maintained. Limiting boiler steam flow to the average steamflow achieved during annual compliance tests minimizes particulate carryover to the cooler section of the boiler and PM control device reducing potential for low temperature dioxin formation. Finally, minimizing particulate control device operating temperature to within 30°F of that achieved during compliance tests ensures that low temperature post-combustion dioxin formation is minimized.

Based on continuing compliance with the Subpart Cb requirements, the furnace temperature limit and monitoring requirements can be eliminated in the PPSC. The GCP requirements will ensure that optimum boiler combustion and fabric filter operating conditions are continuously achieved minimizing emissions of dioxins and organics, the original intent of the PPSC furnace temperature limit.

5.0 EXISTING AIR EMISSION PERMITS

The facility received construction and operation permits from the South Florida District for the installation and operation of baghouses installed on the lime silo and the ash handling system. These emission units have been included in the Title V Permit Applications and the latest operation permit was AO 06-208187. Wheelabrator is providing notice of these emission units which will be regulated under the Title V permit program.

Table 4-1. Compliance Summary of 40 CFR Part 60; Subpart Cb Emission Limits and Control Technology

Parameter	Emission Limit ^a	Section of 40 CFR 60, Subpart Cb	Control Technology	Status of Control Technology
PM	27mg/dscm	60.33b (a) (1) (i)	Fabric Filters (FF)	Existing
Opacity	10 percent	60.33b (a) (1) (iii)	Fabric Filters (FF)	Existing
Cadmium	0.040 mg/dscm	60.33b (a) (2) (i)	Fabric Filters (FF)	Existing
Lead	0.49mg/dscm	60.33b (a) (2) (iii)	Fabric Filters (FF)	Existing
Mercury	0.070mg/dscm	60.33b (a) (3) and 62-296.416 (3) (b)	Separation program, and/or SDA/FF	Existing
Sulfur Dioxide	29 ppm ^b	60.33b (b) (3) (i)	SDA/FF	Existing
HCL	29 ppm ^c	60.33b (c) (3) (ii)	SDA/FF	Existing
Dioxins/Furans	30ng/dscm	60.33b (c) (1) (ii)	SDA/FF, Good combustion practices	Existing
NO _x	205 ppm ^d	60.33b (d)	SNCR	To be installed
CO	100 ppm ^e	60.34b (a) 60.33b	Good combustion practices	Existing
Fugitive Ash Emissions	No VE > 5 percent of observation period	60.55(b)	Quench/Enclosures	Existing

- ^a Numerical limits corrected to 7% O₂ dry conditions.
- ^b or 75% reduction whichever is less stringent.
- ^c or 95% reduction whichever is less stringent.
- ^d 24-hour block average.
- ^e 4-hour block average.

Table 4-2. Wheelabrator - North Broward Waste to Energy Facility Emission Limits - Current and pursuant to 40 CFR 60 Subpart Cb.

Pollutant	Current Limits	Units	Basis	Current limits In Subpart Cb units	Subpart Cb Limits
SO2	0.31 lb/MMbtu		(1)(a)(b)	129.8 ppm @ 7% O2	29 ppm @ 7% O2
SO2	0.14 lb/MMbtu		(2)(a)(b)	58.6 ppm @ 7% O2	or 75% removed
VOC	0.013 lb/MMbtu		(c)		None
PM	0.015 gr/dscf		(3)(a)(b)	34.9 mg/dscm @ 7% O2	27 mg/dscm @ 7% O2 (9)
PM	0.1 lb/MMbtu		(4)	111.3 mg/dscm @ 7% O2	---
PM	0.08 gr/dscf		(5)	186.0 mg/dscm @ 7% O2	---
NOx	0.56 lb/MMbtu		(6)(a)(b)	325.9 ppm @ 7% O2	205 ppm @ 7% O2 (9)
CO	0.09 lb/MMbtu		(7)(a)(b)	86.9 ppm @ 7% O2	100 ppm @ 7% O2 (10)
CO	400 ppm		(7)(a)(b)	406.4 ppm @ 12% CO2	
Total Flouride (F)	0.004 lb/MMbtu		(a)(b)		None
Sulfuric Acid Mist (SAM)	0.047 lb/MMbtu		(c)		None
HCL gas	None				29 ppm @ 7% O2 or 95% removed
Beryllium (H021)	9.30E-07 lb/MMbtu		(a)(c)		None
Lead (Pb)	0.0015 lb/MMbtu		(a)(b)	1.67 mg/dscm @ 7% O2	0.49 mg/dscm @ 7% O2 (9)
Mercury (H114)	7.50E-04 lb/MMbtu		(a)(c)	0.84 mg/dscm @ 7% O2	0.070 mg/dscm @ 7% O2 (9)
Dioxins/Furans	None				30 mg/dscm @ 7% O2 (9)
Cadmium	None				0.04 mg/dscm @ 7% O2 (9)
VE10	None				10% (11)
VE15	1.50E-01		(a)(b)		NA
VE20	2.00E-01		(8)		NA

Footnotes and Basis:

- (1) and 124 ppm at 12 % CO2 - dry not to exceed; 3-hour rolling average
- (2) and 60 ppm at 12 % CO2 -dry; or 65% removal; 3-hour rolling average
- (3) Corrected to 12% CO2 - dry (MCC)
- (4) 40 CFR 60.43 b(d)
- (5) @ 50 % air - 296.401(3)(a)
- (6) and 350 ppm at 12 % CO2 -dry; 3-hour rolling average
- (7) and 400 ppm at 12 % CO2 -dry; 1-hour rolling average
88 ppm at 12 % CO2 -dry; 4-day rolling average
- (8) Rule 62-296.320(4)(b)(1)
- (9) Corrected to 7% O2 (dry); FDEP limit
- (10) Corrected to 7% O2 (dry); 4-hour block average
- (11) 6 min. block average
- (a) PSD-FL-105 Part I, 1.a.
- (b) Final Order Modifying Conditions of Certification No PA 85-21; (4/17/91)
- (c) Original PA-85-21

70
2.070

Table 4-3. Summary of Recent Stack Test Results (3/98) as compared to Limits of 40 CFR 60 Subpart Cb
North Broward Resource Recovery Facility

Parameter	Units	Emissions ^a			Cb Limits
		Unit 1	Unit 2	Unit 3	
Sulfur Dioxide	ppm @ 7% O ₂	3.54	7.74	3.73	29
Nitrogen Oxides	ppm @ 7% O ₂	272.39	220.01	239.80	205
Carbon Monoxid	ppm @ 7% O ₂	10.52	17.21	14.34	100
Particulate Matte	mg/dscm @ 7% O	3.67	7.90	1.00	27
Lead	mg/dscm @ 7% O	0.010	0.016	0.004	0.49
Mercury ^b	ug/dscm @ 7% O ₂	12.8	20.5	14.8	70
Dioxins/Furans ^c	ng/dscm @ 7% O ₂	0.68	NC	NC	30
Opacity	percent	0%	0%	0%	10%

^a converted using EPA Method 19; See Attachment A

^b 1997 stack tests

Table 4-4. Proposed Permit Limits for North Broward Resource Recovery Facility

Pollutant	Emission Standards	Test Method
PM ⁽¹⁾ -Particulate Matter	27 mg/dscm (corrected to 7% O ₂)	EPA Method 5
VE-Visible Emissions	10% (6 min. block avg.)	EPA Method 9 and COM
Cd-Cadmium	0.040 mg/dscm (corrected to 7% O ₂)	EPA Method 29
Be-Beryllium	0.001 mg/dscm (corrected to 7% O ₂)	EPA Method 29
Pb-Lead	0.49 mg/dscm (corrected to 7% O ₂)	EPA Method 29
Hg-Mercury	70 µg/dscm or 85% reduction by weight (corrected to 7% O ₂ , whichever is less stringent)	EPA Method 29
SO ₂ -Sulfur Dioxide	29 ppm _{dv} or 75 percent reduction by weight or volume corrected to 7% O ₂ (whichever is less stringent)	CEMS 24-hour daily geometric mean
HCl-Hydrochloric Acid	29 ppm _{dv} or 95% reduction corrected to 7% O ₂ (whichever is less stringent)	EPA Method 26 or 26a
Dioxins/Furans	30 ng/dscm (corrected to 7% O ₂)	EPA Method 23
CO-Carbon Monoxide	100 ppm _{dv} (corrected to 7% O ₂)	CEMS 4-hour block average
	87 ppm _{dv} (corrected to 7% O ₂)	CEMS 4-day rolling average
NO _x -Nitrogen Oxides	205 ppm _{dv} (corrected to 7% O ₂)	CEMS-24-hour block average
Fabric Filter Inlet Temperature	17° C above maximum demonstrated PM control device inlet	CTMS 4-hour block average

These maximum allowable emission rates are applicable to each MWC combustor unit. [Rules 62-4.030, and 62-296.416, F.A.C., 40 CFR 60.33b and 40 CFR 60.34b]

Notes:

(1) This limit for PM is more restrictive than the emission limit for PM in 40 CFR 60.43b

Averaging Times

- SO₂-24-hour daily block geometric mean (midnight to midnight)
- NO_x-24-hour daily block arithmetic mean (midnight to midnight)
- CO-4-hour block arithmetic mean beginning at midnight
- Opacity-6 minutes block arithmetic mean

Abbreviations

- µg/dscm-Micrograms per dry standard cubic meter
- mg/dscm-Milligrams per dry standard cubic meter
- ppm_{dv}-Part per million dry volume
- ng/dscm-Nanograms per dry standard cubic meter
- Dioxins/furans-Total tetra through octa-chlorinated dibenzo-p dioxins and dibenzofurans
- CEMS-Continuous Emission Monitoring System
- COM-Continuous Opacity Monitors
- CTMS-Continuous Temperature Monitoring System
- EPA-U.S. Environmental Protection Agency

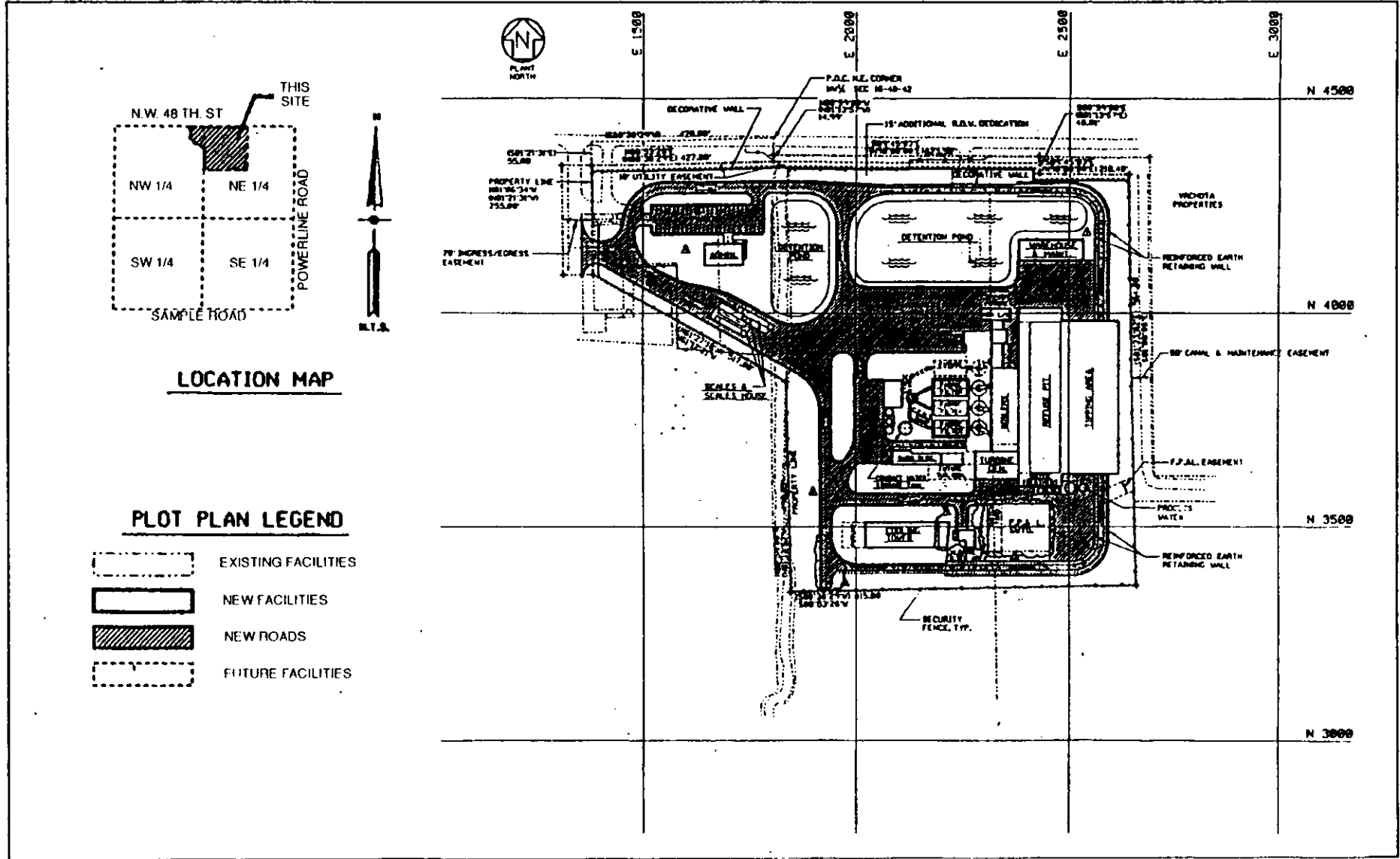


Figure 1-1
 North Broward Resource Recovery Facility
 Plot Plan

Source: Wheelabrator Environmental Systems, Inc., 1989; Golder & Associates, 1998.



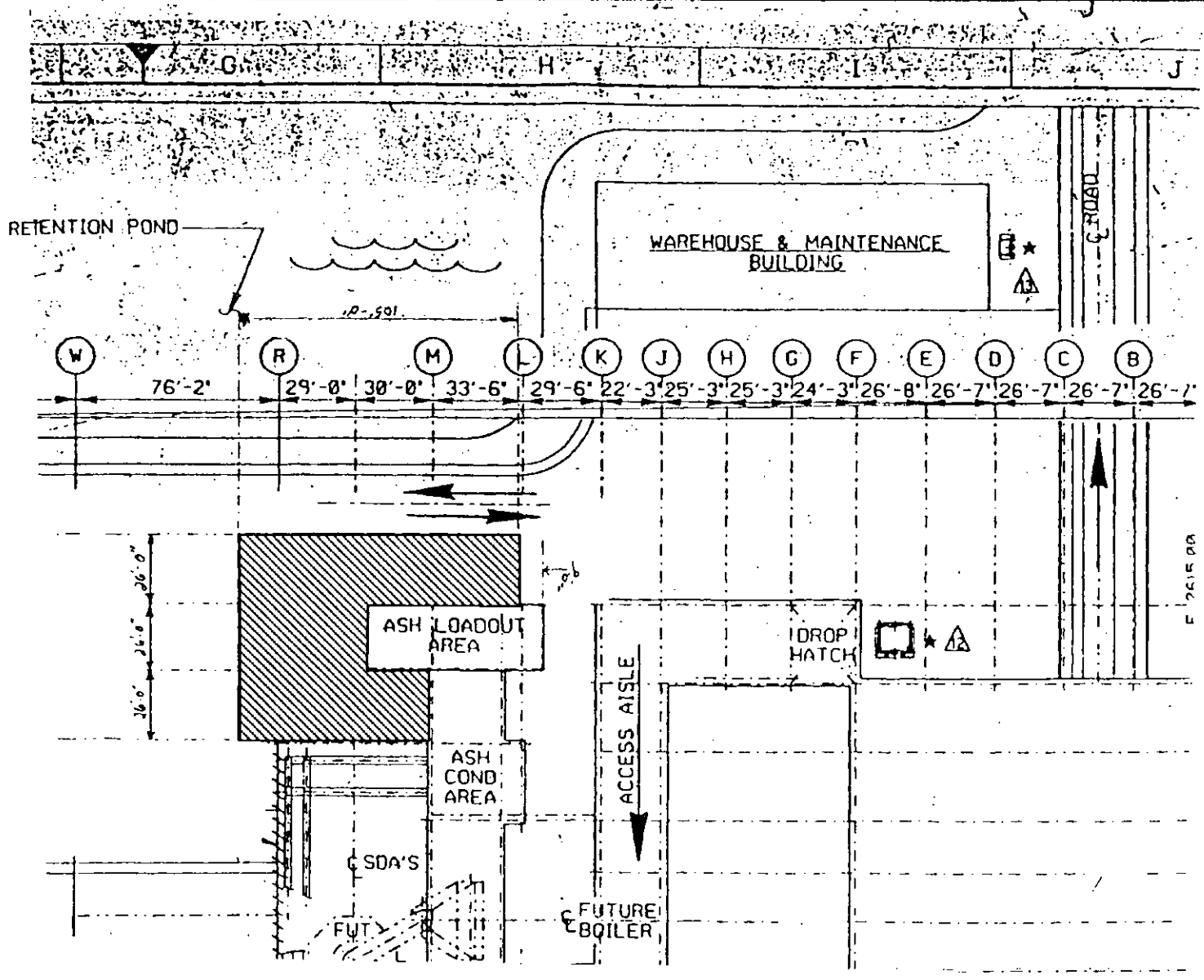


Figure 3-1
North Broward Resource Recovery Facility
Area of New Construction

Source: Wheelabrator Environmental Systems, Inc., 1989; Golder & Associates, Inc., 1998.



KEY

■ AREAS OF NEW CONSTRUCTION

(DRAWINGS ARE NOT TO SCALE)

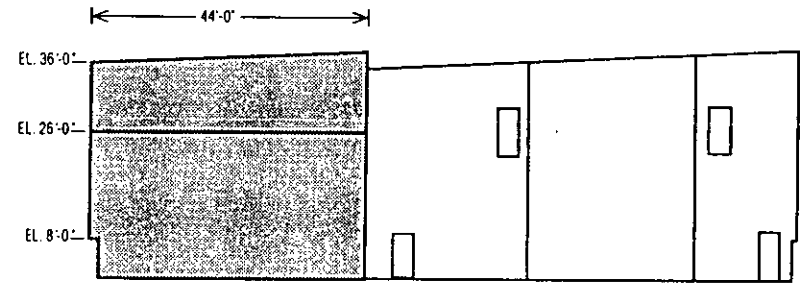
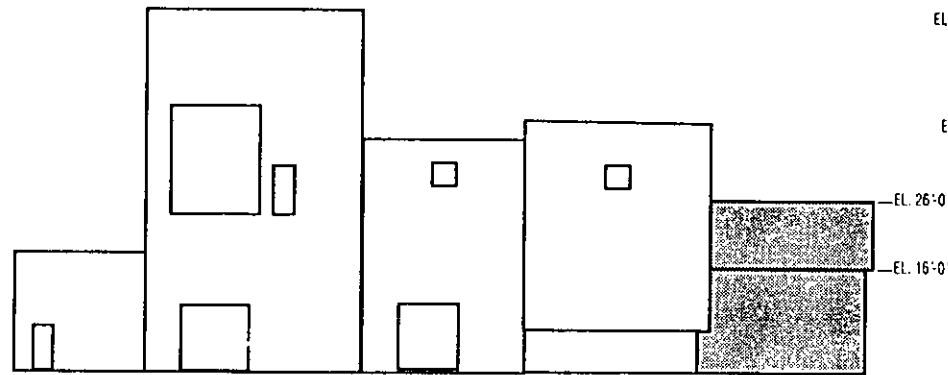
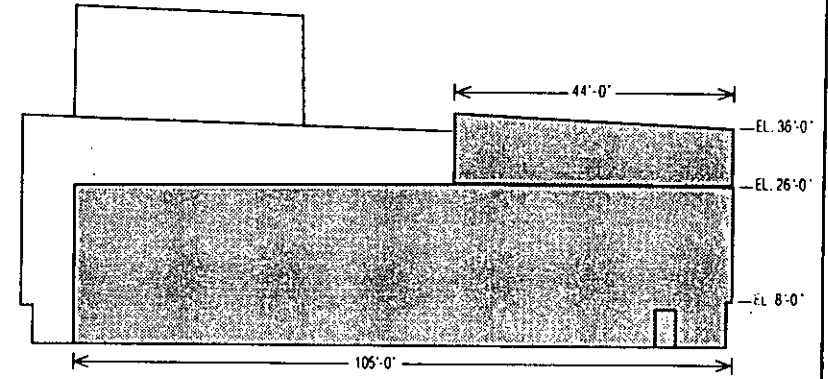
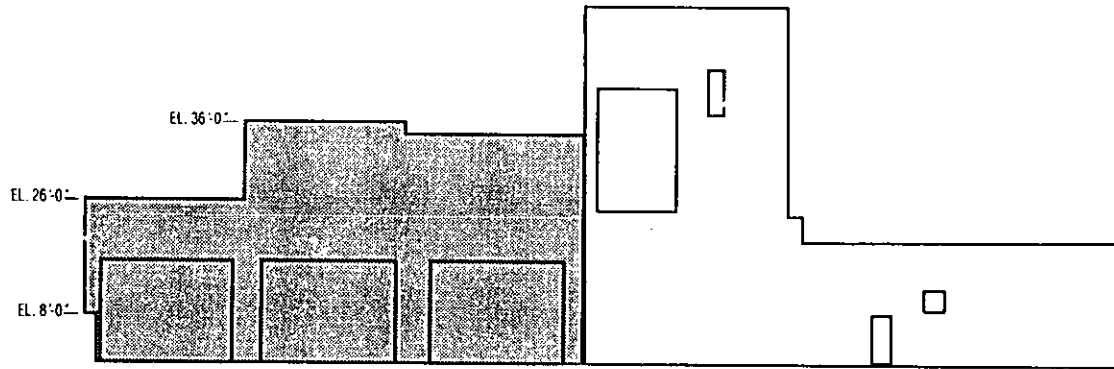


Figure 3-2
North Broward Resource Recovery Facility
Elevation Views of Areas of New Construction

Source: Wheelabrator Environmental Systems, Inc., 1989; Golder & Associates, 1998.



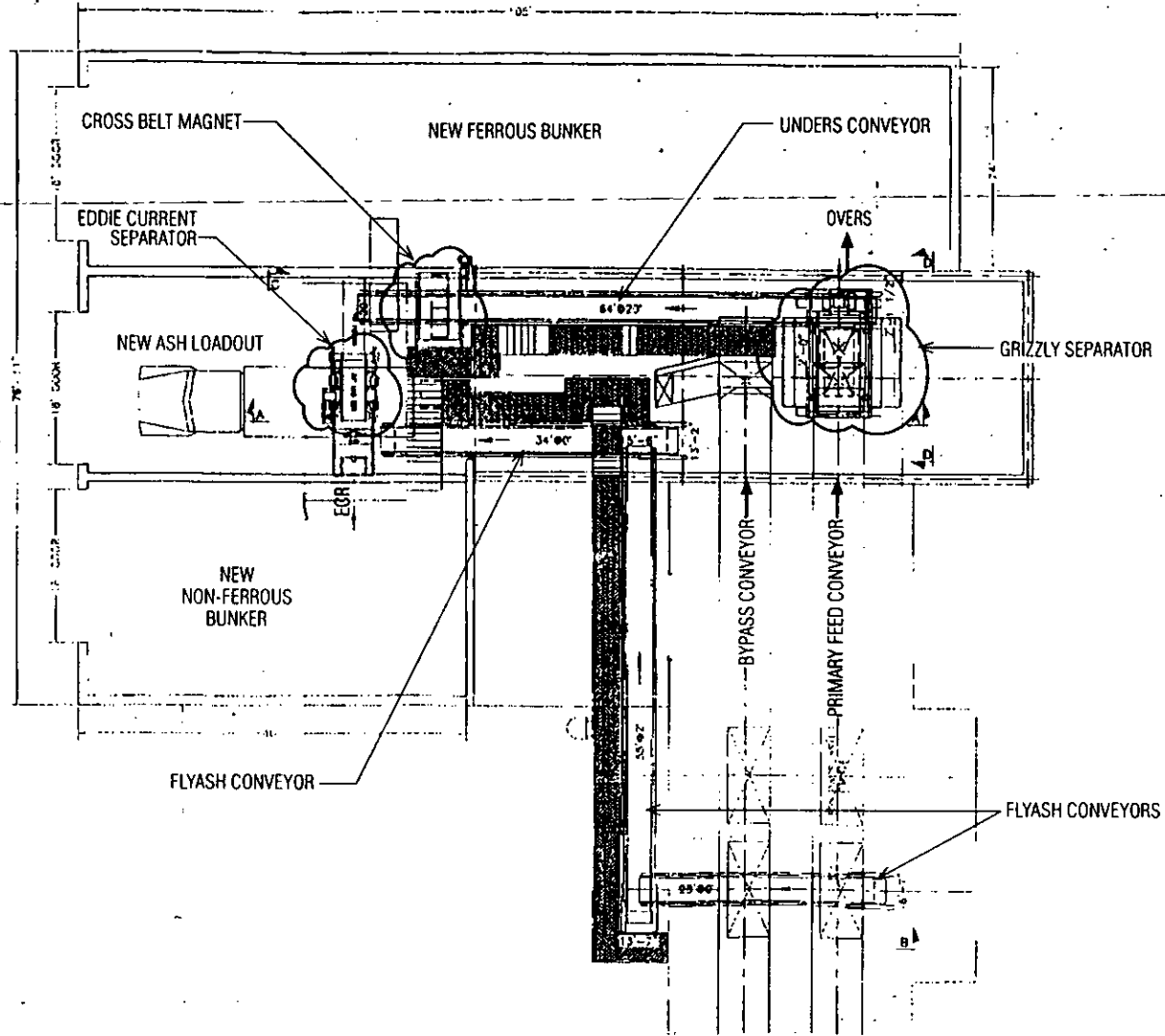


Figure 3-3
North Broward Resource Recovery Facility
Plan View and Flow of Metals Recovery

Source: Fritz Enterprises, 1998.



May 27, 1998

**Outline for Modification Request
South/North Broward Resource Recovery Facility
Wheelabrator South Broward Inc. and Wheelabrator North Broward Inc.**

The following is an outline of information to be included in the modification request for South and North Broward Recovery Facility. The facility was certified under the Florida Power Plant Siting Act (PPSA) and modification of the conditions of certification are required.

Introduction and Applicant

This section will discuss the four areas for which the conditions need clarification, changes or additions. The areas include: a clarification of the fuels allowed to be used in the facility, the addition of a metal recovery facility, addition of Selective Non-Catalytic Reduction required to meet 40 Code of Federal Regulations (CFR) Part 60, Subpart Cb, and the addition of emission sources that were permitted separately.

1.0 Allowable Fuels

- 1.1 Information Related to Original PPSA application
- 1.2 Information Related to Historical and Current Practice
- 1.3 Requested Language for PPSA

2.0 Metals Recovery

- 2.1 Project Overview
- 2.2 Air Emissions (Minor source of fugitive controlled by wet scrubber)
- 2.3 Stormwater (addition of 2,400 ft² of new impervious area for South Broward, only)
- 2.4 Ash Residue Management Plan (update)
- 2.5 Material Recovery (address relevant portions of 62-701.700 F.A.C.)
- 2.6 Transportation (additional 3 trucks per day)
- 2.7 Development Code and Site Plan Information
- 2.8 Requested Conditions of Certification

3.0 Subpart Cb Compliance Plan -- see attached control plans

- 3.1 Existing Facilities Description (brief overview of FF and SD systems)
- 3.2 Description of SNCR system
- 3.3 Performance, Emissions and Stack Conditions (redundant fabric filter outlet temp)
- 3.4 Urea Tank - any permits required
- 3.5 Requested Conditions of Certification

4.0 Existing Air Emission Permits

- 4.1 Description of Sources and Existing Permits (Lime Silo and Ash Handling)
- 4.2 Requested Conditions of Certification

Items related to air emissions (1.0, 2.2 and 3.0) will also be submitted separately as a modification of the PSD permit. The existing air emission sources (4.0) have been handled separately as part of the Title V permit applications submitted in June of 1996.

ce427.doc



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUL 28 1987

APT-APB/eaw

RECEIVED

APR 4 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DER-BAQM

Mr. Thomas M. Henderson
Project Director
Broward County Resource Recovery Office
115 South Andrews Avenue, Room 521
Ft. Lauderdale, Florida 33301

Re: North Broward Resource Recovery Facility (PSD-FL-112)

Dear Mr. Henderson:

Review of your February 14, 1986, application to construct a four unit, 226.9 mmBTU/hr (each) heat input, mass burn, municipal solid waste fired, energy recovery facility in Broward County, Florida, has been completed. The construction is subject to rules for the Prevention of Significant Deterioration (PSD) of air quality contained in 40 CFR §52.21. The Florida Department of Environmental Regulation (FDER) performed the preliminary determination concerning the proposed construction and published a request for public comment on September 13, 1986. Eleven public comments were received and addressed in the final determination. On June 26, 1987, the Environmental Protection Agency (EPA) prepared a final determination recommending issuance of the PSD permit by EPA.

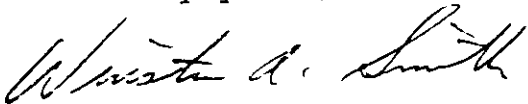
EPA has determined that the construction as described in the application meets all the applicable requirements of 40 CFR §52.21. Accordingly, pursuant to 40 CFR §124.15, the Regional Administrator has made a final decision to issue the enclosed Permit to Construct: Part I. - Specific Conditions and Part II. - General Conditions. This authority to construct, granted as of the effective date of the permit, is based solely on the requirements of 40 CFR §52.21, air quality. It does not apply to other permits issued by this Agency or by other agencies. Please be advised that a violation of any permit condition, as well as any construction which proceeds in material variance with information contained in the final determination, will be subject to enforcement action.

This final permit decision is subject to appeal under 40 CFR §124.19 by petitioning the Administrator of the EPA within thirty (30) days after receipt thereof. The petitioner must submit a statement of reasons for the appeal and the Administrator must decide on the petition within a reasonable time period. If the petition is denied, the permit shall become effective upon notice of such action to the parties to the appeal. If no appeal is

filed with the Administrator, the permit shall become effective thirty (30) days after receipt of this letter. Upon the expiration of the thirty (30) day period, EPA will notify you of the status of the permit's effective date.

Receipt of this letter does not constitute authority to construct. Approval to construct this four unit, mass burn, municipal solid waste fired, energy recovery facility shall be granted as of the effective date of the permit. The complete analysis which justifies this approval has been fully documented for future reference, if necessary. Any questions concerning this approval may be directed to Mr. Bruce Miller, Chief, Air Programs Branch at (404) 347-2864.

Sincerely yours,



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

Enclosure

cc: Mr. Steve Smallwood, P.E., Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation

PERMIT TO CONSTRUCT UNDER THE RULES FOR THE
PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Pursuant to and in accordance with the provisions of Part C, Subpart 1 of the Clean Air Act, as amended, 42 U.S.C. §7470 et. seq., and the regulations promulgated thereunder at 40 CFR §52.21, as amended at 50 Fed Reg. 28550 (July 12, 1985),

North Broward County Resource Recovery Facility

is, as of the effective date of this permit (PSD-FL-112) authorized to construct a resource recovery facility consisting of four 605 ton per day (maximum capacity) mass burn, municipal solid waste incinerators and appurtenances at the following location:

2700 Hilton Road (N.W. 48th Street)
Pompano Beach, Florida 33060
Unincorporated Broward County, Florida.

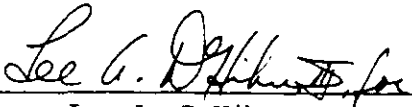
Upon completion of authorized construction and commencement of operation/production, this stationary source shall be operated in accordance with the emission limitations, sampling requirements, monitoring requirements and other conditions set forth in the attached Part I. - Specific Conditions and Part II. - General Conditions.

This permit is hereby issued on JUL 28 1987 and shall become effective thirty (30) days after receipt hereof unless a petition for administrative review is filed with the Administrator during that time. If a petition is filed any applicable effective date shall be determined in accordance with 40 CFR §124.19(f)(1).

If construction does not commence within 18 months after the effective date of this permit, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time, this permit shall expire and authorization to construct shall become invalid.

This authorization to construct shall not relieve the owner or operator of the responsibility to comply fully with all applicable provisions of Federal, State, and local law.

July 28, 1987
Date Signed



Lee A. DeHihns, III, Deputy
Regional Administrator

PART I. - Specific Conditions

1. Emission Limitations

a. Stack emissions from each unit shall not exceed the following:

- Particulate: 0.0150 gr/dscf dry volume corrected to 12% CO₂.
- Sulfur Dioxide: (1) 0.140 lb/mmBtu heat input and 60 ppm (3-hr rolling average, dry volume, corrected to 12% CO₂); or
- (2) 65% reduction of uncontrolled SO₂ emissions.* In no case shall the SO₂ emissions exceed 0.310 lb/mmBtu heat input and 124 ppm (3-hr rolling average, dry volume, corrected to 12% CO₂).

The 124 ppm limit above shall be modified to reflect a new emission limit (in ppm) from the control device at 65% control efficiency. Within 18 months of start-up of operation, the County shall submit compliance tests that will be used to determine the new SO₂ emission limit (in ppm). The limit will be determined by observed average emission rate (u) from the submitted compliance tests and will be statistically analyzed using the one tailed student T test ($t_{.05} = (\bar{x} - u) n^{0.5}/s$) at the 95% confidence level to derive a mean emission rate (\bar{x}), where s is the standard deviation of observed values n. The final operating SO₂ emission limit (in ppm) shall be this mean emission rate (\bar{x}). This value shall be restricted to no more than 124 ppm or less than 60 ppm (3-hr rolling average, dry volume, corrected to 12% CO₂).

Nitrogen Oxides: .560 lb/mmBtu heat input and 350 ppm (3-hr rolling average, dry volume, corrected to 12% CO₂).

Carbon Monoxide: .090 lb/mmBtu heat input; 400 ppm (1-hr rolling average, dry volume, corrected to 12% CO₂); and 88 ppm (4-day rolling average, dry volume, corrected to 12% CO₂).

Lead: .00056 lb/mmBtu

Fluorides: .0040 lb/mmBtu

Beryllium: 9.30×10^{-7} lb/mmBtu

Mercury: 7.50×10^{-4} lb/mmBtu

* Uncontrolled SO₂ emissions will be measured at the inlet to the acid gas control device.

Visible Emissions: Opacity of stack emissions shall not be greater than 15% opacity. Excess opacity resulting from startup or shut-down shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess opacity shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by EPA for longer duration.

The units are subject to 40 CFR Part 60, Subpart E and Subpart Db, New Source Performance Standards (NSPS), except that where requirements in this permit are more restrictive, the requirements in this permit shall apply.

There shall be no greater than 10% opacity for emissions from the refuse bunker and the ash handling and loadout. The potential for dust generation by ash handling activities will be mitigated by quenching the ash prior to loading in ash transport trucks. Additionally, all portions of the proposed facility, including the ash handling facility, which have the potential for fugitive emissions will be enclosed. Also, those areas which have to be open for operational purposes, (e.g., tipping floor of the refuse bunker while trucks are entering and leaving) will be under negative air pressure.

- b. Only distillate fuel oil or natural gas shall be used in startup burners. The annual capacity factor for use of natural gas and oil, as determined by 40 CFR 60.43b(d), shall be less than 10%. If the annual capacity factor of natural gas is greater than 10%, then the facility shall be subject to §60.44b.
- c. (1) None of the four individual municipal solid waste incinerators shall be charged in excess of 226.9 mmBtu/hr and 605 tons per day MSW (110% rated capacity) nor produce in excess of 129,500 lbs/hr of steam (3-hr rolling average).
(2) The temperature of the flue gas exiting the final combustion chamber of the incinerator shall not be less than 1800°F.
- d. Compliance Tests
 - (1) a. Annual compliance tests for particulate matter, lead, SO₂, nitrogen oxides, CO, fluorides, mercury, and beryllium shall be conducted in accordance with 40 CFR 60.8 (a), (b), (d), (e), and (f).
 - b. Compliance with the opacity standard for the incinerator stack emissions in condition 1.a. of this part shall be determined in accordance with 40 CFR 60.11 (b) and (e).

- c. Compliance with the emission limitation for 65% control of total sulfur dioxide emissions shall be determined by using the test methods in condition 1.d.(2) and sampling for SO₂ emissions before and after the acid gas control device. Continuous emissions data shall also be used to demonstrate compliance with the SO₂ concentration limits in condition 1.a. above.
- (2) The following test methods and procedures for 40 CFR Parts 60 and 61 shall be used for compliance testing:
- a. Method 1 for selection of sample site and sample traverses.
 - b. Method 2 for determining stack gas flow rate when converting concentrations to or from mass emission limits.
 - c. Method 3 for gas analysis for calculation of percent O₂ and CO₂.
 - d. Method 4 for determining stack gas moisture content to convert the flow rate from actual standard cubic feet to dry standard cubic feet for use in converting concentrations in dry gases to or from mass emission limits.
 - e. Method 5 for concentration of particulate matter and associated moisture content. One sample shall constitute one test run.
 - f. Method 9 for visible determination of the opacity of emissions.
 - g. Method 6 for concentration of SO₂. Two samples, taken at approximately 30 minute intervals, shall constitute one test run.
 - h. Method 7 for concentration of nitrogen oxides. Four samples, taken at approximately 15 minute intervals, shall constitute one test run.
 - i. Method 10 for determination of CO concentrations. One sample constitutes one test run.
 - j. Method 12 for determination of lead concentration and associated moisture content. One sample constitutes one test run.
 - k. Method 13B for determination of fluoride concentrations and associated moisture content. One sample shall constitute one test run.
 - l. Method 101A for determination of mercury emission rate and associated moisture content. One sample shall constitute one test run.
 - m. Method 104 for determination of beryllium emission rate and associated moisture content. One sample shall constitute one test run.

2. Compliance with emission limitations specified in lb/mmBtu in conditions 1.a. and 1.c. of this part shall be determined by calculating an "F" factor in dscf/mmBtu corrected to 12% CO₂ using the boilers' efficiency (as determined by the calorimeter method contained in Attachment A during acceptance testing) and the measured steam production. Data obtained from test methods required in condition 1.d. of this part for compliance testing shall be used for the calculation of the "F" factor required by this condition.
3. Devices shall be installed to continuously monitor and record steam production, the final combustion chamber temperature, and flue gases temperature at the exit of the acid gas removal equipment. These devices shall be adequately maintained and operating during all periods of operation.
4. The height of each boiler exhaust stack shall not be less than 61.0 meters above ground level at the base of the stack.
5. Each incinerator boiler shall have a metal name plate affixed in a conspicuous place on the shell showing manufacturer, model number, type waste, rated capacity, and certification number.
6. The permittee must submit to EPA and DER, within fifteen (15) days after it becomes available to the County, copies of technical data pertaining to the incinerator boiler design, acid gas control equipment design, particulate control equipment design, and the fuel mix that will be used to evaluate compliance of the facility with the preceding emission limitations.

7. Fuel

The Resource Recovery Facility shall utilize refuse such as garbage and trash (as defined in Chapter 17-7, FAC) but not grease, scum, grit screenings or sewage sludge.

8. Air Pollution Control Equipment

The permittee shall install, continuously operate, and maintain the following air pollution controls to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment.

- a. Each boiler shall be equipped with a particulate emission control device for the control of particulates.
- b. Each boiler shall be equipped with an acid gas control device designed to remove at least 90% of the acid gases.
- c. The temperature of flue gases exiting the acid gas control equipment shall not exceed 300°F.

9. Continuous Emission Monitoring

- a. Prior to the date of startup and thereafter, the County shall install, maintain, and operate the following continuous monitoring systems for each boiler exhaust stack:
 - (1) Continuous emission monitoring (CEM) systems to measure stack gas opacity and SO₂, NO_x, CO, CO₂, and O₂ concentrations for each unit. Continuous monitors for SO₂ shall be installed after the acid gas control device for each unit. The systems shall meet the EPA monitoring performance specifications of 40 CFR 60.13 and 40 CFR 60, Appendix B, during initial compliance testing and annually thereafter. Additionally, CEM's shall meet the quality control requirements of 40 CFR 60, Appendix F (Attachment B).
 - (2) CEM data recorded during periods of startup, shutdown, and malfunction shall be reported but excluded from compliance averaging periods for CO, NO_x, and opacity.
 - (3)
 - a. CEM data recorded during periods of startup and shutdown shall be excluded from compliance averaging periods for SO₂.
 - b. CEM data recorded during periods of acid gas control device malfunctions shall be excluded from compliance averaging periods for SO₂ provided that the preceeding thirty day period which ends on the last day of the malfunction period meets an average SO₂ emission limit equal to the SO₂ limit specified in condition 1.a. CEM data must be available for 90% of the operating time for this exemption to apply. A malfunction as used in this permit means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.
 - (4) The temperatures of the final combustion chamber of the furnace and flue gases exiting the acid gas control device shall be continuously monitored.
- b. An excess emissions report shall be submitted to EPA for every calendar quarter. The report shall include the following:
 - (1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and completion of each period of excess emissions (60.7(c)(1)).

- (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the furnace/boiler system. The nature and cause of any malfunction (if known) and the corrective action taken or preventive measures adopted shall also be reported (60.7(c)(2)).
 - (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks, and the nature of the system repairs or adjustments (60.7(c)(3)).
 - (4) When no excess emissions have occurred or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report (60.7(c)(4)).
 - (5) County shall maintain a file of all measurements, including continuous monitoring systems performance evaluations; all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this permit recorded in a permanent form suitable for inspection (60.7(d)).
 - (6) Excess emissions shall be defined as any applicable period during which the average emissions of CO, NO_x, and/or SO₂, as measured by the continuous monitoring system, exceeds the CO, NO_x, and/or SO₂ maximum emission limit (in ppm) set for each pollutant in condition 1.a. above.
- c. Excess emissions indicated by the CEM systems shall be considered violations of the applicable opacity limit or operating emission limits (in ppm) for the purposes of this permit provided the data represents accurate emission levels and the CEM's do not exceed the calibration drift (as specified in the respective performance specification tests) on the day when initial and subsequent compliance is determined. The burden of proof to demonstrate that the data does not reflect accurate emission readings shall be the responsibility of the permittee.
10. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up or shutdown shall be prohibited.
11. Reporting
- a. A copy of the results of the compliance tests shall be submitted within forty-five days of testing to the DER Bureau of Air Quality Management, the DER Southeast Florida District Office, Broward County, and EPA Region IV.
 - b. Continuous emissions monitoring data shall be reported to the DER Southeast District Office and EPA Region IV on a quarterly basis in accordance with Section 17-2.710, FAC, and 40 CFR 60.7.

c. Addresses for submitting reports are:

EPA Region IV

Chief, Air Compliance Branch
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Florida Department of Environmental Regulation (DER)

Deputy Chief, Compliance and Ambient Monitoring
Bureau of Air Quality Management
Florida Department of Environmental
Regulation (DER)
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Southeast District Office of DER

District Manager
Department of Environmental Regulation
3301 Gun Club Road
P.O. Box 3858
West Palm Beach, Florida 33402

Broward County

Broward County Environmental Quality
Control Board
500 Southwest 14th Court
Ft. Lauderdale, Florida 33315

PART II. - General Conditions

1. The permittee shall comply with the notification and record-keeping requirements codified at 40 CFR Part 60.7. In addition, the permittee shall provide EPA with 30 days notice prior to conducting any compliance testing required under condition 1.a.
2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operation parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
3. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide EPA with the following information in writing within five (5) days of such condition:
 - (a) description of noncomplying emission(s),
 - (b) cause of noncompliance,
 - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
 - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission.

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

4. Any proposed change in the information contained in the final determination regarding facility emissions or changes in the quantity or quality of materials processed that would result in new or increased emissions or ambient air quality impact must be reported to EPA. If appropriate, modifications to the permit may then be made by EPA to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein. Any construction or operation of the source in material variance with the final determination shall be considered a violation of this permit.
5. In the event of any change in control of ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit and EPA of the change in control of ownership within 30 days.
6. The permittee shall allow representatives of the state and local environmental control agency or representatives of the EPA, upon presentation of credentials:

- (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of this permit;
 - (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Clean Air Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emissions of pollutants; and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
7. The conditions of this permit are severable, and if any provision of this permit or the application of any provisions of this permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected.

cc: Mike ✓
Wilson



Wheelabrator South Broward Inc.

A Waste Management Company
4400 South State Road 7
FL. Lauderdale, FL 33314

Phone 954.581.6606
Fax 954.581.6705

Thomas D. Kirk
General Manager

February 25, 1998

Certified #P 427 396 798
Return Receipt Requested

Mr. Michael Hewett
Florida Department of Environmental Protection
Division of Air Resources Management
Twin Towers Office Building
2600 Blair Stone Road
Mail Station 5500
Tallahassee, FL 32399-2400

RE: Wheelabrator South Broward Subpart Cb Emission Guidelines Final Control Plan

Dear Mr. Hewett:

In accordance with the Florida State Plan approved by USEPA on November 13, 1997 implementing the Subpart Cb Emission Guidelines, the following final control plan is provided for the Wheelabrator South Broward Facility (WSB). This final control plan is submitted to describe the controls and measures WSB will use to comply with the Subpart Cb emission limits and other requirements as adopted in Florida Administrative Code (FAC) Chapters 62-204.800 and 62-296.416.

The WSB facility is already equipped with spray dryer/fabric filter (SDA/FF) air pollution control technology for the control of particulate, acid gases, metals and dioxins; therefore, the WSB facility will not require a major retrofit. To meet the Subpart Cb requirements generally will require installation of Selective Non-Catalytic Reduction (SNCR) NOx controls and incorporation of the Subpart Cb good combustion practice, compliance and performance testing, and monitoring, record keeping and reporting requirements.

The following summarizes the controls or measures required or already in place to meet each Subpart Cb requirement applicable to WSB. Except for the mercury limits, Florida's rules implementing the Subpart Cb requirements cross reference the federal requirements at 40 CFR 60 Subpart Cb.

1. Particulate emission limit as specified at 40 CFR 60.33b(a)(2)(i) and (ii). Facilities existing fabric filters will be used to comply with this requirement.
2. Opacity limit at 40 CFR 60 60.33b(a)(1)(iii). Compliance will be achieved with the existing fabric filters.

3. Emission limits for Cadmium and Lead at 40 CFR 60.33b(a)(2)(i) through (iv). Compliance will be achieved with the existing fabric filters.
4. Emission limit for Mercury at DEP Rule 62-296.416(3)(b) apply. Compliance is achieved through the Broward County mercury waste separation program and augmented by the existing spray dryer/fabric filters. Compliance with the limit is currently demonstrated semiannually on each unit.
5. The emission limits for sulfur dioxide and hydrogen chloride at 40 CFR 60.33b(b)(1)(i) and (ii) and 40 CFR 60b(b)(2)(i) and (ii). The existing SDA/FF air pollution controls will achieve compliance with these limits.
6. The emission limit for total mass dioxin/furans as specified at 40 CFR 60.33b(c)(1)(i) through 60.33b(c)(2). Emission limits will be met with the existing good combustion control technology and the existing SDA/FFs.
7. The emission limit for nitrogen oxides at 40 CFR 60.33b(d). SNCR will be added to achieve compliance with this emission limit. This will require installation of a liquid urea storage tank with or without dry powdered urea mixing capability, urea metering and injection control system, injection nozzles at the appropriate furnace locations and interconnecting piping.
8. The emission limit for carbon monoxide at 40 CFR 60.34b(a). This emission limit will be achieved with the existing good combustion control technology.
9. Operating practices requirement as specified at 40 CFR 60.53b(b) and (c). The facility as currently operated can comply with the load and temperature requirements. Steamflow and fabric filter inlet temperature are currently monitored.
10. Operator training requirements as specified at 40 CFR 60.54b. The facility will meet these requirements in accordance with the schedule in 40 CFR 60.39b(c)(4) – (within 12 months of EPA approval of Florida's Subpart Cb Plan – November 13, 1998).
11. Fugitive ash emission requirements at 40 CFR 60.55b. The facility can comply with these requirements because the ash handling areas are fully enclosed.
12. Compliance and performance testing at 40 CFR 60.58b, 60.24(b)(2) and FAC 62-204.800(8)(b). The facility will comply with these requirements as required by the schedule. These include the Subpart Cb CEM requirements which will be met with the existing CEMs installed at the facility as modified with a new data acquisition system to incorporate

Mr. Michael Hewett
February 25, 1998
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the Cb averaging times and data recording and record keeping provisions in addition to any other necessary equipment changes.

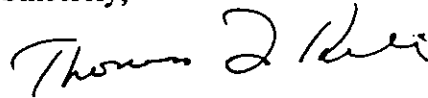
As specified in the Subpart Cb State Plan approved by USEPA, the following compliance schedule will be followed:

- July 13, 1998 - Awarding of Construction Contract for SNCR
- November 13, 2000 - Completion of Onsite Construction
- December 19, 2000 - Achieve Compliance

The initial performance tests to demonstrate compliance with the Subpart Cb emission limits will be conducted within 180 days after achieving compliance and will be coordinated with the annual testing requirements in the PPSC and PSD permits. It is expected that a modification to the existing PPSC permit and a construction permit will be required for the retrofit.

Additional details of the emission controls or measures to meet Subpart Cb requirements will be provided in the permit to construct application and modification to the PPSC permit as may be requested by DEP. We trust the above information is sufficient to fulfill final control plan submittal requirements. If there are any questions or you need additional information, please give me a call.

Sincerely,



Thomas Kirk
General Manager

980226.TDK.ch

cc: Chuck Faller
Tom Henderson
Tim Porter