

SOLID WASTE AUTHORITY

Palm Beach County



October 21, 1986

DER

OCT 27 1986

BAQM

Mr. Claire H. Fancy, P.E.
Deputy Bureau Chief CAP/BAQM
State of Florida
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Palm Beach County Solid Waste Authority
Central Resource Recovery Facility
PSD Permitting

Dear Claire:

In accordance with our discussion of October 17, 1986, regarding the issuance of a PSD Permit for the Authority's resource recovery project, the following statements represent my understanding of the procedure through which permit issuance will be accomplished:

Mr. Ed Svec, of your office, will prepare a Final Notice of PSD Permit issuance for transmittal to USEPA Region IV within the next two (2) weeks.

Assuming that USEPA Region IV concurs with FDER's determination, a notice of intent to issue the PSD Permit will be published in the Federal Register. A thirty (30) day comment period will be allowed.

Following the thirty (30) day comment period, the PSD Permit will become effective.

Based upon the foregoing procedure, the following project schedule may be constructed:

FDER Issues Final Notice	November 3, 1986
USEPA Publishes Final Notice	November 10, 1986
PSD Permit Effective	December 10, 1986

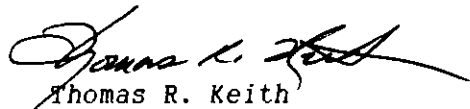
I must reiterate the Authority's critical concern with regard to the timing of this permit issuance. Further delay could result in a

significant economic impact upon the residents of Palm Beach County as the result of changes which would be brought about in the financing of the project. Your assistance in expediting this process will be of value in avoiding these unnecessary and costly consequences.

If you find fault with my analysis of the PSD permitting process or with the projected schedule for permit issuance; or, if you have any suggestions for expediting the process, please do not hesitate to call.

Thank you for your assistance.

Sincerely,


Thomas R. Keith
Deputy Executive Director

TRK/ja

cc: Buck Oven, PPSC Coordinator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4APT-AP/ch

Mr. Clair H. Fancy, P. E.
Deputy Chief
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

901 9 1986

RE: South Broward and West Palm Beach Counties Resource Recovery Facilities

Dear Mr. Fancy:

This is in reference to your September 25, 1986, letter submitting the staff analysis, hearing officer's recommended orders, and final certifications of the above-referenced power plant site certifications. The staff analyses as presented for both facilities present the Department's preliminary determinations for PSD reviews. However, the public notices were not included. These notices must provide a description of the project, increment consumption, and the opportunity to comment and request a public hearing. We request that you forward these notices to EPA. Based upon our conclusions, drawn from your staff analyses, 90% acid gas control and particulate emissions on the order of 0.015 gr./dscf will be required for both facilities. Although this will be in conflict with the State of Florida final order issued for the South Broward facility, we feel that the BACT determination for acid gas control and stringent particulate emissions limits is in agreement with "state of the art" controls now being employed at similar facilities throughout the country and the PSD remand for the North County Resource Recovery facility in California. The remand states that more stringent BACT requirements for regulated pollutants may be imposed where the simultaneous control of hazardous yet unregulated pollutants is achieved.

Please prepare the final determinations to reflect the requirement for acid gas control and a 0.015 gr/dscf particulate emission limit for the two facilities. Once we receive the final determinations and public notices, we will proceed to issue the PSD permits.

If you have any questions and/or comments regarding this letter, you may contact me at 404-347-2864 or Mr. Wayne J. Aronson at 404-347-4901.

Sincerely yours,

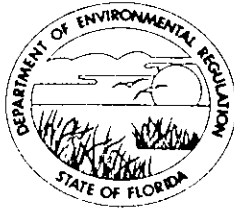
Bruce P. Miller

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

DER
OCT 13 1986
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

September 25, 1986

Mr. Bruce Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Miller:

Re: South Broward County and Palm Beach County Resource Projects

In response to your discussion with Ed Svec in Atlanta on September 11, 1986, we are enclosing copies of the staff analysis, hearing officer's recommended orders, and final certifications of the above referenced power plant site certifications. We feel that these documents contain all the information necessary for your review and issuance of the required PSD permits. However, if you require any additional information, please feel free to contact me.

Sincerely,

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

CHF/ES/s



Sharyn L. Smith
Director

STATE OF FLORIDA

Department of Administration

Division of Administrative Hearings

Oakland Building, 2009 Apalachee Parkway

TALLAHASSEE

32301

May 21, 1986

RECEIVED

MAY 22 1986

Dept. of Environmental Reg.
Office of the Governor
Bob Graham

Nevin G. Smith
Secretary of Administration

Honorable Bob Graham
Governor
State of Florida
The Capitol
Tallahassee, Florida 32301

Honorable Doyle Conner
Commissioner of Agriculture
The Capitol
Tallahassee, Florida 32301

Honorable Bill Gunter
Insurance Commissioner and
Treasurer
The Capitol
Tallahassee, Florida 32301

Honorable Gerald Lewis
Comptroller
The Capitol
Tallahassee, Florida 32301

Honorable Jim Smith
Attorney General
The Capitol
Tallahassee, Florida 32301

Honorable Ralph Turlington
Commissioner of Education
The Capitol
Tallahassee, Florida 32301

Honorable George Firestone
Secretary of State
The Capitol
Tallahassee, Florida 32301

Re: Palm Beach County Resource Recovery Project,
Power Plant Siting Certification Application
PA 84-20 (Case No. 85-2032).

Dear Members of Siting Board:

Enclosed is my Recommended Order in the referenced proceedings. Under separate cover, I am forwarding the Exhibits and transcript of the certification hearing to Mr. Hamilton Owen of the Department of Environmental Regulation for transmittal to you.

An Affirmative Action/Equal Opportunity Employer

Page two
May 21, 1986
Letter to Members of Siting Board

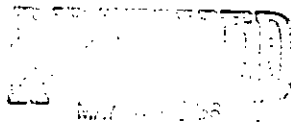
Please furnish the Division of Administrative Hearings with a copy of the Final Order rendered in this proceeding so that our files will be complete.

Very truly yours,


WILLIAM J. KENDRICK
Hearing Officer

/cc
Enclosure

xc: Steve Tribble
Victoria Tschinkel
Glenn Robertson, Jr.
C. Lawrence Keeseey, Esq.
Terrell K. Arline, Esq.
Julia D. Cobb, Esq.
Elizabeth D. Ross, Esq.
Joel T. Daves, Esq.
Herbert C. Gibson, Esq.
Roger G. Saberson, Esq.



Dept. of Environmental Reg.
Office of General Counsel

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

PALM BEACH COUNTY RESOURCE)	
RECOVERY PROJECT, POWER PLANT)	
SITING CERTIFICATION APPLICATION)	Case No. 85-2032
PA 84-20)	(Certification Hearing)
)	
)	

RECOMMENDED ORDER

Pursuant to notice, the Division of Administrative Hearings, by its duly designated Hearing Officer, William J. Kendrick, held a public hearing in the above styled case on March 17-21, 1986, in West Palm Beach, Florida.

APPEARANCES

For Palm Beach County Solid Waste Authority:	Herbert C. Gibson, Esq. Thela J. White, Esq. Kathy Loggins, Esq. Gibson and Adams 303 First Street, Suite 400 Post Office Box 1629 West Palm Beach, Florida 33402
For the Department of Environmental Regulation:	Julia D. Cobb, Esq. Karen A. Brodeën, Esq. Department of Environ- mental Regulation 2600 Blair Stone Road Tallahassee, Florida 32301
For the Department of Community Affairs:	C. Lawrence Keeseey, Esq. Department of Community Affairs 2571 Executive Center Circle, East Tallahassee, Florida 32301
For the South Florida Water Management District:	Elizabeth D. Ross, Esq. Irene K. Quincey, Esq. South Florida Water Management District 3301 Gun Club Road West Palm Beach, Florida 33402
For the City of Riviera Beach:	Joel T. Daves, III, Esq. Burdick & Daves Post Office Box 790 West Palm Beach, Florida 33402
For Treasure Coast Regional Planning Council:	Roger G. Saberson, Esq. 110 East Atlantic Avenue Delray Beach, Florida 33444

For Anti-Dump
Coalition, Inc.,
Concerned Citizens
Against the Dyer
Dump, Inc., S.P.O.
Homeowners Association,
Inc., and the
Florida Wildlife
Federation:

Terrell K. Arline, Esq.
325 Clematis Street
Suite C
West Palm Beach, Florida
33401

PRELIMINARY STATEMENT

On June 18, 1985, Palm Beach County Solid Waste Authority (Authority) filed its application with the Department of Environmental Regulation (DER) for power plant site certification for a resource recovery facility and landfill to be located in Palm Beach County, Florida. Pursuant to Section 403.508(1) and (2), Florida Statutes, a land use hearing was held before the undersigned Hearing Officer on September 12, 1985, and a Recommended Order was submitted to the Governor and Cabinet, sitting as the Siting Board, on November 7, 1985. By order of February 13, 1986, the Siting Board remanded the case to the Hearing Officer, and on April 25, 1986, the Hearing Officer accepted remand, withdrew his Recommended Order, and submitted an Amended Recommended Order to the Siting Board.

By Order Number 15280, issued October 21, 1985, the Florida Public Service Commission (PSC) concluded that a need existed for the electrical generating capacity to be supplied by the proposed resource recovery facility. This Order constituted the final report of the PSC required by Section 403.507(1)(b), Florida Statutes, and creates a presumption of public need and necessity, pursuant to Section 403.519, Florida Statutes.

At hearing the Authority presented the testimony of 12 witnesses and its Exhibits 1A-0, 2, 3, 3A, 4-8, 9, 9A, 10, 11, 11A, 11B, 12, 13, 13A, 14-22, 23, 23A, 24-26, 27, 27A-G, 28, 28A-G, 28I-0, 29, 29A-C, and 30-44, were received into evidence. Testifying on behalf of the Authority were Roger G. Burns, accepted as an expert in the design of resource recovery facilities, with special emphasis on combustion; Edward J. Kaplin, accepted as an expert in meteorology and air dispersion modeling; Allan H. Smith, accepted as an expert in epidemiology

and health risk assessments; Edward T. Wei, accepted as an expert in toxicology; Stanley G. Timmerman, accepted as an expert in mechanical engineering; David E. Deans, accepted as an expert in environmental engineering, with special emphasis on landfill design; Joseph E. Fluet, Jr., accepted as an expert in geosynthetic design of landfills; Vincent P. Amy, accepted as an expert hydrogeologist, with special emphasis on injection wells, water resource development, ground-water management, ground-water contamination, and aquifer exploration; Olin Braids, accepted as an expert in chemistry, with emphasis on water and soil chemistry; Marc C. Bruner, accepted as an expert in Biology, with emphasis on ecology; Jack Lauber, accepted as an expert in environmental air pollution control and air control technology; and Clair Fancy, licensed professional engineer.

Intervenors, Anti-Dump Coalition, Inc., Concerned Citizens Against the Dyer Dump, Inc., S.P.O. Homeowners Association, Inc., and the Florida Wildlife Federation (Coalition) and the City of Riviera Beach (Riviera Beach), presented the testimony of 10 witnesses. Testifying on behalf of the Intervenors were Aaron J. Teller, accepted as an expert in chemical engineering, with emphasis on diffusion, and environmental control systems; John S. Street; John A. Trefry, Jr.; Ralph Dougherty, accepted as an expert on the toxic effects of chlorinated organic compounds on the reproductive systems of animals and humans, and their analysis and control; William T. Cooper, III, accepted as an expert in bio-chemistry and geo-chemistry; Jack Walden; Thomas Curtis, Jr., accepted as an expert in surface and ground water hydrology, and modeling; Nathanael Reed; Dwight Goforth, accepted as an expert in Biology; and Barry Commoner, accepted as an expert in Biology and Biochemistry, with emphasis on dioxins and risk assessment associated with municipal waste incinerators. Intervenors' Exhibits 1-9, 11, 13, and 15 were received into evidence.

DER called Hamilton S. Oven as a witness. DER Exhibits 1-3 were received into evidence. The Department of Community Affairs (DCA), South Florida Water Management District (SFWMD),

and Treasure Coast Planning Council (Treasure Coast) called no witnesses and offered no exhibits. Seven members of the public testified on their own behalf, and Hearing Officer Exhibits 1,2,5,8 and 9 were received into evidence.

The Authority, DER, the Coalition, and Riviera Beach have submitted proposed findings of fact, and they have been reviewed and considered. A ruling has been made on each proposed finding in Appendix III to this Recommended Order.

FINDINGS OF FACT

1. The Palm Beach County Solid Waste Authority (Authority),¹ proposes to construct a resource recovery facility and two landfills to meet the solid waste disposal needs of Palm Beach County. Presently, the Authority operates two landfills, the Lantana landfill and the Dyer Boulevard landfill, which accommodate 88% of the county's municipal solid waste (MSW). The Lantana landfill will reach its capacity by the middle of 1986, and the Dyer Boulevard landfill will reach its capacity by late 1987. The Authority's proposed facility will meet the county's current and expanding need for MSW disposal for more than 20 years.

The Facility

2. The facility proposed by the Authority will initially consist of three refuse derived fuel (RDF) manufacturing lines, one oversize bulky waste and ferrous processing line, two spreader-stoker boilers, one 50 megawatt turbogenerator, a cooling system, and a Class I and Class III landfill for the disposal of ash, non-processables and non-combustibles. To support the facility's operations, a maintenance building, administration building, wastewater treatment plant, potable water storage tank, hazardous waste

¹ The Authority is an independent authority created by the Florida Legislature under the Palm Beach County Solid Waste Act, Chapter 75-473, as amended, Laws of Florida. In creating the Authority, the legislative intent was to form a county-wide authority for the coordinated management of solid waste processing and disposal.

storage and transfer building,² electrical substation, as well as five borrow lakes, will be constructed on site. When completed, the facility will initially dispose of up to 2,000 tons of MSW each day, and generate up to 50 megawatts of electrical power. The ultimate capacity of the facility will be 3,000 tons of MSW each day, and a generating capacity of 75 megawatts.

The Site

3. The site for the proposed RRF and landfills is a 1,320-acre parcel of land located in the unincorporated north-central area of Palm Beach County. The site is bounded on the north by the Beeline Highway (SR 710), on the east by the Florida Turnpike, on the south by a line approximately 610 feet south of 45th Street, on the west by the City of West Palm Beach Water Catchment Area, and on the northwest by a tract of privately owned property. A 73-acre parcel of land located east of the southernmost portion of the site and the Florida Turnpike, paralleling the south side of 45th Street to Haverhill Road, will serve as a corridor for a proposed 138-kilovolt (KV) transmission line from the RRF to Florida Power and Light Company's (FP&L's) existing transmission line corridor. As sited, the facility is accessible to major roadways, proximate to the solid waste centroid of Palm Beach County, and buffered from residential neighborhoods by major thoroughfares.

4. A majority of the proposed site consists of historical wetlands; however, past and present property use have changed the hydrologic regime and topography of the site in many areas. In the northeast portion of the site, there exists an 82 acre borrow lake which supports an active dredge operation. Dredged material is used for construction fill and cover material at the Dyer Boulevard Landfill located east of the Florida Turnpike. Areas to the north of this borrow lake have been scraped below natural elevations, as have areas in the east

² Florida law prohibits the land disposal of hazardous wastes. Any hazardous wastes discovered in the waste stream will be collected and shipped off-site for disposal in accordance with federal and Florida regulations.

central portion of the site. Three abandoned shell pit operations, encompassing approximately 171 acres, occupy the southwest corner of the site. Ditches and culverts, installed to drain the wetlands at the interior of the site, have further altered the site's historical characteristics.

5. The proposed site includes within its boundaries one of the largest nesting assemblages of wading birds catalogued within the Treasure Coast, and a roosting area for the endangered Everglades Kite. The areas most heavily utilized by the wading birds on site are the large marshes at the site's western boundary. The Everglades Kite rookery is concentrated in a series of spoil piles encompassing approximately 10 acres of the abandoned shell pit operation at the southwest corner of the site.

6. The Authority proposes to locate the RRF complex in the south-central area of the site, and the landfills along the site's eastern boundary, abutting the Florida Turnpike.³ The RRF complex will occupy approximately 40 acres of land. The landfills associated with the facility will consist of a 121-acre Class I landfill of double-liner technology with a leachate collection system and a 192-acre Class III landfill of single-liner technology with a collection system. Borrow lakes consisting of approximately 236 acres, dug to a depth of up to 50', will be developed over the life of the landfill to provide fill for construction and cover material for the landfill. The balance of the site's acreage will be utilized for an access road (36 acres), a conservation area (460 acres), and buffer, service roads, and ditches (223 acres). The Authority's Exhibit 12, attached hereto as Appendix I, graphically illustrates the boundaries and proposed development of the site.

7. Underlying the site of the proposed RRF and landfills is the Turnpike Aquifer, the principal source of drinking water in Palm Beach County. This shallow aquifer is recharged by rainfall, and occurs in a band of sandstone several

³ As sited, the proposed landfills are more than 3,000 feet from the water catchment area.

miles wide in the east-west direction, and extends nearly the entire length of the County in the north-south direction. Ground water flow through the aquifer is east to west at a average velocity of 0.33 feet per day in its shallow zone and 0.47 feet per day in its deeper zone. Accordingly, the water catchment area, located west of the site, lies upgradient of the proposed facility.⁴

8. Abutting the western boundary of the proposed site is the City of West Palm Beach Water Catchment Area. This catchment area, a Class I source of drinking water, consists of 11,000 acres of wetlands comprised of wet prairies and marsh interspersed with upland hammock. There is abundant wildlife in the area, including alligator, white tailed deer, bobcat, panther, and fox.

9. The catchment area drains into a canal (the M canal) which runs eastward into Lake Mangonia and Clear Lake. These lakes provide the principal source of drinking water for the City of West Palm Beach. Lake Mangonia has been designated by the Florida Fish and Game Commission as a fish management area.

Impact on Wetlands and Wildlife

10. As proposed, the site development plan will eliminate approximately 200 acres of wetland. To mitigate the impact of the removal of these wetlands, the Authority proposes to restore 178 acres of previously stressed wetlands and create a minimum of 190 acres of new wetlands on site. Additionally, the Authority has agreed to perform a detailed hydrological study,

⁴ A geologic investigation of the site established that the Pamlico Sand is present from land surface to a depth of about 12 feet. The Pamlico Sand consists predominantly of fine gray and brown sand. The Anastasia Formation underlies the Pamlico and includes the entire shallow aquifer. The Anastasia Formation is composed of gray and tan quartz sand and shells; between about 50 to 100 feet in depth, these deposits generally are cemented to form coquina or sandstone. The bottom of the shallow aquifer in the vicinity of the site lies at a depth of 125 feet. Below 125 feet, the Anastasia Formation contains fine-grained materials in a sandy limestone or sandstone, with reduced permeability. The Anastasia Formation extends to a depth of 250 feet. Beneath the Anastasia Formation are the Tamiami and Hawthorne Formations which have a low permeability and serve to confine the underlying Floridan aquifer. The top of the Floridan aquifer lies at a depth of about 1,000 feet.

install water control structures, and refurbish levees to restore the natural hydroperiods to the Florida Game and Fresh Water Fish Commission's J.W. Corbett Wildlife Management Area. This management area consists of 3,400 acres of sawgrass marsh adjacent to the L-8 Canal which, over the years, has been excessively overdrained. When completed, the Authority's mitigation plan will significantly increase wetlands habitat, wildlife populations, and aquatic productivity.

11. To minimize or eliminate any adverse impact to the wading birds which inhabit the western portion of the site, the authority will actively manage the large marsh area on the western portion of the site as a conservation area. To minimize or eliminate any adverse impact to the Everglades Kite, the Authority has agreed to retain the abandoned shell pit area as a rookery, and to screen the rookery from the proposed facility by planting cypress and other native species. The Authority's proposal provides reasonable assurances that the Everglades Kite and the wading birds will not be adversely impacted by the proposed facility.

Impact on water resources

12. The water management system proposed by the Authority provides reasonable assurances that surface and ground waters will not be adversely impacted by the proposed facility.

13. A double liner leachate collection system will underly the landfill area designed for Class I materials (garbage, putrescible waste, bottom ash, fly ash). The double liner system will consist of two layers of geosynthetic textile materials, including a geotextile filter, a geonet, and a high density polyethylene (HDPE) liner, separated by 12 inches of clean sand. ⁵ This system will be constructed on a base of 6 inches of recompacted select fill to prevent any puncture of the liner.

⁵ From top to bottom the liner and leachate collection system will consist of: 24 inches of clean sand (which will filter and trap leachate as well as cushion the liner below); a geotextile filter, a geonet, and a geomembrane (liner) fabricated of HDPE; another 12 inches of clean sand; and another geotextile filter, geonet, and HDPE geomembrane.

Underlying the landfill area designated for Class III materials (yard trash, nonputrescible wastes) will be a single liner leachate collection system. Leachate from the collection system and stormwater from active areas within the landfill area will be collected and processed through an equalization basin and deep well injected. Upon completion, the landfills will be capped with an impermeable layer to prevent further generation of leachate by prohibiting rainfall from entering the landfill. This "cap" will be covered in vegetation to stabilize the landfill and prevent erosion.

14. The liners proposed by the Authority are nearly impermeable,⁶ and nothing anticipated to be present in the waste deposited on the landfill is reasonably expected to degrade the collection system. The system, as proposed, exceeds DER requirements, and meets, as to the Class I landfill, EPA requirements for hazardous waste landfills.

15. As added protection that the ground waters underlying the site will not be adversely impacted, the Authority will install interceptor wells and monitor wells. The interceptor well system will consist of four wells along the eastern boundary of the proposed site and two wells along the eastern boundary of the Dyer landfill. As sited, the wells will be located down gradient of the proposed and existing landfills.

16. The primary purpose of the interceptor well system is to furnish the process water for the facility⁷; however, since the rate of withdrawal greatly exceeds the rate at which water flows beneath the landfills, the system will also serve to capture any leachate that might escape the collection system.⁸

⁶ The proposed liners have a permeability factor of $10E-12$ CM/S (Centimeters per second). To permeate a substance with that permeability factor would require thousands of years.

⁷ An average of 2 million gallons per day (mgd), primarily for cooling, and 0.6 mgd for irrigation of the landfills, will be needed for plant operations. A peak draw of 3.2 mgd will be needed for short periods during the dry season.

⁸ Approximately 1 mgd is flowing through the aquifer beneath the landfills. Since the interceptor wells will be located downgradient of the proposed landfills, pumping in excess of 2 mgd provides reasonable assurances that the interceptor well system will capture any leachate that might escape the collection system.

An additional benefit of the interceptor well system is that it provides an economically efficient and environmentally sound method of disposing of the pollutants emanating from the Dyer landfill.⁹ The wells will not only contain this problem, and prevent its eastward expansion, but will also provide water to serve the non-potable needs of the facility where it can be disposed of in an environmentally sound manner through the facility's deep well injection system.¹⁰

18. The surface water management plan proposed by the Authority is designed so that the 236 acres comprised of borrow lakes will be self-contained and will not contribute runoff to the conservation area or to off-site discharge. The 41-acre area comprising 45th Street, and the borrow lakes and buffer zones south of 45th Street, will likewise be self-contained. Runoff from the remaining 1,043 acres, containing landfills, the resource recovery facility, roadways, buffer areas and the conservation area, will be directed by swales and drain pipes into an on-site wetlands area. This discharge will be controlled to approximate normal hydroperiods and will provide natural treatment of the runoff prior to its ultimate discharge into the conservation area, or the EPB-10 Canal. Baffles, skimmers, or other appropriate mechanisms will be employed to preclude the discharge of petroleum products into the adjacent wetlands from parking areas or other locations in which such pollutants could be present, and a control structure will be installed at the point of discharge into the EPB-10 Canal to limit and manage the previously uncontrolled surface water discharge into the canal.

⁹ The Dyer landfill is partially unlined. There is evidence that mineralized water is leaching from the unlined portion of the landfill into the Turnpike aquifer.

¹⁰ Two injection wells will be constructed at the facility and will be used to dispose of waste water, including cooling tower blow-down, boiler blow-down, domestic wastewater, landfill leachate, and septage. The wastewater will be injected into the "boulder zone" at an approximate depth of 3,000 feet. To monitor the deep well injection system, two annulus monitor tubes will be installed in each well. These tubes will tap both a permeable zone containing salty water located above the confining sequence that caps the boulder zone, and a shallower zone in the Floridian aquifer. Water samples from the monitor tubes will be periodically collected and analyzed.

The authority has agreed to monitor the quality of stormwater runoff.

19. Built as proposed, and subject to the conditions of certification contained in Appendix II, the proposed facility will not adversely impact water resources, and provides reasonable assurances that the requirements of Chapter 40E-4, F.A.C., relating to water quality, quantity¹¹ and environmental impact, will be met.

Air quality impact analysis

20. Where, as here, a proposed facility will emit a regulated pollutant at a rate equal to or greater than 100 tons per year (TPY), the facility is subject to New Source Review (NSR) - Prevention of Significant Deterioration (PSD) for all pollutants it will emit in PSD - significant amounts.¹² NSR requires an ambient air quality analysis for any pollutant for which national or state ambient air quality standards have been established (the criteria pollutants) to assure that the emission levels will not cause or contribute to a violation of ambient air quality standards (AAQS) or any applicable maximum allowable increase (a PSD - increment analysis). For non-criteria pollutants subject to NSR review, NSR requires air quality monitoring to assess ambient air quality for those pollutants in the area to be affected. Finally, NSR requires that the proposed facility apply the Best Available Control Technology (BACT) for each pollutant subject to NSR requirements.

21. Pertinent to this proceeding, the pollutants subject to NSR requirements are the criteria pollutants

¹¹ The drawdown occasion by the withdrawal of the water necessary to operate the proposed facility will reduce the water level in the Water Catchment Area approximately .02 feet a year, an insignificant amount. The water level interference in the City of Riviera Beach well fields located to the east will be approximately 0.4 feet, an insignificant amount. The nominal water demands of this facility, therefore, will not cause or contribute to any detectable salt water intrusion to water resources.

¹² Table 500-2, Rule 17-2.500, F.A.C., establishes a "significant emission rate" in TPY or pounds per year (PPY) for regulated pollutants. If the anticipated emission rate of a pollutant equals or exceeds the established significant emission rate, the pollutant is subject to the NSR requirements.

particulate matter (PM), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and lead (Pb), and the non-criteria pollutants fluoride (F), sulfuric acid mist, beryllium (Be), and mercury (Hg).

22. To predict the impact of the proposed facility on air quality, the Authority used DER and Environmental Protection Agency (EPA) approved air quality dispersion models.¹³ These models are used to predict maximum and average ground level concentrations for gaseous and fine particulate emissions that travel as gases, and maximum and average deposition concentrations for heavy particulates which settle out. The concentration values, as modeled, represent conservative worst case scenarios,¹⁴ and establish the point of maximum impact for heavy particulate to be located on the western boundary of the site.

23. The Authority's atmospheric dispersion modeling established that the emission rate of the criteria pollutants pertinent to this proceeding (PM, SO₂, NO_x, CO, and Pb)¹⁵, will not cause or contribute to a violation of primary or secondary AAQS.¹⁶ The modeling further established that the emissions from

¹³ This modeling incorporates elements for emissions, stack height and downdraft, block averaging time, dispersion coefficients for plume spread, stability of the atmosphere, thermally buoyant plume dispersion, and climatology.

¹⁴ The model assumes constant production of the emission rates and makes no allowance for downtime or variable hours of operation. Further, the model does not consider rainfall or humidity. If rain were considered it would reduce the maximum ground level concentrations because of its diluting and scrubbing effect on pollutants. Similarly, the inclusion of humidity would serve to decrease the concentration of a pollutant at the point of maximum impact.

¹⁵ DER and EPA designate geographic areas which meet AAQS for a pollutant as "attainment," and those areas which do not meet AAQS as "nonattainment." Palm Beach County is designated as an attainment area for all criteria pollutants except ozone. Under such circumstances the Authority would normally be required to undergo "non-attainment - new source review" for the pollutant ozone. However, where, as here, less than 100 TPY of VOC (the regulated pollutant for ozone) will be emitted, nonattainment review is unnecessary.

¹⁶ Federal and state laws establish primary AAQS to protect the public health and secondary AAQS to protect the public interest in animal and plant life, property, visibility, and atmospheric clarity.

the facility will not cause a violation of the PSD - increment standards established for SO₂ and PM.¹⁷

24. In addition to meeting AAQS and PSD - increment standards, NSR also requires a further air quality analysis for the non-criteria pollutants which are expected to be emitted in excess of significant emission rates unless their concentrations are predicted to fall below the "de minimus ambient impact" level established by Table 500-3, Rule 17-2.500, F.A.C. In this case, the predicted emission rates for the non-criteria pollutants are below the de minimus levels requiring further analysis.

Best Available Control Technology (BACT)

25. Although the Authority has met the monitoring and air quality analysis requirements of NSR, NSR also requires that the Authority apply the Best Available Control Technology (BACT) for each pollutant the facility will emit in excess of the significant emission rates established by Table 500-2, Rule 17-2.500, F.A.C. BACT is defined by Rule 17-2.100(22), F.A.C. as:

An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.

26. DER and the Authority initially differed on what emission limitations constituted BACT for the proposed facility. The Authority initially advocated, as BACT, an emission limitation achievable through design efficiencies and an electrostatic precipitator (ESP). As proposed, the facility would have met AAQS and PSD - increment standards and, with the

¹⁷ The PSD - increments represent the amount that new sources in an area may increase ambient ground-level concentrations of SO₂ and PM over the concentrations that existed on December 27, 1977 (the "baseline date").

exception of SO₂, the emission levels of regulated pollutants would have been below de minimus impact levels which require preconstruction air quality modeling; however, the facility's emissions would still substantially exceed the significant emission rates set forth in Table 500-2, Rule 17-2.500, F.A.C. DER advocated, as BACT, an emission limitation achievable through application of a baghouse to control PM and Pb, and flue gas control equipment (dry scrubbers) to control SO₂, F, sulfuric acid mist, and hydrogen chloride (HCL).¹⁸ Adoption of DER's limitation standards would result in a reduction of PM to .015 GR/DSCF¹⁹ corrected to 12% CO₂; F, HCL and sulfuric acid mist (acid gases) by at least 90% of the maximum inlet concentrations; and, significantly reduce SO₂ emission rates. At hearing, the Authority agreed to comply with the limitation standards proposed by DER as BACT, and those standards are hereby found to constitute BACT for the proposed facility.

27. Although the Authority agreed to comply with the emission limitations found to be BACT, Intervenors assert that the Authority should be compelled to utilize a baghouse/dry scrubber system instead of its proposed ESP/dry scrubber system. Intervenors' assertion is without merit. The purpose of a BACT determination is to establish emission limits, not to stipulate the type of pollution control equipment that must be used.

Impact on human health and the environment

28. Intervenors assert that the emission of acid mist, heavy metals, VOC, and dioxins from the proposed facility could adversely impact human health, the environment and state waters. While Intervenors' concerns merit consideration, competent

¹⁸ HCL is not a specified "regulated pollutant;" however, DER may properly regulate the discharge of any pollutant which may result in "air pollution," as defined by Rule 17-2.100(7), F.A.C. DER established that HCL is intensely corrosive, and that, due to the higher percentage of plastics in future waste streams, the emission rate of HCL will increase in the future. Accordingly, in rendering its BACT determination, DER's consideration of the reduction in HCL emissions achievable through application of dry scrubbers was founded on a rational basis.

¹⁹ Per standard cubic foot of dry gas.

substantial evidence establishes that at the facility's proposed emission rate there will be no adverse effects on human health, the environment, the ecology of the land and state waters and their wildlife and aquatic life.

29. Under the conditions of certification, this facility must achieve at least 90% removal of the maximum projected inlet concentrations of sulfuric acid mist, F, and HCL (acid gases). Acid gases emitted from the facility's stack will rise with the hot plume, disperse as do the other gaseous emissions, and will not form an acid rain or fog. At its maximum point of concentration, any acid gases will have no adverse impact on the surrounding area²⁰ or its population.

30. While the proposed facility will emit some metals, the level of their emission and ultimate deposition will not result in any significant adverse impacts. The Authority has selected RDF technology to dispose of the County's MSW. This technology lends itself to good pollution control since the waste stream is progressively "cleaned" to remove most non-combustibles before the MSW is incinerated. Under the proposed system, 90-95 percent of the ferrous metals, along with a good portion of the tin, lead, glass, aluminum, chromium and cadmium normally found in MSW will be removed. Removal of these products, prior to combustion, significantly reduces pollutant loading of the atmosphere, provides the Authority with recyclable products for resale, and produces a homogeneous medium grade fuel which allows for optimal control and more complete combustion.

31. While extremely high levels of dioxin may cause skin eruptions, there is currently no direct evidence that dioxin is carcinogenic or toxic to humans. Dioxin emissions from resource recovery facilities can, however, be minimized and

²⁰ Intervenors raised concern about the deposition of HCL in the water catchment area. Computer modeling establishes that in a worst case a scenario, assuming all the HCL emitted from the facility acts as a particulate matter as opposed to a gas, the water catchment area would receive a maximum annual deposition of 3.49 lbs/acre. The water in the catchment area has a neutralization capacity of 42-147 times the maximum projected deposition of HCL. Accordingly, the acid emissions from this facility will produce no significant change in water quality.

controlled by maintaining combustion temperatures at 1800 degrees F, with a residence time of at least one second, and through the use of an ESP. The proposed facility will incorporate these techniques to reduce and control dioxin emissions. Under a worst case scenario for the facility, a hypothetical person who never left the area of maximum residential concentration would be subjected to a dioxin dose rate of .0023 pK/Kg/day. This translates to a cancer risk of 0-0.36 cases/million/70 years, or a dosage 40,000 times lower than that which might cause 1% of laboratory animals to display effects, and 100,000 times lower than exposure rates of chemical sprayers who displayed no effects. As proposed, the surrounding area and its population will suffer no adverse impacts from dioxin emissions of this facility. 21

32. Intervenors sought to establish, by statistical evidence, a correlation between a decrease in sperm count and the increased production of synthetic organic chemicals (VOC's).²² The relevance, if any, of these observations to the proposed facility is speculative at best. First, the design of this facility permits even and controlled combustion to minimize the emission of VOC's. Second, even if all of the VOC's emitted were dibromochloropropane, the most potent VOC, the exposure level resulting from this facility would be 100,000 times lower than the level which produced any evidence of infertility in animals. The totality of the evidence establishes that there will be no adverse impacts associated with VOC emissions from this facility.

Agency Comments

33. The DER has filed its report as required by Section 403.507(2), Florida Statutes, and has recommended

²¹ Currently there are no concrete standards for dioxin emissions, only guidelines. The New York Department of Health accepts a dose of 2 pg/Kg/day, and the U.S. Center for Disease Control a dose of 1.8 pg/Kg/day. The proposed facility will produce a maximum dose of .004 pg/Kg/day.

²² The regulated pollutant for ozone is hydrocarbons, measured as VOC. VOC's are an amorphous category of chemicals generally consisting of any chemical compound containing carbon, or carbon and hydrogen in combination with any other element, which have vapor pressure greater than 0.10 mm Hg under standard conditions. Rule 17-2.100 (206), F.A.C.

certification, subject to the conditions of certification attached hereto as Appendix II. The Authority has accepted and agreed to be bound by these conditions of certification.

34. The SFWMD and Treasure Coast do not object to certification, subject to the conditions of certification. The DCA has concluded that the proposed project is compatible with the State Comprehensive plan.

CONCLUSIONS OF LAW

1. The Division of Administrative Hearings has jurisdiction over the parties to, and subject matter of, these proceedings.

2. While recognizing the need and demand for increased power generation facilities, it is the policy of this State to ensure that the location and operation of electrical power plants will produce minimal adverse effects on human health, the environment, the ecology of the land and state waters and their wildlife and aquatic life. Thus the need and demand for electrical power is to be balanced with the broad interests of the public. This balancing requires a consideration of the provision of abundant, low-cost electrical energy, technically sufficient operational safeguards and the need versus environmental impacts resulting from construction and operation of the facility. Section 403.502, Florida Statutes.

3. The evidence adduced at the certification hearing established that the construction and operational safeguards for the proposed facility are technically sufficient for the welfare and protection of the citizens of Florida. If performed in accordance with the recommended conditions of certification attached hereto as Appendix II, the construction, operation and location of the proposed facility may be reasonably expected to produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of state waters and their aquatic life. Certification is consistent with the premise of abundant, low-cost electrical energy and is a reasonable balance between those minimal environmental impacts


which will occur and the recognized need for the proposed facility.

RECOMMENDATION

Based on the foregoing Findings of Fact and Conclusions of Law, it is

RECOMMENDED that the Governor and Cabinet, sitting as the Siting Board, enter a Final Order granting certification for the location, construction and operation of the proposed facility, subject to the conditions of certification attached to this Recommended Order as Appendix II.

DONE AND ENTERED this 21st day of May, 1986, at Tallahassee, Florida.


WILLIAM J. KENDRICK
Hearing Officer
Division of Administrative Hearings
Oakland Building
2009 Apalachee Parkway
Tallahassee, Florida 32301
904/488-9675

FILED with the Clerk of the
Division of Administrative
Hearings this 21st day of
May, 1986

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RESOURCE RECOVERY FACILITY








MASTER SITE PLAN

BARKER, OSHA & ANDERSON INC.
 HAYDEN/WEGMAN INC.
 JOINT VENTURE

PALM BEACH COUNTY
 SOLID WASTE AUTHORITY



LEGEND

-  BORROW LAKE
-  RESERVED FRESH WATER SWAMP OR SEDGE
-  RESERVED FRESH WATER MARSH OR WET PRAIRIE
-  RESERVED & RELOCATED CYPRESS
-  RESERVED & RELOCATED UPLAND VEGETATION
-  PROPOSED LITTORAL ZONE
-  RESERVED & RELOCATED SWAMP MAPLE

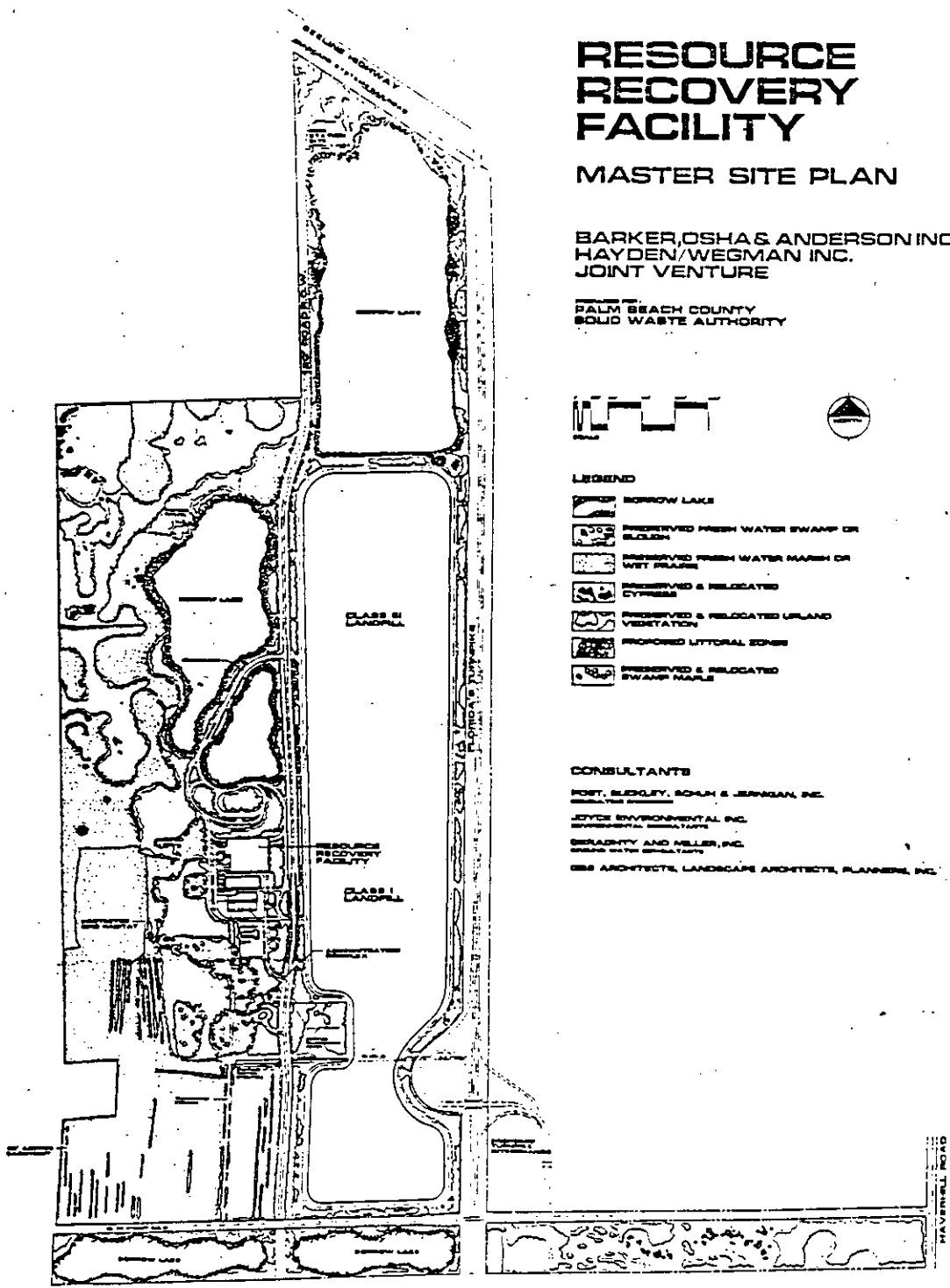
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JOYCE ENVIRONMENTAL INC.
 ENVIRONMENTAL CONSULTANTS

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 DESIGN AND ARCHITECTURE

ISS ARCHITECTS, LANDSCAPE ARCHITECTS, PLANNERS, INC.



wpj

State of Florida
 Department of Environmental Regulation
 Palm Beach County Resource Recovery Facility
 Case No. PA 84-20
 CONDITIONS OF CERTIFICATION

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State of Florida
Palm Beach County
Resource Recovery Facility
Case No. PA 84-20
CONDITIONS OF CERTIFICATION

I. CHANGE IN DISCHARGE

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated facility expansions beyond the certified initial nameplate capacity of 2,000 TPD, production increases, or process modifications which may result in new, different, or increased discharges of pollutants, change in type of fuel as described in XIV.B., or expansion in steam generating capacity must be reported by submission of a supplemental application pursuant to Chapter 403, Florida Statutes.

II. NON-COMPLIANCE NOTIFICATION

If, for any reason, the Permittee (defined as the Applicant, Palm Beach County Solid Waste Authority or assigns) does not comply with or will be unable to comply with any limitation specified in this certification, the Permittee shall notify the Southeast Florida District Office of the Department of Environmental Regulation (Southeast District Office) and the Palm Beach County Health Department (PBCHD) by telephone within a working day that said noncompliance occurs and shall confirm this in writing within seventy-two (72) hours of becoming aware of such conditions, and shall supply the following information:

- A. A description of the discharge and cause of noncompliance; and
- B. The period of noncompliance, including exact dates and times;

or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

III. FACILITIES OPERATION

The Permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the Permittee to achieve compliance with the terms and conditions of this certification. Stoppages of landfill operations induced by weather conditions shall be allowed until the weather permits operations to resume. In the event of a malfunction of a resource recovery boiler's pollution control system that unit's furnace emissions must be shifted to the extent feasible to the remaining unit having a properly functioning pollution control system. In the event of a prolonged (thirty (30) days or more) equipment malfunction or shutdown of air pollution control equipment, operation could be permitted to continue to take place under a consent order, only if the Permittee demonstrates that such operation will be in compliance with all applicable ambient air quality standards and PSD increments, solid waste rules, domestic waste rules and industrial waste rules. Additionally, during such malfunction or shutdown, the source shall comply with all other requirements of this certification and all applicable state and federal emission standards not affected by the malfunction or shutdown which is the subject of the consent order. Administrative action will not be initiated in the event of such a malfunction for 25 days following a malfunction unless there is an imminent health threat. However, if at thirty (30) days following a malfunction compliance has not been achieved by the source, an Order for Corrective Action may be immediately imposed upon the Applicant, subject to the provisions of Chapter 120 of the Florida Statutes. Operational stoppages exceeding two hours for air pollution control systems or four hours for other systems or operational malfunctions as noted below exceeding two hours for

air pollution control systems or four hours for other systems and as defined in the operational contingency plans as specified in Condition XVII are to be reported as specified in Condition II. Identified operational malfunctions which do not stop operation but do compromise the integrity of the operation shall be reported to the Southeast District Office as specified in Condition II.

IV. ADVERSE IMPACT

The Permittee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

V. RIGHT OF ENTRY

The Permittee shall allow during operational hours the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, upon the presentation of credentials:

- A. To enter upon the Permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this certification, and
- B. To have access during normal business hours (Mon.-Fri., 9:00 A.M. to 5:00 P.M.) to any records required to be kept under the conditions of this certification for examination and copying, and
- C. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants, and
- D. To assess any damage to the environment or violation of ambient standards.

VI. REVOCATION OR SUSPENSION

This certification may be suspended or revoked for violations of any of its conditions pursuant to Section 403.512, Florida Statutes.

VII. CIVIL AND CRIMINAL LIABILITY

This certification does not relieve the Permittee from civil or criminal penalties for noncompliance with any conditions of this certification, applicable rules or regulations of the Department or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the Permittee from any responsibilities or penalties established pursuant to any other applicable State Statutes, or regulations.

VIII. PROPERTY RIGHTS

The issuance of this certification does not convey any property rights in either real or personal property, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights nor any infringement of Federal, State or local laws or regulations.

IX. SEVERABILITY

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

X. DEFINITIONS

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes and any regulations adopted pursuant thereto. In the event of any dispute over the meaning of a term in these conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation. Words or phrases used herein dealing with conditions of the South Florida Water Management District (SFWMD) shall be defined by reference to Chapter 373, Florida Statutes or applicable rules of the SFWMD. Contaminated water shall include leachate and runoff that have been in contact with ash or solid waste.

XI. REVIEW OF SITE CERTIFICATION

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of certification the Department shall review all monitoring data that has been submitted to it during the preceding five-year period for the purpose of determining the extent of the Permittee's compliance with the conditions of this certification and the environmental impact of this facility. The Department shall submit the results of its review and recommendations to the Permittee. Such review will be repeated at least every five years thereafter.

XII. MODIFICATION OF CONDITIONS

Pursuant to Subsection 403.516(1), F.S., the Board hereby delegates the authority to the Secretary to modify any condition of this certification dealing with sampling, monitoring, reporting, specification of control equipment, boiler capacity, related time schedules, emission limitations (subject to notice and opportunity for hearing), conservation easements, or any special studies

conducted, as necessary to attain the objectives of Chapter 403, Florida Statutes. Requests for modifications of monitoring requirements shall not be unreasonably withheld by the Department.

All other modifications to these conditions shall be made in accordance with Section 403.516, Florida Statutes.

XIII. CONSTRUCTION

The facility shall be constructed, at a minimum, pursuant to the design standards presented in the application and the standards or plans and drawings submitted and signed by an engineer registered in the state of Florida. The Applicant shall present upon request, specific facility plans, as developed, for review by the Southeast District Office, South Florida Water Management District and PBCHD prior to construction pursuant to the portions of the plans then being submitted. Specific Southeast District Office approval of plans will be required based upon a determination of consistency with approved design concepts, regulations and these Conditions prior to initiating construction of the: leachate collection system; air pollution control equipment; wastewater treatment and disposal systems, composting operations, domestic waste and septage handling and treatment systems; stormwater runoff system; landfill closure plans and hazardous, toxic or pathological handling facilities or areas. Review and action by the Southeast District Office or SFWMD on said plans shall be accomplished in no longer than ninety (90) days from the date of a complete submittal of such plans and any action may be subject to review pursuant to Chapter 120, Florida Statutes. Approvals shall not be unreasonably withheld.

A. Control Measures

1. Stormwater Runoff

To control runoff during construction which may reach and thereby pollute Waters of the State, necessary measures shall

be utilized to settle, filter, treat or absorb silt-containing or pollutant-laden stormwater to ensure against spillage or discharge of excavated material that may cause turbidity in excess of 29 Nephelometric Turbidity Units above background in Waters of the State. Control measures may consist of sediment traps, barriers, berms, and vegetation plantings. Exposed or disturbed soil shall be protected and stabilized as soon as possible to minimize silt and sediment laden runoff. The pH of the runoff shall be kept within the range of 6.0 to 8.5. The Permittee shall comply with Florida Administrative Code Chapters 17-3, 17-25 and 40F-4. The Permittee shall complete the forms required by 17-25.09(1) and 40E-4 and submit those forms and the required information to the SFWMD and Southeast District Office for approval no later than 90 days prior to start of construction including design drawings indicating flow drainage plans during facility construction and operation. To prevent the discharge of turbid water (greater than 29 NTU's above background) from the site during construction, a temporary berm with 3H:1V side slopes and an elevation sufficient to contain the 25 year, 3 day storm event shall be constructed around the resource recovery site (except for the landfill areas and Jog Road) prior to commencement of work on the facility.

2. Burning

Open burning in connection with land clearing shall be in accordance with Chapter 17-5, FAC, and Uniform Fire Code Section 33.101 Addendum. No additional permits shall be required, but prior to each act of burning, the Division of Forestry shall be contacted to determine if satisfactory conditions exist for burning. Open burning shall not occur if the Division of Forestry or Palm Beach County Fire and Rescue Department has issued a ban on burning due to fire hazard conditions.

3. Sanitary Wastes

Disposal of sanitary wastes from construction toilet

facilities shall be in accordance with applicable regulations of the appropriate local health agency.

4. Solid Wastes

Solid wastes resulting from construction shall be disposed of in accordance with the applicable regulations of Chapter 17-7, FAC.

5. Noise

Construction noise shall not exceed either local noise ordinance specifications, or those noise standards imposed by zoning.

6. Dust

The Permittee shall employ proper dust-control techniques to minimize unconfined emissions.

7. Transmission Lines

The directly associated transmission lines from the Resource Recovery Facility electric generators to the existing Florida Power and Light Company transmission system shall be cleared, maintained and prepared without the use of herbicides. Construction of a substation on the certified site east of the Turnpike shall not be allowed without a supplemental application and demonstration of compliance with sections 403.508(1) and (2), F.S.

8. Conservation Easement

Before the commencement of any construction herein authorized, the Permittee shall file and have recorded, in the same manner as any other instrument affecting the title to real

property, a conservation easement pursuant to Section 704.06, Florida Statutes, in the office of the Clerk of the Circuit Court, Palm Beach County, for the designated conservation area identified in the mitigation plan, west of Jog Road and the Resource Recovery Facility west to the Water Catchment Area excluding operational areas.

The Permittee shall pay all recording fees. The conservation easement shall be in favor of the Department of Environmental Regulation and shall restrict any activity including dredging and filling of land, cutting, eradicating or pruning of endemic vegetation beyond the scope of the approved mitigation plan indicated in Section 4.2 of the application and Condition XX. A draft conservation easement and a certified survey with a legal description shall be submitted to the Bureau of Permitting in Tallahassee for review and approval before it is filed (by the County) with the Clerk of the Circuit Court, Palm Beach County.

9. Written Notice

Written notice from the Department indicating that Conditions No. XIII.A.8 has been satisfied shall be obtained by the Permittee prior to the beginning of any construction. All mitigation in the shell pit area shall be in accordance with the time schedule outlined in the mitigation plan approved per Condition XX.

10. Time Limitations

If the proposed construction of the resource recovery facility, within the jurisdictional area has not been completed within 5 years of the date of certification, a permit application shall be resubmitted to the Department for evaluation and shall be accompanied by the appropriate fee.

11. Monitoring

The following surface water monitoring program shall be implemented during construction for:

Parameter: Dissolved oxygen, temperature (C°), pH, total and fecal coliform bacteria, salmonella, iron, lead, copper, mercury, cadmium, zinc, silver and turbidity.

Frequency: Quarterly throughout the year except that the samples shall be collected monthly for April, June, August and September. Sampling shall begin at least 30 days prior to initial construction for background levels. All samples shall be taken for a 24 hour period, at 4 hour intervals beginning one hour before sunrise.

Sampling Locations:

At the discharge to the EPB-10 canal.

Analyses:

Water quality analyses should be performed at detection levels commensurate with water quality criteria for Class III waters (F.A.C. rule 17-3.121). Samples shall be collected in accordance with Standard Methods for Examination of Water and Wastewater and analyzed by a DHRS certified laboratory.

If a violation occurs for any sampled parameter, the Permittee shall, after notifying the Department, institute corrective action to abate the violation if it is the result of activities of the Permittee. Corrective action may include further monitoring to determine the extent and degree of violation. Any modifications shall be coordinated with the Southeast District Office. Department approval shall be obtained prior to any action constituting a modification of this permit.

All monitoring reports shall be submitted to the DER Bureau of Permitting, Tallahassee, Southeast District Office, PBCHD and the SFWMD under a cover letter containing the following information: (1) certification number; (2) handling, storage and methods of analysis of the samples; (3) a map indicating the

sampling locations; and (4) a statement by the individual responsible for implementation of the sampling program concerning the authenticity precision, limits of detection and accuracy of the data. Monitoring reports shall also include the following information for each sample that is taken:

- (1) time of day samples taken;
- (2) depth of water body;
- (3) depth of sample;
- (4) antecedent weather conditions;
- (5) tidal stage and direction of flow; and
- (6) wind direction and velocity.
- (7) status of flow from site stormwater discharge structure. (flowing or not flowing)

Monitoring reports shall be submitted to the Southeast District, PBCHD and SWFMD within 2 weeks of completion of analysis for each sampling period.

12. Protection of Vegetation

The Permittee shall develop the construction site and shall develop the mitigation areas so as to retain endangered and threatened plants, or replant these plants in another suitable environment. Any endangered or threatened plants should be staked in the field or relocated, as appropriate, prior to commencement of any construction or site preparation activities.

13. Dewatering Operations

There shall be no dewatering operations during construction without approval of SFWMD pursuant to XVI.E. Such approval may be obtained by submitting an application to SFWMD at least 90 days prior to start of dewatering operations. Any

discharge of water from dewatering operations shall not violate water quality standards.

14. Borrow Material

Prior to excavation of any borrow material from the northeastern portion of the site for use on this project, a hydrogeological assessment of the effects of the existing excavation as well as continued excavation in this area shall be provided to the Department and the SFWMD. No further excavation shall take place until the Department and the SFWMD concur in writing that the location, depth, method of mining, etc., of the excavation will not pose a further threat to groundwater quality in the area.

B. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified individual to assure that all construction activities conform to applicable environmental regulations and the applicable conditions of certification.

If harmful effects or irreversible environmental damage not anticipated by the application or the evidence presented at the certification hearing are detected during construction, the Permittee shall notify the Southeast District Office as required by Condition II.

C. Reporting

1. Notice of commencement of construction shall be submitted to the Southeast District Office, PBCHD and SFWMD within 15 days of initiation. Starting three (3) months after construction commences, a quarterly construction status report shall be submitted to the Southeast District Office. The report shall be a short narrative describing the progress of construction.

2. Upon or immediately prior to completion of construction of the resource recovery facility or a phase thereof and upon or immediately prior to completion of all necessary preparation for the operation of each landfill cell, the Southeast District Office, PBCHD and SFWMD will be notified of a date on which a site or facility inspection should be performed in accordance with Condition V, and the inspection shall be performed within fourteen (14) days of the date of notification by Permittee.

XIV. OPERATION

A. Air

The operation of the Resource Recovery Facility shall be in accordance with all applicable provisions of Chapter 17-2, 17-5, and 17-7, Florida Administrative Code. In addition to the foregoing, the Permittee shall comply with the following specific conditions of certification:

1. Emission Limitations upon Operation of Units 1 and 2

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

1. Emission Limitations upon Operation of Units 1 and 2

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

- (1) Particulate matter: 0.015 grains per standard cubic foot dry gas corrected to 12% CO₂.
- (2) SO₂: 0.32 lbs/MBtu average heat input not to exceed 0.62 lb/MBtu heat input one hour average. Compliance with SO₂ emission limits shall be determined by annual stack tests. The average of three or more stack

test runs shall determine the average value.

- (3) Nitrogen Oxides: 0.32 lbs/MBtu heat input
- (4) Carbon Monoxide: 400 ppmv corrected to 12% CO₂
- (5) Lead: 0.0004 lbs/MBtu heat input
- (6) Mercury: 3200 grams/day for the entire facility or when firing sludge or 0.00024 lbs/MBtu whichever is more stringent.
- (7) Odor: there shall be no objectionable odor at the site boundary.
- (8) Visible emissions: opacity shall be no greater than 15% except that visible emissions with no more than 20% opacity may be allowed for up to three consecutive minutes in any one hour except during start up or upsets when the provisions of 17-2.250, FAC, shall apply. Opacity compliance shall be demonstrated in accordance with Florida Administrative Code Rule 17-2.700(6)(a)9., DFR Method 9.
- (9) Fluoride: 0.0032 lb/MBtu heat input
- (10) Beryllium: 7.3xE-7 lb/MBtu heat input
- (11) VOC: 0.016 lb/MBtu heat input
- (12) Sulfuric Acid Mist: 3.2 F-5 lb/MBtu heat input.

b. The height of the boiler exhaust stack shall not be less than 250 feet above grade.

c. The incinerator boilers shall not be loaded in excess of their rated nameplate capacity of 58,333 pounds of RDF or 360.0×10^6 Btu per hour each.

d. The incinerator boilers shall have a metal name plate affixed in a conspicuous place on the shell showing manufacturer, model number, type waste, rated capacity and certification number.

e. Compliance with the limitations for particulates, sulfur oxides, nitrogen oxides, carbon monoxide, fluoride, sulfuric acid mist, VOC and lead shall be determined in accordance

with Florida Administrative Code Rule 17-2.700, DFR Methods 1, 2, 3, and 40 CFR 60, Appendix A, Methods 5, 7, 8, (modified with prefilter), 10, 12, 13A or 13B (or modified method 5 for flourides), and 18 or other methods as approved by the DFR. The stack test for each unit shall be performed at $\pm 10\%$ of the maximum heat input rate of 360.0×10^6 Btu per hour or the maximum charging rate of 58,333 pounds of MSW per hour. Compliance with the beryllium emission limitation shall be determined in accordance with 40 CFR 61, Method 103 or 104, Appendix B. Particulate testing shall include one run during representative soot blowing which shall be averaged proportionally to normal daily operations. Visible emission testing shall be conducted simultaneously with soot blowing and non-soot blowing runs.

2. Emission Control Equipment

a. The boiler particulate emission control devices shall be designed and constructed to achieve a maximum emission rate of 0.015 grains per dscf corrected to 12% CO₂. All other particulate control devices shall be designed to meet the provisions of section 17-2.610.

b. The fluoride, HCl and sulfuric acid mist gas controls system shall be designed to remove at least 90% of the maximum projected inlet concentrations.

c. The Permittee must submit to the Department within thirty (30) days after it becomes available, copies of technical data pertaining to the selected emissions control systems. These data should include, but not be limited to, guaranteed efficiency and emission rates, and major design parameters. The data shall be processed and approved or denied in accordance with F.S. 120.60.

3. Air Monitoring Program

a. The Permittee shall install and operate continuously monitoring devices for flue gas oxygen and opacity. The

monitoring devices shall meet the applicable requirements of Chapter 17-2, Section 17-2.710, FAC, and 40 CFR 60.45, and 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7 (a)(5). Re-certification shall be conducted annually from initial certification. Data on monitoring equipment specifications, manufacturer, type, calibration and maintenance needs, and its proposed location after the economizer or in the air pollution control equipment shall be provided to the Department for approval prior to installation.

b. The Permittee shall provide sampling ports in the air pollution control equipment outlet duct or stack and shall provide access to the sampling ports in accordance with Section 17-2.700, FAC. Drawings of testing facilities including sampling port locations as required by Section 17-2.700 shall be submitted to the Department for approval at least 120 days prior to construction of the sampling ports and stack.

c. The Permittee shall have a sampling test of the emissions performed by a commercial testing firm within 60 days after achieving the maximum rate at which the boilers will be operated but not later than 180 days of the start of operation of the boilers and annually from the date of testing thereafter. Thirty days prior notice of the initial sampling test shall be provided to the Southeast District Office and PBCHD. Fifteen days prior notice shall subsequently be provided for annual sampling tests.

4. Reporting

a. Two copies of the results of the emissions tests for the pollutants listed in XIV.A.1.a. shall be submitted within forty-five days of the last sampling run to the Southeast District Office and PBCHD.

b. Emissions monitoring shall be reported to the Southeast District Office and PBCHD on a quarterly basis in accordance with Section 17-2.710, FAC, and 40 CFR, Part 60,

Subsection 60.7.

c. Notice of anticipated and actual start-up dates of each incinerator boiler shall be submitted to the DER Southeast District Office and PBCHD.

5. Unconfined Emissions

Proper dust control techniques such as water sprays or chemical wetting agents or other containment method shall be used to control visible unconfined (Fugitive) emissions to the outside air no more than 10% opacity as determined by DER Method 9 for unconfined resource recovery processes. Proper techniques shall also be used to control such emissions to prevent them from crossing the property line to no more than three (3) minutes (cumulative) in any fifteen (15) minute period as determined by 40 CFR, 60, Appendix A, Method 22, with observations being made along the property line. Visible emissions shall not include uncombined water vapor or engine exhausts.

B. Fuel

The Resource Recovery Facility shall utilize refuse such as garbage and trash (as defined in Chapter 17-7, FAC) and natural gas recovered from landfills as its fuel. Use of alternate fuels except for distillate fuel oil or natural gas in start-up burners would necessitate modification of these Conditions of Certification. Refuse as fuel shall not include "hazardous waste" as defined in Chapter 17-30, FAC. The alternate fuel shall not contain more than 0.3% sulfur and shall not be used more than required during boiler startup or shutdown.

C. Wastewater Disposal

1. Plans drawings and specifications for leachate collection systems, pumps, lift stations, sewage collection systems, sewage treatment systems, wastewater treatment systems, deep injection

wells, and wastewater collection systems shall be furnished to the Southeast District Office, PBCHD and the SFWMD for approval at least 90 days prior to start of construction for the particular of such component. All items submitted pertaining to the injection wells shall be directly distributed to the Technical Advisory Committee (TAC) for approval.

2. The deep injection well shall be designed and operated in conformance with Chapter 17-28, FAC, and all other applicable rules.

3. The injection well system bid specifications and plans shall be submitted to the Technical Advisory Committee (TAC) at the Southeast Florida District Office for review and approval prior to beginning the bidding process.

4. The surge protection system design calculations and operational features shall be submitted to all members of the department's Technical Advisory Committee (TAC) for approval prior to construction of the deep well injection system.

5. The successful bidder to construct the injection well system shall submit engineering details and drawings of the packer assembly to the TAC for approval prior to construction of the injection well system.

6. If the successful bidder chooses to use corrosion inhibitor(s) with the fresh water in the monitoring annulus surrounding the 8" injection tubing, this choice of inhibitors shall be submitted to the TAC for approval.

7. The 40" casing for each disposal well shall be set and cemented to the base of the surficial aquifer or to the confining beds below all producing zones used for drinking water, private or public, supplied within the area of review. If the applicant proposes to set and cement the 40" casing above the Hawthorn Formation, he shall provide site specific hydrogeological

information, acceptable to the TAC, confirming that confining strata do in fact exist above the Hawthorn. These data shall be obtained by drilling a pilot hole to the top of the Hawthorn Formation prior to enlarging the hole for the 40" casing.

8. A drawing showing drilling pad dimensions and features (slopes, concrete thickness, storage tank capacities, curb height, etc.) shall be submitted to the TAC for approval prior to the drilling pad construction.

9. The applicant shall specify the disposal location for excess mud, drill cuttings, drilling fluids, etc., for approval at the preconstruction TAC meeting. Property owner's approval will be required in addition to regulatory approval.

10. The question of the timing of the temperature logging for pilot and cased holes shall be discussed at the preconstruction TAC meeting.

11. The daily drilling log shall include at least the following:

- a. Information as to the volume (amount) of weighting materials used to control artesian flow.
- b. Description of the lithology encountered during drilling.
- c. Results of any water quality analyses.
- d. Description of any problems or unusual conditions encountered during drilling and steps that have been taken to correct them.
- e. Deviation survey results.
- f. Any other information required by the consultant.

The report shall run from Friday to Thursday and be mailed to all TAC members on the following Friday.

12. Upon the beginning of the operation and the injection

well system, the applicant will begin a sampling and testing regimen of all individual wastewater streams for the accumulation of data anticipating adverse impacts on the injection zone, formation materials, formation fluids and well construction materials. Sampling and analysis shall also include the investigation of the chemical nature of fluids being injected with respect to hazardous waste characteristics. The parameters to be sampled for and the frequency of sampling shall be approved by the TAC before operation begins. Periodic review by the TAC will determine the need for continued sampling and/or need for additional or revised treatment before injection and/or need for revised estimates of the usable life of the injection system, increased frequency of mechanical integrity testing, etc.

13. Additional detail on proposed monitoring plans should address the following points:

- a. Per 17-28.25(1)(d), FAC, within the area of review, the type, number, and location of wells to be used to monitor any potential migration of fluids into or in the direction of USDW's, and pressure in the USDU's; the parameters to be measured and the frequency of monitoring shall be submitted to DER prior to well construction. The applicant should discuss how these requirements are addressed.
- b. Per 17-28.25(1)(e), FAC, the background water quality of the injection zone and the monitoring zones shall be determined prior to injection.

14. The applicant must, per 17-28.33(2)(o), FAC, submit a certificate that they have ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well.

15. The cementing program shall be designed with the use of ASTM Type II Cement. Other details of the program shall be made available upon request by the TAC or any of its members.

16. It may be assumed that since the project will be generating electric power there will never be the need for any on-site source of emergency power. The contractors design shall address the need or lack thereof for an emergency power source to maintain the continuous operation of the injection well system.

17. The application states that the injection well system will have 100% redundancy. The contractors design shall include standby pumping capability manifolded to both wells to insure continual injection capability.

18. The Contractor shall supply to the Engineer a complete list of spare parts and special tools to be included in the O & M Manual prepared for the Operating Permit Application.

19. The Contractor shall provide or have provided the means for checking grout sample density during casing cementing.

20. Cemented casings shall not be disturbed for 24 hours after the completion of cementing.

21. The TAC chairman shall be notified at least 24 hours prior to performing any mechanical integrity testing.

D. Water Discharges

1. Surface Water

a. Any discharges from the site stormwater system via the emergency overflow structure which result from an event LFSS than a ten-year, 24-hour storm (as defined by the U.S. Weather Bureau Technical Paper No. 40, or the DOT drainage manual, or similar documents) shall meet applicable State Water Quality Standards, Chapter 17-3, FAC, the Standards of Chapter 17-25, FAC, and Chapter 40 E.2 and 40 E.4, FAC.

2. Monitoring Surface Water

b. Sampling of water quality in the surface water

management system shall be sampled at stations labeled 1, 2, 3, 4, 5, 6, and 7 as shown on sheets 18, 19, and 20 of 25 of Appendix 10.4 of the application dated December 3, 1985, as stated below:

Location of Stations:

1. discharge culvert at the southwest acreage of the Class I Landfill on sheet 20 of 25
2. overflow control structure at EPB-10 west of the Class I Landfill on sheet 20 of 25
3. box culvert at EPB-10 east of the Class I Landfill on sheet 20 of 25
4. discharge culvert west of the Class III Landfill on sheet 19 of 25
5. discharge culvert northwest of the Class III Landfill on sheet 19 of 25
6. return dredge line from Dyer Landfill discharging into the existing borrow lake due north of the Class III Landfill on sheet 18 of 25
7. the center of the existing dredge lake one foot above the bottom

Monitoring Type and Schedule

Parameters

- | | |
|-------------------------|---|
| 1. General (Quarterly) | Total Organic Carbon, Dissolved Oxygen, pH, Turbidity, Specific Conductance, Chemical Oxygen Demand, Alkalinity, Total Suspended Solids, Ammonium N, Nitrate-N, Total Kjeldahl Nitrogen, Oil and Grease, Detergents, Total Coliform, Fecal Coliform, Fecal Streptococcus, Salmonella, Biochemical Oxygen Demand, Total Phosphorus and Chlorides |
| 2. Metals (Semi-annual) | Aluminum, Antimony, Beryllium, |

Cadmium, Copper, Cyanide, Iron,
Lead, Mercury, Nickel, Selenium,
Silver, Zinc, Arsenic and
Chromium

c. Water quality reports shall be submitted within 30 days of receipt of analysis results to the Southeast District Office, PBCHD and SFWMD for distribution to the appropriate review personnel.

d. The monitoring program may be reviewed annually by the Department, and a determination made as to the necessity and extent of continuation of the program. Aspects of the program related to sampling, monitoring, reporting, and related time schedules may be modified in accordance with the provisions of conditions number XII.

3. Groundwaters

a. All discharges to groundwaters, such as landfill leachate, shall be collected and treated as necessary, or otherwise be of high enough quality, to be able to meet the applicable Water Quality Standards of Sections 17-3.402 and 17-3.404, FAC, within 100 feet of the landfill perimeter.

4. Groundwater Monitoring Program

a. Sampling of the shallow aquifer groundwater quality shall be conducted in at least eight well clusters and six interceptor wells in the site vicinity. At least one of these well clusters shall be up the hydrologic slope from the landfill area to provide current background data. Other wells shall be located down the hydrologic slope from the landfill areas. All wells shall be surveyed by a state certified land surveyor and the locations of each well depicted on a topographical aerial map with the appropriate elevations noted for each well.

b. Operational background monitoring shall commence at least one year prior to operation of the resource recovery

facility. Construction of monitoring wells and the collection of samples shall be in accordance with EPA recommended methods as contained in Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities (EPA/530/SW-611). The wells shall be deep enough to ensure that groundwater samples can be obtained with the groundwater table elevation at its estimated lowest point and shall be protected from damage and destruction. Samples shall be analyzed in accordance with the methods described in Chapter 17-4, FAC. Analyses shall be performed by laboratories which are approved by the Department of Health and Rehabilitative Services to conduct analyses pursuant to Section 403.863, F.S., the State Public Water Supply Laboratory Certification Program.

c. Sampling of groundwater quality of monitoring well clusters labeled M-1, M-2, M-3, M-4, M-5, M-6, M-7, M-8, IW-1, IW-2, IW-3, IW-4, IW-5, IW-6 as shown on Figure 4.2-1 dated December 2, 1985, shall be performed quarterly for all parameters for three years and thereafter as stated below:

<u>Monitoring Type and Schedule</u>	<u>Parameters</u>
1. General (Quarterly)	pH, Specific Conductance, Temperature, Chloride, Total Organic Carbon (TOC), Sulfate, Bicarbonate, Magnesium, Organic Nitrogen, Ammonia, Nitrate, Chemical Oxygen Demand, Color, Turbidity, Total Iron, Total Dissolved Solids (TDS), Zinc, Calcium, Manganese, Total Nitrogen, Ammonium
2. Yearly (After first three years)	M.B.A.S., Organics as listed in S.17-22.104, FAC, Trichloroethylene, Tetrachloroethylene, Carbon Tetrachloride, Vinyl Chloride, 1,1,1-Trichloro-

ethane, 1,2-Dichloroethane,
Benzene, Ethylene Dibromide,
Chlorinated Phenolic Compounds,
Chlorides, Sodium, Lead,
Copper, Nickel, Chromium,
Cadmium, Iron, Mercury,
Arsenic, Selenium, Barium,
Silver, COD, Chemical Oxygen
Demand, Total Coliform, Fecal
Coliform, Fecal Streptococcus

d. Water quality monitoring reports shall be submitted within 30 days of receipt of analysis results to the Southeast District Office, the PBCHD and SFWMD for distribution to the appropriate review personnel.

e. The monitoring program may be reviewed annually by the Department, and a determination made as to the necessity and extent of continuation of the program. Aspects of the program relation to sampling, monitoring, reporting, and related time schedules may be modified in accordance with the provisions of condition number XII.

E. Solid/Hazardous Waste

1. Operation of the associated landfill shall be done in accordance with all applicable portions of Chapter 17-7, FAC, including prohibitions, procedures for closing of the landfill, and final cover requirements, or, as provided in this condition (XIV.E.) in its entirety. The plans of the final landfill design shall be provided to the Department for review and approval at least 90 days prior to start of construction. The final plans for this Facility shall include provisions for the isolated temporary handling of suspected hazardous, toxic or pathological wastes.

2. No suspected or known hazardous, toxic, or infectious wastes as defined by federal, state or local statutes, rules,

regulations or ordinances shall be burned or landfilled at the site. The Permittee shall prepare and submit for approval to the South Florida District Office and PBCHD a written training program on the detection and handling of hazardous, toxic or infectious wastes.

3. Rodent and insect control shall be provided as necessary to protect the health and safety of site employees and the public. Pesticides used to control rodents, flies, and other vectors shall be as specified by the Florida Department of Agriculture and Consumer Services.

4. Storage of putrescible waste for processing shall not exceed storage capacity of the refuse bunker or tipping floor as designed on the approved plan, or be stored on the tipping floor for more than 48 hours.

5. Ash prior to transport to the landfill shall be stored in an enclosed building on an impervious surface or other method approved by the Southeast District Office. Final disposal of the ash shall be into the lined landfill or other method approved by the Southeast District Office. Any leachate generated within the building shall be collected and disposed of by a method approved by the Southeast District Office. The Southeast District Office shall notify the SFWMD of the plans and specifications regarding the above referenced method.

6. A monthly report shall be prepared detailing the amount and type (putrescible, special wastes, boiler residue, etc.) of materials landfilled at the site, and the treatment provided (see condition XIV.E.2. above). These reports shall be furnished to the Southeast District Office and PBCHD quarterly, commencing 120 days after the Resource Recovery Facility becomes operational and is producing residues.

7. The temporary hazardous waste storage and transfer facility shall be designed, constructed and operated in conformance with section 17-30.171, FAC. The design of the facility operational procedures, personnel training program, contingency plans and closure plans shall be submitted to the department, PBCHD and SFWMD for review and approval.

8. All cells or disposal areas will be constructed to promote leachate drainage to provide for effective leachate collection; all leachate collection in active or inactive cells shall be pumped or transported to the leachate collection system for transmission to the treatment system. Leachate collected above the primary liner shall be monitored quarterly for conductivity, pH, copper, arsenic, zinc, phenols, oil and grease and total organic halogens. Results of such monitoring shall be reported to the Southeast District Office and PBCHD. Leachate collected between the primary and secondary liners shall be monitored quarterly for conductivity, chlorides, ammonia, iron, sulfur, nitrates, and zinc. Results will be reported to the Southeast District Office and PBCHD quarterly. The monitoring parameters set forth herein may be modified dependent upon the type of liners utilized and the manufacturer's recommendations to protect the integrity of the liners due to the classes of chemical constituents in the leachate which will be in contact with the liner(s). The Permittee shall provide the Southeast District Office with a certified letter from the liner manufacturer stating what classes of chemical constituents could damage the liners' integrity and include those parameters as part of the quarterly monitoring program noted above.

9. An EP toxicity analysis of the ash residue being land-filled for the chemicals listed and using the prescribed method as set forth in 40 CFR s261, Appendix II, shall be conducted within 30 days after commencement of commercial operation. In addition, said ash residue shall be tested for dioxin (2, 3, 7, 8 - TCDD) content.

10. Results from said residue analysis shall be sent to the Southeast District Office and the PBCHD within 30 days of receipt. Results will be used to determine whether or not these materials constitute a "Hazardous Waste" as defined by applicable Federal or state regulations. Results of these analyses may also be used for correlation with groundwater monitoring information and in any subsequent modification of conditions.

11. If residue materials are determined to be a "Hazardous Waste", then measures shall be taken to treat or dispose of the residues pursuant to rule promulgated by Federal, State or Local authorities, as may be applicable.

12. If the nature of materials received at the facility becomes altered, either due to modification of conditions, i.e., the facility is allowed to incinerate already known hazardous wastes such as pesticides, or if groundwater monitoring reveals abnormal groundwater conditions which may be attributable to the landfilling of this residue, then a subsequent analysis may be required at that time.

13. There shall be no discharge to waters of the State of polychlorinated biphenyl compounds.

14. The Permittee shall provide the Southeast District Office and the PBCHD with a set of full-sized (24"x 36") engineering drawings and supporting information, signed and sealed by an engineer registered in the State of Florida for the operational and closure phases of the landfill for review and approval at least 90 days prior to implementation of those phases. Within 90 days after completion on the closure phase of the project, the Permittee shall submit certified as-built plans signed and sealed by a Florida Registered Professional Engineer.

15. To ensure that the bottom liners are continuous through-

out the cell, the liners will be installed either under the supervision of the manufacturer or by a competent experienced lining contractor according to the manufacturer's specifications. In addition, as part of quality control measures, field seams between in-place liner and newly installed liner will be tested according to ASTM specifications to ensure integrity between materials and certified in writing by the liner manufacturer, contractor, and engineer of record to the Southeast District Office and PBCHD. Top liners, if required, shall be installed in accordance with Closure requirements of the Southeast District Office, PBCHD and SFWMD.

16. The extension of the EPB-10 canal shall be placed in properly designed and constructed reinforced concrete culverts. The landfill height above the culvert shall not exceed 40 feet.

F. Operational Safeguards

The overall design and layout of the facilities shall be such as to mitigate potential adverse effects to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions. The Federal Occupational Safety and Health Standards will be complied with during construction and operation. The safety standards specified under Section 440.56, Florida Statutes, by the Industrial Safety Section of the Florida Department of Commerce will be complied with during operation.

G. Transmission Lines

The directly associated transmission lines from the Resource Recovery Facility electric generators to the Florida Power and Light Company transmission system shall be kept cleared without the use of herbicides.

H. Noise

Operational noises shall not exceed local noise ordinance limitations nor those noise standards imposed by zoning.

I. Potable Water System

The potable water system (wells, pipes, pumps and treatment facilities) shall be designed, constructed and operated in conformance with the applicable provisions of Chapters 17-21 and 17-22, FAC. Plans and specifications for these facilities shall be provided to the Southeast District Office and the Palm Beach County Health Department for review and approval 90 days prior to construction.

XV. WATER MANAGEMENT DISTRICT CONDITIONS - GENERAL

A. The Solid Waste Authority shall prosecute the work authorized under the Certification in a manner so as to minimize any adverse impact of the works on fish, wildlife, natural environmental values, and water quality. The Solid Waste Authority/Vendor shall institute necessary measures during the construction period, including full compaction of any fill material placed around newly installed structures, to reduce erosion, turbidity, nutrient loading and sedimentation in the receiving waters.

B. The operational phases of the surface water management system authorized under this Certification shall not become effective until a Florida registered professional engineer certifies upon completion of each phase that these facilities have been constructed in accordance with the design approved by the District. Within 30 days after completion of construction of each phase, the Authority shall submit the engineer's certification, and notify the District that the facilities are ready for inspection and approval.

C. All road centerlines shall be set at or above the flood elevation generated by a three-year, twenty-four hour storm event,

in accordance with Palm Beach County criteria, as may be amended, and in accordance with the South Florida Water Management District's Rule 40.E-4., as may be amended.

D. All building floors shall be set at or above flood elevations generated by a three-day, one hundred year storm event, in accordance with Palm Beach County criteria, as may be amended, and in accordance with the South Florida Water Management District's Rule 40.E-4., as may be amended.

E. Off-site discharges during construction and development shall be made only through the discharge structures authorized by this Certification.

F. No construction authorized herein shall commence until the Permittee has agreed, in writing, by letter or resolution, that it will be responsible for the construction, operation, and perpetual maintenance of the entire surface water management system, both during operation of the facility and following the closure of the whole or any part of the facility. Responsibility for the operation and maintenance of the surface water management system shall not be assigned or delegated without prior written approval of the District.

G. This Certification is based on the applicant's submitted information to the District which reasonably demonstrates that adverse off-site water resource related impacts will not be caused by the authorized activities. The plans, drawings, and design specifications submitted by the applicant shall be considered the minimum standards for compliance. It is also the responsibility

of the Permittee to ensure that adverse offsite water resource related impacts do not occur during construction.

H. The Permittee shall secure a well construction permit prior to construction, repair, or abandonment of any wells as described in Chapter 40E-3, F.A.C.

I. In the event of a declared water shortage, water use reductions may be ordered by the SFWMD in accordance with the Water Shortage Plan, Chapter 40E-21, F.A.C.

J. This project must be constructed in compliance with and meet all requirements set forth in Chapter 373, Florida Statutes, and Chapter 40E-2, 40E-3, and 40E-4, FAC.

K. The Permittee shall hold and save the SFWMD harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, operation, maintenance or use of any facility authorized by this Certification, to the extent permitted under Florida law.

L. Authorized representatives of the District shall be allowed to enter the premises to inspect and observe the operation of the surface water management system and associated landfill facilities, mitigation areas, and monitoring wells in order to determine compliance with the conditions of this Certification, as provided in Condition V.

XVI. WATER MANAGEMENT DISTRICT - SITE SPECIFIC STANDARDS

A. Prior to construction of any phase of either the Solid Waste Energy Resource Recovery Facility or the ash residue/unprocessable materials landfill, a complete set of paving, grading, and drainage plans with supporting calculations for the 40-acre Resource Recovery Facility and Jog Road must be submitted to the South

Florida Water Management District for review and written approval that the plans are in compliance with Chapters 40F-2 and 40E-4, F.A.C. Said plans shall include the following:

1. Paving, grading and drainage plans with special attention to perimeter site grading; and

2. Drainage calculations including:

a. Design storms used including depth, duration and distribution;

b. Stage-storage computations for the project and stage-discharge computations for the outfall structure(s);

c. Acreages and percentage of property proposed as:

(1) impervious surfaces (excluding water bodies)

(2) pervious surfaces (green areas)

(3) lakes, canals, retention areas, etc.

(4) total acreage of the project

d. Runoff routing calculations showing discharges, elevations, and volumes detained during applicable storm events; and

e. Calculations required for determination of minimum building floor and road elevations.

B. Any subsequent modifications to the drawings and supporting calculations submitted to the South Florida Water Management District which alters the quantity or quality of discharge of water offsite shall be pursuant to Section 403.516, F.S., and Rule 17-17.211, F.A.C. Such modifications shall be submitted to the District for a determination that the modifications are in compliance with Chapters 40F-2 and 40E-4, F.A.C. This includes modification of the discharge route.

C. Minimum standard 24" x 36" surface water management construction plans for the project as proposed as well as any modifications shall be submitted to this District for review and written

approval 30 days prior to the commencement of construction.

D. Prior to use and/or connection with any District works, the District shall be notified and the Permittee shall obtain written approval pursuant to Chapter 40E-6.041, F.A.C.

E. Prior to lowering of water levels in excavation sites, the following conditions shall be met:

1. Withdrawal rates, and depending on the methods proposed, well construction details, well and pump capacities and locations, and the data from the groundwater monitoring network shall be provided to the District for review and written approval;
2. The impacts of the proposed withdrawals shall be assessed and provided to the District;
3. No dewatering discharge shall be allowed to drain from the property and
4. The District concurs in writing that there will be no adverse impacts as a result of the proposed withdrawals under sections 373.223(A)-(C) of the Florida Statutes.

F. Final water use rates for process and irrigation and well locations shall be submitted to the District for review and written approval prior to well construction when a Vendor and final plant design are determined.

G. Prior to closure, detailed closure plans pursuant to Chapter 17-7, F.A.C., shall be submitted to the District for review and written approval.

H. On-site areas which are dedicated for the fire station and Turnpike Interchange are considered by this District as separate from the Certification, and therefore subject to permitting requirements, pursuant to Chapter 373, F.S.

I. Any on-site hazardous materials temporary storage and transfer facility constructed at this site pursuant to the Water Quality Assurance Act should be considered separate from the Certification process and subject to regulatory permits. The design of the building and related infrastructure should be submitted to this District for review and verification that the proposed facility has been designed to prevent any stored or transferred hazardous materials from coming in contact with the surface water management system.

J. If modification and/or realignment of Northern Palm Beach County Water Control District's Canal EPB 10 is necessary, a modification must be obtained for Surface Water Management Permit No. 50-01347-S.

K. Prior to construction of either the Solid Waste Resource Recovery Facility or the ash/residue/unprocessable materials landfills, a phasing plan for the landfills shall be submitted to the District for review and written approval, including detailed drawings and supporting calculations showing how leachate will be separated from runoff in the working area (temporary berms, diversion dikes, cover material, etc.).

L. Surface Water Management plans shall be revised to include spreader swales (or District approved equivalent) to approximate sheetflow discharge into the wetland areas. In addition, a sedimentation "trap" shall be designed, subject to District approval of calculations and discharge locations into the wetlands.

M. Discharge structures shall include a baffle, skimmer, or other mechanism suitable for preventing oil, grease, or other floatable materials from discharging to and/or from retention/detention areas.

N. Prior to landfill construction, a screw gate shall be installed on the water control structure at EPB 10, capable of

restricting discharge of poor quality surface water, up to and including the 25 year, 3 day level.

O. Critical areas, including the conveyance and perimeter swales, and areas adjacent to the let down pipes or conduits shall be stabilized to prevent erosion.

P. Energy dissipators shall be used whenever let down pipes discharge into perimeter swales, or the let down pipes or conduits meet the terraces.

Q. Water quality samples shall be taken at the discharge surface water discharge structure locations of the water management system into EPB 10 during periods of discharge according to the schedule below. Flow shall be measured continuously at the discharge location into EPB 10 by means of a recording flow meter. A laboratory certified by the State of Florida shall be responsible for all water quality analyses. Chain of custody documentation shall be maintained for all sampling. Reports of water quality results and discharge rates shall be submitted to this District for review and written approval on a semi-annual basis. Results of any additional stormwater quality sampling required by the Florida Department of Environmental Regulation shall be provided to the District. Monitoring requirements will be evaluated by this District following two years of data collection.

Monitoring
Type Schedule

Parameters

- | | |
|------------------------------|---|
| A. General
(Quarterly) | Total Organic Carbon, Dissolved Oxygen, pH, Turbidity, Specific Conductance, Chemical Oxygen Demand, Alkalinity, Total Suspended Solids, Ammonium N, Nitrate N, Total Kjeldahl Nitrogen |
| B. Organics
(Semi-annual) | Trichloroethylene, Tetrachloroethylene, Carbon Tetrachloride, Vinyl Chloride, 1,1,1,-Trichloroethane, 1,2-Dichloroethane, Benzene, Ethylene Dibromide |
| C. Metals
(Semi-annual) | Aluminum, Antimony, Beryllium, Cadmium, Copper, Cyanide, Iron, Lead, Mercury, Nickel, Selenium, Silver, and Zinc |
- R. Any Northern Palm Beach County Water Control District facilities which have been permitted (Surface Water Management Permit No. 5001347-S) by this District and are not yet constructed but would be affected by this project must be fully operational prior to commencement of stormwater discharge from this project. The additional 60" CMP at Florida Power and Light's transmission crossing of EPB-10, and one 72" CMP at the confluence of EPB-10 and C-17 shall be so constructed.

S. There shall be a quarterly groundwater monitoring frequency for the groundwater monitoring network. The District shall be copied on the data results of the network, and any other groundwater monitoring data required by the Florida Department of Environmental Regulation.

T. At least 60 days prior to the commencement of construction, the District staff must have received and reviewed any pertinent additional information required to be submitted under the District's site specific standards and the conditions of certification. Written approval for the desired construction must be obtained prior to commencement of construction.

U. Sixty days prior to the commencement of construction of the transmission line, the permittee shall provide the District with the location of areas in which fill and associated facilities will be placed. Written confirmation that the fill and associated facilities will not cause adverse off-site impacts shall be received from the District prior to commencement of construction.

XVII. OPERATIONAL CONTINGENCY PLANS

A. Operating Procedures

The permittee shall develop and furnish the Southeast District a copy of written operating instructions for all aspects of the operation which are critical to keeping the facility working properly. The instructions shall also include procedures for the handling of suspected hazardous, toxic and infectious wastes.

B. Contingency Plans

The Permittee shall develop and furnish the Southeast District Office written contingency plans for the continued operation of the system in event of breakdown. Stoppages which compromise the integrity of the operations must have appropriate contingency plans. Such contingency plans should identify critical spare parts to be maintained on site.

C. Current Engineering Plans

The Permittee shall maintain a complete current set of modified engineering plans, equipment data books, catalogs and documents in order to facilitate the smooth acquisition or fabrication of spare parts or mechanical modifications.

D. Application Modifications

The permittee shall furnish appropriate modifications to drawings and plot plans submitted as part of the application, including operational procedures for isolation and containment of hazardous wastes.

XVIII. TRANSFER OR ASSIGNMENTS OF RIGHTS, DUTIES, OR OBLIGATIONS

If contractual rights are transferred under this certification, Notice of such transfer or assignment shall immediately be submitted to the Department of Environmental Regulation and South

Florida Water Management District by the previous certification holder (Permittee) and Assignee. Included within the Notice shall be the identification of the entity responsible for compliance with the certification. Any assignment or transfer shall carry with it full responsibility for the limitations and conditions of this certification.

XIX. PROPRIETARY DOCUMENTS OR INFORMATION - CONFIDENTIALITY

Proprietary or confidential data, documents or information submitted or disclosed to any agency shall be identified as such by the Permittee and shall be maintained as such pursuant to applicable Florida law.

XX. MITIGATION

A. On-Site Restoration and Mitigation.

1. Within ninety (90) days of certification issuance, the Palm Beach Solid Waste Authority shall submit and on-site restoration and mitigation plan (hereinafter "The Plan"). The purpose of the Plan and its implementation being the mitigation of the impact of the project on the site's wetlands and values associated therewith. The Plan shall indicate in a detailed manner the on-site measures and improvements necessary to accomplish all restoration and mitigation, (i) set forth in the application as amended, (ii) as required below and (iii) as may be required by the department of Environmental Regulation.

2. The Plan shall include but not be limited to a specification of the commencement and completion dates of all anticipated restoration and mitigation work including a specification of all revegetation of the shell pit mining areas, creation of littoral zones around all lakes, interconnection of wetland areas, areas of wetlands to be created (including the type and extent thereof which shall be not less than 190 acres), dredge and fill volumes, elevations, methods of construction, nature and extent of required improvements to accomplish the above referenced work, and planting schedules together with methods to insure vegetative survival for each area. As part of the plan it shall

also be required that (i) littoral zones will be constructed around all existing and proposed borrow lakes, (ii) where it can be done with a reasonable probability of success, cypress trees proposed for elimination shall be transplanted to areas of wetland creation or roost enhancement, and (iii) willow, cypress and other hardwood species shall be planted on the spoil windrows of the abandoned pit South of the roost area to provide future roost availability, and the existing roost shall be monitored over a seven year period.

3. The Plan shall be submitted to the Department of Environmental Regulation, the Florida Game and Fresh Water Fish Commission, the U.S. Fish and Wildlife Service, Treasure Coast Regional Planning Council, and other appropriate governmental authorities or agencies.

4. The Department of Environmental Regulation shall review the Plan and it shall be subject to the approval of the Department of Environmental Regulation in consultation with the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service and Treasure Coast Regional Planning Council. The Palm Beach County Solid Waste Authority in the event of disapproval of the Plan by the Department of Environmental Regulation shall include such revisions therein as may be required by the Department of Environmental Regulation.

5. The Palm Beach County Solid Waste Authority shall complete all restoration and mitigation work set forth in the Plan approved by the Department of Environmental Regulation in accordance with the time schedules set forth in the approved Plan.

B. Off-Site Restoration and Mitigation.

1. The off-site restoration and mitigation area, is an area of approximately 3400 acres in the L-8 Marsh area of the J. W. Corbett wildlife management area designated by the Florida Game and Fresh Water Fish Commission and shown on Exhibit A attached hereto and made part hereof (hereinafter referred to as the "preservation area").

2. The Solid Waste Authority shall perform a detailed hydrological study the scope and content of which shall be subject to approval by the Department of Environmental Regulation in

consultation with the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service and Treasure Coast Regional Planning Council. The purpose of the hydrological study shall be to identify and detail those modifications and improvements that would be necessary to the preservation area in order to restore a hydroperiod to this area which approximates the natural wetland hydroperiod. The Solid Waste Authority shall pay all costs, engineering and otherwise for such study and the study shall be completed within two years from the date that certification has been issued. The Solid Waste Authority will at its sole cost and expense make such modifications and improvements to the preservation area including but not limited to payment of all engineering and permitting fees, all costs of labor, material, equipment and physical improvements (all of the foregoing being collectively hereinafter referred to as the "improvements") as identified in the approved hydrological study to restore a hydroperiod to the preservation area which approximates the natural wetland hydroperiod for such area.

3. The hydrological study shall be submitted to the Department of Environmental Regulation, the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service and Treasure Coast Regional Planning Council and other appropriate governmental authorities or agencies.

4. The Department of Environmental Regulation shall review the hydrological study and the proposed implementation thereof. The study and the implementation thereof shall be subject to the approval of the Department of Environmental Regulation in consultation with the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service and Treasure Coast Regional Planning Council.

5. The Palm Beach County Solid Waste Authority in the event of disapproval of the recommendations contained in the hydrological study by the Department of Environmental Regulation shall include such revisions therein as may be required by the Department of Environmental Regulation.

6. In the event that the improvements required by the approved hydrological study are projected to significantly exceed

\$420,000.00 plus the inflation factor as set forth below then the Palm Beach County Solid Waste Authority may apply to the Department of Environmental Regulation for consideration to (i) reduce the size and scope of the mitigation and restoration project or (ii) utilize alternative methods to accomplish the required mitigation and restoration as set forth above. The fact that the cost of the improvements in the approved hydrological study are projected to significantly exceed the amount set forth above, shall not, entitle the Palm Beach County Solid Waste Authority, as a matter of right, to reduce or modify the mitigation required herein. Whether, and the extent to which, the mitigation or restoration requirements shall be reduced or modified shall rest solely in the discretion of the Department of Environmental Regulation in consultation with the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service and Treasure Coast Regional Planning Council.

7. The Palm Beach County Solid Waste Authority shall complete all restoration and mitigation work set forth in the approved hydrological study including the implementation measures contained therein, within five years from the date of certification issuance.

8. Inflation Factor:

In paragraph B(6) the sum of \$420,000.00 is referred to. The actual number to be utilized in place of \$420,000.00 in condition B(6) shall be a sum using \$420,000.00 as a base and adding any increase in the index thereto; i.e., in the event there has been a 10% increase in the index from December 3, 1985 through the end of the time period under consideration then there shall be an increase of 10% in the sum of \$420,000.00. The Solid Waste Authority shall make no application for modification of the mitigation and restoration until after the completion of the approved hydrological study. For purposes of projecting and determining the actual amount to be utilized in condition B(6) with reference to the \$420,000.00, as to improvements to be constructed in the future, there shall be added to the \$420,000.0 the following (i) a sum which represents the percentage increase in the index from December 3, 1985 through the date of

approval of the hydrological study and (ii) a sum representing the estimated percentage increase in the index through the date a specific improvement is projected to be constructed in the approved hydrological study. The estimated percentage increase shall be the average annual increase in the index from December 3, 1985 through the date of approval of the hydrological study; i.e., if the average annual increase has been 10% and a specific improvement is to be constructed nine months after the approval of the hydrological study there shall be added (in addition to the amount referred to in (i)) to the \$420,000.00 the sum of \$31,500.00 representing three quarters of the 10% increase.

Index:

The term index as utilized herein shall mean: The Engineering News-Record, Construction Cost Index, published by McGraw-Hill, Inc.

In the event that the Construction Cost Index is discontinued then the Department of Environmental Regulation shall choose another index similar in nature, to utilize in connection with this off-site mitigation and restoration condition.

FIGURE 1
PROJECT LOCATION

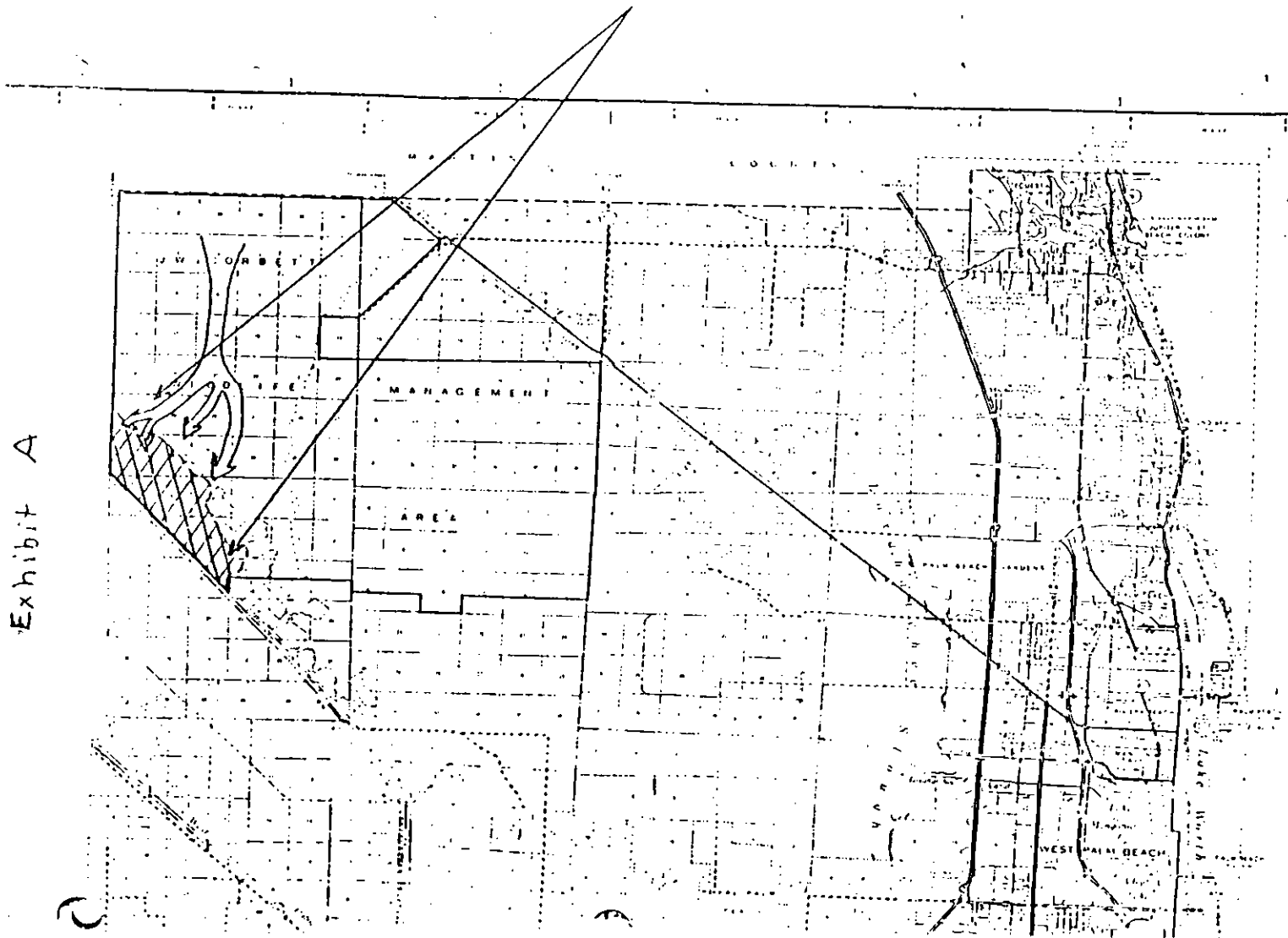


Exhibit A

Appendix III

The Authority's proposed findings of fact are addressed as follows:

1. Addressed in paragraph 1, and the Preliminary Statement.

2. Addressed in paragraph 3 & 4.

3. Addressed in paragraph 3.

4. Not relevant.

5. Addressed in paragraph 2.

6. Addressed in paragraph 1 and the Preliminary Statement.

7. Addressed in paragraph 30.

8. Addressed in paragraphs 12-17, and 33.

9. Addressed in paragraph 2.

10. Addressed in paragraph 7.

11. Addressed in paragraphs 13&14.

12. Addressed in paragraphs 15&16.

13. Addressed in paragraph 15.

14. Addressed in paragraph 17.

15. Addressed in paragraph 17.

16. Addressed in paragraph 19.

17. Addressed in paragraph 18.

18.-19. Addressed in paragraphs 10&11.

20. Addressed in paragraphs 20&21.

21. Addressed in paragraphs 22&29.

22. Addressed in paragraphs 23&24.

23. Addressed in paragraphs 25-27.

24. Addressed in paragraph 29.

25. Addressed in paragraph 30.

26. Addressed in paragraph 32.

27. Addressed in paragraph 31.

28. Addressed in paragraph 28.

29. Addressed in paragraphs 8, 19&29.

30. Addressed in paragraphs 10, 11, 28-32.

31. Addressed in paragraph 33.

DER's proposed findings of facts are addressed as follows:

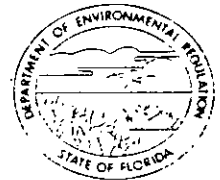
1. Addressed in paragraph 26.
- 2-3. Addressed in paragraph 31.
4. Addressed in paragraph 26.

The Coalition's and Riviera Beach's proposed findings of fact are addressed as follows:

1. Addressed in paragraphs 2&6.
2. Addressed in paragraphs 1,2,3,13.
- 3-4. Addressed in paragraphs 13&27.
5. Addressed in paragraph 18.
6. Addressed in paragraph 17.
7. Addressed in paragraph 3.
8. Addressed in paragraph 8.
9. Addressed in paragraph 9.
10. Addressed in paragraph 5.
11. The parties have stipulated that Intervenors have standing.

- 12-13. Addressed in paragraphs 7&19.
- 14-16. Addressed in paragraphs 3 & 12-19.
17. Addressed in paragraph 32.
18. Addressed in paragraphs 31 & 32.
19. Addressed in paragraph 29.
20. Addressed in paragraphs 31 & 32.
21. Addressed in paragraphs 12-17&31.
22. Addressed in paragraph 30.
- 23-25. Addressed in paragraphs 7 & 12-17.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION



Interoffice Memorandum

TO: Al Devereaux
FROM: Clair Fancy *Clair Fancy*

FOR ROUTING TO OTHER THAN THE ADDRESSEE	
TO: <u>Andrews</u>	LOCTN: _____
TO: _____	LOCTN: _____
TO: _____	LOCTN: _____
FROM: _____	DATE: _____

DATE: April 18, 1986

SUBJ: Broward County Resource Recovery Hearing Transcripts

This week I have read the entire hearing records on the air testimony. The most important facts, in my opinion, that I derived from the testimony are stated below.

- o Cost figures on particulate-acid gas greatly exaggerated by Broward County. Hearing officer cited lower figures of \$6.00/ton for total controls.
- o Broward discussed possible problems with baghouses, clogging, cementing, burning. Hearing officer found baghouses and scrubbers efficient and reliable.
- o Much of energy impact and cost information put on by Broward was related to wet scrubbers even though all experts felt that was not proper technology and was so stipulated that if acid gas control was required, wet scrubbers would not be used.
- o Data suggest 3 stage ESP could achieve 0.02 grains/SCF. Has been done by several existing facilities.
- o They had three experts on dioxin and health effects. We had none. They said no health effects and this was stipulated to as we had no witnesses to argue differently. This was before Department's Dioxin Report.
- o Modeling of Broward's proposal showed only slight changes in air quality levels. Less than 10% of any PSD increment and less than 3% of ambient standards for SO₂ and particulate.
- o Broward discussed lost revenues for when pollution control equipment inoperable. Said it could cost \$3.4 million per year. Since they need to burn all the garbage anyway, this was wrong. Hearing officer apparently recognized this.

Al Devereaux
Page Two
April 18, 1986

- o Dry scrubber baghouses are used extensively in Europe and Japan, but not here. Only one currently in use here (Framingham, Mass.).
- o For new units, thirteen states were requiring acid gas control at time of hearing. Many of these states do specifically regulate HCl emissions. New Jersey has required scrubbers for several proposed installations.
- o We used recent Connecticut BACT as large basis for our determination.
- o Big part of hearing was on cost per ton of removal for pollutants. 1978 EPA guideline for NSPS is \$2000. Cost for this project are about \$3500/ton for particulate and \$3500 for regulated acid gases, excluding HCl. In light of inflation-in ballpark. We would also control fine particulate (heavy metals) and dioxin if adsorbed on fine particulate. If unregulated HCl were added to other acid gases, would come down to \$1100 per ton. HCl emissions from this facility will exceed 5000 tons per year.
- o We indicated good combustion efficiency, 99.8-99.9%, as measured by CO concentrations would help to minimize dioxin and that baghouse would remove more fine particulates. Also that New York State is requiring dioxin tests on all plants every 18 months (our New York State expert).
- o We stressed how BACT should be considered: NSPS, all information available to department, BACTs of other states, and economic and social considerations-per 17-2.630. Stated economics much more than just dollars per ton and that resident outcry in 1984 was a social impact.
- o They stressed how BACT should be considered: environmental impacts, energy costs, economic impacts. This is from a federal publication as contrasted to the above, which is somewhat different. Hearing officer agreed with their interpretation.
- o We stressed the necessity of leaving room for scrubbers if not in hearing officer's recommended order.

Al Devereaux
Page Three
April 18, 1986

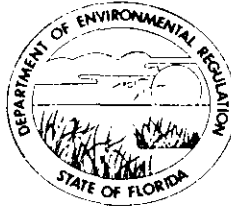
- o Plant construction costs about \$187 million, (excluding land). Control equipment costs as we proposed at about \$15 million. As they proposed, about \$5-7 million.

CHF/ks

cc: Victoria Tschinkel
Howard Rhodes
Mimi Drew
Buck Oven
Julie Cobb

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 20, 1986

Mr. Don W. Chester
Chairman, Board of Trustees
American Lung Association
2701 N. Australian Ave.
West Palm Beach, Florida 33407

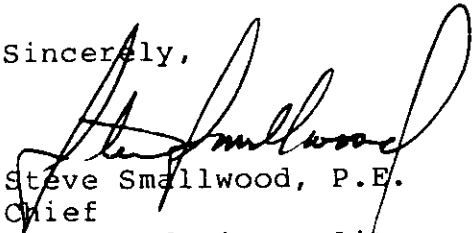
Dear Mr. Chester:

In your March 5 letter you advised me that the Board of Trustees of the American Lung Association of SE Florida held its board meeting on February 26 and voted unanimously to support the air pollution control recommendations of DER for the proposed Palm Beach County Solid Waste Resource Recovery facility in Riveria Beach.

The department very much appreciates the support of the American Lung Association in this issue. I think you are correct that if the people who live in the area were to vote on this issue that a majority of them would also support the department's position.

I have advised other interested persons within the department and the Palm Beach County Local Air Program of your support.

Sincerely,


Steve Smallwood, P.E.
Chief
Bureau of Air Quality
Management

SS: jr

cc: Victoria Tschinkel
Howard Rhodes
Steve Fox
Clair Fancy
Bill Thomas ✓
Buck Oven
Isidore Goldman
Gene Sacco

AMERICAN  LUNG ASSOCIATION *of Southeast Florida, Inc.*
The "Christmas Seal" People

Serving:
Palm Beach
Martin
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Indian River
Okeechobee
counties

March 5, 1986

2701 N. Australian Ave.
West Palm Beach, Florida 33407
(305) 659-7644

Steve Smallwood, Bureau Chief
Bureau of Air Quality and Management
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, FL 32301

DER
MAR 10 1986
BAQM

Dear Mr. Smallwood:

The Board of Trustees of the American Lung Association of Southeast Florida at its board meeting February 26 voted unanimously to support the air pollution control recommendations of DER for the proposed Palm Beach County Solid Waste Resource Recovery facility in Riviera Beach.

We understand that the recommendation includes Latest Available Emission Controls specifically the combination of a dry scrubber with a bag house. According to our information this would provide the best control of particulates as well as harmful gaseous emissions.

The Lung Association believes that due to the location of this plant in relation to the populated area it would be prudent to install the best technology to control air pollution.

In addition it is our belief that the people of this area would demand no less if given the chance to vote on the issue.

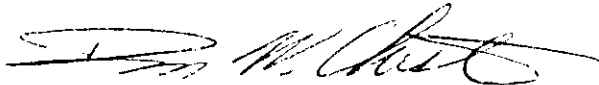
Furthermore Palm Beach County residents over 65 years of age comprise 25% of the population, this is twice the national average and is a group of people more sensitive to air pollution.

Finally according to page 34 of Palm Beach County Solid Waste Authority Feasibility Study Interim Report of November 1981 it was long ago planned that, "Due to the location of the central plant in proximity to the populated areas, the cost figures include the expensive equipment and high O & M costs to meet LAER (Lowest Achievable Emission Rates) which has the most stringent requirement even though it may not be required by the regulatory agencies."

Steve Smallwood, Bureau Chief
March 5, 1986
Page 2

We commend you for your efforts on behalf of the people of Palm Beach County to keep one of our most valuable resources, the very air we breathe, as clean as possible.

Sincerely,



Don W. Chester
Chairman, Board of Trustees

DWC:jca

cc: Frank Sineath, Chairman
Palm Beach County Solid Waste
Authority

DER
MAR 10 1986
BAQM

DER

MAR 3 1986

27 February, 1986

BAQM

TO: Barry Andrews - Florida Dept. of Environmental Regulations
FROM: A. J. Teller - Teller/Research-Cottrell, Inc.
SUBJ: Solids Discharge Summary - Palm Beach County

Solids Discharge Summary

<u>Source</u>	<u>Tons/Yr.</u>	<u>% of Discharge</u>
Bottom Ash	132212	32.98
Flyash	30000	7.48
Trommel Discharge	221040	55.14
Pollution Control Reaction Product	16751	4.18
Tesisorb	900	0.22
Total	400903	100.00

Therefore, the addition to landfill as a result of the acid gas recovery is 4.50% of the total landfill discharge.

There will be additional flyash sent to landfill consisting of the fine particulate with high concentrations of toxic heavy metals that would have entered the air basin of Palm Beach County from the proposed electrostatic precipitator. This is approximately 500 tons per year. The heavy metals, in the main, will be rendered insoluble by the excess lime. This will add about 0.1% to the landfill.

The total landfill area indicated in the application was 314 acres. Assuming 50% is associated with the sanitary landfill operation, the area available for sanitary landfill is 6.8 million square feet.

The estimated additional solid discharge resulting from acid gas recovery is about 18000 tons/year for 2000 TPD RDF combustion for 300 days/year. The bulk density for the landfill was assumed in the application to be of the order of 62 lb/ft³ with a volume addition of 4520 cu. yd./day or 40680 cu. ft./day. For the entire landfill, this represents an increase in average height of 10.8 in./yr.

TO: Barry Andrews - DER
FROM: A. J. Teller

27 February, 1986
Page 2.

The acid gas control solid discharge, 18000 tons per year, at the same bulk density, compressed on the landfill as the average waste, would contribute an additional 0.5 in./yr or 4.7% increase. If the bulk density representing non-compressed discharge, 40 lb/ft³, were used, the height added would be 0.75 in./yr. or a 6.9% increase.

TO: Barry Andrews - DER
FROM: A. J. Teller

27 February, 1986
Page 3.

Solids Discharge from Proposed Palm Beach County Incinerator

Basis - Combustion	2000 TPD RDF
Operation	300 Days/Yr.
Total Burn	600,000 TPY

Bottom Ash - Fig 3.1.2 Volume 1, SWB Proposal

Combustion Rate	624 TPD RDF/Boiler
Bottom Ash	275 TPD/2 Boilers

Therefore for 2,000 TPD rate of burn

$$\text{Bottom Ash } \frac{275 \times 2000}{624 \times 2} \times 300 = 132212 \text{ TPY}$$

Flyash - Par. 3.4.1.4.1.2

100 lb/ton

Therefore for 2,000 TPD or 600,000 TPY Combustion

$$\text{Flyash } \frac{100}{2000} \times 600,000 = 30,000 \text{ TPY}$$

Trommel - Section 1 - Waste Fig 3.1-2

30.7 TPH

Therefore $30.7 \times 24 \times 300 = 221,040 \text{ TPY}$

Reaction Product - Basis $\alpha = 2$

90% HCl, 70% SO₂ Recovery

Product

Ca(OH) ₂	6593 TPY
CaCl ₂ , CaSO ₃	10158 TPY
Total	16751 TPY

TO: Barry Andrews - DER
FROM: A. J. Teller

27 February, 1986
Page 4.

HCl EMISSIONS

There appears to be total inconsistency in the estimate of HCl emissions from combustion.

Based on the fuel composition in Tables 1-1 and 1-2 of Volume 3, the maximum emissions of HCl based on 1800 TPD RDF combustion, the emissions would be 4931 TPY.

Based on projected emissions, Table 3-2 at the same combustion rate, the estimate is 1150 TPY.

Based on the combustion product compositions in Table 3.4 Volume 1 and the flows stated, the estimate is 2700 TPY.

The question is what is the real hydrochloric emission

From Tables 1-1 and 1-2 (Vol 3)	4931 TPY
Table 3-2 - (Vol 3)	1150 TPY
Table 3.4 - (Vol 1)	2760 TPY
Response to DER (Nov 1985)	864 TPY
Based on 3.2 lb HCl/ton (PA84-20)	

On the basis of 0.73% Cl in the fuel and the historical evidence of 80% volatilization of the chloride content, the emissions will be of the order of 3950 TPY.

Thus the SWB has underestimated its Hydrochloric emissions by

71% in their material balance submitted to the DER as basis for non-control.

32% on their flue gas composition and
77% in their defense response.

Hayden | Wegman

Consulting Engineers

February 24, 1986

Mr. Timothy F. Hunt, Jr.
Executive Director
Palm Beach County Solid
Waste Authority
5114 Okeechobee Boulevard
Suite 2C
West Palm Beach, Florida 33417

Reference: Power Plant Siting Application DOAH
Case No. 85-2032 Air Quality

Dear Tim:

The DER Draft Conditions of Certification for the Palm Beach County Solid Waste Authority's Resource Recovery Facility have been reviewed in the section concerning air emissions. The DER is recommending the addition of dry scrubbers to the Air Pollution Control (APC) equipment to control the emissions of chlorides, sulfuric acid mist, and fluorides specifically to meet BACT. The FDER agreed that all the regulated pollutants met BACT with the Electro-static Precipitators and good combustion control as stated by the Authority.

The Authority received proposals from four Vendor's on January 6, 1986 for the construction and operation of the Resource Recovery Facility. As part of the proposal, the Vendor's were required to bid the additional cost to construct and operate dry scrubbers. These are the actual costs the Authority would incur, and not some estimate based on supplier information.

The following figures are taken from the apparent low bidder's proposal.

Capital Cost (1986) - \$13,665,000 (3 units)
O&M Costs (1986) - \$ 2,960,580 (3 units)

Debt Service (10% Bond interest)
 $\$13,665,000 \times 1.5 \times 0.1175 = \$2,408,456$ annually
whose do these come from.
20 year Bond period = \$48,169,120

O&M Costs (6% escalation)
20 year O&M (1989 thru 2008) = \$129,709,560

Total Cost over 20 years

Debt Service = \$ 48,169,120
O&M Costs = \$129,709,560
\$177,878,680

The annual tonnage of RDF combusted in the three boilers would be approximately 700,000 tons, or 14,000,000 tons over 20 years.

$$\text{Average Additional Cost/Ton} = \frac{177,878,680}{14,000,000} = \$12.71/\text{Ton}$$

This calculates to \$ 8.48/Ton 1989
\$18.68/Ton 2008

There are other costs that are not included above. Additional residues collected from the electrostatic precipitator over 20 years will add an additional 300,000 to 400,000 tons to be landfilled. This will reduce the class I landfill life by about 10%. An average landfill cost of \$50/Ton over the 20 year period add another \$15,000,000 to \$20,000,000 to costs.

It is expected the availability of the boilers would be reduced with the addition of dry scrubbers, that would result in reduced electric revenues and the landfilling of raw MSW. It is difficult to put a dollar cost on loss of electric revenues expected to total over \$600,000,000 over the 20 years, but every 1% loss equates to \$6,000,000.

A very noticeable plume will occur because of the reduced gas exit temperature and increased moisture content, and if it is necessary to reheat the gas to reduce the flume before it exits the stack, this additional cost must be added.

The main reason given for the addition for dry scrubber is the reduction of chlorides, fluorides and sulphuric acid mist. Only chlorides represent a significant emission, and does not even remotely present a health hazard. Palm Beach County being located along the sea coast experiences a high ambient level of chlorides from the ocean, which results in an average disposition rate of 50 lbs/year/acre in the catchment area. Based on the apparent low bidder's guaranteed maximum, only 4 lbs/year/acre would be deposited in this area of maximum impact (Authority figures supplied in the application would be one quarter this amount). Homes with swimming pools are experiencing higher chloride impacts from their swimming pools than the proposed plant would produce.

The assumption that percentage of chlorides increase annually in direct ratio with the increase of plastics in the waste stream is not valid. The just completed study (issued October 1985) NBSIR 85-3213 by U.S. Department of Commerce investigated the "Chlorine Content of Municipal Solid Waste from Baltimore County, Maryland and Brooklyn, New York". The report investigate the percentage of chlorine in plastics (insoluble) and chlorine in paper (soluble). The Baltimore refuse had 56% of the chlorine (soluble) in the paper fraction. Even with a doubling of the plastic fraction the increase would be less than 50% assuming the same mix of plastics. In Palm Beach County the plastic fraction in the Class I refuse (garbage) was primarily composed of beverage containers and packaging materials that are largely not chlorinated plastic types.

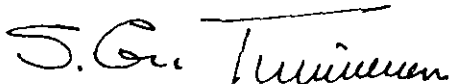
The original composition studies on MSW carried out in 1981 in Palm Beach County were basically for a determination of the higher heating value (HHV) of the MSW. The Elmer Kaiser work on heat value and composition of municipal solid waste (1977) was used as a basis for the value used for the Authority reports. The plastics data was for a representative mix of plastics at that time and place, and is probably not representative of what is presently in Palm Beach Class I refuse today. Based on Baltimore refuse (garbage to National Ecology Plant) the chlorine and sulphur quantities for Palm Beach County refuse are probably stated too high by about 65%. Since neither sulphur or chlorine as stated, even remotely presented any concern, the cost of further expensive studies to refine sulphur, chlorine, or other constituents was not deemed warranted.

With about 70% of the chlorine going up the stack, the total chlorides in Baltimore refuse results in 6.3 lbs of chlorides per ton of refuse as gas emissions of which 2.8 lbs is from plastics. The 3.5 lbs of chloride emissions per ton of refuse modelled for Palm Beach should be increased by a factor of 2 based on the Baltimore experience to be on the conservative side. This level is still low, and would add about 10% to present ambient conditions. The 2700 tons per year of chlorides emissions would be reduced with a dry scrubber by 2430 tons per year for a first year cost of \$5,934,554 in 1989. This is \$2,442 per ton of chlorides removed, and when all costs are included (loss of electric revenues, landfill costs, etc.), the figure will be substantially higher and well above the suggested EPA limit of \$2,000 per ton.

The assumption that increased plastics will increase chloride levels does not follow. The growth in Class I plastics is for beverage containers and food packaging which are primarily non-chlorinated. I believe it is evident that the cost to reduce chlorides is not justified.

Very truly yours,

HAYDEN-WEGMAN CONSULTING ENGINEERS



Stanley G. Timmerman

SGT/bbj