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 21, 1985

Cover Letter Question: Explain the rationale for limiting the combustion temperatures to a range of 1,500°F to 1,800°F as shown on page A-56 of Appendix 10.11. Section 3.2.2 of Appendix 10.16 suggests that temperatures in the vicinity of 1,800°F or higher are several orders of magnitude more effective in reducing emissions of dioxin and furan compounds.

Response: Appendix 10.11 of the Certification Application is a copy of the Technical Specifications contained in the Request for Proposals issued in September, 1984 on the project. As stated on page A-1 of the Technical Specifications, "In no instance is there any intent to limit the Proposer from adding to these minimum requirements and guidelines to unfavorably affect the use of proprietary systems and subsystems developed by manufacturer-suppliers through their own research and development efforts".

With respect to combustion temperatures, respondents to the issued Request for Proposals have satisfied Broward County that temperatures in excess of 1,800°F can be achieved on a continuous basis without compromising the engineering integrity of the system. The selected full-service vendor for the project, Signal Environmental Systems, stated in their proposal that temperatures within the furnace will average between 1,800°F and 2,000°F and that within the radiant heat section of the furnace temperatures will average 2,200°F. Broward County has accepted the furnace design incorporating these temperatures and is satisfied they present effective destruction of dioxin and furan compounds.

Question 1: All sanitary wastewater, boiler blowdown, process wastewater and landfill leachate are proposed to be disposed of at the Hollywood Wastewater Treatment Plant with no pretreatment other than pH adjustment necessary to meet standards. Please provide technical information to support the contention that no pretreatment will be required. Also, please indicate what contingency plan would be implemented in the event Hollywood WWTP standards were not to be met.

Response: Facility process wastewater treatment consists of neutralization of demineralizer regenerant waste and collection of all waters, except sanitary, for maximum reuse within the plant. Specific features include:

- o Wastewater Storage Basin - Floor drains, sample coolers, boiler blowdown, and neutralization tank streams are collected in this sump. Water is repumped for use in the ash collection system. Any excess waters are discharged to the sewer.

- o Neutralization Tank - Regenerant chemicals from the demineralizer are collected in this tank. After pH adjustment, water from this tank flows to the quench water storage basin for reuse.

- o Weir Box - A weir box will be provided to measure process water flow to the city sewer. Sanitary waste and any excess process water will be discharged to the city sewer.

With regard to leachate quality associated with ash residue landfills, a study on this topic was performed by the Massachusetts Department of Environmental Management and summarized in a report entitled "Summary Update of Research Projects with Incinerator Bottom Ash Residue" February 1982, Appendix 10.12. The study took place at the landfill asociated with the Signal Environmental Systems, Inc. Facility in Saugus, Massachusetts. The quality of the leachate generated at this facility can be summarized as follows:

- o pH of pure residue leachate to date continues to range between 7.6 - 8.2. Mean is 7.9.

- o pH of residue/soil or soil/residue leachates range between 5.7 - 7.7 and 7.5 - 8.2, respectively. pH of soil leachate ranges between 5.8 - 7.1.

- o soluble salts are all below 100 ppm.

- o Mean heavy metal content in leachates are as follows:

(all concentrations are in ppm)

	Pb	Ni	Cd	Cu	Cr	Zn
Residue	0.18	0.07	0.006	0.027	0.037	0.07
Soil	0.19	0.03	0.006	0.03	0.035	0.05
Residue/Soil	0.32	0.04	0.006	0.025	0.035	0.075
Soil/Residue	0.375	0.07	0.008	0.025	0.035	0.105
Rain	0.173	0.038	0.013	0.023	0.03	0.05

The data indicate that the incinerator bottom/fly ash mix (residue) is highly buffered; that the buffering capacity is massive and persistant; that heavy metals are chemically bound in the residue matrix, and that the residue can raise the pH of leaching acid rainwater from 4.0 - 7.8 without a concomitant release of heavy metals into the leachate. The data to date suggest that incinerator residue (bottom/fly ash) might be used as a landfill and may improve landfill management by buffering acid rain percolating through the landfill, thereby reducing the leaching of heavy metals from the residue as well as from other metal-containing materials which might be present in the landfill.

As evidenced by the above data, it is not believed that the pretreatment of sanitary, process or leachate wastewaters will be necessary before ultimate disposal at the Hollywood Wastewater Treatment Plant. However, in order to ensure that wastewater quality standards are met for this particular facility (i.e. for this particular waste stream quality and resulting leachate generated from the residue landfill) periodic water quality testing will be performed during facility operations. If in the event treatment plant wastewater quality standards are not met, it will become necessary to incorporate some type of pretreatment before disposal to the sanitary system.

Question 2: Section 5.3 (and others) of the proposal calls for stormwater runoff from the active disposal area that has come in contact with landfill material to be treated as leachate. Please provide a "detailed description" with "specific procedures" of the method of segregating contaminated runoff from uncontaminated runoff.

Response: As discussed in our response to Question 2 of the DER inquiry dated May 10, 1985, collection and disposal of contaminated and uncontaminated runoff will be entirely separate. Uncontaminated stormwater collection will be provided by a grassed perimeter swale 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.

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: The description of the landfill design at page 5-3 indicates that only a portion of cell 1 will be lined at the time landfilling begins. Please provide information as to the methods to be employed to insure that leachate cannot escape to unlined portions of the cell under adverse conditions such as heavy rains. Also, please provide information regarding the methods of joining and connecting the liners to insure that the liners are continuous membranes throughout the cell and the measures to be taken to project the in-place-liners prior to joining.

Response: In order to ensure that leachate cannot escape to unlined portions of the cell under adverse conditions such as heavy rain the following steps will be taken:

- The active cell will be bermed so as to isolate leachate and contaminated runoff.

- The liner material used to line the active subcell will be extended over the berm for distance and anchored in a trench. The trench will be covered with a sheet of liner material in order to minimize rainfall infiltration. This will not only keep the liner from slipping but will protect the edge for future seaming during landfill expansion.

- The emplacement of waste within an active subcell will be limited to its proximity to the separation berm. This is necessary to permit sufficient ponding volume during extreme rainfall events to ensure that contaminated runoff will not crest the berm.

With regard to the methods of joining the liners of subcells to insure that the liners are continuous throughout the cell, the liner will be installed either by the manufacturer or by a competent experienced lining contractor according to the manufacturers 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 insure integrity between materials.

Question 4: Please provide a clarification and more information as to which materials will be processed in the incinerator. The third sentence of Section 3.3.1 on page 3-24 (in which there appears to be a typographical error) indicates that commercial waste, leaves and brush, paper and cardboard, wood and lumber, timber, tree limbs and logs will be processed.

The last paragraph of Section 3.3.3 on page 3-26 seems to indicate that yard wastes and packing materials may not be processable. Section 3.3.9 on page 3-33 indicates that processable waste "contained in the normal unprocessable waste stream" may be disposed in the landfill. Please describe more fully which wastes are processable and which are not, how and where the separation of wastes will occur, and what measures will be taken to assure that the maximum amount of processable waste is incinerated.

Response: With regard to which wastes are processable and which are not, the following definitions were provided in the "Request for Proposals for Full Service Solid Waste Disposal," for Broward County, dated September, 1984:

- Processable Waste is that portion of the County's waste stream which is processable in a mass burn resource recovery system. Processable Waste shall include but not be limited to all forms of garbage, commercial waste, rubbish, leaves and brush, paper and cardboard, plastics, wood and lumber, rags, carpeting, a limited amount of tires, wood furniture, mattresses, stumps, wood pallets, timber, tree limbs, ties, and logs, and not separated and recycled at the source of generation, and minor amounts of pathological and biological wastes (to the extent that they are contained in the normal waste stream), but excluding hazardous wastes, liquid wastes, pathological and biological wastes, sludges, sewage, bulk shipments of manure, explosives, chemicals, radioactive materials, and Unprocessable Wastes.

- Unprocessable Waste is that portion of the County's waste stream that is predominantly non-combustible and therefore should not be processed by a mass burn resource recovery system. Unprocessable Waste shall include but not be limited to metal furniture and appliances, concrete rubble, mixed roofing materials, noncombustible building debris, rock, gravel and other earthen materials, automobiles, trailers, equipment, wire and cable, and processable wastes (to the extent that it is contained in the normal Unprocessable Waste stream), but excluding hazardous wastes, sludges, pathological and biological wastes, sewage, manure, explosives, chemicals, and radioactive materials.

Separation of waste into processable and unprocessable fractions will be the responsibility of the waste hauler and scalehouse attendant. The two waste streams will be separated at the scalehouse. Vehicles carrying processable waste (most packer trucks) will be directed to the plant tipping floor to unload into the storage pit while vehicles carrying unprocessable waste (most open top vehicles) will be directed to

the landfill working face. Visual inspections will be made of waste deposited at the landfill routinely by site attendants and equipment operators and on a spot basis by supervisory personnel to assure a minimum amount of processable waste is being landfilled. County inspectors will also be making spot checks for compliance. When necessary, the County will directly contact generators and haulers of waste to secure a better source separation of the two waste streams in order to maximize the processing of waste through the proposed facility.

Question 5: In reference to the first paragraph on page 3-17, please be more specific in regards to the total numbers of each taxa to be planted as well as the size or age.

Response: The total numbers of each taxa to be planted as well as the size of age are as follows:

a) Cypress - 70/acre - seedlings
20/acre - 8' trees

b) Sawgrass - 400/acre - culms

c) Pickerelweed - 400/acre - culms

Question 6: Referring to the sixth paragraph on page 3-19, please indicate what exotic species will be controlled and explain how and for how long.

Response: As stated on page 3-19 of Volume I of the Power Plant Certification Application, exotic plants such as cajeput, Australian pine, and Brazilian pepper will be controlled on an as needed basis until the plantings of native taxa become well established. Subsequent control measures will include inspections of planted areas and removal of exotics as necessary.

Question 7: On page 5-17 it is indicated that leachate generation may reach as high as 8.3 million gallons/month. This is a greater volume than could be pumped by six 30 GPM pumps working full time for 31 days. Please explain if sufficient capacity and back-up capacity to remove leachate will be provided.

Response: There are a great number of considerations which are incorporated into design of the pumping system of the proposed leachate collection system. The selected rate of 180 gallons per minute assumes, along with the storage capacity of the system (lined cells, piping and manholes), that there will be adequate capacity to meet all unforeseen events. Specifically, if 8.3 million gallons of leachate were collected in a month about 264,800 would remain in the system at the end of

the month. This is equivalent to about one day of pumping capacity or less than 1/4 inch of leachate remaining on the liner. The exact pumping capacity is still subject to final design and review by the Department. The number of pumps, including standby units, should take into consideration the exact final landfill size and configuration, anticipated rainfall rates, the mix of waste and its retention and/or absorption capabilities and expected runoff and evaporation conditions.

Question 8: In reference to paragraph three on page 3-20, please provide information to assure that the lagoon will not silt in and become stagnant.

Response: The referenced lagoon comprises part of the wetland mitigation program proposed. Vegetation will be established around the perimeter of the constructed lagoon to inhibit siltation caused by runoff from adjacent active areas of the site. Because the lagoon will be directly connected to the South Fork New River Canal, a degree of flushing and interaction of surface waters is expected and should mitigate against stagnation of the lagoon.

Question 9: The application addresses the advantages of stoker fired, mass burning incinerators with "wet-wall" production of steam. Figure 3.2.1 makes reference to 400 "successfully operating" units throughout the world. We would find it helpful to receive comments from a dozen or more other Local and State environmental agencies regarding their experiences with similar facilities -- especially facilities which are located within ¼ to ½ mile of residential areas.

Response: The following is a list of mass burn resource recovery facilities that have demonstrated operational success in the United States followed by a list of agency contacts:

Norfolk, Virginia (Norfolk Naval Shipyard)

The Norfolk Naval Shipyard resource recovery facility began operations in 1967. The facility is owned and operated by the Federal government. The facility processes waste generated within the Norfolk Naval Shipyard and does not accept waste generated elsewhere.

Primary fuel production from the facility is steam. The steam is used on site for heating and industrial purposes and not sold to the private sector.

Chicago, Illinois (Northwest Incinerator)

The Northwest Incinerator began operations in 1970 and has remained in service for 14 years. The facility

utilizes the Martin mass burning waterwall design. Waste is delivered to the facility by municipal haulers. There is no service fee charged for municipal refuse delivered to the facility. The facility is owned and operated by the City. It was designed to process 1,600 tpd of municipal solid waste and is currently processing approximately 80 percent (1,250 tpd) of its design capacity.

The facility produces both steam and electricity. Some steam is utilized on site for facility processes. The remaining steam, as well as electricity, are sold to the Brach Candy Company.

Harrisburg, Pennsylvania

The Harrisburg resource recovery facility began co-disposal operations in 1972. The facility is owned and operated by the City of Harrisburg. The facility was designed to process 720 tpd of municipal solid waste and is currently processing approximately 600 tpd or 75 percent of its design capacity.

The facility has provided waste disposal service utilizing the Martin mass burn technology to Harrisburg and several surrounding cities for the past twelve years.

The facility produces steam for sale to the utility-owned district heating system, a city-owned sludge drying system and to Bethlehem Steel. In addition, the facility is currently implementing a cogeneration project, which will provide for the generation and sale of electricity as well as steam.

Nashville Thermal Transfer Corp (NTTL) Nashville, Tennessee

The Nashville resource recovery facility began operations in 1974. The facility has operated successfully for ten years. It is reported that the only facility shutdowns have occurred for periods of routine maintenance. Presently, the facility is being expanded to increase its design capacity 1,120 tpd.

The facility is owned and operated by NTTL a not-for-profit corporation. The facility was originally designed to process up to 720 tpd of municipal solid waste. Private and municipal haulers deliver approximately 450 tpd for processing.

Steam and chilled water for urban heating and cooling are produced at the facility. Future expansion of the

facility will include the production of electricity for sale to Tennessee Valley Authority.

Saugus, Massachusetts

The Saugus resource recovery facility began operations in 1975. The facility has completed nine years of successful operation providing waste disposal service to several cities.

The facility is owned and operated by Signal Environmental Systems. It incorporates von Roll technology in its design and is able to process up to 1,500 tons of municipal solid waste each day. The facility processes an average of 1,200 tpd or 80 percent of its design capacity.

Steam is produced and sold to a nearby industry. In addition, the facility utilizes magnetic separators to recover ferrous metal from the incinerator residue for recycling for sale to a private company.

Portsmouth, Virginia, Norfolk Naval Shipyard

The Portsmouth resource recovery facility began operations in 1976. The facility has been operational for eight years. It is reported that over the course of its eight years of successful operation, the facility has been only closed twice. Each period of shutdown lasted approximately two weeks. Corrections to the emission control system and to the boiler equipment were reported to be responsible for each of the shutdowns, respectively.

The facility is owned by the U.S. Navy and operated by the Public Works Center, Norfolk Naval Shipyard. This facility is similar to the Norfolk resource recovery facility in system processes and design. The design capacity of this facility is 160 tpd with two boilers operated alternately at 80 tpd. Steam produced in the plant is utilized by facilities at the Naval Shipyard.

Hampton-NASA Project Recoup, Hampton, Virginia

The Hampton, VA resource recovery facility has been in operation since 1980. It is reported that the facility has completed four years of successful operation without ever being shutdown for reasons other than routine maintenance. The design technology utilized in the facility is Clark-Kenith.

The United States government owns the facility and the City of Hampton maintains operations. The facility was designed to process 200 tpd of municipal solid wastes. It has been able to realize its full potential by receiving and processing 200 tpd of solid waste from both the public and private sector. The steam produced at the facility is used by the NASA, Langley Research Center.

Pinellas County, Florida

The Clearwater resource recovery facility in Pinellas County, Florida has been in operation since 1983. The facility processes municipal solid wastes utilizing Martin technology and generates electricity for on-site use and sale to an investor owned electric utility. In addition, aluminum and ferrous metals from incinerator residue are recovered and sold to a private company.

Signal Environmental Systems operates the County owned facility, which provides waste disposal service for both private and municipal haulers in Pinellas County. The resource recovery facility has had only one major shutdowns since start-up while processing up to 100 percent of its design capacity of 2,000 tpd. The facility is currently undergoing a 50 percent expansion with the construction of a third 1,000 tpd unit.

Glen Cove, New York

The resource recovery facility located in Glen Cove, NY has been operational since 1983. The facility processes approximately 225 tpd of municipal solid waste and an additional 25 tpd of sludge from a sewage treatment plant located on the same site. The facility is owned by the City and is operated by a private firm. It provides disposal service for both private and municipal haulers from the surrounding area.

Presently, the facility produces electricity for on-site use and for sale to an electric utility. Thus far, it is reported that the facility has experienced no unscheduled shutdowns and is currently processing approximately 100 percent of design capacity (250 tpd).

Westchester County, New York

The Westchester County resource recovery facility, located in Peekskill, NY, completed start-up and acceptance testing during the summer of 1984 and is presently accepting solid waste on a commercial basis. The facility utilizes the von Roll technology and provides waste dis-

posal service for cities and towns within Westchester County. It is owned and operated by Signal Environmental Systems.

The facility is designed to process 2,250 tpd. Presently, it is processing at least 80 percent of its daily design capacity. Waste burned is converted into electricity for sale to Consolidated Edison. Ferrous metals are recovered from the incinerator residue, and a contract with a scrap metal dealer is anticipated for the near future.

New Hanover County, North Carolina

The New Hanover County resource recovery facility began accepting waste in June 1984. The facility is currently undergoing air quality and performance standards testing. The facility has been designed utilizing the Clark-Kenith technology and has the capacity to process 200 tpd of municipal solid wastes. The facility has been designed for cogeneration. Steam generated by the facility will be sold to W.R. Grace Company. In addition, electricity generated by the facility will be sold to Carolina Power & Light.

The following is a list of State Agencies that can be contacted concerning the above facilities:

1. Council on the Environment
   903 Ninth Street, Office Building
   Richmond, Virginia 23219

2. Environmental Protection Agency
   2200 Churchill Road
   Springfield, Illinois 62764

3. Department of Environmental Resources
   9th Floor, Fulton Building
   Box 2063
   Harrisburg, Pennsylvania 17120

4. Department of Conservation
   701 Broadway, Custom House
   Nashville, Tennessee 37203

5. Executive Office of Environmental Affairs
   Leverett Saltonstall Building
   100 Cambridge Street
   Boston, Massachusetts 02202

6. Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233

7. Department of Natural Resources and
Community Development
P.O. Box 27687
Raleigh, North Carolina 27611

Question 10: The "fuel" analysis on page 3-28 shows an apparent high percentage of paper products. Our information is that Dade County (using electrostatic precipitators) has experienced problems with loose paper emissions from the stack.

Response: A high percentage of paper material in the processable waste fraction is highly desirable since it will result in a higher heating value in the refuse which will, in turn, result in more steam and electricity being generated per unit quantity of waste incinerated. From an environmental impact standpoint, the presence of a high paper fraction in the processable waste is not a cause for concern. Combustion temperatures achieved in the mass-burn resource recovery system in combination with the retention time of waste on the grate leads to very efficient burnout. The facility is required to produce a residue or ash containing no more than 0.2 percent by dry weight of putrescible material and no more than 4.0 percent by weight of combustible material.

Each furnace will be equipped with an electrostatic precipitator for control of particulate emissions. With the efficiency of burnout to be achieved at the facility, the exposure of combustion gases containing particulates to high temperatures (greater than 1,800°F) for more than two seconds of residence time, and the efficiency of the particulate control device (greater than 99% removal efficiency) the release of loose paper from the stack is inconceivable.

Question 11: Page 4-14 indicates that noise will not be a problem during construction. Studies carried out by consultant previously showed local noise standards were exceeded already.

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

With respect to previous on-site studies conducted by the consultant this question must be referring to ambient monitoring performed in 1984. Such monitoring showed background noise levels to be within local standards set forth in the Broward County Environmental Quality Control Board (BCEQCB) regulations. The only possible cause of exceedance, as referenced

in the question, was noise caused by overflying aircraft on approach or departure patterns to (from) the Hollywood/Ft. Lauderdale Airport. However, the local regulations specifically exclude such aircraft from consideration under the BCEQCB code.

As discussed in Appendix 10.10 (Technical Noise Analysis), construction equipment noise from the southern part of the site will travel an estimated 300 to 400 feet to residential-zoned properties across and south of the New River Canal. At these properties, the construction noises will have been reduced by 15 to 17 dB(A), or from 80 dB(A) to 65 to 62 dB(A), respectively. Noise-attenuating barriers will be put in place along the southern part of the site to bring the noise level down from 65 dB(A) to 55 dB(A) which is the sound level limit for residential-zoned areas.

Question 12: Page 4-14 states that construction will reduce available capacity of U.S. 441. Our site 13, located at U.S. 441 and SR 84, has a history of high CO levels (see Table 1 attached). We are concerned about disruption of normal traffic flow. The report focuses on 1-hour averages which are rarely a problem. The concern is with 8-hour averages which threaten to place Broward County into nonattainment status.

Response: We do not believe there will be a problem with CO concentrations because of major changes already underway to the road system which impacts the data collected at site 13. This belief is substatiated by a special study for the Broward County Environmental Quality Control Board (Attached). First, the Florida Department of Transportation (FDOT) currently has under construction I-595 which, along with the modernizing and multiple lane expansion of U.S. 441 (State Road 7), should increase the efficiency of traffic flow in the area even with the small incremental traffic increase associated with the plant. These improvements should result in reduced CO levels measured at site 13.

We specifically direct your attention to Table 4-1 on page 19 of the special report entitled "Air Quality Modeling Analysis of Carbon Monoxide Concentrations for the Proposed South Resource Recovery Facility in Broward County." This table shows 8-hour average projected concentrations. Because of further traffic improvements now planned, but not considered in the study, we believe CO concentrations at site 13 will be well below the national and Florida AAQS.

Question 13: What contingency plans will be implemented during the inevitable malfunctioning of the electrostatic precipitators?

Response: As a point of fact, electrostatic precipitators (ESPs) represent one of the most reliable pieces of equipment in a facility of this type. Modern ESPs installed at the facility will be equipped with continuous readout devices for performance monitoring. Further, the application of microprocessors on these ESPs for optimal operating control has resulted in a high degree of performance reliability. These factors in combination with periodic, routine inspection and maintenance effectively minimize the frequency of malfunction.

It is important to note that, except in the case of a complete ESP system failure which rarely, if ever occurs, malfunction of an ESP does not mean pollutants escape from the facility with no removal or control being afforded. Rather, the microcircuitry designed into the control system will register a decay in applied voltage, as an example, before the condition manifests itself in terms of a significant reduction in pollutant removal efficiency. When such a condition occurs, the ESP can be brought off-line, together with the balance of the affected furnace train, before the degree of pollutant control is seriously compromised. Immediately upon noting such a condition, waste charging to the furnace train would cease, refuse present on the furnace grate would proceed under normal combustion design conditions to a burnout state, the furnace would be allowed to return to a cold condition and the ESP disengaged from service. Inspection and maintenance would then be performed to correct the malfunction.

In terms of contingency plans to assure adequate waste processing capability, it should be noted that each furnace train will be equipped with a individual ESP. Our responses to DER inquiries dated April 19 and May 10, 1985 have addressed the issue of disposal contingency in the event one or more boilers are out of service due to scheduled and/or unscheduled maintenance.

Question 14: What program will be in effect to clean up the inevitable accumulation of refuse along access roadways which results from spillage from private and contracted haulers?

Response: The incoming refuse trucks will be covered. Therefore, the amount of debris potentially deposited along the access roadways will be minimized. Designated areas for cleaning trucks will be provided to minimize spillage by exiting trucks. Refuse inadvertently deposited will be periodically cleaned by plant personnel including off-site patrols on U.S. 441 (State Road 7) as necessary.

Question 15: It is stated that fugitive dust can be controlled during construction by water or chemical treatment. Is this a commitment and, if so, which method will be used and how often? How will fugitive dust be controlled when the plant becomes operational (including the covering operations)?

Response: We are committed to minimize fugitive dust both during construction and during operation of the plant and landfill. This question was answered in our response to Florida DER Inquiry of April 19, 1985. It stated the following:

> Fugitive emissions will not be observed from the solid waste and residue handling areas of the project. All solid waste storage and handling will occur in totally enclosed structures and will be maintained under negative air pressure. All fugitive dusts and odors will be drawn into the furnace and subjected to extremely high temperatures. Residue hauling vehicles will be covered to minimize wind aided drying and dispersion during transport to the landfill.
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> During construction, on-site access roads will be adequately wetted to minimize wind erosion and dust generation as needed. Chemical binders will be used only as required. The specific binders have not yet been identified.

Question 16: In contrast to consultant, we are concerned about toxic emissions such as dioxin and furans. DER is concerned also.

Response: Neither the applicant nor its consultant are unconcerned about potential toxic emissions. Quite to the contrary, we have diligently strived to develop an approach which will result in a facility with minimal emissions of potentially toxic substances. With respect to potential emissions of dioxins and furans, test results from modern mass-burn resource recovery facilities (as reported in the literature) clearly demonstrate that flue gas temperatures in excess of 1,600°F (measured at the furnace outlet) result in greater than 99.99% destruction of such compounds. Because such temperatures measured at the furnace outlet mean that temperatures in the combustion zone of the furnace must be from 200°F to 300°F higher (1,800°F minimum), a minimum combustion tmeperature of 1,800°F represents the design point. Exposure of combustion gases to this temperature for at least two seconds is thus believed an effective control for such emissions.

The selected vendor for the project (Signal Environmental Systems) has proposed a facility that will achieve gas temperatures in the radiant section of the furnace of approximately 2,200°F. Such temperatures will exceed the minimum design criteria stated above by a considerable margin of safety.

Question 17: References are constantly made in the text which term this facility as an "incinerator," which appears appropriate since its primary purpose is unquestionably to handle municipal garbage. Why does an incinerator require certification as a power plant site?

Response: Section 403.501 Florida Statutes states that any power plant or steam generating plant with a rated capacity of 50 megawatts or larger must be certified as a power plant site. The South Broward Resource Recovery Facility is proposed to have an initial capacity of 68.5 megawatts and, therefore, falls under the site certification process.

Question 18: What have been the experience of other local environmental agencies with odors associated with similar installations? Will the receiving areas be vented to scrubbers? Will the intermediate cover mentioned on page 5-10 (once per day) be adequate?

Response: To control potential odors, combustion air will be drawn from the enclosed tipping area and waste storage pit. The furnace temperatures are sufficient to effectively destroy odor producing compounds in the combustion air. Please also note the response to Question 6 of the DER inquiry of May 10, 1985.

Intermediate cover to be used should be adequate since the maximum putrescible content of the ash will be 0.2 percent by dry weight. Therefore, virtually all of the odor producing material present in the processable waste will have been destroyed in the combustion process. The remaining material landfilled will be non-processable as defined above.

Typographical Type Errors

On page 2-80 it is stated that Broward County Site #4 is included in Table 2.3.7.7 because it is the closest site with SO_2 and NO_2 concentrations. Site #4 is not the closest and it is not included in the Table.

Response: The sentence on page 2-80 which reads, "In Table 2.3.7.7, although Broward County monitoring site No. 4 is 11.4 km from the proposed facility site, concentrations from the monitor are included since it is the closest site with SO_2 and NO_2 concentrations", should be deleted from the document.

On page 2-85 the statement "The higher the decibel level the lower the sound" appears.

Response: It should read "The higher the decibel level the louder the sound."

On page 3-9 the last paragraph of Section 3.1.2 does not read correctly.

Response: The paragraph should read, "In addition, contingency disposal capability is anticipated to be available at existing Broward landfills until which time the BCI site can accept wastes. Current waste projections, and the current schedule for implementing the northern and southern resource recovery facilities support this conclusion.

On page 3-28 the Physical Composition Table shows that CDL receives a negligible portion of rock and brick in both garbage and trash but when they are combined it is 15% of the total. (There must be an off-setting errors as the column does total to 100%).

Response: The Physical Composition Table on page 3-28 currently presents the combined composition of the Broward County waste stream. However, it should be noted that the combined column includes data collected during both sampling programs (April and September, 1983). The garbage and trash columns present data collected during the April program only. Hence, the combined total are not derived from the preceding garbage and trash columns.

On page 3-63 the bulk density of the ash residue is stated to be 1,000-2,000 lbs. per cubic foot.

Response: The sentence should read, "The bulk density of the ash residue is stated to be 1,000-2,000 lbs per cubic yard."