

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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DER

JUL 11 1985

TO: Power Plant Siting Review Committee
FROM: Hamilton S. Oven, Jr., P.E. *HSO*
DATE: July 9, 1985
SUBJECT: South Broward County Resource Recovery Facility
PA 85-21, DOAH Case No. 85-1166

LAQM

Attached please find a copy of Broward County's responses to
insufficiency questions.

HSOjr/sb



July 3, 1985

DER

Resource Recovery Office

JUL 11 1985 Room 521, 115 South Andrews Avenue
Fort Lauderdale, Florida 33301
(305) 357-6458

BAQM Received DER

JUL 8 1985

State of Florida
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

PPS

Attention: Mr. Hamilton Oven, P.E.
Power Plant Siting Section

Re: South Broward County Resource Recovery Project, Inc.
Power Plant Siting Application PA 85-21;
OGC File No. 85-0367; DOAH Case No. 85-1166

Dear Mr. Oven:

Enclosed are 12 copies of our responses to your inquiries of May 10 and May 28, 1985 concerning the South Broward County Resource Recovery Project, Inc. Power Plant Siting Certification Application. Each of your questions has been italicized and is followed by our response.

We are currently drafting responses to your letters of May 21, 1985 and June 14, 1985. These responses will be in your hands the week of July 8.

Please be advised that the Broward County Board of County Commissioners selected Signal Environmental Systems to be the full service vendor for the above referenced Project on July 2, 1985.

Very truly yours,

Thomas M. Henderson
Project Director
Broward County Resource Recovery Office
and
Attorney-in-Fact

TMH/bd
Enclosure

cc: Timothy Smith
Ron Mills

BROWARD COUNTY BOARD OF COUNTY COMMISSIONERS

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SOUTH BROWARD COUNTY RESOURCE RECOVERY PROJECT
POWER PLANT SITING APPLICATION, PA 85-21
OGC FILE NO. 85-0357, DOAH CASE NO. 85-1166

APPLICANT RESPONSES TO FLORIDA DER INQUIRY OF
MAY 28, 1985

Received DER

JUL 8 1985

P P S

Cover Letter Question: The pre-construction surface water monitoring in the South Fork of the New River Canal was apparently a one-grab, one sampling date process. There is no mention of replicate sampling for subsampling. Consequently, it is difficult to place any confidence in the values obtained. Further, the applicant states that there will be no need for any future monitoring because of the berms, ponds, etc., which will be built during plant construction. We strongly disagree with that contention, and suggest that a systematic and continuing monitoring program be established for surface water before, during and after construction. The potential exists for problems with D.O., COD, heavy metals, etc., from both construction and operation of the facility and the landfills, even though no direct discharge to surface water is planned. And though the ecological characterization of the site was in general acceptable, we would also suggest that some benthic macro-invertebrate stations be monitored in the canal before any construction is done, as well as during and after, as part of an on-going monitoring plan.

Response: The pre-construction surface water monitoring program in the South Fork of the New River Canal, described by the Florida DER as "a one-grab, one-sampling date process", is presented in Section 2.3.4.1, Hydrologic Characterization of the Power Plant Site Certification. This is the same monitoring program that was initiated during the submittal process for the DER Dredge and Fill Permit at this site. This monitoring program was based upon the requirements imposed by DER at that time. Subsequently, the Florida DER submitted their Intent to Issue with regard to this permit. As a result, it was determined that this monitoring program was sufficient to define pre-construction background surface water and sediment quality. Parameters defined include D.O., BOD, COD, pH, and heavy metals.

Section 4.2.2, Measuring and Monitoring Programs (during construction), states that given the baseline data compiled in the pre-construction monitoring program, construction impacts will be minimized by the use of surface water runoff and erosion (silting) control measures. These measures include construction of berms, ponds, and drainage ditches.

With regard to future surface water monitoring programs to be initiated in the South Fork of the New River Canal, Broward County is responsible for retaining independent environmental consultant to monitor water quality in the canal during and

following construction. As stated in Section 5.3.5.3, Proposed Long-Term Surface Water Monitoring Program, an extensive surface water quality monitoring program, similar to that described in Section 2.3.4.2, Measurement Programs, will be undertaken in the C-11 Canal during the first 10 years of operation. With 10 years of water quality data available, a reevaluation of the proposed stormwater disposal system may be required.

Question 1: *The water budget in Figure 3.5.1 is not clear. There are places where the outflow is greater than the inflow, for instance the input to the demineralizers is 29 GPM and the total output from them is 35 GPM. An explanation of the water balance is needed. Also the maximum flows are quite high relative to the average flows. This needs to be explained with a breakdown of when high and low flows are expected. Without such a breakdown the effects of the varied flow on the utility cannot be determined (probably there will be no effect since there is a 100,000 gallon storage tank on site).*

Response: The water balance diagram referred to above was provided for example purposes only. Actual water balance data will be provided by the selected vendor upon development of detailed design plans.

Data regarding wastewater flows from process lines and sanitary sewer sources as provided in the vendor proposals includes the following:

	<u>Average</u>	<u>Peak</u>
Process Water Requirements	648,000 gal/wk	1,000,000 gal/wk
Sewer Discharges	15,120 gal/wk	15,120 gal/wk

Question 2: *Where or how does the applicant propose to obtain wastewater to use in the cooling system, should the preferred air cooled system for some reason not be built?*

Response: The cooling system will be air cooled, and the current permit application is based upon such a system. No provisions are being made for a water cooled system.

Question 3: *There is no derivation of water uses other than cooling water (i.e. number of plant personnel, per capita consumption at the plant, etc.)*

Response: Approximately 60 employees will be required at the facility over a 24 hour period. At present, there is no information regarding per capita consumption at the plant. Data provided in the vendor proposal regarding plant water use is included in response to the above question.

Question 4: *If construction dewatering is planned, the dewatering method should be described including: amount of water to be pumped, projected drawdowns with dewatering, impacts of dewatering on the location of the salt front and groundwater quality, and disposal of pumped water.*

Response: There is no dewatering planned during construction.

Stormwater Management

Question: *Since the Power Plant Siting Application differs somewhat from the surface water management permit application submitted to the District in December, 1983, please provide a set of full sized plans for the operational and closure phases of the project, including the following:*

- 1) *Paving, grading and drainage plans.*
- 2) *Location of all water bodies and other water management areas with details of size, side slopes, elevations and depths.*
- 3) *Location and details of all major water control structures including control elevations.*
- 4) *Locations of roads and buildings minor water management facilities.*
- 5) *Location and size of internal minor water management facilities.*
- 6) *The site plans show the application proposes to utilize an easement belonging to Florida Power and Light (FP&L) for a portion of the surface water management system. Documentation of permission from FP&L for use of their easement would also be necessary.*

Response: The project is a full service vendor design project, and as a result we are seeking a condition that a set of full sized plans for the operational and closure phases of the project be provided to Florida DER for review and approval prior to construction of those portions of the facility.

Wetlands Mitigation

Question 1: *Please provide, on a single drawing at a legible scale, the existing South New River channel, the District's right of way easement, and the location of the proposed on-site mitigation area.*

Response: Attached is Drawing S9154-60 dated 12/83, Revised 6/85 to show the District's right-of-way line. Also, Figure 2.1.1 in Volume I of the Site Certification Application provides the existing South New River Canal, the District's right-of-way easement, and the location of the proposed on-site mitigation area.

Question 2: Will the mitigated wetlands be part of the surface water management system? If so, what is the proposed surface water management control elevation?

Response: The mitigated wetlands have not been included as part of the surface water management system. The wetlands are considered natural areas where surface water runoff conditions have not been appreciably affected.

Hazardous Materials Management

Question 1: The document comes to the conclusion that toxic or hazardous compounds would not be generated (or generated in minute amounts) in the residue by the process used at this proposed resource recovery project. Whereas the residue will be landfilled on site and any leachate generated disposed of by the Hollywood Wastewater Treatment Plant, it is important that no toxic or hazardous chemical be produced. The authors are basing their conclusions on one report. These conclusions should be further supported by additional articles in the literature. If additional articles or studies are not available, this should be stated.

Response: Testing and characterization of ash residue produced by mass-burn resource recovery facilities in the United States has been limited to date. The study report included as Appendix 10.12 of the Certification Application represents the most extensive and scientifically reliable set of results currently available on this matter. While additional testing is currently underway at another similar facility, results are not available at the present time.

Notwithstanding the above, we wish to note that the proposed facility will be designed and operated by the same vendor (Signal Environmental Systems) which designed and currently operates the Saugus, Massachusetts facility (the facility on which the ash testing reported in Appendix 10.12 was performed). Therefore, because the same vendor and basic process will be used, in combination with the fact that no hazardous waste will be accepted for processing at the proposed facility, the conclusions presented by the study contained in Appendix 10.12 are felt to be highly representative and applicable to the proposed facility.

Question 2: As part of the monitoring program, it is stated that an annual pesticide scan will be performed. This statement needs further clarification as to exactly what compounds will be monitored.

Response: We anticipate the certification will be conditioned upon development of a comprehensive monitoring program which would include an annual pesticide scan. We also assumed the scan would include those pesticides for which FDER and Water Management District specifically want data based upon current experience with landfill monitoring.

SOUTH BROWARD COUNTY RESOURCE RECOVERY PROJECT
POWER PLANT SITING APPLICATION, PA 85-21
OGC FILE NO. 85-0357, DOAH CASE NO. 85-1166

APPLICANT RESPONSES TO FLORIDA DER INQUIRY OF
MAY 10, 1985

Received DER

JUL 8 1985

P.P.S

Question 1: Section 3.5.1 of the application does not provide sufficient information to allow calculation of maximum daily leachate flow rates nor the expected worst case leachate quality.

Response: Section 3.5.1, Heat Dissipation System, discusses the process design and flow parameters involved in the dissipation of heat from an energy recovery system; it makes no reference to leachate quantity or quality calculations. However, these issues are discussed in Section 5.3.4, Leachate and Runoff.

As stated in the Power Plant Site Certification Application, the materials to be landfilled (residue and unprocessable materials) will be essentially non-putrescible (>0.2% dry weight) and non-combustible (>4.0% dry weight). Available data indicate that, typically, leachate generated at this type of landfill does not contain the pollutants usually associated with a processable waste landfill. Specifically, between 1977 and 1981, the environmental impact and potential utilization of incinerator residue was evaluated at the Suburban Experiment Station of the University of Massachusetts in cooperation with several Massachusetts environmental departments and the RESCO Saugus Incineration Facility. A summary report of this research effort is attached as Appendix 10.12 of the Power Plant Site Certification application. Specifically described in this appendix are the procedures and results of leaching studies involving acid rain deposition on residue and soil-residue mixtures. The monitoring of leachate includes testing for pH, soluble salts, and chemical analysis (heavy metals).

As provided in Section 5.3.4.2, Leachate Production, the results of water balance analyses indicate that during the May-October "wet" season, leachate production ranges from 0.5 to 8.3 million gallons per month depending on the area of operation in progress. The procedures involved in arriving at this range of values is summarized in the attached Appendix A, Leachate Production at the Southern Residue/Unprocessable Waste Landfill, Broward County, Florida, May 3, 1985, as provided by Hazen and Sawyer, P.C. Specifically, described in this appendix are the procedures and assumptions utilized in developing the hydrologic balance and calculating leachate production during various stages of landfill development. It should be noted that in developing these leachate estimates,

all rainfall coming in contact with uncovered waste has been included in the leachate category.

Question 2: Neither Section 3.8.6 nor 5.3 of the application contains sufficient design information on the landfill design, specifically design of temporary berms, operating procedures and the subgrade leachate collection system to allow assessment of rainfall impacts on operating cells versus rain falling on unused cells and the respective collection and disposal of any leachate or runoff collected.

Response: Specific design information and operating procedures regarding the separation, collection and disposal of contaminated and uncontaminated stormwater runoff will be provided by the selected vendor in their detailed site development plan submitted to the Department for approval prior to the start of landfill development.

Conceptually, this will be accomplished by utilizing the following procedures:

o Uncontaminated Stormwater Collection

A grassed perimeter swale will be located between the toe of each landfill cell and the cell's perimeter access road. Stormwater runoff from completed landfill sections will be captured in the perimeter swale system. Stormwater which collects within the main cell but does not come in contact with active areas (i.e., separated by interior dikes) will be conveyed via the underdrain system to manholes which are temporarily isolated from the leachate wet well via valves, and pumped over the perimeter dike into the swale. The collected water in the swale will then flow by gravity and drain via culverts beneath the access road to a central stormwater ponding area.

o Leachate/Stormwater Collection

Water which percolates through active and completed landfill areas (leachate) as well as stormwater which comes in contact with active areas (contaminated runoff) will be collected in the landfill cell underdrain system and conveyed to the leachate wet well before ultimate disposal at the Hollywood Regional Wastewater Treatment Plant.

Question 3: Section 3.8 does not contain sufficient information or drawings to indicate flow drainage plan design during facility construction.

Response: The project is a full service vendor design project and as a result we are seeking a condition that the design

drawings indicating the flow drainage plans during facility construction be provided to Florida DER for review and approval prior to facility construction.

Question 4: *Section 4.3 of the application insufficiently addresses the impacts on groundwater of dewatering operations. There is no discussion on estimated quantities of dewatering flow, where or how disposal will occur.*

Response: As stated in Section 4.3 of Volume I of the Power Plant Site Certification Application, site dewatering prior to construction of the refuse bunker, dredging of detention ponds, or mucking of the landfill cells is not planned. Construction methods that require no dewatering will be used such as the slurry trench technique, use of tremie concrete or the use of a dragline.

Question 5: *Section 5.4 insufficiently addresses how toxic, hazardous or pathological wastes will be identified and kept out of the boiler.*

Response: This question was answered in our response to Florida DER Inquiry of April 19, 1985. It stated the following:

Firstly, operators of delivery vehicles will be asked the source of the solid waste at the facility weigh station. Secondly, personnel will be present on the tipping floor and in the control room observing the dumping of garbage into the storage pit. Deliveries with a high probability for containing pathological wastes (or hazardous wastes), because of the nature of the source or generator of the wastes, will be periodically inspected by facility personnel. Also, any suspicious trucks will be required to dump their loads on the tipping floor and the contents inspected.

The above method is used by mass burn facilities in the United States and has proved to be a very effective way of preventing pathological and hazardous wastes from entering the process stream.

Question 6: *Section 5.6 inadequately address odor control procedures if tipping area air intakes are bypassed.*

Response: The tipping area and waste storage area will be totally enclosed. The air intakes will be adjusted to allow sufficient air flow to satisfy combustion requirements. The facility is designed to be in partially operational at all time. Multiple processing lines are planned which can run practically independently. Where common elements are present, redundant systems are provided or alternative equipment in place to allow continued operation. If the entire plant is

Case I - Two Unit Operation

One unit shuts down due to mechanical failure at 6:00 a.m. on Monday. The remaining two units are capable of operating at 115% of their nameplate capacity. The pit at the time of breakdown contains 850 tons (normal minimum storage reserve).

<u>Time/Day</u>	<u>Received</u>	<u>Processed</u>	<u>Waste in Pit</u>
6 a.m. Mon #1	2380T	1725T	850T +655
6 a.m. Tues.	2380T	1725T	1505 +655
6 a.m. Wed.	2380T	1725T	2160 +655
6 a.m. Thurs.	2380T	1725T	2815 +655
6 a.m. Fri.	2380T	1725T	3470 +655
6 a.m. Sat.	0	1725T	4125 -1725
6 a.m. Sun.	0	1725T	2400 -1725
6 a.m. Mon. #2			675

Case II - Continuation of Case I

At 6 a.m. on the second Monday of Case I, second unit shuts down due to mechanical failure. The remaining unit continues to process waste at 115% of its nameplate capacity.

<u>Time/Day</u>	<u>Received</u>	<u>Processed</u>	<u>Waste in Pit</u>
6 a.m. Mon #2	2380T	862T	675T +1518
6 a.m. Tues.	2380T	862T	2193 +1518
6 a.m. Wed.	2380T	862T	3711 +1518
6 a.m. Thurs.	2380T	862T	5229 +1518

down for a prolonged length of time, refuse will not be accepted and stored waste will be removed from the pit, therefore, odors will not be a problem.

Question 7: For purposes of determining the legal liability of the applicant, the department needs to know who the vendor, owner and operator of the facility will be.

Response: The vendor, owner and operator will be SES Broward Company, L.P. The managing general partner will be SES Broward, Inc., a wholly owned subsidiary of Signal Environmental Systems, Inc. (SES) a wholly owned subsidiary of the Signal Companies, Inc.

Question 8: Please supplement Section 5.6 of the application by providing one copy of the computer modeling runs used to perform the PSD analyses.

Response: As the attached letter (Appendix B) from Environmental Science and Engineering, Inc. to the DER shows, one copy of the computer modeling runs was forwarded on June 19, 1985.

General Concerns

Concern 1: Will the plant be able to handle the waste flow if more than one boiler is down at a time.

Response: The plant will have considerable processing redundancy and, in addition, it will have a waste receiving pit with sufficient capacity to store four days of waste generation. The following three cases have been prepared to illustrate the waste processing capabilities of the plant with one or more units out of operation.

Assumptions:

- A. The plant will operate 24 hours per day, 7 days per week.
- B. The plant will receive approximately 11,900 tons of waste per week (2,380 tons per day, Monday through Friday).
- C. The plant will have three units, each unit having a nameplate capacity of 750 tons per day.
- D. The storage pit will have a water level storage capacity of 32,000 cubic yards. (Based on a stored density of 500 pounds per cubic yard, the pit will store 8,000 tons of waste.)

<u>Time/Day</u>	<u>Received</u>	<u>Processed</u>	<u>Waste in Pit</u>
6 a.m. Fri.	2380T	862T	6747 +1518
6 a.m. Sat.	0	862T	8265 -862
6 a.m. Sun.	0	862T	7403 -862
6 a.m. Mon. #3		862T	6541 +1518
6 a.m. Tues.			8059

Note: The pit will be filled to capacity sometime during the morning of Monday #3. (This example also indicates the processing capability of the plant if on any Monday morning two of the three units suddenly go off line.)

Case III - Alternate to Case II

At 6 a.m. on Saturday of Case I, a second unit shuts down due to mechanical failure. The remaining unit continues to process waste at 115% of its nameplate capacity.

<u>Time/Day</u>	<u>Received</u>	<u>Processed</u>	<u>Waste in Pit</u>
6 a.m. Sat. #1	0	862T	4125T -862
6 a.m. Sun.	0	862	3263 -862
6 a.m. Mon. #2	2380T	862	2401 +1518
6 a.m. Tues.	2380T	862	3919 +1518
6 a.m. Wed.	2380T	862	5437 +1518
6 a.m. Thurs.	2380T	862	6955 +1518
6 a.m. Fri.			8473

Note: The pit will be filled to capacity sometime during Thursday #2.

The above three scenarios show that the plant will continue to receive the entire waste stream without any by-pass to the landfill or other facility: for numerous days (Case I); for seven days when two units fail simultaneously (Case II); or for ten days when two units fail in a staggered manner (Case III).

Concern 2: *If the tipping storage area is filled due to boiler malfunction, what will be done with the excess flows?*

Response: This question was answered in our response to Florida DER Inquiry of April 19, 1985. It stated the following:

Contingency plans have been formulated to address periods during which raw refuse processing capability is unavailable due to either scheduled or unscheduled downtime at the proposed facility. Basically, the overall contingency plan consists of a three-tiered approach. We wish to note that the processing capacity of the proposed facility has been selected based, in part, on a projected annual availability factor of at least 80 percent. This factor includes scheduled downtime for routine maintenance activities as well as unscheduled downtime for unforeseen circumstances based on operating experience at other similar facilities.

The first tier of the contingency plan is the storage capacity of the receiving pit and multiple, redundant processing units at the proposed facility. A minimum four-day pit capacity represents one of the facility design criteria. While the primary purpose of this requirement is to assure adequate on-site storage of refuse to sustain plant operations over a weekend, the excess pit capacity that will normally be available could be used to store incoming refuse for one to three days when the facility is down for scheduled or unscheduled maintenance. Thus, during such periods refuse delivery to the facility will proceed uninterrupted. At no time during such periods would incoming refuse be delivered or stored outside the enclosed pit area or diverted to the adjacent landfill which will be dedicated to the disposal of residue produced at the proposed facility and waste classified as unprocessable (as defined in the Certification Application) upon delivery to the proposed facility. For those periods when the facility will be off-line for an extended duration subsequent tiers of the contingency plan will come into effect.

As discussed in detail in Appendix 10.11 of the Certification Application, the facility will consist of

three independent process lines. Common elements such as waste feed cranes, ash conveyors, and boiler feedwater system will have redundant capabilities. Further, the facility will have a condenser capable of wasting all of the facilities steam if the turbine generator is being serviced or is inoperable. These features will minimize the need to bypass waste to a greater extent than any facility developed in this country to date.

The second tier of the plan involves utilization of available capacity at the second or northern resource recovery facility being proposed by Broward County. This northern facility is an integral component of the overall county solid waste management plan. Although a Certification Application has not yet been submitted for the northern facility, it has been the subject of implementation planning in concert with the southern facility. Once established, the northern facility would be available to accept solid waste from the southern service area of the county during periods when the southern facility is out-of-service due to scheduled or unscheduled maintenance activities. Although a reserve capacity at the proposed northern facility cannot be guaranteed for this purpose, its availability provides a great deal of flexibility to the overall county solid waste management plan. During those periods when the southern facility is unable to process incoming solid waste and the northern facility is unavailable to process part of or all of the waste stream from the southern service area, the third tier of the contingency plan will be triggered.

The third tier consists of transporting solid waste to either the Central Disposal Landfill site owned and operated by Waste Management, Inc. or a new contingency landfill for disposal. The latter landfill is currently being developed by the county. Consisting of 589 acres, the landfill site is referenced, for planning purposes, as the Broward Correctional Institute (BCI) site. Its location is shown on Figure 1.1.1 of the Certification Application. Sufficient acreage exists at the site for the developed facility to serve as a long-term contingency disposal landfill during periods of prolonged downtime at the proposed resource recovery facility due to unforeseen circumstances. Because design of the landfill facility will take into consideration the potential for delivery of most or all of the county solid waste stream at any given time (a worst case scenario for contingency planning purposes), sufficient capability to dispose of the potential volume of waste received will exist.

In summary, contingency planning has been, and continues to be an important part of the overall county solid waste management plan. The capacity of the facility proposed, the flexibility offered by the two-facility resource recovery project approach, and the existence of a permitted landfill site and development of a new landfill to address contingency disposal needs offers a three-tiered overall contingency program to serve Broward County into the foreseeable future.

Concern 3: *Has the surfacing of access roads and the emplacement of soil holding vegetation been specified?*

Response: All access roads will be paved. Soil holding vegetation will be indigenous grasses.

Roadways will be designed at a minimum to provide a 12 foot asphalt pavement width per lane with a 3.0 foot shoulder on each side. Roadways will meet Florida Department of Transportation Manual Standards. The shoulders will be sodded and the sideslopes constructed at a maximum slope of 3 horizontal to 1 vertical. Roadway sideslopes and swales will be covered with 6 inches of topsoil and seeded immediately to reduce surface erosion.

Access roadways to the remaining portions of the areas to be landfilled, around the retention ponds, etc., provide for one-way traffic movement on a single lane 14 foot paved asphalt surface with 1.0 foot shoulders.

Question 4: *In the landfill and stormwater runoff design, consideration should be given to means of isolation of stormwater flows in case they are contaminated by leachate.*

Response: As discussed in the response to Question 2 above, the final design of the landfill surface water management system including dikes and berms will be provided by the selected vendor. The final design documents that will be subject to DER review and approval, will detail how uncontaminated stormwater runoff will be collected and disposed of separately from contaminated runoff and leachate. It is envisioned that in the event that contaminated stormwater runoff or leachate were to infiltrate into an area segregated for uncontaminated waters (either because of a berm failure or an inordinately severe rainfall event), peripheral collection sumps can be valved so that this runoff will be collected and diverted to the wastewater treatment plant.

Concern 5: *As an industrial waste concern, the mechanical maintenance work area should provide for isolation and/or treatment of oils, solvents, hydraulic fluids, etc., to avoid groundwater contamination.*

Response: This question was answered in our response to Florida DER Inquiry of April 19, 1985. It stated the following:

Spent oils used as lubricants in the rotating machinery will be collected separately and disposed at an approved facility.

An oily-water separator for wash water runoff from maintenance and scalehouse areas will be provided if required by local wastewater discharge regulations.

APPENDIX A

Leachate Production at the

Southern Residue/Unprocessable

Waste Landfill

Broward County, Florida

May 3, 1985

HAZEN AND SAWYER, P.C.

ENGINEER

SUMMARY

The landfill associated with the Southern Resource Recovery Facility will handle only ash residue and unprocessable waste material. Stormwater run-off not in contact with the working face or ash residue will be diverted to the surface water management works. Only rainwater in contact with the landfill working face (ash residue or unprocessable waste) will be collected in the leachate system.

In addition any water penetrating the landfill surface and passing into the landfill mass will eventually be collected as leachate. In the bottom of the respective landfills will be installed an extensive liner/leachate collection system. Leachate liquid will be transported via pipelines to central collection points and then pumped off site to the regional wastewater system for treatment and collection.

The volume of leachate expected to be generated from the landfill has been estimated under three operating conditions. These conditions assume a large landfill operating face exposed thus providing the potential of generating excess leachate.

The calculated leachate volumes are as follows:

	<u>Gallons per month</u>	<u>Leachate Generation Gallons per day</u>
Case 1	4,760,000	158,680
Case 2	8,268,000	275,600
Case 3	494,000	16,470

Case 2 is the worst condition. The Broward County Resource Recovery Office should provide facilities to convey leachate volumes of this order of magnitude. This provides flexibility in the future operation to handle planned and unplanned events at the landfill.

Leachate Production at the
Southern Residue/Unprocessable
Waste Landfill

The major source of leachate production is rainfall. This is the result of both natural phenomena and landfill operation procedures. As rainfall comes into contact with the surface of the fill, a portion is diverted as runoff while the remaining volume penetrates the landfill mass. The extent of surface runoff is dependent upon many variables including surface vegetation, the magnitude and duration of the rainfall event, the character of the landfill surface at that time, and surface slopes. Until the Southern Resource Recovery landfills are raised to final elevation and capped, a relatively large volume of rainfall will infiltrate the mass and be collected as leachate. Upon final closure, infiltration will be minimized.

When liquid permeates the solid waste, a portion is disposed of via evapotranspiration. The remaining volume slowly percolates throughout the fill. Since the residue/unprocessable solid waste generated by the recovery plant is placed well below maximum moisture content, the waste mass has a capacity to absorb water. As the landfill nears saturation (or field capacity) a steady quantity of leachate will require removal at the base of the fill. The actual volume of leachate produced is cyclical and chiefly related to climatic conditions. Therefore, landfill leachate generation will be affected principally by net infiltration following rainfall events.

To assess the potential volume of leachate generated at the Broward County Resource Recovery site, the following three cases were examined:

- Case 1 - Landfill No. 1 Partially Full, Landfill No. 2 Used As Retention Pond Area

One side slope of Landfill No. 1 is graded and finished with two additional side slopes half completed to cap elevation 140. Remaining slopes are active. A temporary control dike is provided at the base of the active landfill slope to intercept and divert runoff and leachate from the landfill to the retention pond area. A toe dike is located at the base of the completed side slopes to aid in interception and diversion of runoff.

- Case 2 - Landfill No. 1 Complete, Landfill No. 2 Filled to El. 55.0

Landfill side slopes are graded and finished to elevation 55. The active top area is crowned to prevent puddling and aid runoff. Toe dikes at the base of landfill side slopes intercept runoff and divert it to the pump station from whence it is transported to the Hollywood WWTP.

- Case 3 - Landfill Nos. 1 and 2 complete

Landfill Nos. 1 and 2 are graded and finished to elevation 140.

Hydrologic Balance

Within South Florida, rainfall typically averages about 64 inches/year, of which 76 percent or 48.4 inches occurs within the "Wet" season (May - October).

The dry season, with a total of 15.6 inches of rain, occurs during the remaining six months of the year. To evaluate "worst case" leachate generation conditions, wet season conditions are evaluated herein.

The net infiltration into the residue/unprocessable solid mass is dependent upon several external factors. To provide a reasonable estimate of infiltration (and leachate generation) a hydrologic balance at the landfill surface is required, where:

- Precipitation
- Runoff
- Solid moisture retention (and associated evapotranspiration)
- = Net Infiltration

Assumptions utilized to prepare the hydrologic water balance are as follows:

- . Average monthly rainfall of 8.1 inches during "wet" season.
- . Rainfall occurs in several small one-inch rainfall events rather than an isolated major storm to minimize percolation into soil surface.
- . Water retained in the soil cover is subjected to evapotranspiration.
- . Evapotranspiration in the soil cover root zone based upon SFWMD estimates for St. Augustine Grass (1) - (4.1 inches/month). The Evapotranspiration rate equals or exceeds the moisture retained in the soil cover; thus providing retention capacity for succeeding rainfall event.
- . Infiltration in excess of the evapotranspiration rate of the soil cover travels through the landfill and is collected as leachate.
- . Solid waste mass at maximum field capacity (saturated).

(1) SFWMD In Depth Report, April, 1975.

As shown on Tables 1 through 3, during the May - October "wet" season, leachate production is estimated to range between 0.5 and 8.3 million gallons/month depending upon the operation in progress. These are summarized on the following page:

Estimated Leachate
Production (Gal/Month)

<u>Case 1</u> - Landfill No. 1 partially complete	4,760,400
<u>Case 2</u> - Landfill No. 1 complete, Filling Landfill No. 2	8,268,000
<u>Case 3</u> - Finished Landfill Nos. 1 and 2	494,000

Under Case 2 some 250,000 to 270,000 gallons per day of leachate must be collected and pumped to the regional wastewater system for treatment and disposal.

TABLE 1

Hydrologic Water Balance
CASE 1 - Landfill No. 1 Partially full,
Landfill No. 2 Used as Retention Pond - Wet Season
Southern Resource Recovery Landfill Site

<u>LANDFILL NO. 1</u>	<u>ACRE - FEET/MONTH</u>
Rainfall	33.94
Runoff (2)	12.39
Evapotranspiration (1)	6.94
	<hr/>
NET INFILTRATION	14.61
 ESTIMATED LEACHATE GENERATION	 4,760,400 gal/month
 DAILY LEACHATE DISPOSAL	 158,680 gal/daily

(1) Maximum evapotranspiration of 4.1 inches/month in the top and finished side slopes, and evapotranspiration of 0.16 inches/month in active slopes of residue/unprocessable solid waste exceeds the moisture retained in solid cover. Net infiltration based upon rainfall accumulating in soil profile during successive storm events and passing into the solid waste mass.

(2) Clean runoff not in contact with ash residue diverted to surface water management control facilities.

TABLE 2

Hydrologic Water Balance
CASE 2 - Landfill No. 1 Finished and
Landfill No. 2 Partially Full - Wet Season
Southern Resource Recovery Landfill Site

<u>LANDFILL No. 1</u>	<u>ACRE - FEET/MONTH</u>
Rainfall	42.00
Runoff (2)	20.20
Evapotranspiration (1)	20.73
	<hr/>
NET INFILTRATION	1.07
ESTIMATED LEACHATE GENERATION	350,000 gal/month
DAILY LEACHATE DISPOSAL	11,670 gal/day
<u>LANDFILL No. 2</u>	
Rainfall	31.92
Runoff (2)	5.02
Evapotranspiration (1)	2.60
	<hr/>
NET INFILTRATION	24.30
ESTIMATED LEACHATE GENERATION	7,918,000 gal/month
DAILY LEACHATE DISPOSAL	263,930 gal/day
TOTAL DAILY LEACHATE DISPOSAL (Nos. 1&2)	275,600 gal/day

(1) Maximum evapotranspiration of 4.1 inches/month in the top and finished side slopes, and evapotranspiration of 0.16 inches/month in active slopes of residue/un-processible solid waste exceeds the moisture retained in solid cover. Net infiltration based upon rainfall accumulating in soil profile during successive storm events and passing into the solid waste mass.

(2) Clean runoff not in contact with ash residue diverted to surface water management facilities.

TABLE 3

Hydrologic Water Balance
 CASE 3 - Finished Landfill - Wet Season
Southern Resource Recovery Landfill Site

<u>LANDFILL No. 1</u>	<u>ACRE - FEET/MONTH</u>
Rainfall	42.00
Runoff (2)	20.20
Evapotranspiration ⁽¹⁾	20.73
NET INFILTRATION	<hr/> 1.07
ESTIMATED LEACHATE GENERATION	350,000 gal/month
DAILY LEACHATE DISPOSAL	11,670 gal/day
 <u>LANDFILL No. 2</u>	
Rainfall	31.67
Runoff ⁽²⁾	15.63
Evapotranspiration ⁽¹⁾	15.60
NET INFILTRATION	<hr/> 0.44
ESTIMATED LEACHATE GENERATION	144,000 gal/month
DAILY LEACHATE DISPOSAL	4,800 gal/day
TOTAL DAILY LEACHATE DISPOSAL (Nos. 1&2)	16,470 gal/day

(1) Maximum evapotranspiration 4.1 inches/month exceeds moisture retained in soil cover. Net infiltration based upon rainfall accumulating in soil profile during successive storm events and passing into the solid waste mass.

(2) Clean runoff not in contact with ash residue diverted to surface water management facilities.

APPENDIX B

ESE

AN RSH COMPANY

ENVIRONMENTAL SCIENCE
AND ENGINEERING, INC.

June 19, 1985
85-110-0100-2110

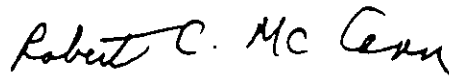
Mr. Hamilton Oven, P.E.
Power Plant Siting Section
State of Florida
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Power Plant Site Certification Application
South Broward County Resource Recovery Project, Inc. -
Support Computer Printouts of Air Dispersion Modeling

Dear Mr. Oven:

At the request of Mr. Ronald J. Mills of Malcolm Pirnie, Inc., I am sending you the computer printouts of the air quality modeling performed for this project. If you have any questions, please call me at your earliest convenience.

Sincerely,



Robert C. McCann
Department Manager
Air Modeling and Permitting

RCM:bl

cc: Mr. Ronald J. Mills, Malcolm Pirnie ✓
Mr. Thomas M. Henderson, Broward County Resource Recovery



United States Department of the Interior

NATIONAL PARK SERVICE
SOUTHEAST REGIONAL OFFICE

75 Spring Street, S.W.
Atlanta, Georgia 30303

NOV 15 1985
D E P

IN REPLY REFER TO:

N3615 (SER-OPS)

JUL 8 1985

Mr. Tom Rodgers
Bureau of Air Quality Management
State of Florida
Department of Environmental Regulation
Twin Towers Office Buildings
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

Dear Mr. Rodgers:

Thank you for sending us a copy of South Broward County Resource Recovery Project, Inc.'s power plant site certification application for a proposed resource recovery facility in Broward County, Florida, approximately 57 km northeast of Everglades National Park. Your early notification of this project is appreciated.

We have reviewed the information you sent to us and, based on that information, we would not expect emissions from the proposed facility to adversely impact the air quality or the air quality related values of Everglades National Park. However, we have several comments regarding the air quality and control technology analyses contained in the application. Responses to these comments could affect our recommendation. These comments are discussed in the enclosed technical review document. We ask that you consider these comments while performing your review of the application. We also ask that you forward us a copy of your preliminary determination document once your technical review of the project is completed. We will review your preliminary determination and submit any additional comments regarding the project during the 30-day public comment period.

If you have any questions regarding the enclosed comments, please contact Mark Scruggs of our Air Quality Division in Denver at (303) 236-8765.

Sincerely,

Regional Director
Southeast Region

Enclosure

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)

Ed Svec

Initial

Date

2.

Initial

Date

3.

Initial

Date

4.

Initial

Date

REMARKS:

Comments on Broward County RRF from the National Park Service.

INFORMATION

Review & Return

Review & File

Initial & Forward

DISPOSITION

Review & Respond

Prepare Response

For My Signature

For Your Signature

Let's Discuss

Set Up Meeting

Investigate & Report

Initial & Forward

Distribute

Concurrence

For Processing

Initial & Return

FROM:

Tom

DATE

7/16/85

PHONE

Technical Review of
Power Plant Site Certification Application for
South Broward County Resource Recovery Project, Inc.
South Broward County, Florida

BAOM
JUN 15 1984
DER

By

Permit Review and Technical Support Branch
Air Quality Division - Denver

South Broward County Resource Recovery Project, Inc. is proposing to construct a resource recovery facility in unincorporated Broward County, Florida, near the intersection of U.S. Route 441 and State Road 84. This location is approximately 57 km northeast of Everglades National Park, a PSD class I area administered by the National Park Service. The purpose of the facility is to dispose of solid waste generated predominantly within southern Broward County. The project will be a mass-burn facility with a maximum continuous design rated capacity of 3300 tons per day of solid waste and a maximum electrical generating capacity of approximately 96 megawatts. The emissions from the proposed facility are estimated as follows: 3491 tons per year (TPY) of nitrogen oxides, 3428 TPY of sulfur dioxide, 555 TPY of carbon monoxide, 461 TPY of particulate matter, 187 TPY of lead, 156 TPY of fluorides, 81 TPY of volatile organic compounds, 17.3 TPY of sulfuric acid mist, 1.6 TPY of mercury, 0.19 TPY of arsenic and 0.0058 TPY of beryllium.

These emission rates are all considered significant, and therefore, new source review is required for each listed pollutant except volatile organic compounds (VOC). Review for VOC is not required because Broward County is designated as not attaining the ozone national ambient air quality standard and new source review does not apply to nonattainment pollutants unless the emissions of the nonattainment pollutants are greater than 100 TPY. Following are our comments on the best available control technology, air quality, and air quality related values analyses with respect to the project's expected impacts on Everglades National Park.

BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

The major sources of emissions at the proposed facility are the four associated boilers. Therefore, our review will focus on emission controls on these units. Also, there is a relatively recent publication entitled, "Air Pollution Control at Resource Recovery Facilities" that discusses resource recovery facilities in detail. This document was published in May 1984 by the California Air Resources Board, and was summarized in a technical paper presented at the 77th annual meeting of the Air Pollution Control Association held in June 1984. As of 1984, all refuse-burning facilities with applications pending in California are proposing control technologies that are consistent with or more stringent than the guideline emission limits discussed in this report. We refer to this publication throughout our comments on the proposed air pollution control technology analysis.

Particulate Matter (PM)

Broward County proposes to use electrostatic precipitators (ESPs) to minimize PM emissions generated by combustion of the solid waste in the boilers. Each ESP will be capable of reducing the exhaust gas PM concentration to 0.03 grains per dry standard cubic foot (gr/dscf). Broward County claims that an ESP with an outlet grain loading of 0.03 gr/dscf is best available control technology (BACT) for the proposed facility.

We agree that high efficiency control devices such as ESPs or baghouses represent BACT for PM emissions from the proposed facility. However, based on information provided in the California Air Resources Board (CARB) document referenced above, an emission limit of 0.01 gr/dscf can be achieved with these devices. This is the guideline emission limit proposed by the CARB for new refuse recovery facilities in California and should be considered as the BACT limit.

Sulfur Dioxide (SO₂)

Broward County is proposing the firing of low sulfur refuse as BACT for the proposed facility. The resulting BACT limit proposed is 0.55 pounds per million Btu heat input (lb/10⁶ Btu).

The emission guideline recommended in the CARB document is 30 ppm, which corresponds to an SO₂ emission rate of approximately 0.08 lb/10⁶ Btu. To achieve this emission level, flue gas controls such as wet or dry scrubbing are required. Dry scrubbing processes have been effectively employed at pilot and full-scale refuse burning facilities in Europe, Japan, and the United States. Wet scrubbers have also been employed at full-scale refuse burning facilities. In light of this information, we recommend that Broward County re-evaluate flue gas scrubbing as BACT for SO₂ emissions from the proposed facility.

Nitrogen Oxide (NO_x) and Carbon Monoxide (CO)

The proposed BACT for NO_x and CO emissions is boiler design and good combustion practices. The resulting NO_x and CO emissions limits proposed are 0.56 and 0.089 lb/10⁶ Btu, respectively. Based on information presented in the CARB report, combustion modifications such as staged combustion, low excess air, and flue gas recirculation can reduce NO_x emissions to between 140 to 200 ppm or 0.28 to 0.4 lb/10⁶ Btu. We recommend this limit be specified as the BACT limit for the proposed facility. Regarding CO emissions, proper application of the above combustion modification techniques will also minimize CO emissions.

Other Pollutants

Other pollutants emitted from the proposed resource recovery facility requiring BACT review include lead, fluoride, beryllium, mercury, sulfuric acid mist, and inorganic arsenic. The proposed BACT for lead, beryllium and arsenic is the ESPs for the control of particulate matter emissions. These pollutants are emitted in the solid phase, therefore control of PM emissions will also control these pollutants. We agree that the proposed ESPs represent BACT for these pollutants.

Fluorides, sulfuric acid mist and mercury are emitted in small quantities primarily in the gaseous phase. No additional controls are proposed for these pollutants. However, if the wet or dry scrubbers recommended for SO₂ control were installed, the fluoride and sulfuric acid mist emissions could be reduced by over 90 percent.

AIR QUALITY ANALYSIS

General Comments

The application indicates that ISCST was used to predict the maximum air quality impacts due to the proposed plant. This seems to be an appropriate application of this model for this source. It is difficult, however, to determine the completeness and accuracy of the analysis due to a lack of essential information. The applicant needs to document every element of the analysis and all assumptions made to complete the analysis. A description of all emission units including locations, stack parameters, allowable emissions and any nearby tall buildings, should be submitted. In order to review the modeling analysis, the applicant should provide us with receptor locations and grid spacing, model inputs and modeling assumptions. Without this information it is hard to verify that the model has been applied properly and that the data presented is complete and accurate.

Specific Comments

The following specific comments should also be addressed before the proposed project is granted a power plant siting certification.

<u>Page</u>	<u>Paragraph</u>	<u>Line</u>	<u>Comment</u>
2-67	3	3 & 4	The sentence on mean temperature is confusing and should be reworded.
2-67	3	5	3+ °F appears to be a typographical error.
2-71	2	4 & 5	The sentence on mean mixing depth subsidence is unclear and should be reworded.
2-76			Page 2-76 and 2-77 appear to be out of order.
Figure 2.3.7.1			Pages are out of order.
2-80	3	8	There is no monitoring site No.4 shown in table 2.3.7.7. The narrative and/or table should be corrected.

<u>Page</u>	<u>Paragraph</u>	<u>Line</u>	<u>Comment</u>
2-84	4		The discussion of models used for the analysis should be a separate subsection rather than mixed with measurement programs. This discussion should include more information on how ISCST was used for this analysis. The discussion as presented is only a description of the ISCST model.
2-85	1	5-9	It appears the applicant is misinterpreting EPA's meaning of "insignificant." Referring to the significant levels EPA states, "... since the 1977 Amendments provide special concern for class I areas, any reasonably expected impacts for these areas, must be considered irrespective of the 50 kilometer limitation or the above significance levels." (See June 19, 1978, <u>Federal Register</u> , Page 26398). Since the proposed facility is to be located near Everglades National Park, a class I area, the applicant should not be referencing the EPA significant levels, and should perform a cumulative air quality analysis including the proposed source and previously permitted sources.
5-25	3	9	Figures 5.6.1.1 and 5.6.1.2 should compare predicted impacts with the PSD class II available increment in order to show how much of the available increment is being consumed by this project.
5-25	3	19	The concentration values in tables 5.6.1.2, 5.6.1.4, 5.6.1.5, and 5.6.1.6 should be compared to the class I PSD increments not the significant impacts levels. See the comment for page 2-85 paragraph 1 line 5-9.
5-30	1	14	It is not clear how the proposed plant is expected to comply with PSD class II increments when the SO ₂ concentration values are predicted to be 10 percent and 18 percent above the 3- and 24-hour increments respectively.

<u>Page</u>	<u>Paragraph</u>	<u>Line</u>	<u>Comment</u>
5-33	1	1-6	Caution should be exercised in making a general statement of this sort. In some cases impacts to resources may occur although concentration values are not predicted to exceed standards and increments. Analyses of impacts need to be done on a case by case basis to insure that impacts to sensitive species in a particular area are not overlooked regardless of the relationship of the concentration values to standards and increments.
5-33	1	6-7-8	At a minimum, a Level I analysis should be done and the results given. It is not adequate to merely state that adverse visibility impairment in Everglades National Park is unlikely. This conclusion should be verified by technical analysis. (Note: Due to the lack of such a technical analysis, we performed a Level I visibility analysis. Based on the expected emissions and the distance to the park, the analysis confirms the assertion that the project should not significantly impact the visibility at Everglades National Park.)

AIR QUALITY RELATED VALUES ANALYSIS

Due to the presently low, monitored SO₂ values occurring in Everglades National Park (NP) and the low SO₂ values predicted to occur in Everglades NP as a result of the proposed project, we would not anticipate any adverse impacts on air quality related values (AQRV's) in Everglades NP from SO₂. However, we wish to reconsider this finding when the cumulative modeling analyses are available.

Although there are presently high ozone levels being monitored in Everglades NP, we would not expect VOC emissions from this facility to cause or contribute to adverse impacts on AQRV's in Everglades NP. We also would not expect any adverse impacts on the park AQRV's from the increase in fluoride emissions.

CONCLUSION

Based on the information provided, we would not expect emissions from the proposed facility to adversely impact the air quality or air quality related values of Everglades National Park. However, we have several comments regarding the proposed control technology and air quality analyses that should be addressed before the power plant site certification is granted for the proposed project.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: <u>ED SYEC</u>	Loctn.: <u>TLH</u>	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional []	Reply Required []	Info. Only []
Date Due: _____	Date Due: _____	

TO: Power Plant Siting Review Committee
FROM: Hamilton S. Oven, Jr., P.E. *HSO*
DATE: July 19, 1985
SUBJECT: South Broward County Resource Recovery Project
PA 85-21, DOAH Case No. 85-1166

BAQM
JUL 22 1985
DER

Attached please find a copy of Broward County's responses to
insufficiency questions.

HSOjr/sb

SOUTH BROWARD COUNTY RESOURCE RECOVERY PROJECT
POWER PLANT SITING APPLICATION, PA 85-21
OGC FILE NO. 85-0357, DOAH CASE NO. 85-1166

APPLICANT RESPONSES TO FLORIDA DER INQUIRY OF
JUNE 14, 1985

Question 1: Submit a complete application to construct an air pollution source which includes all calculations, assumptions, guarantee of control device efficiency, control device design parameters, etc.

Response: A completed Form 17-1.202(1) was provided in response to the DER inquiry dated April 19, 1985. Design information on the air pollution control devices and the air pollution source will be provided prior to construction of air pollution control equipment as a condition to the granted certification.

Question 2: Submit Table 3.4-4, "BACT Emission Limits for Other Pollutants".

Response: Neither DER Form 17-1.202(1) nor the Certification Application contain a Table 3.4-4. Section 4.1.3 in Appendix 10.1.5 of the Certification Application addresses BACT for other pollutants. The emission limits proposed for these pollutants are the emission stated in Table 3-4 of Appendix 10.1.5 in the Certification Application.

Question 3: Specify limits and compliance tests for pollutants in addition to particulate matter.

Response: Specific emission limits proposed for incorporation into the granted Certification are as follows, together with the compliance test method to be employed during facility emission testing:

<u>Pollutant</u>	<u>Emission Limit*</u>	<u>Test Method</u>
Particulate Matter	0.074	USEPA Method 5, Front End Catch
Carbon Monoxide	0.089	USEPA Method 10
Nitrogen Oxides	0.56	USEPA Method 7
Sulfur Dioxide	0.55	USEPA Method 6 or 8
Lead	0.03	USEPA Method 12
Opacity	10%	USEPA Method 9

Received DER

JUL 18 1985

E.P.S

*Pounds of pollutant emitted per million Btu's of heat input.

For other air pollutants, no specific emission limits should be established since test methods for resource recovery facility flue gases have not been validated and the emissions of such pollutants are projected to be very low and in many cases unmeasurable.

Question 4: *Will your facility accept pathological wastes for incineration?*

Response: While no pathological wastes are currently planned for acceptance as processable waste at the facility, it is believed that burning temperatures and conditions to be realized would effectively destroy such waste. Therefore, any pathological wastes which are mixed with processable wastes and burned should be destroyed.

Question 5: *Identify and quantify the use of any sewage sludge or industrial sludge.*

Response: No sewage or industrial sludge will be processed at the proposed facility.

Question 6: *Provide calculations on any auxiliary fuels used during startup, shutdown, or periods of insufficient available BTUs.*

Response: Information concerning auxiliary burners was provided in response to the DER inquiry dated April 19, 1985. At the present time, it is uncertain whether natural gas or low-sulfur fuel oil would be used for such burners. We will attempt to use natural gas from the supply pipeline located on the site. In either event, mass emissions would be less than those projected for the processing of solid waste. Given that the information presented in the Certification Application demonstrates that emissions from the processing of solid waste would result in compliance with ambient air quality standards by a wide margin, we believe that it is reasonable to assume the operation of auxiliary oil or natural gas burners would also result in compliance with such standards.

Question 7: *Submit information on the particulate emissions from ash handling. Will there be a dust control device on the ash storage hopper or silo?*

Response: The entire ash handling portion of the facility will be enclosed including storage bunkers. Therefore, the release of ash to the ambient air should be controlled and no specific control device is proposed.

Question 8: Explain the discrepancy between the 750 tons per day maximum design requirements for each furnace and the capacities of 2,352 and 3,300 tons per day used in the application.

Response: The proposed initial installed design capacity of 2,352 tons per day was selected based on the larger modular furnace design capacity of the competing vendors at the time the Certification Application was submitted to the DER. Since that time, Signal Environmental Systems was selected as the full-service vendor for the facility. The modular furnace design capacity of the Signal system is 750 tons per day installed capacity. While the facility will consist of three such furnaces (total of 2,250 tons per day). Broward County wishes to base the Certification Application air pollution review on 2,705 tons per day of capacity (see Table 3-3 of Appendix 10.1.5 in the Certification Application) to provide a margin for periods when the furnaces may be operated above nameplate capacity.

The proposed ultimate capacity figure of 3,300 tons per day is not based on modular furnace design capacity considerations. Rather, it is judged a reasonable figure in anticipation of future disposal needs given potential population growth in the area.

Question 9: Verify the emission factor used for fluorides.

Response: Based upon recent test data at a newly constructed Signal Environmental Systems facility, using modified EPA Method to test procedures, a 99 percent upper confidence limit (student "T" statistic, one-tailed criterion) for fluorides (HF) was calculated as 0.222 lbs/ton. As a result, the 0.23 lb/ton (.025 lb/10⁶ Btu) emission factor presented in the Certification Application is believed appropriate for this particular pollutant.

Question 10: Emission data must be based on normal operating conditions and compliance tests must be performed at these conditions, i.e., 115% of capacity.

Response: Facility testing to generate emission data should be based on normal operating conditions (100% of nameplate capacity). Higher feed rates than 100% of nameplate may occur on limited occasions such as during events of forced outages of one or more boiler units. For this reason a worst case of 115% of nameplate capacity, was used in modeling the project's maximum potential impacts. It should also be noted that the facility will over a period of a year be operated at approximately 20% of nameplate capacity. We believe testing of the facility at 100% of nameplate will represent most accurately

normal emissions from the facility, and the values obtained from this testing (lbs/10⁶ Btu's) will be useful in projecting emissions at other capacities.

Question 11: A copy of the air quality dispersion modeling output must be submitted for review.

Response: As noted in our response to the DER inquiry dated May 10, 1985 one copy of the computer modeling output was forwarded to DER on June 19, 1985.

Question 12: Additional modeling to quantify the interaction between the FPL power plants and the Broward County RRF must be submitted. The FPL facilities should be modeled using their highest short-term emissions of SO₂. The modeling need only be carried out within the RRF's area of significant impact.

Response: For the proposed plant's operation at maximum projected operation burning 3,795 tons per day (tpd) of municipal solid waste, the air dispersion modeling results indicated that the maximum predicted concentrations due to the plant would be over the 3- and 24-hour significant impact levels of 25 and 5 ug/m³, respectively, for sulfur dioxide (SO₂) only. The maximum predicted concentrations are lower than the significant impact levels for all other pollutants and averaging periods.

For SO₂ concentrations, the locations of all concentrations predicted to be higher than the significant impact levels as calculated in the screening analysis using 5 years of meteorological data and receptors located along 36 radials separated every 10 degrees are as follows:

Location of Highest, Second Highest Concentrations Which Are Higher Than Significant Impact Level

Average Period	National* AAQS (ug/m ³)		Significant Impact Level (ug/m ³)	Direction from Plant	Range of Downwind Distances from Plant (km)	Length Between Minimum-Maximum (km)	Maximum Concentration for Range of Distances (ug/m ³)
	Primary	Secondary					
24-hour	365	N/A	5	260	3.1 - 4.3	1.2	5.9
				270	3.5 - 4.3	0.8	5.3
				290	2.7 - 3.9	1.2	5.2
				310	2.3 - 3.5	1.2	5.3
3-hour	N/A	1,300	25	10	1.1	---	27.5

*Florida AAQS are identical to the secondary national AAQS except for the following sulfur dioxide concentrations: 60 ug/m³, annual average, and 260 ug/m³, 24-hour.

Based on these results, the areas around the proposed plant which are predicted to have SO₂ concentrations higher than the significant impact levels are very limited, occurring in four directions (out of 36) for the 24-hour averaging period and in one direction for the 3-hour averaging period. In any of these directions, the concentrations are predicted to be higher than the significant impact levels for areas that cover at the most 1.2 km in length. This is a maximum estimate of the proposed plant's impact since the plant will initially burn 2,705 tons per day of municipal solid waste. For this plant operation, the predicted SO₂ concentrations are marginally over the 24-hour significant impact level only in one direction around the plant.

For those areas in which SO₂ concentrations were predicted to be above the significant impact levels, concentrations were predicted for the proposed plant and Florida Power & Light's Port Everglades and Fort Lauderdale facilities. The modeling methods and assumptions were the same as those used to predict impacts from the proposed plant alone. The highest, second highest 3- and 24-hour average SO₂ concentration due to all modeled sources were 625 and 216 ug/m³, respectively. These predicted concentrations are less than the Florida 3- and 24-hour ambient air quality standards (AAQS) of 1,300 and 260 ug/m³, respectively. These results are conservative since the gas turbines at each facility, considered in the modeling, are peaking units which normally do not operate for every hour in the year as assumed in the model. Also, the exit gas flow rates for the turbines considered in the model were based on standard conditions since actual flow rates were not known.

Based on current monitoring data, measured SO₂ concentrations are well below the National and Florida AAQS in Broward County and are expected to remain well below the AAQS even with the operation of the proposed plant, which is predicted to have a generally less-than-significant impact at all locations around the plant.

Question 13: What are the inside diameters of the individual flues within the chimney? What are the flow rates and exit velocities for each flue?

Response: As discussed in Section 3.2 of Appendix 10.1.5 of the Certification Application, a conservative approach was utilized in predicting air quality impacts that involved minimizing exit gas flow rates and velocities for modeling purposes. Thus while the facility will be equipped with individual flues with an appropriate diameter of 7 feet, 6 inches (one servicing each furnace train) within a common stack, the air quality modeling assumed one stack with an inside diameter of 5.03 meters to arrive at lower flows and velocities with resulting "worst-case" air quality impacts.

Since the individual flues will achieve higher flows and velocities, actual impacts should be less than those projected in the Certification Application. Because the projected impacts show compliance with applicable standards by a wide margin, actual impacts should achieve compliance by an even greater margin.

Question 14: Although preconstruction review within the nonattainment rule 17-2.510 is not required for VOC's, a demonstration that the facility will not interfere with reasonable further progress (RFP) must be made.

Response:

O₃ Concentrations in Broward County

Ambient concentrations of O₃ are measured continuously at 2 monitoring stations in Broward County. During the last 4 years, the highest 1-hour average O₃ concentrations measured at these sites are as follows:

<u>Year</u>	<u>Highest 1-hour Concentration (ppm)</u>	
	<u>Coral Springs (04200003603)</u>	<u>North Lauderdale (0420004601)</u>
1981	0.11	0.12
1982	0.09	0.09
1983	0.11	0.10
1984	0.11	0.11

Thus, during the last 4 years, the measured concentrations have not exceeded the National and Florida Ambient Air Quality Standard (AAQS) of 0.12 ppm, which is not to be exceeded more than an average of 1 day per year over 3 years.

Broward County HC Emissions

The Broward County Environmental Quality Control Board (EQCB) prepares annual reports that summarize pollutant emissions on an annual basis for the entire county from October 1 through September 30. EQCB computes hydrocarbon (HC) emissions for three emission categories: area, mobile, and major point sources. The HC emissions include VOCs, non-methane HC, and unreactive HC. Thus, these totals reflect a conservative estimate of VOC emissions if all the HC emissions are assumed to represent VOC emissions. Based on data presented in the annual reports, HC carbon emissions calculated during the last 4 years are as follows:

<u>Source Type</u>	HC Emissions (tons) for:			
	<u>10/80-9/81</u>	<u>10/81-9/82</u>	<u>10/82-9/83</u>	<u>10/83-9/84</u>
Area	5,750	5,883	4,840	5,092
Mobile	44,474	34,522	39,047	44,372
Major Point	<u>7,814</u>	<u>2,507</u>	<u>2,494</u>	<u>2,313</u>
TOTAL	58,038	42,862	46,381	51,777

In 1980, an emissions inventory presented in the addendum to the State Implementation Plan (SIP) for Nonattainment Areas, published by the Florida DER, indicated the total VOC emissions in 1977 for Broward County were 71,243 tons per year (tpy). Mobile sources accounted for 48,767 tpy, whereas stationary sources accounted for 22,476 tpy. Projections calculated for the SIP for Broward County indicate that the maximum allowable level of VOC emissions for the county to obtain attainment status for O₃ is 63,327 tpy.

Analysis

Based on these projections for the SIP, the Broward County EQCB estimate of HC emissions, and ambient O₃ concentrations measured in Broward County, there has been reasonable progress toward attaining the O₃ AAQS because:

1. The estimated HC emissions during the last 4 years are below the VOC emission level specified in the SIP that is necessary to attain AAQS, and
2. Ambient O₃ concentrations measured at two sites in Broward County during the last 4 years were less than the AAQS.

The proposed plant's VOC emissions are estimated to be 81 tpy for maximum operating capacity. Because these emissions represent less than 0.21 percent of total HC emissions for Broward County during any of the last 4 years, the proposed plant's emissions are not expected to interfere with the reasonable further progress toward attaining and maintaining the AAQS in Broward County.

Question 15: *Include the calculations completed in the Level-1 visibility screening analysis.*

Response: A Level-1 visibility screening analysis was performed based on the approach presented in the following reference.

Reference: Latimer, D.A., R.G. Ireson, 1980. Workbook for Estimating Visibility Impairment. Prepared for U.S. Environmental Protection Agency. 65-ES80-105R. Systems Applications, Incorporated.

APPROACH

Step 1--

Compute plume dispersion parameter, p , at the minimum distance in kilometers, x , from emission source and Class I area:

$$p = \frac{2.0 \times 10^8}{\sigma_z X}$$

where: σ_z = Pasquill-Gifford F stability (very stable) dispersion parameter, m , at downwind distance, X .

Step 2--

Compute optical thicknesses, t , based on emissions of particulate matter (PM) and nitrogen oxides (NO_x) as nitrogen dioxide (NO_2):

$$t_{PM} = 10 \times 10^{-7} p Q_{PM}$$

$$t_{NO_x} = 1.7 \times 10^{-7} p Q_{NO_x}$$

where: t_{PM} = PM optical thickness,

t_{NO_x} = NO_x optical thickness,

Q_{PM} = PM emissions (metric tons per day), and

Q_{NO_x} = NO_x emissions (metric tons per day).

Step 3--

Determine background visual range value (r_{VO}), in kilometers, at location of emission source and Class I area. If emission source and Class I are in different visibility regions, use larger value of r_{VO} in subsequent calculations (see Figure 13 in reference).

Step 4--

Calculate the optical thickness parameter for primary and secondary aerosol, t_A :

$$t_A = (1.06 \times 10^{-5}) (r_{VO}) (Q_{PM} + 1.31 Q_{SO_2})$$

where: Q_{SO_2} = sulfur dioxide emissions (metric tons per day).

Step 5--

Calculate the following contrast parameters:

$$C_1 = \frac{t_{NO_2} [1 - \exp(-t_{PM} - t_{NO_2})] \left[\exp\left(\frac{-0.78x}{r_{VO}}\right) \right]}{t_{PM} + t_{NO_2}}$$

$$C_2 = \left[1 - \left(\frac{1}{C_1 + 1} \right) \exp(-t_{PM} - t_{NO_2}) \right] \left[\exp\left(\frac{-1.56x}{r_{VO}}\right) \right]$$

$$C_3 = 0.368 [1 - \exp(-t_A)]$$

where: C_1 = plume contrast against the sky,

C_2 = plume contrast against terrain, and

C_3 = change in sky/terrain contrast caused by primary and secondary aerosol.

Step 6--

If absolute value of C_1 , C_2 , or C_3 is greater than 0.10, the emission source fails the Level-1³ visibility screening test, and further analysis is required to assess potential visibility impairment. If the absolute values of C_1 , C_2 , and C_3 are all less than 0.10, the emission source would be²highly³ unlikely to cause adverse visibility impairment in Class I areas; therefore, further analysis of potential visibility impacts would be unnecessary.

COMPUTATIONS

Assumptions--

For proposed plant at maximum capacity of 3,795 tons per day:

x = 57 km (minimum distance to Everglades National Park, a Class I area),

σ_z = 82 m (for stability F at 57 km),

Q_{PM} = 105.3 lb/hr or 1.15 metric tons/day,

Q_{NO_x} = 796.9 lb/hr or 8.68 metric tons/day, and

Q_{SO_x} = 782.7 lb/hr or 8.53 metric tons/day.

Calculations--

Step 1

$$P = \frac{2.0 \times 10^8}{(82)(57)}$$

$$p = 4.3 \times 10^4$$

Step 2

$$t_{PM} = 10. \times 10^{-7} (4.3 \times 10^4) 1.15$$

$$t_{PM} = 0.049$$

$$t_{NO_x} = 1.7 \times 10^{-7} (4.3 \times 10^4) 8.68$$

$$t_{NO_x} = 0.063$$

Step 3

r_{VO} = 40 km along Florida's east coast extending to center of state.

r_{VO} = 25 km, remainder of state.

Use r_{VO} = 40 km for subsequent calculations.

Step 4

$$t_A = (1.06 \times 10^{-5}) (40) [1.15 + 1.31 (8.53)]$$

$$t_A = 0.0052$$

Step 5

$$C_1 = \frac{0.063}{0.049 + 0.063} [1 - \exp(-0.049 - 0.063)] \left[\exp\left(\frac{-0.78(57)}{40}\right) \right]$$

$$C_1 = 0.020$$

$$C_2 = \left[1 - \left(\frac{1}{0.020 + 1} \right) \exp(-0.049 - 0.063) \right] \left[\exp\left(\frac{-1.56(57)}{40}\right) \right]$$

$$C_2 = 0.013$$

$$C_3 = 0.0368 [1 - \exp(-0.0052)]$$

$$C_3 = 0.0019$$

Step 6

Because the absolute values of $C_1 = 0.020$, $C_2 = 0.013$, and $C_3 = 0.0019$ are all less than 0.10, the emission source would highly unlikely cause adverse visibility impairment in the Class I area.

Question 16: Quantify the HCl emissions expected from the RRF.

Response: Hydrogen chloride is not a regulated pollutant under current federal or Florida DER regulations and standards. However, testing of recently constructed facilities has shown total chloride emissions to range from 2.0 to 3.0 pounds per ton of waste charged to the furnace. The hydrogen chloride fraction would thus be a smaller value.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4APT-AM

JUL 17 1985

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

DER

JUL 9 1985

BAQM

Re: PSD-FL-105 - South Broward County Resource Recovery Project

Dear Mr. Fancy:

This is to acknowledge receipt of the April 18, 1985, submittal of the above referenced facility's Power Plant Site Act (PPSA) Certification application. We have reviewed the application under the Region IV Overview of State Programs Policy and have comments regarding the proposed permit provisions and the ambient air quality analysis.

On June 3, 1985, Mr. Brandon of my staff verbally communicated our comments to Mr. Tom Rogers of your staff regarding the ambient air quality analysis and Mr. Ed Svec regarding the proposed permit provisions. The summary of the first communication was that the worst case emissions from the proposed facility should be assessed along with those from the existing surrounding facilities for comparison to the Florida Ambient Air Quality Standards. However, as no other increment consuming sources are within the area of influence, no further increment analysis would be required. With regard to the second conversation with Mr. Svec, he assured us that permit conditions would be included for compliance testing of the other pollutants subject to review (SO₂, NO_x, CO, Pb, Fl).

We have concern regarding the full approvability of the PPSA certificate in lieu of a PSD permit for this project and others subject to the PPSA. We are presently looking at this issue and will advise you of our findings.

We thank you for opportunity to comment on this application. If you have any questions or comments regarding this letter, please feel free to contact Mr. Michael Brandon or Mr. Wayne Aronson of my staff at 404/881-4901.

Sincerely yours,

Bruce P. Miller

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

What can you do?

WE NEED YOUR HELP AND WE NEED IT NOW! PLEASE, BEFORE ITS TOO LATE!!

“THAT’S NOT MY JOB”

This is a story about four people named Everybody, Somebody, Anybody and Nobody. There was an important job to be done and Everybody was sure that Somebody would do it. Anybody could have done it, but Nobody did it. Somebody got angry about that, because it was Everybody’s job. Everybody thought Anybody could do it, but Nobody realized that Everybody wouldn’t do it. It ended up that Everybody blamed Somebody when Nobody did what Anybody could have.

Please send your contribution today to South Broward Citizens for a Better Environment (So. Bro. C. B. E.), 2390 SW 34 Way, Ft. Lauderdale, Fla. 33312. For additional information call 983-7812, 587-3322, or 792-5186.

STOP THE INCINERATOR AND ASH DUMP !!!!

The South Broward Citizens for a Better Environment, Inc. is a non-profit organization created to fight the county's proposal to build a "resource recovery" facility at the corner of St. Rd. 84 and 441.

You will be affected!!!! This proposed plant is a mass-burn incinerator designed to burn more than 3000 tons of garbage and waste per day. The smoke stacks will be 190 feet high, the resulting ash will be stacked in 140 foot piles. This will result in:

AIR POLLUTION - Including cancer-inducing dioxins in the fly-ash!

THREAT TO WATER SUPPLY - Only a .033 inch thick liner below the dump to keep the contaminated ash and heavy metals out of the Biscayne Aquifer!

DESTRUCTION OF WETLANDS AND MANATEE SANCTUARY - This site is bounded by the New River Canal and the Dania Cutoff!

INCREASED TRAFFIC - An increase of up to 900 trucks per day at the most congested intersection in Broward County!

THREAT TO AIR TRAFFIC SAFETY - This site is right in the landing path of the FT. Laud/Hllywood airport!

What can you do?

WE NEED YOUR HELP AND WE NEED IT NOW! PLEASE, BEFORE ITS TOO LATE!!

Contribute - WE NEED YOUR DONATION DOLLARS for attorneys fees! \$25 Per Household (or whatever you can afford)

Volunteer - WE NEED YOUR TIME!

Write - Let your representatives and agencies know you object.

Ribbons - Hang a RED RIBBON on your trees and cars to show your support!

Inform - Spread the Word!

Support the candidates who are interested in alternative systems of disposing of our garbage. This includes:

S. William Grassi

Benji Brumberg

Richard Antidormi

Anne Mackenzie

Michael Stanley

Ed Kennedy

Please send your contribution today to South Broward Citizens for a Better Environment (So. Bro. C. B. E.), 2390 SW 34 Way, Ft. Lauderdale, Fla. 33312. For additional information call 983-7812, 587-3322, or 792-5186.

S. WILLIAM GRASSI

for County Commissioner
District 3
REPUBLICAN

- STOP the incinerator
- STOP the garbage ash dump
- Protect our water
- Protect our air
- Strong and concerned growth management
- START TRUE RESOURCE RECOVERY
- Scrap prevailing wages legislation
- Single member district essential for responsive representation
- Annexation only by the will of the people in the area-to be annexed



S. William Grassi
Campaign Headquarters
1700 N.E. 26th Street
Wilton Manors, Florida 33305
305/566-3377

EXPERIENCE:

- Commercial Pilot
- Businessman
- Insurance consultant & agent since 1951
- Represents many segments of religious institutional fields & business interests
 - Industrial
 - Medical Services
 - Tourist
 - Condo Associations
 - Unions
 - Banks
 - Entertainment
 - Transportation
 - Education
 - Hotel
 - Construction
 - Aviation
 - Finance Consultants
 - Municipalities
- Extensive education in many fields
- Military Service
 - Veteran U.S. Navy — 30 months
 - Asiatic Pacific — 19 months
- Military Awards
 - Atlantic Theater Medal
 - Asiatic Pacific Medal with 4 Bronze Stars
 - Philippines Liberation Medal
 - Victory Medal
- Civic Association Activist
- CITIZEN FOR THE PEOPLE

**Are You Satisfied With The Past Performance
Of Our Broward County Commission???**

- Are you happy with the method of electing county officials?
- Crime – Do you feel any safer today?
- Is your drinking water any better?
- Have the traffic conditions improved?
- Do we have an adequate Mass Transit System?
- Are our Social Service Programs effective?
- Do we have a united County and City Government?
- Is our present Trash Crisis the result of the irresponsibility of the Broward County Commission?

**VOTE REPUBLICAN
AND HELP RESHAPE BROWARD COUNTY**

Clip and Mail: Committee to Elect Richard Antidormi
County Commissioner District # 1 Republican
2197 NW 53 Street
Tamarac, FL. 33309

Or Call: 486-6100

Make checks payable to: Campaign for Election of Richard Antidormi

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____

I Would Like To:

- Volunteer Time Contribute Funds Attend a Fund Raising Event
Citizens Suggestions To Improve County Government:

Paid Political Advertising, Priscilla Laporte, Treasurer

ELECT



**RICHARD
ANTIDORMI
COUNTY COMMISSIONER
DISTRICT # 1 - REPUBLICAN**

★ **PERSONAL**

Age—44 Former Resident of Mount Vernon, New York
Broward County Resident—13 years

★ **PROFESSIONAL EXPERIENCE**

President of Southern Community Medical Centers
President of Community Ambulance Service
State of Florida Certified Paramedic
Formerly Employed by Broward County Division of Emergency Medical Services
Former President of Broward County Paramedics Association
Former State Certified Fire Fighter
Formerly Employed by City of Lauderhill & Lauderdale Lakes Fire Service
Former Member of AFL/CIO Fire Fighters Union
Former President of Richmaster Construction Company
Honorable Discharge—United States Army Transportation Corps

★ **EDUCATIONAL EXPERIENCE**

Broward County Emergency Preparedness Certification
Division of Transportation—Vehicle Operators Course
Paramedical Course—Broward Community College
Emergency Medical Technology Certification—Broward Community College
Fire Fighter Certification Course—Fort Lauderdale Fire Academy
Engineering Studies—Broward Community College

★ **MEMBERSHIPS AND AFFILIATIONS**

United States Chamber of Commerce
National Federation of Independent Business
American Ambulance Association
United Brotherhood of Carpenters and Joiners
Republican Presidential Task Force
American Heart Association Certificate
Former FHA Agent for Chase Manhattan Bank & First National Bank
Former Affiliations with: Johns Manville, U.S. Steel, Alcoa Aluminum,
Crown Industries
Rated with Dunn & Bradstreet
Former Licensed New York Contractor

★ **RECREATION**

Boating, Target Shooting & Horticulture

I am committed to restoring our sense of community pride and bridging the gap between city and county government. My open door policy will insure the public access to their elected officials and their voice in government.

CRIME

Significant improvements can be accomplished by electing law enforcement leaders, who are experienced, dedicated, and unencumbered by political and special interest alliances.

WATER

To insure that we have ample water to meet the demands of the growth of this community, without sacrificing quality. We need the total cooperation of Broward, Dade and Palm Beach Counties.

TRASH CRISIS

The present county proposed "Resource Recovery Incinerator" needs a county wide cooperative effort to resolve the garbage crisis. We must find an alternative method or an acceptable modification of the existing project.

SINGLE MEMBER DISTRICTING

The public has indicated that they want a change in the structure and method of electing county officials. I believe that this issue should have been put on the ballot. The voice of the people should have influenced our elected officials to give the voters the choice of selecting a mayor, single member districting or to retain our present system.

- ★ *Our Congested and Hazardous Traffic Condition..Must be Alleviated*
- ★ *Our Social Service Transportation & Programs..Must be Upgraded*
- ★ *A Major Attraction is Needed to Support our Tourism*
- ★ *A State Lottery...Is Needed to Help Support our School System*
- ★ *A Safe & Continual Growth of Industry in our County...Is Essential to Further Stabilize our Economy*