Z 333 618 109

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to	Donald Lockhart
Street & Number	Solid Waste
Post Office, State, & ZIP Code	Authority of PBCo
Postage	WPB Bch $ 0.84
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	5-11-99

0990234-002-AC
PSD FI-108D

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Donald Lockhart Ex. Dir.
Solid Waste authority
of Palm Bch Co.
7501 N. Jog Rd
West Palm Bch, FL
33412-2414

4a. Article Number
Z 333 618 109

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
5/13/99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X [signature]

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

THE PALM BEACH POST

Published Daily and Sunday
West Palm Beach, Palm Beach County, Florida

PROOF OF PUBLICATION

STATE OF FLORIDA
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared **Peter W. Ortado** who on oath says that he is **Classified Advertising Supervisor** of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being a **Notice** in the matter of **Intent to Issue Air Construction Permit** in the --- Court, published in said newspaper in the issues of **April 6, 1999.**

Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Peter W. Ortado

Sworn to and subscribed before this 6 day of April, A.D. 1999

Karen McLinton

Personally known **XX** or Produced Identification _____
Type of Identification Produced _____

Karen McLinton
Notary Public, State of Florida
Commission No. CC 591337
My Commission Exp. 11/15/2000
1-800-3-NOTARY Fla. Notary Service & Bonding Co.

NO. 565317
PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT
STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 0990234-002-AC, PSD FL-108(D)
Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Solid Waste Authority of Palm Beach County, to modify an existing construction permit for the North County Resource Recovery Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1998, clerked February 21, 1998. The permit modification is to allow for an upgrade of the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm total permitted flow rate of 1800 scfm. This permit modification will clarify previous permit conditions and remove a limitation on the sulfur content of the landfill gas, which the applicant cannot control. The applicant's mailing address is: 7501 North Jog Road, West Palm Beach, Florida 33412-2414.

The landfill flares are used to comply with federal regulations for control of landfill gas and the proposed project is necessary for compliance with the federal requirements. The proposed project does not result in net emissions increases that are significant for the Prevention of Significant Deterioration program. Emissions increases will occur primarily for nitrogen oxides, carbon monoxide and sulfur dioxide. An air quality impact analysis was not required.

The Department will issue the Final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding offi-

cer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material facts. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection
Bureau of Air Regulation
Suite 4, 111 S. Magnolia Drive
Tallahassee, Florida, 32301
Telephone: 850/488-0114
Fax: 850/922-8979

Division of Environmental Science and Engineering
Palm Beach County Health Department
901 Evernia Street
West Palm Beach, Florida 33401
Telephone: 561/355-3070

Dept. of Environmental Protection
Southeast District
400 North Congress Avenue
West Palm Beach, Florida 33401
Telephone: 561/681-6600

The complete project file includes the application, technical evaluations, Draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, Joseph Kahn, P.E., at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 650/488-0114, for additional information.

/s/ Sandra J. Bourhen
Records Manager, SWA
PUBLISHED: April 6, 1999
Tuesday
Palm Beach Post

· Z 333 618 089

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Donald Lockhart	
Street & Number 3 W A 7 Palm Bch	
Post Office, State, & ZIP Code West Palm Bch Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 09902234-002-AC PSD-FL-108D 3-24-98	

PS Form **3800**, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Donald L. Lockhart, ED
Solid Waste Authority
of Palm Bch Co.
7501 N. Jog Road
West Palm Beach, Fl
33412-2414

4a. Article Number
Z 333 618 089

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
3/30/99

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*
X

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Z 333 612 485

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	Donald Lockhart
Street & Number	Solid Waste Auth.
Post Office, State, & ZIP Code	WP Bch Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	10-20-98

PS Form **3800**, April 1995

0990234-002-AC
PSO-FI-108(A)

Fold at line over top of envelope to the right of the return address

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Donald L. Lockhart, E.D.
Solid Waste Authority
of Palm Bch Co.
7501 N. Jog Rd
West Palm Beach, Fl
33412-2414

4a. Article Number
Z 333 612 485

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
10/22 98

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature *(Addressee or Agent)*
X K. Murphy

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

P 265 659 410

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	Alex Makled
Street & Number	Camp Dresser
Post Office, State, & ZIP Code	& McKee
Postage	W P Bch. FL
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	8-31-98

PS Form **3800**, April 1995

PSD-FI-108(B)

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Alex H. Makled, PE
Camp Dresser + McKee
1601 Belvedere Rd
West Palm Bch, FL
33406

4a. Article Number
P 265 659 410

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
SEP 02 1998

5. Received By: *(Print Name)*
R Simpson

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X R Simpson

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

P 265 659 436

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Donald Lockhart	
Street & Number SWA	
Post Office, State, & ZIP Code WPB, FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 8-14-97 PSD-FT108C	

PS Form **3800**, April 1995

Fold at line over top of envelope to the right of the return address

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Donald Lockhart, Ex. Dir.
Solid Waste Authority of P.B.
7501 N. 98 Road
West Palm Beach, FL
33412

4a. Article Number P 265 659 436

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 8/18/97

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*
X

8. Addressee's Address *(Only if requested and fee is paid)*

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 Domestic Return Receipt

14

RECEIVED
JUL 28 1997
DEPT OF ENV PROTECTION
WEST PALM BEACH

THE PALM BEACH POST

Published Daily and Sunday
West Palm Beach, Palm Beach County, Florida

PROOF OF PUBLICATION

STATE OF FLORIDA
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared **Chris Bull** who on oath says that she is **Classified Advertising Manager** of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being a **Notice** in the matter of **Permit Modification** in the - - - Court, was published in said newspaper in the issues of **June 27, 1997**.

Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that t the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Chris Bull

Sworn to and subscribed before me this 30 day of June A.D. 1997

Karen McLinton

Personally known XX or Produced Identification _____
Type of Identification Produced _____

NOTARY PUBLIC STATE OF FLORIDA
Karen McLinton
Notary Public, State of Florida
Commission No. CC 591337
My Commission Exp. 11/15/2000
1-800-3-NOTARY Fla. Notary Service & Bonding Co.

RECEIVED
JUL 28 1997
DEPT OF ENV PROTECTION
WEST PALM BEACH

RECEIVED
AUG 08 1997
BUREAU OF
AIR REGULATION

NO. 313088

PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Modification No.: PSD-FL-108C Solid Waste Authority of Palm Beach County North County Regional Resource Facility Palm Beach, Florida

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit modification to the Solid Waste Authority of Palm Beach County (SWA), for the North County Regional Resource Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C., and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Marc Bruner, Director of Planning, Solid Waste Authority of Palm Beach County, West Palm Beach, Palm Beach County, Florida 33412. The applicant, SWA, applied on May 29, 1997, to the Department for a permit modification to allow stack sampling of the emissions of Beryllium and Fluoride on a five years basis instead of the permitted annual basis for the refuse-derived fuel boilers at its North County Regional Resource facility. Stack tests conducted over the last 10 years have consistently indicated that emissions of these pollutants are at least an order of magnitude below the permit limits or below the detection limits for the Department approved test methods. The present emissions control equipment consisting of a spray dryer absorber with an electrostatic precipitator provides reasonable assurance that these emissions of these two pollutants will be minimized. Control of and annual on continuous monitoring of other key pollutants such as mercury, particulate matter, sulfur dioxide, dioxins, etc. provide good surrogates indicative of the control of beryllium and fluorides. The change in the testing frequency will result in savings to the SWA and no impacts on air emissions or air quality. The Department will issue the FINAL Permit Modification, in accordance with the conditions of the DRAFT Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments should be provided to the Department's Bureau of Air Regulation, 2800 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice. The Department will issue FINAL Permit Modification with the conditions of the DRAFT Permit Modification unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. or a party requests mediation as an alternative remedy under Section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation. A person whose substantial interests are affected by the Department's proposed permitting

decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9370, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of motion in compliance with Rule 28-5.207 of the Florida Administrative Code. A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the Department's action or propsed action addressed in this notice of intent. Because the administrative hearing process is to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. A person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition. A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed and incorporating it by reference. The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives. As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes. A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 904/488-1344
Fax: 904/922-6979

Division of Env. Science & Engineering
Palm Beach County Health Unit
901 Evernia
West Palm Beach, Florida 33402-0029
Telephone: 561/355-3070
Fax: 561/355-2442

Department of Environmental Protection
Southeast District
400 South Congress Avenue, Suite A
West Palm Beach, Florida 33401
Telephone: (561) 681-6600
Fax: (561) 681-6755

The complete project file includes the Draft Permit Modification, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111 F.S. Interested persons may contact the Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 904/488-1344, for additional information.

/s/ Sandra J. Bourhan
Clerk to the Authority
PUBLISHED: June 27, 1997
Palm Beach Post

From –
Andrew Neita
Air/SED

Arlene Sword
Pls forward to whom ~~me~~ you asked for it.
IG

Solid Waste Authority

Hank Laurie
640-4000 + 4600

P 265 659 225

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Mark Bruner	
Street & Number Solid Waste Authority	
Post Office, State & ZIP Code SWA PBC. W. Palm Bch, FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 6-13-97 PSD-FL-108C	

PS Form **3800**, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mark Bruner, Dir. of Plan.
Solid Waste Authority of PBC
7501 N. widgeon Road
West Palm Bch, FL
33412

4a. Article Number P 265 659 225

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 6-16

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

P 339 251 194

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to David Dee	
Street & Number Sanders & Parsons	
Post Office, State, & ZIP Code 1000 FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date POD-FL-108A SWA	

PS Form **3800**, April 1995

Fold at line over top of envelope to the right of the return address

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
David Dee, Esq.
Sanders & Parsons
310 W. College Avenue
Tallahassee, FL
32301

4a. Article Number P 339 251 194

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 6-2-97

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X Gayle Carlen

PS Form **3811**, December 1994 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

INTERLOCK TO FLAME SAFETY SUPERVISORY SYSTEM

METAL TEMPS

STEAM COIL AIR PREHEATER

TUBULAR AIR HEATER

TEMPERING AIR

FV-107

OFA

F-103
OVERFIRE DRAFT FAN

SUBSTITUTE AMBIENT AIR FAN

DAMPER DRIVE UNIT

UNDERGRATE AIR

MANUAL

STOKER

AUTO FLOW CONTROL

BLAST GATES

MANUAL DAMPER TRANSPORT AIR

ROTARY AIR DAMPER RV145A,B

AIR SWEPT SPOUT

(SEE 316073E)

DETROIT STOKER

Blank

AUTOMATIC FLOW CONTROL

MANUAL DAMPER

OVERFIRE AIR

BOILER OBSERVATION DOOR COOLING AIR RHS

BOILER OBSERVATION DOOR COOLING AIR LHS

TO BURNERS 10 1A & B

AUXILIARY BURNER SYSTEM

316042E

TO BURNERS 10 2A & B

AUTOMATIC FLOW CONTROL

JOY EQUIP.

REF. JOY PRID 4-1503

SPRAY DRYER

ELECTROSTATIC PRECIPITATOR

ECON

TUBULAR AIR HEATER

INTERLOCK TO FLAME SAFETY SUPERVISORY SYSTEMS

INLET CONTROL VANES

F-102
INDUCED DRAFT FAN

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

October 13, 2000

Mr. Alex H. Makled, P.E., DEE
Principal Engineer
Camp Dresser & McKee Inc.
Suite 211 South
1601 Belvedere Road
West Palm Beach, Florida 33406

Re: Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility, Class I and III Landfills
Request for Higher Wellhead Operating Temperature

Dear Mr. Makled:

The Department received your October 2nd letter requesting, on behalf of the Solid Waste Authority of Palm Beach County, an increase in the operating gas temperature from 55°C to 75°C at all of the Solid Waste Authority's gas collection wellheads. As noted in your letter, the pertinent paragraph of the NSPS Subpart WWW, 40 CFR 60.753(c), allows for the owner or operator to establish a higher operating temperature provided certain factors are considered. Because the rule specifies that such a change is allowable, no modification of the Solid Waste Authority's permit is required to accommodate this request. As the rule is silent regarding to whom the "higher operating value demonstration" should be made, it is possible that the request could be reviewed by the Department's compliance office rather than the permitting office. In any case, the Department concurs with the Solid Waste Authority's establishing a higher operating temperature of 75°C at all of its landfill gas collection wellheads for both the Class I and III landfills.

Please contact me at 850-921-9519 if you have any questions about the above.

Sincerely,

Joseph Kahn, P.E.
New Source Review Section

/jk

cc: Isidore Goldman, P.E., DEP SE District
Terri Long, DEP SE District

CDM Camp Dresser & McKee Inc.

consulting
engineering
construction
operations

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 561 689-3336 Fax: 561 689-9713

October 2, 2000

Mr. Joseph Kahn, P.E.
New Source Review Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Mail Stop 5505
Tallahassee, FL 32399-2400

Subject: Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility (NCRRF)
Class I and III Landfills
DEP Facility No. 5050C00803
Request for Higher Wellhead Operating Temperature under 40 CFR 60.753 (c)

Dear Mr. Kahn:

Camp Dresser & McKee Inc. (CDM), on behalf of the Solid Waste Authority (SWA), is submitting this request to the Department of Environmental Protection (DEP) to increase the wellhead temperature operating limit for the NCRRF Class I and Class III landfill gas collection systems in the Prevention of Significant Deterioration (PSD) air permit [Permit No. PSD-FL-108 (D)]. As indicated in the PSD air permit, these landfills are currently subject to Section 60.753 (c) of the New Source Performance Standards for Municipal Solid Waste Landfills, 40 CFR 60 Subpart WWW that requires that the landfill gas collection system operate with each interior wellhead in the collection system having a landfill gas temperature of less than 55° C (131° F). This requirement is in New Specific Condition No. 11 of the PSD air permit. However, this section of the rule also states that:

> "The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens."

SWA's Class I and III Landfills, and likely other landfills in Florida, operate at relatively high landfill gas temperatures, safely, for the following reasons:

- Ambient air temperatures are higher than in other parts of the country;

- The warm moist climate favors active microbial decomposition of the waste, which produces heat;

- SWA's NCRRF Refuse Derived Fuel Incinerator's bypass material, which makes up a large portion of the degradable material landfilled, comes from the Incinerator as warm and size-reduced, and tends to degrade rapidly and produce heat.

SWA's Class I Landfill has average gas temperatures at the wellheads of about 51° C, and routine high-end temperatures of about 70° C. Gas temperatures of up to 75° C do not "cause" fires, and are not necessarily indications that a fire is occurring in the landfill. SWA operators evaluate a combination of parameters such as temperature, oxygen, methane, carbon dioxide, and balance gas (assumed to be Nitrogen).

SWA's Class III Landfill gas readings have a different characteristic than the Class I Landfill because of the nature of the waste. The Class III Landfill accepts mainly non-degradable C&D debris, thus rendering less decomposition and methane production. The waste also tends to be bulkier and less densely compacted, which contributes to short-circuiting and air intrusion. When air enters the landfill, oxygen and nitrogen readings will be higher. However, the potential for higher temperatures exists for this landfill, as well.
Two textbook references are attached that describe acceptable temperatures for anaerobic decomposition. Bitton states that, "Methane production has been documented under a wide range of temperatures ranging between 0° C to 97° C," and thermophillic strains operate at an optimum range of 50° C to 75° C. McBean, Rovers, and Farquhar state that, "Landfill refuse at 15 m depth or greater is relatively unaffected by ambient air temperature and has been observed with temperatures as high as 70° C." Although the effect of ambient air can be argued, the NCRRF Class I Landfill is currently at an elevation of about 21 meters. Additionally, methane readings at the Class I Landfill average about 65 percent, thus indicating a high rate of methane production and anaerobic decomposition.
The SWA would like to request a higher permitted gas temperature at all of its wellheads of 75° C (168° F), to allow more operating flexibility within realistic conditions at its landfills. As discussed above, this requested limit meets the criteria in the rule that this temperature does not cause fires, and does not significantly inhibit anaerobic decomposition.

We greatly appreciate your consideration and time, and if you have any questions regarding this request, please do not hesitate to contact me at (561) 689-3336.

Very truly yours,

CAMP DRESSER & McKEE INC.

Kevin C. Lee/FOR

Alex H. Makled, P.E., DEE
Principal Engineer

AHM/bes
Enclosures

cc: John Booth, P.E., DEE, SWA
Marc C. Bruner, Ph.D., SWA
Bob Worobel, SWA
Jack Mesojedec, P.E., SWA
Scott Sheplak, FDEP Tallahassee
Steve Palmer, FDEP Tallahassee
Isidore Goldman, P.E., FDEP SE District
Terri Long, FDEP SE District

File: 2678-070[1]

bs5871

WASTEWATER MICROBIOLOGY

GABRIEL BITTON

Department of Environmental Engineering Sciences
University of Florida, Gainesville

WILEY-LISS

A JOHN WILEY & SONS, INC., PUBLICATION
New York • Chichester • Brisbane • Toronto • Singapore

niques are not suitable for methanogenic bacteria. Methanogens are fastidious and occur as microbial consortia. They are difficult to culture in the laboratory. Immunological analysis, with polyclonal (Archer, 1984; Macario and Macario, 1988) or monoclonal (Kemp et al., 1988) antibodies, is now being used as a tool for determining the numbers and identity of methanogens in anaerobic digesters. Indirect immunofluorescence (IIF) and slide immunoenzymatic assays (SIA) have shown that the methanogenic microflora of anaerobic digesters is more diverse than previously thought. The predominant species detected were *Methanobacterium formicum* and *Methanobrevibacter arboriphilus* (Macario and Macario, 1988).

Microbial activity in anaerobic digesters is usually determined by measuring volatile fatty acids (VFA) or methane. Lipid analysis has been used to determine the biomass, community structure, and metabolic status in experimental digesters. Microbial biomass, community structure, and metabolic stress are indicated by determining the total lipid phosphate, phospholipid fatty acids, and poly-β-hydroxybutyric acid, respectively (Henson et al., 1989; Martz et al., 1983; White et al., 1979). Microbial activity in anaerobic sludge can also be determined by measuring ATP and INT-dehydrogenase activity. These parameters correlate well with traditional ones such as gas production rates (Chung and Neethling, 1989). ATP determination responds to pulse feeding of the digester and to addition of toxicants (Chung and Neethling, 1988). Tests are available for the estimation of the amount of acetotrophic bacteria in sludge (Valcke and Verstraete, 1983; van der Berg et al., 1974). One of these tests measures the capacity of the sludge to convert acetate into methane. The test gives information on the percentage of acetotrophic methanogens in anaerobically digested sludge.

Phosphatase activity has also been proposed as a biochemical tool to predict digester upset or failure. An increase in acid and alkaline phosphatases can predict instability of the digestion process well in advance of conventional tests (pH, VFA, gas production) (Ahley and Hurst, 1981).

13.5. FACTORS CONTROLLING ANAEROBIC DIGESTION

Anaerobic digestion is affected by temperature, retention time, pH, chemical composition of wastewater, competition of methanogens with sulfate-reducing bacteria, and the presence of toxicants.

13.5.1. Temperature

Methane production has been documented under a wide range of temperatures ranging between 0°C and 97°C. Although psychrophilic methanogenic bacteria have not been isolated, thermophilic strains operating at an optimum range of 50–75°C are found in hot springs. *Methanothermus fervidus* has been found in a hot spring in Iceland and grows at 63–97°C (Sahm, 1984).

In municipal wastewater treatment plants, anaerobic digestion is carried out in the mesophilic range at temperatures from 25°C to up to 40°C with an optimum at approximately 35°C. Thermophilic digestion operates at temperature ranges of 50–65°C. It allows higher loading rates and is also conducive to greater destruction of pathogens. One drawback is its higher sensitivity to toxicants (Koster, 1988).

Because of their slower growth as compared with acidogenic bacteria, methanogenic bacteria are very sensitive to small changes in temperature. As to utilization of volatile acids by methanogenic bacteria, a decrease in temperature leads to a decrease of the maximum specific growth rate while the half-saturation constant increases (Lawrence and McCarty, 1969). Thus, mesophilic digesters must be designed to operate at temperature between 30°C and 35°C for their optimal functioning.

13.5.2. Retention Time

The hydraulic retention time (HRT), which depends on wastewater characteristics and environmental conditions, must be long enough to allow metabolism by anaerobic bacteria in digesters. Digesters based on attached growth have a

Solid Waste Landfill

Engineering And Design

Edward A. McBean
Professor, Department of Civil Engineering, University of Waterloo

Frank A. Rovers
President, Conestoga-Rovers Associates, Waterloo, Ontario

Grahame J. Farquhar
Professor, Department of Civil Engineering, University of Waterloo

Prentice Hall PTR, Englewood Cliffs, New Jersey 07632

The pH of the leachate [k at 50∞∞°C is 5.07×10^{-7}] is

$$\frac{[H^+]\,[0.01]}{[0.00861]} = 5.07 \times 10^{-7}$$

$$[H^+] = 4.37 \times 10^{-7} \qquad pH = 6.36$$

Temperature Temperature conditions within a landfill influence the type of bacteria that are predominant and the level of gas production. As mentioned previously, the optimum temperature range for mesophilic bacteria is 30°C to 35°C, whereas the optimum for thermophilic bacteria is 45°C to 65°C. Thermophiles generally produce higher gas generation rates; however, most landfills exist in the mesophilic range. Landfill temperatures often reach a maximum within 45 days after placement of wastes as a result of the aerobic microbial activity. Landfill temperatures then decrease once anaerobic conditions develop. Greater temperature fluctuations are typical in the upper zones of a landfill as a result of changing ambient air temperature. Figure 4.11 illustrates temperature fluctuations at various depths with the refuse at a shallow, relatively dry landfill. Smaller temperature fluctuations occur in the central and deeper zones because of the insulating effects of the overlying refuse mass. Landfill refuse at 15 m depth or greater is relatively unaffected by ambient air temperatures and has been observed with temperatures as high as 70°C. Isolated zones of higher temperature may exist within a landfill of generally lower temperature. These higher temperatures tend to appear at deep landfills (greater than 40 m) where sludge is added and/or leachate is recirculated. At shallow landfills, ambient temperatures can affect the refuse temperature.

Elevated gas temperatures within a landfill are a result of biological activity. Landfill gas temperatures are reported to be typically in the range of 30°C to 60°C (Emcon, 1980 and 1981). Optimum temperatures range from 30°C to 40°C, whereas temperatures below 15°C severely limit methanogenic activity. The actual temperatures that can be expected in a full-scale landfill are questionable; most published data refer to expected landfill temperatures and not actual measured temperatures for varying conditions. One publication indicates that a maximum temperature of 24°C to 46°C can be expected as a result of aerobic decomposition soon after landfilling (Ham et al., 1979).

Temperature also affects chemical solubility, because solubility increases with increasing temperatures.

The role of temperature on rate production, k, has been characterized in

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

August 10, 2000

Mr. Tom Tittle
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416

Re: Status Overfire Air Fan Boiler #1 – North County Resource Recovery Facility

Dear Tom:

In follow-up to the March 14, 2000 correspondence, this letter is to inform you that the overfire air fan (OFA) for Boiler #1 which had experienced catastrophic failure on November 16, 1999 was replaced with a unit which met original specifications during a scheduled outage in April 2000. Attached for your review is a letter from the Plant's Environmental Engineer that further details the event.

If you have any questions or require any additional information you can contact me at 640-4000 ext. 4613.

Sincerely,

Mary Beth Mihalik
Environmental Compliance Coordinator

Enlcosure

cc: Joe Kahn, FDEP Tallahassee
Don Lockhart, SWA
Marc Hammond, SWA
John Booth, SWA
Marc Bruner, SWA
Mark McLean, SWA
Bob Worobel, SWA
John Ryberg, SWA
Bill Arvan, PBRRC
Chuck Jolliff, PBRRC
Naren Narendra, PBRRC

TO: David Broten, Environmental specialist, SWA.

FROM: Naren Narendra, Plant Environmental Engineer, PBRRC. 8/2/00

DATE: Aug 2, 2000.

SUBJECT: Replacement Over Fire Air (OFA) Fan for Boiler Unit 1.

Ref: PBRRC memo dated March 06, 2000

The switch over from the temporary bag house fan to the original specification fan was completed during the Unit 1 scheduled outage in April 2000.

Unit 1 was returned to service on April 11, 2000 with the original specification replacement fan. The fan performance and boiler performance was normal with out any major problems.

The compliance (stack) test was subsequently completed on April 26, 2000.

Should you have any further questions or concerns, please contact me at 616-6198.

cc: Bill Arvan -- PBRRC
Chuck Jolliff – PBRRC
Duff Rawlings -PBRRC
D. Burnham - PGG, PSO, Barberton, BVCB3C,
Bob Worobel - SWA,

Department of
Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

November 22, 1999

Mr. Marc C. Bruner, Ph.D.
Director Planning & Environmental Programs
Palm Beach County Solid Waste Authority
7501 North Jog Road
West Palm Beach, Florida 33412

Re: Boiler #1 Over Fire Air Fan Failure

Dear Mr. Bruner:

We appreciate your notification to Tom Tittle that on November 16, 1999 at the Authority's North County Resource Recovery Facility the Boiler #1 over fire air fan experienced a catastrophic failure during the startup of the boiler. As you are aware, such notification is required under Rule 62-4.130, F.A.C. The plant operator has installed a temporary replacement fan of similar specifications to be used until a permanent replacement fan is available. We understand that operation of the temporary replacement fan is expected to be required for no more than 16 weeks to allow for fabrication, delivery, installation and testing of the permanent replacement fan. We also understand that the plant operator can comply with the emission limitations applicable to the facility while operating with the temporary replacement fan. Although pursuant to our initial advice you requested an emergency order, given these facts an emergency order is not required. The installation and operation of the temporary replacement fan falls within the scope of Rule 62-4.130, F.A.C., which requires the Authority advise the Department of its intention toward reconstruction. Please advise the Department when the permanent replacement fan is delivered and when it is installed.

Please contact me at 850-921-9519 if you have any questions about the above.

Sincerely,

Joseph Kahn, P.E.
New Source Review Section

/jk

cc: Tom Tittle, SED

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

November 19, 1999

Mr. Tom Tittle
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416

Re: Request for Emergency Order - North County Resource Recovery Facility

Dear Tom:

This letter is requesting an emergency order to allow modification of our approval to operate with a temporary substitution of the over fire air fan for Boiler # 1 at the North County Resource Recovery Facility (NCRRF). On November 16, 1999, Boiler #1 over fire air fan experienced a catastrophic failure during the startup of the boiler. This piece of equipment is necessary for boiler operation as it provides air flow over the combustion chamber and evenly distributes fuel, which is essential for the combustion process. An ambient air fan with similar specifications was removed from the waste processing B-line Baghouse, which is currently down for repairs, and was installed to an existing duct adjacent to the over fire air fan and tested on November 17, 1999. Enclosed for your review are the specifications of both fans, as well as a schematic depicting the location.

The over fire air fan is such a highly specialized piece of equipment, specifically built for each facility, that is not common practice for the Plant Operator to store a spare of this sort on site. According to the Plant Operator, it will take approximately 10 weeks for the manufacturing and delivery of the new over fire air replacement fan. Therefore, we are requesting that this emergency order be granted for a period of up to 16 weeks to allow sufficient time for manufacturing, delivery, installation, and testing. If you have any questions or require any additional information you can contact me at 640-4000 ext. 4607.

Very truly yours,

Marc C. Bruner, Ph.D.
Director Planning & Environmental Programs

cc: Alvero Linero, FDEP Tallahassee
Joe Kahn, FDEP Tallahassee
Melissa Meeker, FDEP Southeast
Don Lockhart, SWA
Marc Hammond, SWA
John Booth, SWA
Richard Statom, SWA
Bob Worobel, SWA
John Ryberg, SWA
Bill Arvin, PBRRC
Chuck Jolliff, PBRRC
Naren Narendra, PBRRC

TO: Mary Beth Mihalik
Environmental Compliance Coordinator - SWA

FROM: Naren Narendra, Plant Environmental Engineer - PBRRC

DATE: November 19, 1999

RE: Replacement Over Fire Air (OFA) Fan for Boiler 1

PBRRC purchasing Department is in the process of obtaining quotes to purchase an OFA fan for Boiler 1 to replace the damage fan. The normal delivery time quoted by one vendor for an OFA fan with same specifications is 18 weeks.

The damaged fan manufacturer's representative was on site on 11/18/99 inspecting the damage. Any recommendations from the manufacturer will also be considered when ordering the new fan.

PBRRC is negotiating to expedite the delivery time. All indications are a replacement fan could be received on site by ten weeks. Once the fan is on site an outage will be scheduled on Boiler 1 within the next six weeks and the fan will be replaced during this outage.

If you have any questions on this please contact me at 616 6198.

Naren Narendra

Copy to: Bill Arvan - PBRRC
D. Burnham - PGG, PSO, Barberton BVCB3C
Bob Worobel - SWA

Equipment list (continued)

Induced Draft Fan (2ea)

Manufacturer:	TLT Babcock
Design speed:	880 RPM
Design vol flow:	219,091 ACFM
Total pressure in Wg:	15.52
Fan start HP:	593
Fan type:	1414B/1630/0
Design temp:	425° F
Wr^2 of Rotor lbs. Ft^2:	34,720
Rotor weight:	7,800 lbs.

- **Over Fire Air Fan** (2ea) ← ORIGINAL FAN SPEC.

Manufacturer:	TLT Babcock
Design speed:	1775 RPM
Design vol flow:	76,142 ACFM
Total pressure in Wg:	30.00
Fan start HP:	394
Fan type:	14/30 RUK 1120
Design temp:	425°
WR^2 of rotor lbs. $ft.^2$:	4,175
Rotor weight:	1,648 lbs.

- **Stokers**

Manufacturer:	Detroit Stoker Co.
Type:	Continuous forward traveling, ash discharge grates. Driven by hydraulic system.

SUBSTITUTE AMBIENT AIR FAN CURVE

BUFFALO FORGE CO. PERFORMANCE CURVES BUFFALO, NY

FOR: DUSTEX CORPORATION

SIZE & TYPE: 980 L-39 SWSI MSW FANS A32, B32, C32

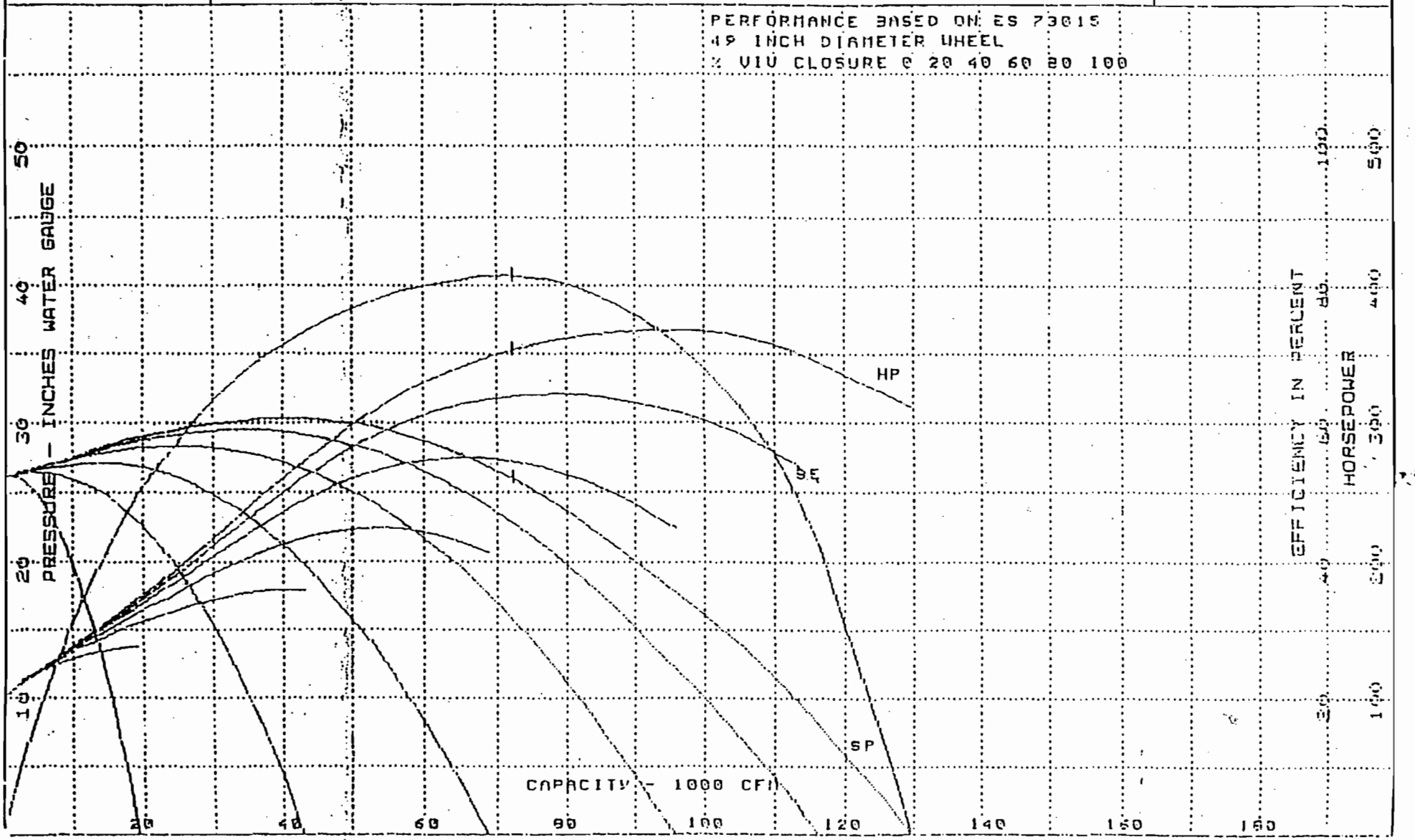
1785 RPM 110 °F 29.92 IN. HG .0652 LB/FT³

PO:

ORDER:

DATE: 01/15/1988

PERFORMANCE BASED ON ES 73015
49 INCH DIAMETER WHEEL
% VIU CLOSURE 0 20 40 60 80 100



SET ALL FOUNDATION BOLTS IN PIPES SO THEY ARE FREE TO MOVE UNTIL GROUTED IN PLACE.

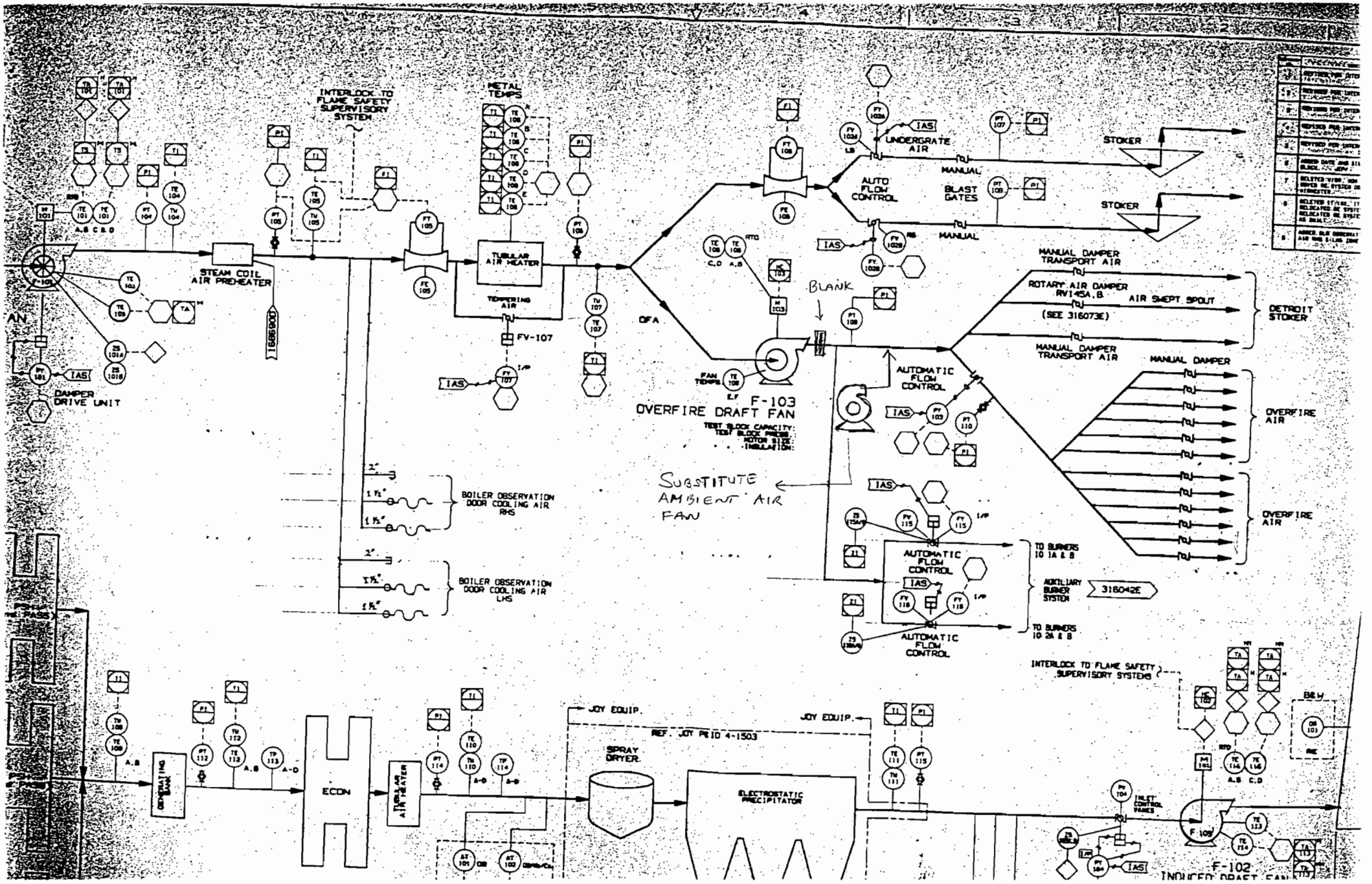
8. REFERENCE NATION
ORDER NO. 2043.
9. BEFORE FIELD STAR
DOWEL TO SUB BAS
10. BUFFALO FORGE CO
MOUNTED, MOTOR
FAN HALF BC
MOTOR HALF

SUBSTITUTE AMBIENT AIR FAN SPEC

ATING:

72,147 CFM 25.99 SP 1785 RPM
350 BHP 110°F TEMP .0654 DENSITY
WHEEL DIAMETER 49"
COMPLETE ROTOR WK² 1767 LBS-FT²
N. E. I. TO CONE OUTLET TO 24 FT² WITH A MAXIMUM ANGL

13 12 11 10



November 19, 1999

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

Mr. Tom Tittle
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416

Re: Request for Emergency Order - North County Resource Recovery Facility

Dear Tom:

This letter is requesting an emergency order to allow modification of our approval to operate with a temporary substitution of the over fire air fan for Boiler # 1 at the North County Resource Recovery Facility (NCRRF). On November 16, 1999, Boiler #1 over fire air fan experienced a catastrophic failure during the startup of the boiler. This piece of equipment is necessary for boiler operation as it provides air flow over the combustion chamber and evenly distributes fuel, which is essential for the combustion process. An ambient air fan with similar specifications was removed from the waste processing B-line Baghouse, which is currently down for repairs, and was installed to an existing duct adjacent to the over fire air fan and tested on November 17, 1999. Enclosed for your review are the specifications of both fans, as well as a schematic depicting the location.

The over fire air fan is such a highly specialized piece of equipment, specifically built for each facility, that is not common practice for the Plant Operator to store a spare of this sort on site. According to the Plant Operator, it will take approximately 10 weeks for the manufacturing and delivery of the new over fire air replacement fan. Therefore, we are requesting that this emergency order be granted for a period of up to 16 weeks to allow sufficient time for manufacturing, delivery, installation, and testing. If you have any questions or require any additional information you can contact me at 640-4000 ext. 4607.

Very truly yours,

Marc C. Bruner, Ph.D.
Director Planning & Environmental Programs

cc:
Alvero Linero, FDEP Tallahassee
Joe Kahn, FDEP Tallahassee
Melissa Meeker, FDEP Southeast
Don Lockhart, SWA
Marc Hammond, SWA
John Booth, SWA
Richard Statom, SWA
Bob Worobel, SWA
John Ryberg, SWA
Bill Arvin, PBRRC
Chuck Jolliff, PBRRC
Naren Narendra, PBRRC

TO: Mary Beth Mihalik
Environmental Compliance Coordinator - SWA

FROM: Naren Narendra, Plant Environmental Engineer - PBRRC

DATE: November 19, 1999

RE: Replacement Over Fire Air (OFA) Fan for Boiler 1

PBRRC purchasing Department is in the process of obtaining quotes to purchase an OFA fan for Boiler 1 to replace the damage fan. The normal delivery time quoted by one vendor for an OFA fan with same specifications is 18 weeks.

The damaged fan manufacturer's representative was on site on 11/18/99 inspecting the damage. Any recommendations from the manufacturer will also be considered when ordering the new fan.

PBRRC is negotiating to expedite the delivery time. All indications are a replacement fan could be received on site by ten weeks. Once the fan is on site an outage will be scheduled on Boiler 1 within the next six weeks and the fan will be replaced during this outage.

If you have any questions on this please contact me at 616 6198.

Naren Narendra

Copy to: Bill Arvan - PBRRC
D. Burnham - PGG, PSO, Barberton BVCB3C
Bob Worobel - SWA

Equipment list (continued)

Induced Draft Fan (2ea)

Manufacturer:	TLT Babcock
Design speed:	880 RPM
Design vol flow:	219,091 ACFM
Total pressure in Wg:	15.52
Fan start HP:	593
Fan type:	1414B/1630/0
Design temp:	425° F
Wr^2 of Rotor lbs. Ft^2:	34,720
Rotor weight:	7,800 lbs.

- **Over Fire Air Fan** (2ea) ← ORIGINAL FAN SPEC.

Manufacturer:	TLT Babcock
Design speed:	1775 RPM
Design vol flow:	76,142 ACFM
Total pressure in Wg:	30.00
Fan start HP:	394
Fan type:	14/30 RUK 1120
Design temp:	425°
WR^2 of rotor lbs. $ft.^2$:	4,175
Rotor weight:	1,648 lbs.

- **Stokers**

Manufacturer:	Detroit Stoker Co.
Type:	Continuous forward traveling, ash discharge grates. Driven by hydraulic system.

SUBSTITUTE AMBIENT AIR FAN CURVE

BUFFALO FORGE CO. PERFORMANCE CURVES BUFFALO, NY

FOR: DUSTEX CORPORATION

SIZE & TYPE: 960 L-39 SWSI MSW FANS A32, B32, C32

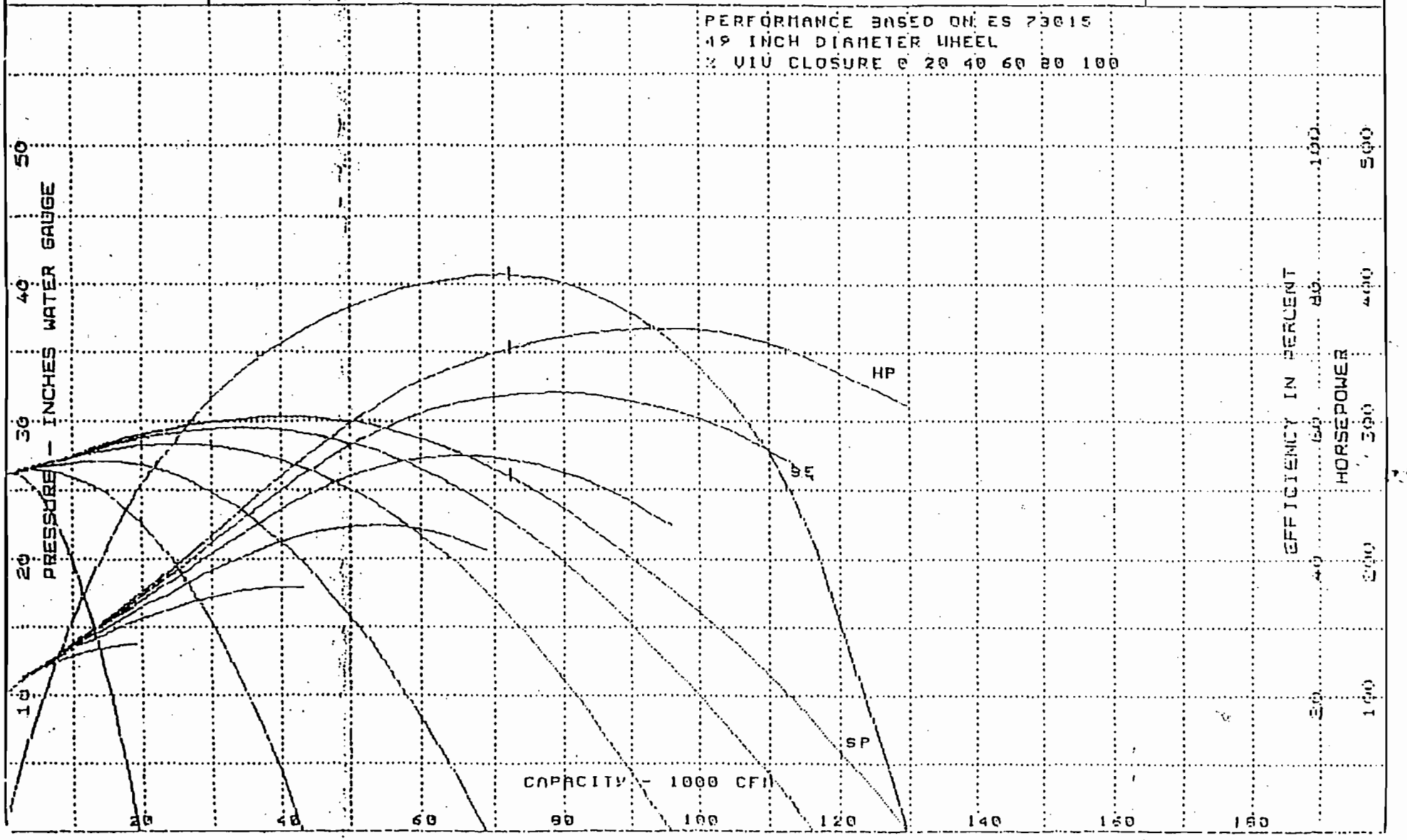
1785 RPM 110 °F 29.92 IN. HG .0662 LB/FT³

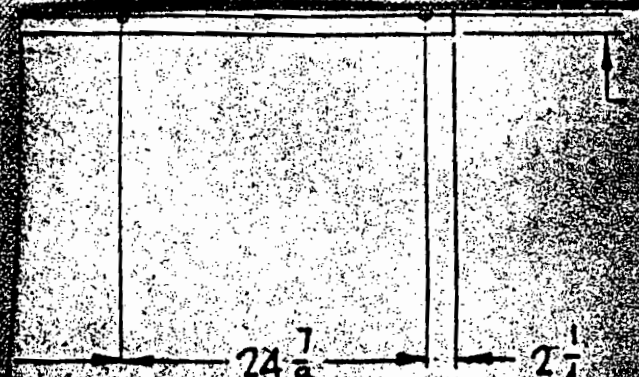
PD:

ORDER:

DATE: 01/15/1988

PERFORMANCE BASED ON ES 73015
49 INCH DIAMETER WHEEL
% VIV CLOSURE @ 20 40 60 80 100





SET ALL FOUNDATION BOLTS IN PIPES SO THEY ARE FREE TO MOVE UNTIL GROUTED IN PLACE.

8. REFERENCE NATIO
ORDER NO 2043.
9. BEFORE FIELD STAR
DOWEL TO SUB BAS
10. BUFFALO FORGE CO
MOUNTED; MOTOR
FAN HALF BO
MOTOR HALF

SUBSTITUTE AMBIENT AIR FAN

TING:

72,147 CFM 25.99 SP 1785 RPM
350 BHP 110°F TEMP .0654 DENSITY
WHEEL DIAMETER 49"
COMPLETE ROTOR WK² 1767 LBS FT²
N. E. I. - TO CONE OUTLET TO 24 FT² WITH A MAXIMUM ANG

13 12 11 10

INTERLOCK TO FLAME SAFETY SUPERVISORY SYSTEM

METAL TEMPS

STEAM COIL AIR PREHEATER

TUBULAR AIR HEATER

TEMPERING AIR

FV-107

DAMPER DRIVE UNIT

OFA

BLANK

F-103
OVERFIRE DRAFT FAN

SUBSTITUTE AMBIENT AIR FAN

UNDERGRATE AIR

AUTO FLOW CONTROL

BLAST GATES

MANUAL

STOKER

MANUAL DAMPER TRANSPORT AIR

ROTARY AIR DAMPER RV145A,B

(SEE 316073E)

AIR SWEPT SPOUT

DETROIT STOKER

MANUAL DAMPER

OVERFIRE AIR

AUTOMATIC FLOW CONTROL

TO BURNERS 10-1A & B

AUXILIARY BURNER SYSTEM

318042E

TO BURNERS 10-2A & B

BOILER OBSERVATION DOOR COOLING AIR RHS

BOILER OBSERVATION DOOR COOLING AIR LHS

JOY EQUIP.

REF. JOY P&ID 4-1503

SPRAY DRYER

ELECTROSTATIC PRECIPITATOR

ECON

TUBULAR AIR HEATER

INTERLOCK TO FLAME SAFETY SUPERVISORY SYSTEMS

F-102
INDUCED DRAFT FAN

SWA
SOLID WASTE AUTHORITY

From: Donna Sayles ext. 4601
OBO: Donna Sayles ext. 4601

Date : 11/19/99
Time : 12:35 pm

7501 North Jog Road
West Palm Beach, Florida 33412
Telephone:(561)640-4000
Fax:(561)640-3400

To: Joe Kahn
Company:
Location:
Fax Number: 1-850-922-6979

Subject: FROM: MARC BRUNER
Total # of Pages: 7

Contents:

November 19, 1999

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

Mr. Tom Tittle
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416

Re: Request for Emergency Order - North County Resource Recovery Facility

Dear Tom:

This letter is requesting an emergency order to allow modification of our approval to operate with a temporary substitution of the over fire air fan for Boiler # 1 at the North County Resource Recovery Facility (NCRRF). On November 16, 1999, Boiler #1 over fire air fan experienced a catastrophic failure during the startup of the boiler. This piece of equipment is necessary for boiler operation as it provides air flow over the combustion chamber and evenly distributes fuel, which is essential for the combustion process. An ambient air fan with similar specifications was removed from the waste processing B-line Baghouse, which is currently down for repairs, and was installed to an existing duct adjacent to the over fire air fan and tested on November 17, 1999. Enclosed for your review are the specifications of both fans, as well as a schematic depicting the location.

The over fire air fan is such a highly specialized piece of equipment, specifically built for each facility, that is not common practice for the Plant Operator to store a spare of this sort on site. According to the Plant Operator, it will take approximately 10 weeks for the manufacturing and delivery of the new over fire air replacement fan. Therefore, we are requesting that this emergency order be granted for a period of up to 16 weeks to allow sufficient time for manufacturing, delivery, installation, and testing. If you have any questions or require any additional information you can contact me at 640-4000 ext. 4607.

Very truly yours,

Marc C. Bruner

Marc C. Bruner, Ph.D.
Director Planning & Environmental Programs

cc:
Alvero Linero, FDEP Tallahassee
Joe Kahn, FDEP Tallahassee
Melissa Meeker, FDEP Southeast
Don Lockhart, SWA
Marc Hammond, SWA
John Booth, SWA
Richard Statom, SWA
Bob Worobel, SWA
John Ryberg, SWA
Bill Arvin, PBRRC
Chuck Jolliff, PBRRC
Naren Narendra, PBRRC

TO: Mary Beth Mihalik
Environmental Compliance Coordinator - SWA

FROM: Naren Narendra, Plant Environmental Engineer - PBRRC

DATE: November 19, 1999

RE: Replacement Over Fire Air (OFA) Fan for Boiler 1

PBRRC purchasing Department is in the process of obtaining quotes to purchase an OFA fan for Boiler 1 to replace the damage fan. The normal delivery time quoted by one vendor for an OFA fan with same specifications is 18 weeks.

The damaged fan manufacturer's representative was on site on 11/18/99 inspecting the damage. Any recommendations from the manufacturer will also be considered when ordering the new fan.

PBRRC is negotiating to expedite the delivery time. All indications are a replacement fan could be received on site by ten weeks. Once the fan is on site an outage will be scheduled on Boiler 1 within the next six weeks and the fan will be replaced during this outage.

If you have any questions on this please contact me at 616 6198.

Naren Narendra

Copy to: Bill Arvan - PBRRC
D. Burnham - PGG, PSG, Barberton BVCB3C
Bob Worobel - SWA

Equipment list (continued)

Induced Draft Fan (2ea)

Manufacturer:	TLT Babcock
Design speed:	880 RPM
Design vol flow:	219,091 ACFM
Total pressure in Wg:	15.52
Fan start HP:	593
Fan type:	1414B/1630/0
Design temp:	425° F
Wr² of Rotor lbs. Ft²:	34,720
Rotor weight:	7,800 lbs.

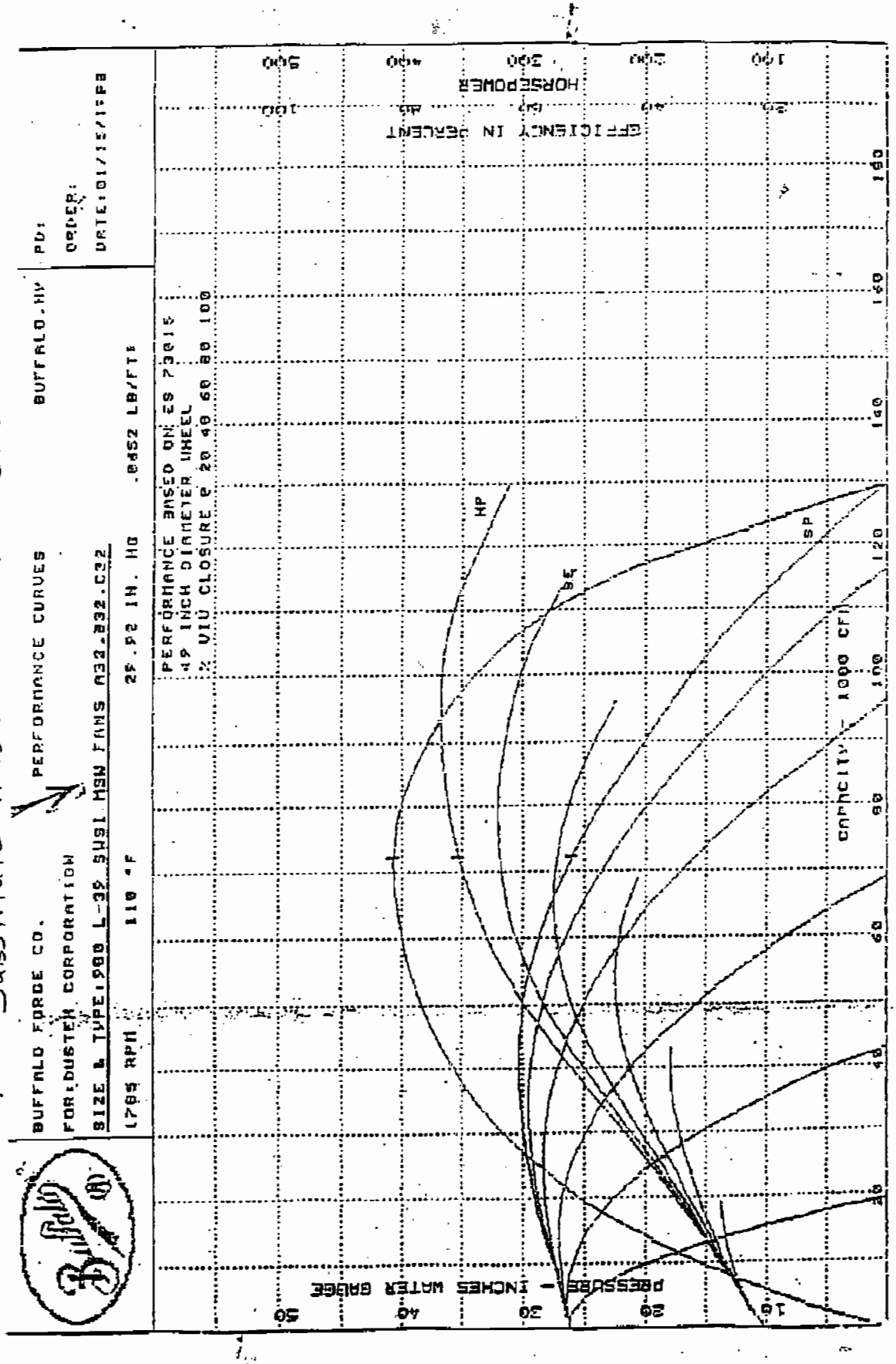
- **Over Fire Air Fan** (2ea) ← ORIGINAL FAN SPEC.

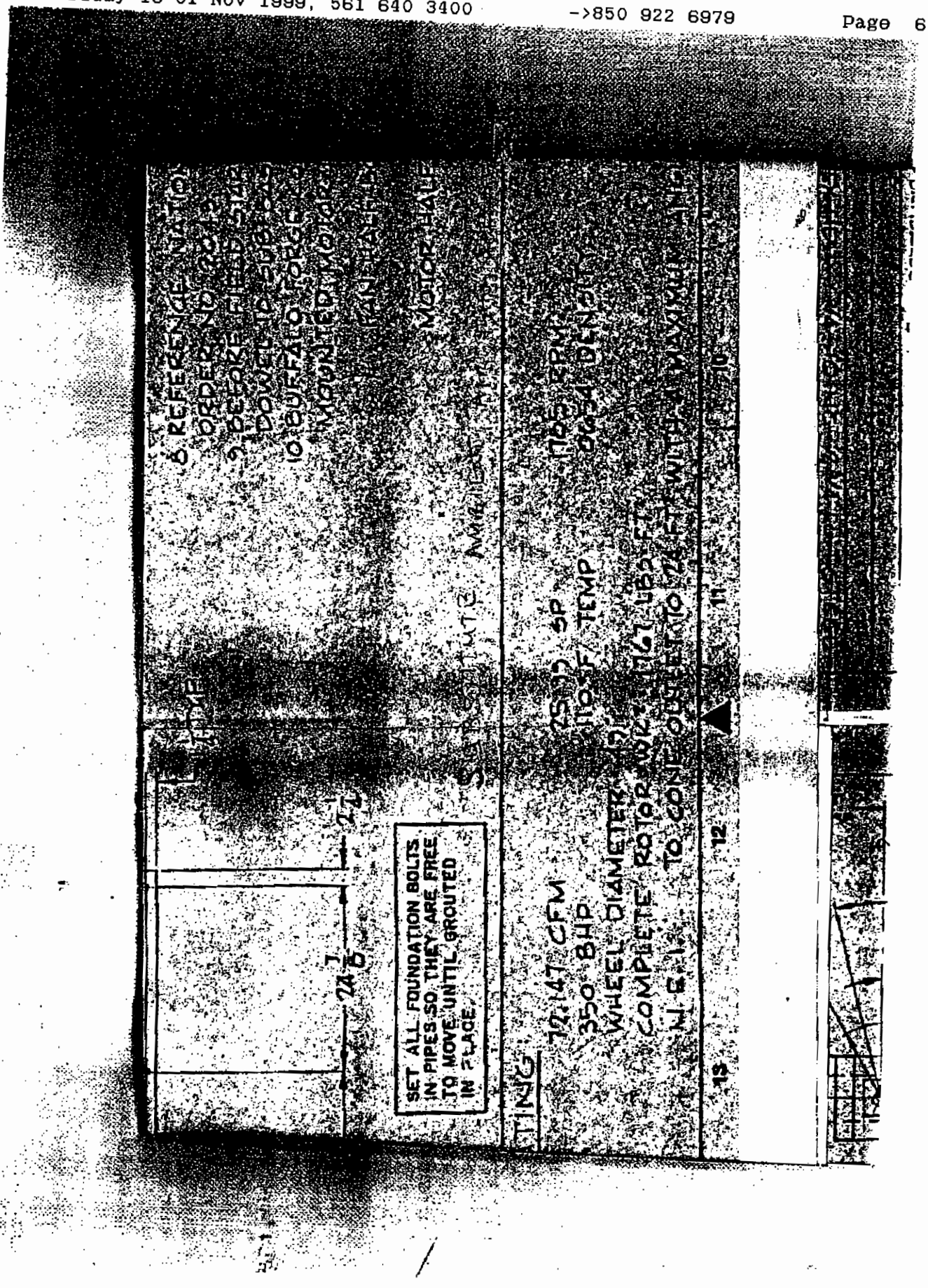
Manufacturer:	TLT Babcock
Design speed:	1775 RPM
Design vol flow:	76,142 ACFM
Total pressure in Wg:	30.00
Fan start HP:	394
Fan type:	14/30 RUK 1120
Design temp:	425°
WR² of rotor lbs. ft.²:	4,175
Rotor weight:	1,648 lbs.

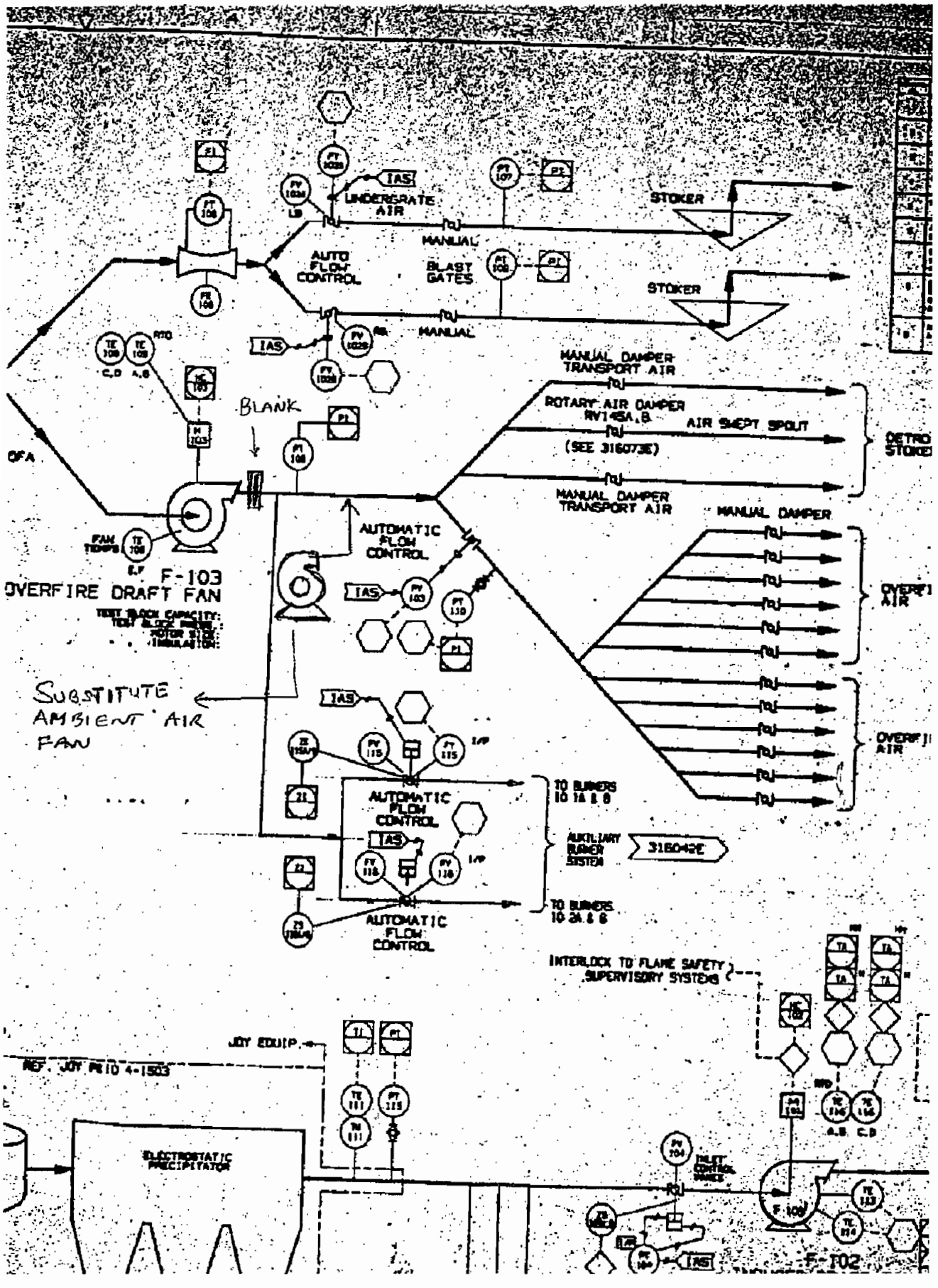
- **Stokers**

Manufacturer:	Detroit Stoker Co.
Type:	Continuous forward traveling, ash discharge grates. Driven by hydraulic system.

Substitute Ambient Air Fan Curve







SWA
SOLID WASTE AUTHORITY

From: Donna Sayles ext. 4601
OBO: Donna Sayles ext. 4601

Date : 11/19/99
Time : 11:48 am

7501 North Jog Road
West Palm Beach, Florida 33412
Telephone:(561)640-4000
Fax:(561)640-3400

To: Alvaro Linero
Company:
Location:
Fax Number: 1-850-922-6979

Subject: FROM: MARC BRUNER
Total # of Pages: 7

Contents:

November 19, 1999

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

Mr. Tom Tittle
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416

Re: Request for Emergency Order - North County Resource Recovery Facility

Dear Tom:

This letter is requesting an emergency order to allow modification of our approval to operate with a temporary substitution of the over fire air fan for Boiler # 1 at the North County Resource Recovery Facility (NCRRF). On November 16, 1999, Boiler #1 over fire air fan experienced a catastrophic failure during the startup of the boiler. This piece of equipment is necessary for boiler operation as it provides air flow over the combustion chamber and evenly distributes fuel, which is essential for the combustion process. An ambient air fan with similar specifications was removed from the waste processing B-line Baghouse, which is currently down for repairs, and was installed to an existing duct adjacent to the over fire air fan and tested on November 17, 1999. Enclosed for your review are the specifications of both fans, as well as a schematic depicting the location.

The over fire air fan is such a highly specialized piece of equipment, specifically built for each facility, that is not common practice for the Plant Operator to store a spare of this sort on site. According to the Plant Operator, it will take approximately 10 weeks for the manufacturing and delivery of the new over fire air replacement fan. Therefore, we are requesting that this emergency order be granted for a period of up to 16 weeks to allow sufficient time for manufacturing, delivery, installation, and testing. If you have any questions or require any additional information you can contact me at 640-4000 ext. 4607.

Very truly yours,

Marc C. Bruner, Ph.D.
Director Planning & Environmental Programs

cc:
Alvero Linero, FDEP Tallahassee
Joe Kahn, FDEP Tallahassee
Melissa Meeker, FDEP Southeast
Don Lockhart, SWA
Marc Hammond, SWA
John Booth, SWA
Richard Statom, SWA
Bob Worobel, SWA
John Ryberg, SWA
Bill Arvin, PBRRC
Chuck Jolliff, PBRRC
Naren Narendra, PBRRC

TO: Mary Beth Mihalik
Environmental Compliance Coordinator - SWA

FROM: Naren Narendra, Plant Environmental Engineer - PBRRC

DATE: November 19, 1999

RE: Replacement Over Fire Air (OFA) Fan for Boiler 1

PBRRC purchasing Department is in the process of obtaining quotes to purchase an OFA fan for Boiler 1 to replace the damage fan. The normal delivery time quoted by one vendor for an OFA fan with same specifications is 18 weeks.

The damaged fan manufacturer's representative was on site on 11/18/99 inspecting the damage. Any recommendations from the manufacturer will also be considered when ordering the new fan.

PBRRC is negotiating to expedite the delivery time. All indications are a replacement fan could be received on site by ten weeks. Once the fan is on site an outage will be scheduled on Boiler 1 within the next six weeks and the fan will be replaced during this outage.

If you have any questions on this please contact me at 616 6198.

Naren Narendra

Copy to: Bill Arvan - PBRRC
D. Burnham - PGG, PSO, Barberton BVCB3C
Bob Worobel - SWA

Equipment list (continued)

Induced Draft Fan (2ea)

Manufacturer:	TLT Babcock
Design speed:	880 RPM
Design vol flow:	219,091 ACFM
Total pressure in Wg:	15.52
Fan start HP:	593
Fan type:	1414B/1630/0
Design temp:	425° F
Wr^2 of Rotor lbs. Ft^2:	34,720
Rotor weight:	7,800 lbs.

- **Over Fire Air Fan** (2ea) ← ORIGINAL FAN SPEC.

Manufacturer:	TLT Babcock
Design speed:	1775 RPM
Design vol flow:	76,142 ACFM
Total pressure in Wg:	30.00
Fan start HP:	394
Fan type:	14/30 RUK 1120
Design temp:	425°
WR^2 of rotor lbs. $ft.^2$:	4,175
Rotor weight:	1,648 lbs.

- **Stokers**

Manufacturer:	Detroit Stoker Co.
Type:	Continuous forward traveling, ash discharge grates. Driven by hydraulic system.

SUBSTITUTE AMBIENT AIR FAN CURVE

BUFFALO FORGE CO. PERFORMANCE CURVES BUFFALO.HV

FOR: DUSTER CORPORATION

SIZE & TYPE: 900 L-39 SWSI MSW FANS A32.B32.C32

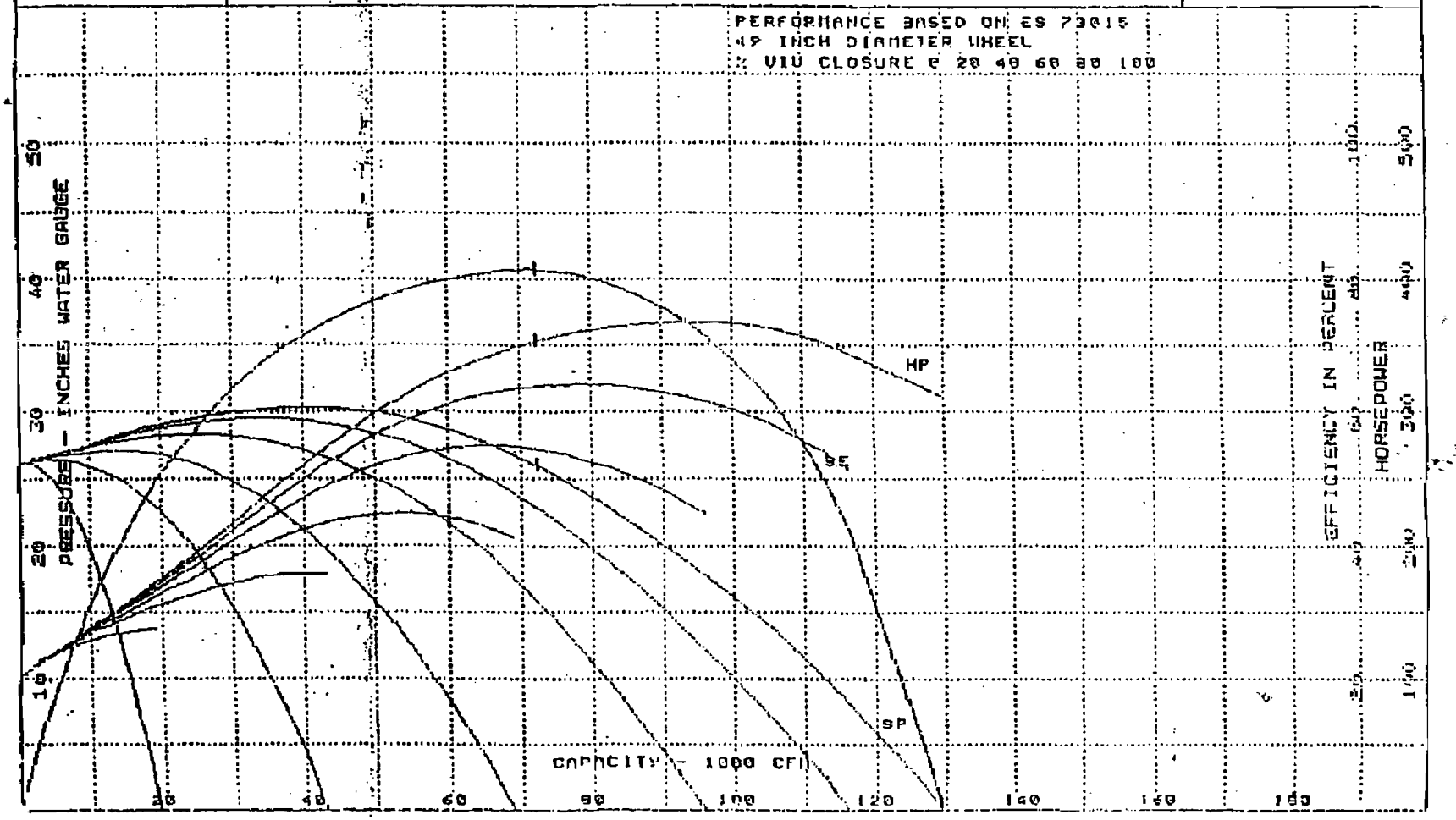
1785 RPM 110 °F 29.92 IN. HG .0452 LB/FT³

PD:

ORDER:

DATE: 01/15/1998

PERFORMANCE BASED ON ES 73015
49 INCH DIAMETER WHEEL
% VIU CLOSURE @ 20 40 60 80 100



8. REFERENCE NATIO[illegible]
ORDER NO. [illegible]
9. BEFORE FIELD STAR[illegible]
DOWEL TO SUBBAS[illegible]
10. BUFFALO FORGE [illegible]
MOUNTED MOTOR[illegible]
FAN HALF [illegible]
MOTOR HALF

$24\frac{7}{8}$ $2\frac{1}{4}$

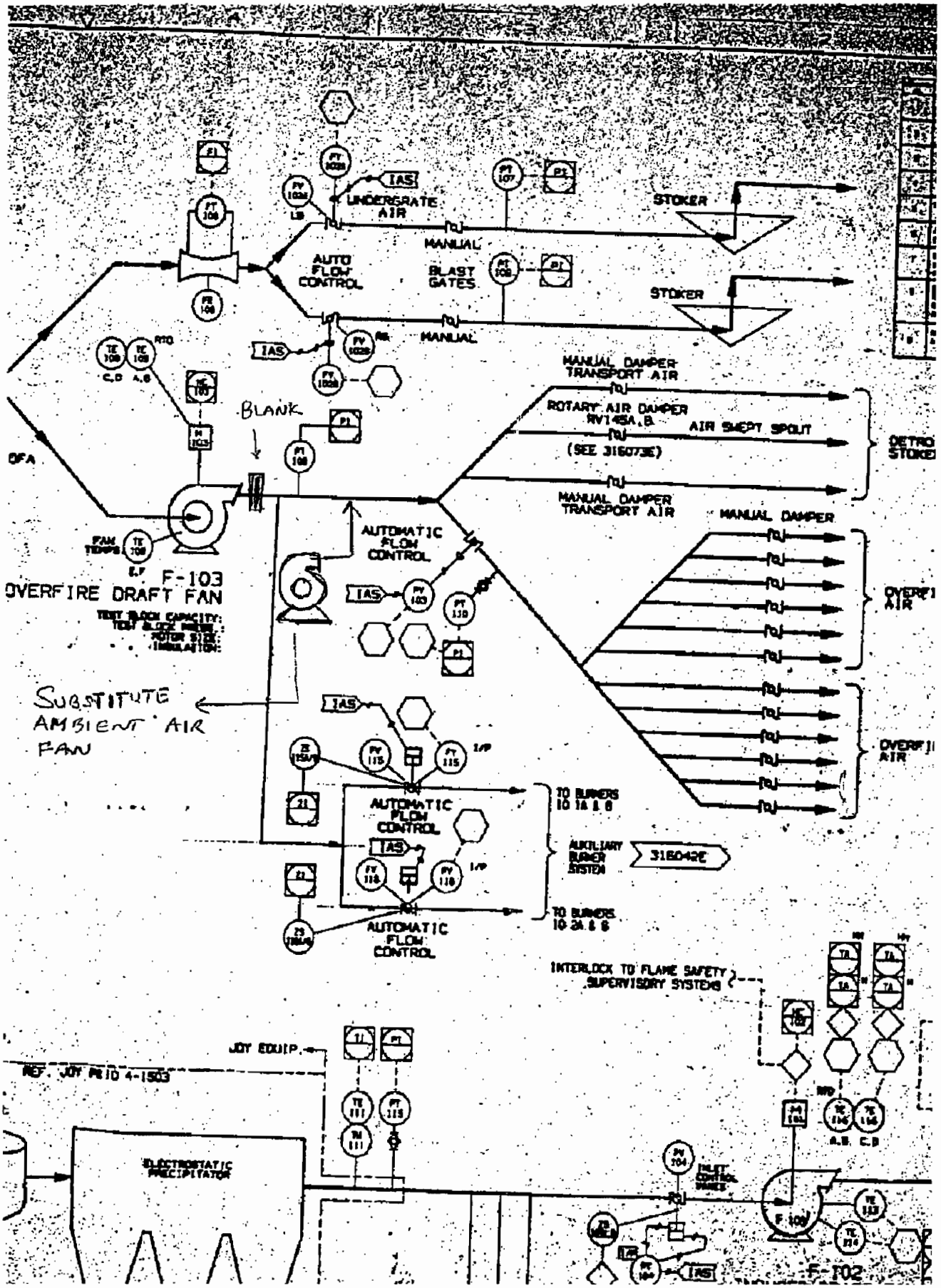
SET ALL FOUNDATION BOLTS IN PIPES SO THEY ARE FREE TO MOVE UNTIL GROUTED IN PLACE

SUBSTITUTE AMBIENT A[illegible]

TING

72,147 CFM [illegible] SP 1705 RPM
350 BHP [illegible] °F TEMP .0654 DENSITY
WHEEL DIAMETER [illegible]
COMPLETE ROTOR WK² 1767 LBS FT²
N.E.I. TO CONE OUTLET TO 24 FT WITH A MAXIMUM AN[illegible]

13 12 11 10



ATTACHMENT A

1998 LANDFILL DEPLETION MODEL

1998 LANDFILL DEPLETION MODEL

Solid Waste Authority of Palm Beach County
North County Landfills
Landfill Depletion Model

November 15, 1997

Solid Waste Authority of Palm Beach County

7501 North Jog Road
West Palm Beach, FL 33412
561-640-4000

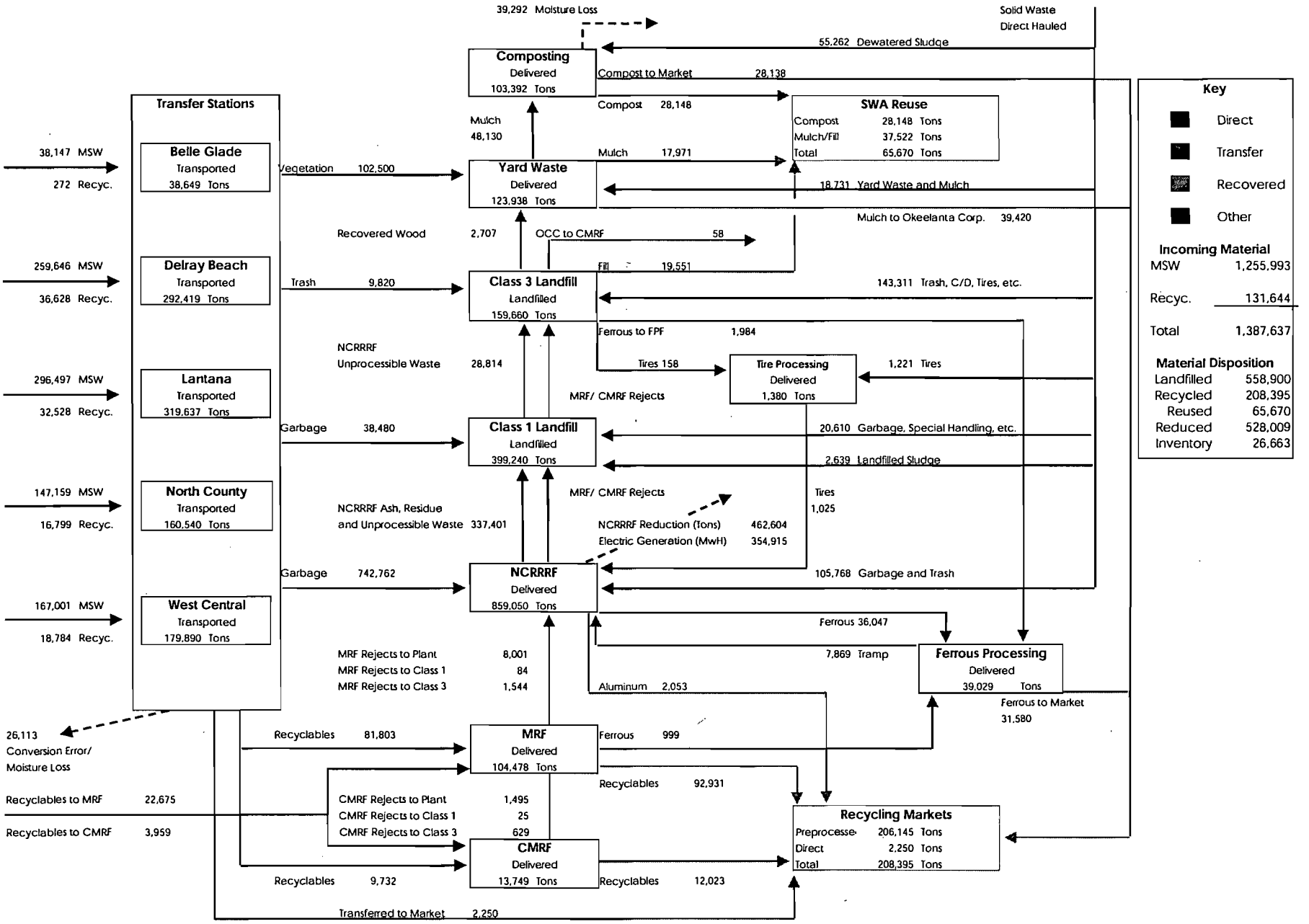
1998 Landfill Depletion Model
November 15, 1997

Table of Contents

Produced By:
Daniel Pellowitz, Business Analyst
Department of the Managing Director
Solid Waste Authority of Palm Beach County
561-640-4000

Solid Waste Authority of Palm Beach County

Waste Flow Diagram - FY 1996/1997



1998 Landfill Depletion Model
November 15, 1998

1.0 Introduction

1.1 Purpose

The principles of integrated solid waste management as put forth in the Environmental Protection Agency's hierarchy of integrated solid waste management are designed to minimize the quantity of waste disposed in landfills. The recycling, composting, and resource recovery programs that make up a part of the Authority's solid waste management system divert materials from landfill disposal and decrease the volume of landfill space required to serve the Palm Beach County population.

Despite the existence of these programs, the Authority recognizes the unique characteristics of landfilling as a waste disposal option, not the least of which is the reality that landfill space, unlike other forms of infrastructure, is a depletable resource. Recycling, composting, and resource recovery are all factors in increasing the life of a given landfill volume, however given existing technology, there will always be a need to landfill some portion of the waste stream. It is reasonable to assume that although the need to provide replacement capacity can be delayed through recycling, composting, and resource recovery programs, it cannot be prevented. The availability of landfill capacity is a driving force behind the solid waste management system decision making process.

Prudent planning requires identifying the time at which the need for replacement capacity becomes critical and taking the required steps to ensure that replacement capacity is available. Although replacement landfill capacity can be secured in several ways, including siting a new landfill and contracting with a private landfill operator, the long lead time in siting, permitting, and constructing a landfill site, often greater than ten years, necessitates effective long range planning in order to ensure viability of available options. The Authority's primary long range planning tool is the Landfill Depletion Model.

The Landfill Depletion Model is intended to forecast the estimated life of the Authority's North County landfills in order to facilitate facilities planning decisions and to assess the impact of alternatives and alternative states of nature on landfill life. As a planning tool, the model is useful in identifying the point or points in time at which a decision is required in order to ensure the availability of disposal capacity.

The Landfill Depletion Model considers the dynamic interrelationships between the available processing and disposal options, population projections and population growth rates, per capita generation rates, recycling rates, diversion rates, incineration capacity and reduction effectiveness, landfill compacted densities, and cover material requirements and produces a projected date of landfill depletion. With this date established and the anticipated lead time known, the latest date at which a decision must be made can be determined.

Because of the many factors impacting the rate of landfill depletion and in order to minimize the possibility of falling behind on the critical path, the Landfill Depletion Model is run on an annual basis when the latest population projections become available.

The model was last updated in February 1997 and was based on FY 1995-1996 operating data and existing assumptions.

1.2 Model Description

Population projections and per capita waste generation rates are used to forecast annual waste generation for the next 30 years. The annual waste tonnages are adjusted downward to account for recycling, incineration, and waste reduction activities. The net landfill tonnage is converted to cubic yards and the landfill depletion determined using estimated compacted densities. In every period, the cubic yards depleted in the period are deducted from the remaining volume at the end of the prior period to determine the volume remaining. A negative number in the "Landfill Volume Remaining" column indicates that the landfill is at capacity. The main schedules are as follows:

Table 1	Estimated Population and Solid Waste Generation
Table 2	Class 1 Landfill Depletion
Table 2A	Class 1 Landfill Depletion - Third Boiler at NCRRRF
Table 3	Class 3 Landfill Depletion
Table 3A	Class 3 Landfill Depletion - Third Boiler at NCRRRF
Table 4	North County Landfill Depletion Under Balanced Life Scenario
Table 4A	North County Landfill Depletion Under Balanced Life Scenario- Third Boiler at NCRRRF

1.3 Prior Results

The landfill depletion model was last updated in January 1997 and was based on operating data through 1996. The model predicted final depletion would occur in 2022 assuming the Class 1 and Class 3 landfills reach capacity at the same time. The model further indicated that adding a third boiler to the Resource Recovery Facility in the year 2001 would extend the life of the landfill to 2026.

Although the model is a long range planning tool, an evaluation of short term performance versus actual results is an important aspect of the annual review in order to identify any short term changes which may impact long term results. The following table presents projected, actual, and percent variance data for the previous year:

	Projected	Actual	Variance
Total Solid Waste Generation	1,189,389	1,173,368	1.3%
Class 1 Generation	878,318	921,219	-4.9%
Class 3 Generation	311,071	252,149	18.9%
Total Generation Rate (ppd)	6.50	6.31	2.9%
Class 1 Generation Rate	4.80	4.93	-2.7%
Class 3 Generation Rate	1.70	1.37	19.4%
Total Landfilled Tonnage	571,736	558,900	2.2%
Class 1 Landfilled Tonnage	357,993	399,240	-11.5%
Class 3 Landfilled Tonnage	213,743	159,660	25.3%

Note:

(1) Total generation is net of out-of-county recyclables but includes 17,753 tons of material removed from two closed landfills.

(2) Total landfill quantity includes 17,753 tons of material removed from two closed landfills.

(3) Per capita generation rates expressed net of out-of-county recyclables and net of material from other landfillsto provide an equal basis for comparison.

(4) Vegetation and sludge not included in any of the above figures.

Total solid waste generation and disposal were both in line with projections with a variance of 1.3% and 2.2%, respectively. Total Class 1 generation exceeded projections by 4.9% and the Class 1 landfill quantity exceeded projections by 11.5%. The primary reasons for this include the landfilling of 17,329 tons of material excavated from

two closed landfills and redisposed in the Class 1 landfill, in the absence of which the variances would have been 2.9% generated and 6.7% landfilled, and an increase in the delivery of garbage and recyclables of 40,304 tons and 8,437 tons, respectively. The strong increase in garbage deliveries was experienced primarily at the West Central Transfer Station (up 11,791 tons or 8%), most likely related to the rapid development in the Acreage, and at the Delray Beach Transfer Station (up 15,185 tons or 10%), possibly due to the recapture of commercial MSW from out-of-county disposal following the decrease in the tipping fee from $40 to $23 per ton. Additionally, the County experienced a significant increase in rainfall, which increases the moisture content and the weight of incoming waste.

The generation and disposal of Class 3 material was overestimated in the model for the second year in a row despite a decrease in the assumed per capita generation rate from 1.80 to 1.70 ppd. The Class 3 generation estimate exceeded actual by 58,922 tons (18.9%). This error was the result of decreased trash and construction and demolition debris deliveries of 18,452 and 23,192 tons, respectively. Trash and construction and demolition debris quantities disposed at the Authority have shown a steady decline for the past six years, both in total and on a per capita basis, and this decline continues. The ability to predict construction and demolition debris deliveries is made difficult by the competitive marketplace that exists for the processing and disposal of this type of material and the tipping fee economics involved. The decrease in the trash quantity may be the result of a substitution effect resulting from household bulk trash being collected with garbage by more communities.

An additional source of error may be the impact of the decrease in the Authority's tipping fee for garbage and trash along with the tipping fee for construction and demolition debris remaining at $37 per ton. This could have resulted in construction and demolition debris and/or trash entering the Authority's facilities commingled with garbage. Nonetheless, it must be noted that the ***Landfill Depletion Model*** is a long range planning tool and short term fluctuations may not be consistent with long term results.

2.0 Landfill Depletion Model Assumptions

2.1 Population

Palm Beach County is one of the most rapidly growing areas in the country. Recent projections indicate that the population of Palm Beach County is anticipated to increase from approximately 1,004,000 people in 1997 to 1,500,000 people in 2020. Both the population growth and the timing of population growth are critical to properly assessing future waste generation and landfill longevity.

The Authority uses the University of Florida Bureau of Economic and Business Research medium permanent population projections as published in ***Florida Population Studies***. Due to the need to provide capacity assurance to the municipalities in a timely manner, the population projections issued in February 1997 (***Florida Population Studies, Vol. 30 No.2, Bulletin No. 117***) are used in the model. The BEBR population projections are the same projections used by Palm Beach County Planning and Zoning for planning purposes. The average annual growth rate from 1997 through 2020 is approximately 1.7%. The BEBR projections are presented in 5 year intervals. The between interval population estimates are calculated through interpolation using the periodic growth factors. The between interval growth rates are as follows:

Average Annual Growth Rates		Average Annual Growth Rates	
1997-2000	1.95%	2000-2005	1.79%
2005-2010	1.62%	2010-2015	1.52%
2015-2020	1.42%		

Tourism being one of Palm Beach County's largest economic contributors, there is an annual surge in population between Thanksgiving and Easter. Due to the difficulty in predicting seasonal population, which fluctuates with general economic conditions and the weather, among other factors, the solid waste generation projections are made using only permanent population.

The Bureau of Economic and Business Research provides no estimate beyond 2020. The model assumes that the build-out population is the 2020 BEBR medium projection. This assumption is consistent with the approach used by Palm Beach County Planning. The model freezes population growth in 2020.

2.2 Waste Generation

Two per capita generation rates are utilized in the model, one for Class 1 material (garbage) and one for Class 3 material (trash), because these materials are generally processed separately. Class 1 material is delivered to the North County Resource Recovery Facility for incineration with material in excess of the plant's capacity landfilled directly in the Class 1 landfill. Class 3 material is delivered to the Class 3 landfill for processing and disposal. In order to calculate the per capita generation rates, Authority incoming waste tonnages for the preceding several years are reviewed in an effort to identify any trends. The data source is Authority scale reports. The per capita generation rates used in the model reflect only the material the Authority receives or reasonably expects to receive.

Currently, approximately 600,000 tons of primarily heavy construction and demolition debris and clean vegetation are delivered to private recyclers permitted by the Authority. Material that is currently diverted to private recyclers is assumed to continue to be delivered to private recyclers unless there is some compelling reason to believe that the situation will change. Socioeconomic, regulatory, and other factors that could affect the estimate are evaluated for their potential impact.

2.2.1 Per Capita Generation Rates - Discussion

The estimated per capita waste generation rates for the past five years and for FY 1985/1986 are presented on Page 5. Fiscal year 1985/1986 data was used in the Authority's original ***Comprehensive Solid Waste Management Plan.***

After a significant decrease in the per capita generation rate last year, the total per capita generation rate was almost unchanged for the most recent year at 7.39 p.p.d versus 7.38 p.p.d last year. The Authority experienced a marked increase in the garbage and vegetation components, offset primarily by strong decreases in the delivery of construction and demolition debris and trash. The increase in garbage deliveries directly impacts the Authority's disposal facilities, both the Resource Recovery Facility and the landfill. The increase in vegetation deliveries is not anticipated to affect the disposal facilities because the Authority has other uses for the material, including the SWA Compost Facility.

Clean vegetation deliveries increased from .62 p.p.d. to .76 p.p.d. in 1996/1997 after decreasing last year from .83 p.p.d. As in the previous year, tipping fee economics was the major cause. In 1995/1996, the Authority increased the tipping fee for vegetation from $18 to $25 per ton and restricted deliveries of compacted vegetation, which directed more vegetation to the private sector. In 1996/1997 the Authority was forced to reduce the tipping fee for vegetation from $25 per ton to $20 per ton as a part of a strategy to maintain competitiveness by decreasing the tipping fee for garbage and trash from $40 per ton to $23 per ton. The reduction in the vegetation tipping fee was necessary to maintain the incentive to separate the material. As expected, this action diverted vegetation away from the private sector and the quantity increased.

As in the previous ***Landfill Depletion Model,*** due to the sensitivity of vegetation deliveries to market factors and the fluctuations this causes in the per capita generation rates, this revision of the model eliminates the vegetation component from the per capita trash generation rate used in the model. The Class 3 reduction rate has been adjusted accordingly. As long as the Authority continues diverting vegetation from the landfill, this methodology will be used.

Solid Waste Authority of Palm Beach County
Historical Per Capita Generation Rates

	Fiscal Year						Base Year
	1996/1997	1995/1996	1994/1995	1993/1994	1992/1993	1991/1992	1985/1986
Population	1,003,684	981,793	962,802	937,190	918,119	905,928	752,115
Tonnage	1,353,466	1,321,858	1,347,872	1,290,203	1,254,329	1,217,910	1,222,930
Garbage	783,112	742,808	724,761	734,207	683,029	692,764	536,775
Trash	141,691	160,254	158,459	181,100	177,746	185,440	290,327
Vegetative	139,950	110,415	145,892	97,299	113,862	41,719	30,724
CD/Land Clearing	89,125	111,719	106,773	99,572	127,264	146,264	354,574
Sludge	57,901	59,536	59,346	44,068	48,734	60,645	119
Clean Fill	19,551	21,964	37,100	26,392	2,632	7,550	1,733
Tires	1,358	1,974	3,151	3,601	7,271	4,255	2,690
Miscellaneous	3,112	3,960	3,343	2,488	3,163	9,011	5,988
Subtotal MSW	1,235,800	1,212,629	1,238,825	1,188,727	1,163,701	1,147,648	1,222,930
Recyclables	117,666	109,229	109,047	101,475	90,628	70,262	0
Total MSW	1,353,466	1,321,858	1,347,872	1,290,202	1,254,329	1,217,910	1,222,930
Garbage	4.28	4.15	4.12	4.29	4.08	4.19	3.91
Trash	0.77	0.89	0.90	1.06	1.06	1.12	2.12
Vegetative	0.76	0.62	0.83	0.57	0.68	0.25	0.22
Land Clearing/CD	0.49	0.62	0.61	0.58	0.76	0.88	2.58
Sludge	0.32	0.33	0.34	0.26	0.29	0.37	0.00
Clean Fill	0.11	0.12	0.21	0.15	0.02	0.05	0.01
Tires	0.01	0.01	0.02	0.02	0.04	0.03	0.02
Miscellaneous	0.02	0.02	0.02	0.01	0.02	0.05	0.04
Subtotal MSW	6.75	6.77	7.05	6.95	6.95	6.94	8.91
Recyclables	0.64	0.61	0.62	0.59	0.54	0.42	0.00
Total MSW	7.39	7.38	7.67	7.54	7.49	7.37	8.91
Major Categories (pounds per person per day)							
Class 1	**4.93**	**4.78**	**4.76**	**4.90**	**4.64**	**4.67**	**3.95**
Class 3	**1.37**	**1.65**	**1.74**	**1.82**	**1.88**	**2.08**	**4.73**
Vegetation	**0.76**	**0.62**	**0.83**	**0.57**	**0.68**	**0.25**	**0.22**
Sludge	**0.32**	**0.33**	**0.34**	**0.26**	**0.29**	**0.37**	**0.00**
Garbage and Trash	**6.31**	**6.43**	**6.50**	**6.72**	**6.52**	**6.75**	**8.68**

Notes:

(1) Population projections are BEBR Medium Permanent projections.

(2) Tonnage based on SWA scale reports, except for 90/91 and prior, which are adjusted for density assumption variance, and for the addition of small quantities of unweighed waste.

(3) The increase in clean vegetation resulted from tipping fee economics following a decrease in the tipping fee for Fiscal Year 96/97 from $25 to $20 per ton.

(4) Solid waste tonnage reduced by 12,670 tons of material from Cross State Landfill and 5,083 tons of material from Jupiter Landfill redisposed at the NCRSWDF. This material was not generated in the year.

(5) Recycling tonnage reduced by 11,940 tons of Martin County and 2,038 tons of St. Lucie County recyclables.

Solid Waste Authority of Palm Beach County
Historical Garbage and Trash Quantities

Garbage

	90/91	91/92	92/93	93/94	94/95	95/96	96/97	91/92	92/93	93/94	94/95	95/96	96/97	Six Years	Three Years
October	60,219	59,195	52,221	57,951	57,409	62,568	63,685	-1.70%	-11.78%	10.97%	-0.94%	8.99%	1.78%	0.94%	5.32%
November	56,904	55,735	55,469	62,389	63,173	59,920	60,493	-2.05%	-0.48%	12.48%	1.26%	-5.15%	0.96%	1.02%	-2.14%
December	58,939	61,957	58,059	63,048	67,148	60,712	68,225	5.12%	-6.29%	8.59%	6.50%	-9.58%	12.37%	2.47%	0.80%
January	65,854	61,900	60,203	65,348	64,057	67,707	69,891	-6.00%	-2.74%	8.55%	-1.97%	5.70%	3.22%	1.00%	4.45%
February	57,627	57,715	54,270	62,028	57,401	60,712	64,005	0.15%	-5.97%	14.30%	-7.46%	5.77%	5.42%	1.76%	5.60%
March	61,304	62,951	66,711	67,724	64,832	64,178	69,172	2.69%	5.97%	1.52%	-4.27%	-1.01%	7.78%	2.03%	3.29%
April	63,033	59,248	60,680	62,891	57,668	64,890	67,968	-6.01%	2.42%	3.64%	-8.31%	12.52%	4.74%	1.26%	8.56%
May	59,584	53,687	54,409	60,920	61,356	64,876	66,075	-9.90%	1.34%	11.97%	0.72%	5.74%	1.85%	1.74%	3.77%
June	52,544	58,560	56,938	61,485	59,899	58,741	65,657	11.45%	-2.77%	7.99%	-2.58%	-1.93%	11.77%	3.78%	4.70%
July	57,463	53,841	53,868	53,448	56,096	61,494	62,495	-6.30%	0.05%	-0.78%	4.95%	9.62%	1.63%	1.41%	5.55%
August	53,990	53,688	55,685	60,436	60,088	59,474	61,960	-0.56%	3.72%	8.53%	-0.58%	-1.02%	4.18%	2.32%	1.55%
September	52,055	54,288	54,528	56,356	55,634	57,535	63,486	4.29%	0.44%	3.35%	-1.28%	3.42%	10.34%	3.36%	6.82%
Garbage	699,516	692,764	683,039	734,025	724,759	742,808	783,112	-0.97%	-1.40%	7.46%	-1.26%	2.49%	5.43%	1.90%	3.95%

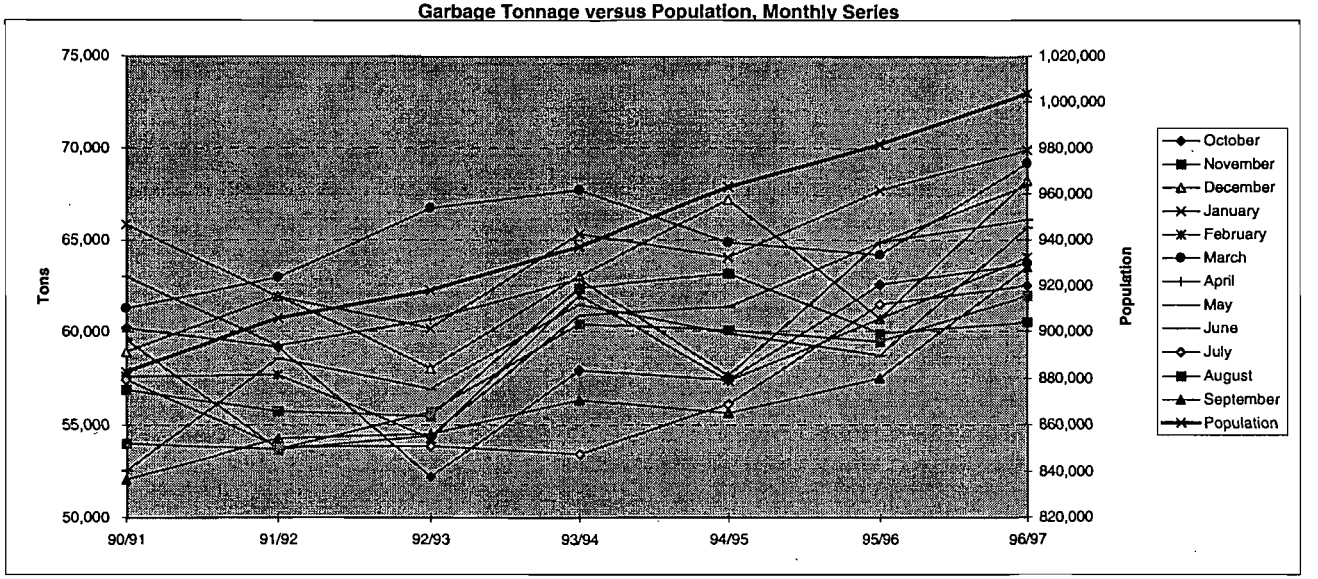
Trash

	90/91	91/92	92/93	93/94	94/95	95/96	96/97	91/92	92/93	93/94	94/95	95/96	96/97	Six Years	Three Years
October	16,930	17,724	13,869	13,921	13,852	14,032	12,500	4.69%	-21.75%	0.37%	-0.49%	1.30%	-10.91%	-4.93%	-5.01%
November	13,912	15,615	11,487	13,601	14,144	11,878	9,108	12.25%	-26.43%	18.40%	3.99%	-16.02%	-23.32%	-6.82%	-19.75%
December	12,265	14,068	13,145	13,520	14,622	11,757	9,111	14.70%	-6.56%	2.85%	8.15%	-19.59%	-22.51%	-4.83%	-21.06%
January	14,352	15,508	12,552	14,139	13,118	14,590	11,398	8.05%	-19.06%	12.64%	-7.22%	11.22%	-21.88%	-3.77%	-6.79%
February	12,743	14,136	12,382	12,716	10,892	12,745	10,278	10.93%	-12.40%	2.69%	-14.35%	17.02%	-19.36%	-3.52%	-2.86%
March	14,079	14,994	16,866	17,728	13,260	12,201	10,793	6.50%	12.48%	5.11%	-25.20%	-7.98%	-11.55%	-4.33%	-9.78%
April	14,570	14,924	16,725	16,596	12,583	13,827	11,789	2.43%	12.07%	-0.77%	-24.18%	9.89%	-14.74%	-3.47%	-3.21%
May	14,372	14,408	14,049	17,328	13,445	14,642	11,359	0.26%	-2.50%	23.34%	-22.41%	8.91%	-22.42%	-3.84%	-8.08%
June	13,240	16,482	17,305	16,593	13,712	12,868	12,539	24.48%	4.99%	-4.12%	-17.36%	-6.16%	-2.55%	-0.90%	-4.37%
July	15,385	17,080	15,398	14,684	13,851	14,743	16,304	11.02%	-9.85%	-4.63%	-5.68%	6.44%	10.59%	0.97%	8.50%
August	13,292	14,845	16,182	15,024	12,727	13,346	13,001	11.68%	9.01%	-7.16%	-15.29%	4.86%	-2.58%	-0.37%	1.07%
September	12,663	16,213	15,750	15,147	11,948	13,331	12,813	28.04%	-2.85%	-3.83%	-21.12%	11.57%	-3.88%	0.20%	3.56%
Trash	167,801	185,997	175,711	180,996	158,152	159,958	140,991	10.84%	-5.53%	3.01%	-12.62%	1.14%	-11.86%	-2.86%	-5.58%

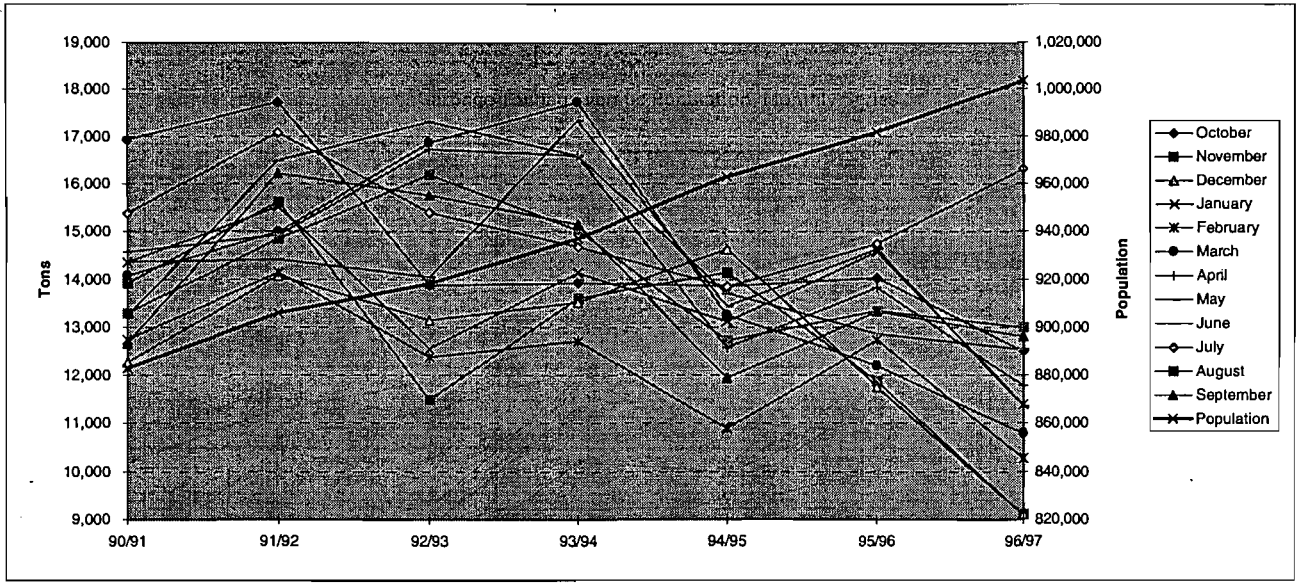
Garbage and Trash

	90/91	91/92	92/93	93/94	94/95	95/96	96/97	91/92	92/93	93/94	94/95	95/96	96/97	Six Years	Three Years
October	77,150	76,919	66,090	71,872	71,261	76,600	76,185	-0.30%	-14.08%	8.75%	-0.85%	7.49%	-0.54%	-0.21%	3.40%
November	70,815	71,350	66,956	75,990	77,316	71,798	69,601	0.76%	-6.16%	13.49%	1.75%	-7.14%	-3.06%	-0.29%	-5.12%
December	71,204	76,025	71,204	76,568	81,769	72,469	77,335	6.77%	-6.34%	7.53%	6.79%	-11.37%	6.72%	1.39%	-2.75%
January	80,206	77,408	72,754	79,486	77,176	82,297	81,288	-3.49%	-6.01%	9.25%	-2.91%	6.64%	-1.23%	0.22%	2.63%
February	70,370	71,850	66,652	74,744	68,293	73,457	74,282	2.10%	-7.24%	12.14%	-8.63%	7.56%	1.12%	0.91%	4.29%
March	75,382	77,945	83,577	85,452	78,091	76,379	79,965	3.40%	7.23%	2.24%	-8.61%	-2.19%	4.69%	0.99%	1.19%
April	77,603	74,172	77,405	79,488	70,251	78,718	79,757	-4.42%	4.36%	2.69%	-11.62%	12.05%	1.32%	0.46%	6.55%
May	73,956	68,095	68,457	78,248	74,801	79,518	77,434	-7.92%	0.53%	14.30%	-4.41%	6.31%	-2.62%	0.77%	1.75%
June	65,784	75,042	74,244	78,078	73,612	71,609	78,196	14.07%	-1.06%	5.16%	-5.72%	-2.72%	9.20%	2.92%	3.07%
July	72,848	70,921	69,265	68,132	69,946	76,236	78,799	-2.65%	-2.33%	-1.64%	2.66%	8.99%	3.36%	1.32%	6.14%
August	67,282	68,533	71,867	75,460	72,814	72,820	74,960	1.86%	4.87%	5.00%	-3.51%	0.01%	2.94%	1.82%	1.46%
September	64,718	70,501	70,278	71,503	67,582	70,866	76,299	8.94%	-0.32%	1.74%	-5.48%	4.86%	7.67%	2.78%	6.25%
	867,317	878,761	858,750	915,021	882,912	902,766	924,103	1.32%	-2.28%	6.55%	-3.51%	2.25%	2.36%	1.06%	2.31%
Population	**883,044**	**905,928**	**918,119**	**937,190**	**962,802**	**981,793**	**1,003,684**	**2.59%**	**1.35%**	**2.08%**	**2.73%**	**1.97%**	**2.23%**	**2.16%**	**2.10%**

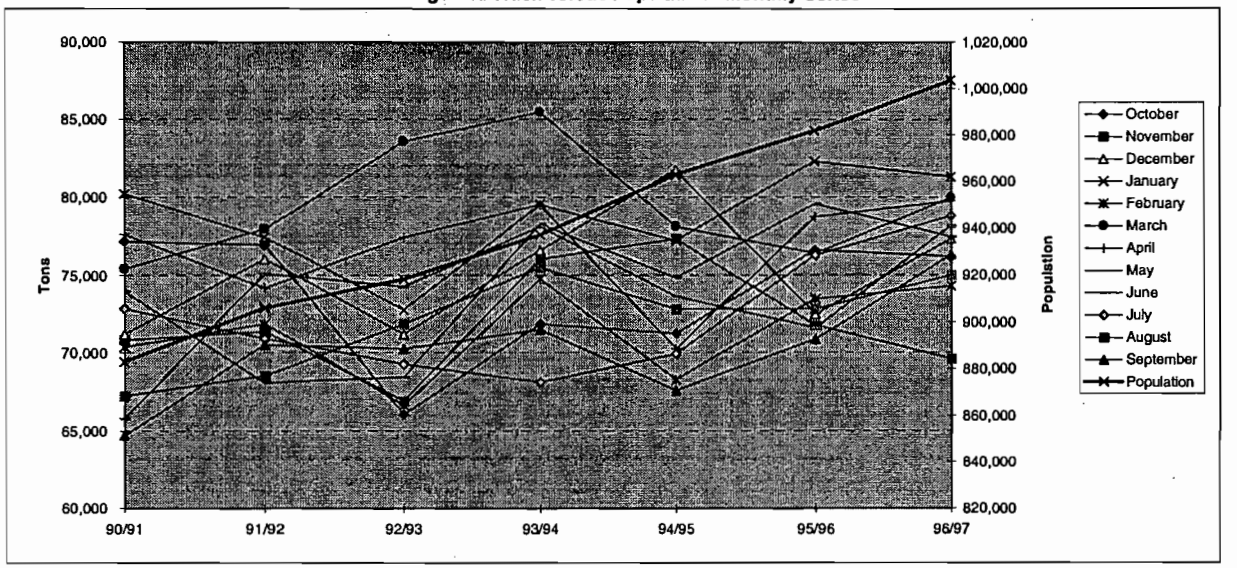
Garbage Tonnage versus Population, Monthly Series



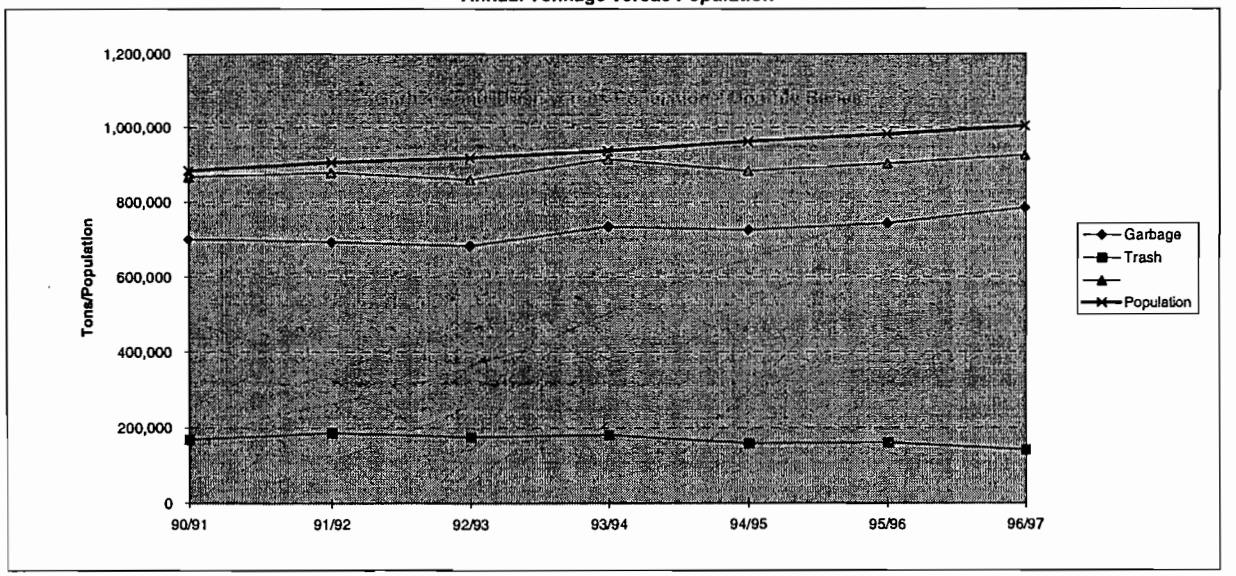
Trash Tonnage versus Population - Monthly Series



Garbage and Trash versus Population - Monthly Series



Annual Tonnage versus Population



Over the long term, the diversion of vegetation from the landfill is reasonably assured, however this does not preclude periodic periods in which the landfilling of this material may be required. The recent closure of the two cogeneration facilities in the western part of the county, which were the major outlet for mulched biomass material for the Authority's permitted processors and the Authority itself, is one example of a situation which may require the landfilling of vegetation, at least on a short term basis. The Authority is hopeful that these facilities will come back on-line. To date, no vegetation has been landfilled and the Authority is taking steps, including the permitting of an air curtain incinerator, to ensure that a long term permanent solution is available.

The per capita generation rate of garbage increased from 4.15 to 4.28 ppd, which is approximately the 1993/1994 level. As previously stated, this increase is probably the combined result of the accelerated development of the Acreage, the recapture of material that previously left the County for disposal, the commingling of trash with garbage at the curb, and increased rainfall. The trash quantity continued its steady decline, falling from .89 to .77 ppd. As can be seen on Page 5, the per capita generation rate for trash has declined steadily from 1.12 ppd in 1991/1992.

It may be coincidental, however it is interesting to note that over the past several years the garbage and trash quantities have been moving in opposite directions at comparable magnitudes. The schedule on Page 6 provides a history of garbage and trash deliveries to the Authority and compares the percentage change in solid waste deliveries to the percentage change in the annual population estimates. From 1991 to 1997, garbage deliveries have increased at an average annual rate of 1.90%, trash deliveries have decreased 2.86%, the total of both categories has increased 1.06%, and the Palm Beach County estimated permanent population has increased at an average annual rate of 2.16%. Since 1994, the average annual percentage change has been 3.95% for garbage, -5.58% for trash, 2.31% for the combined categories, and 2.10% for population.

2.2.2 Assumed Per Capita Generation Rates

In the model, incoming MSW and recyclables are grouped into four major categories, Class 1 (garbage), Class 3 (trash), vegetation, and sludge, of which vegetation and sludge are not considered in the model because of alternative disposal options. Class 1 material consists of the following waste classifications: garbage, recyclables, direct landfill, special handling, animals, and other miscellaneous wastes. Class 3 material consists of trash, building debris, land clearing debris, clean fill, tires, trailers, and asbestos. The values for the Class 1 and Class 3 categories for the last six years are as follows:

	Class 1 Material	Class 3 Material	Total
1991/1992	4.67	2.08	6.75
1992/1993	4.64	1.88	6.52
1993/1994	4.90	1.82	6.72
1994/1995	4.76	1.74	6.50
1995/1996	4.78	1.65	6.43
1996/1997	4.93	1.37	6.31

The trends in the Class 1 and Class 3 categories are consistent with the trends in the components of the waste stream that make up the categories. In comparison to the prior year, the per capita generation of Class 1 material increased 3%, the per capita generation of Class 3 material decreased 17%, and the total per capita generation of material that affects landfill longevity decreased 2%. The key elements that must be considered in establishing the per capita generation rate assumptions in this revision of the model are:

1) The general trends in the generation rates and the probability that they will continue or reverse,
2) The potential for the closure of the cogeneration plants to cause greater quantities of construction and demolition debris to flow to the Authority as well as the possibility that a portion of that material never returns to the private sector.

Based upon a review of the waste tonnage data and in light of the previous discussion, it is my opinion that the results for the 1996/1997 year represent extreme values. Given that the impact of the tipping fee reduction and the changes in the collection methods have probably already been felt, it is unlikely that the per capita generation rate will go much higher or that more trash will enter the garbage stream. Additionally, the constraints placed on the permitted recyclers by the closure of the cogeneration plants make it unlikely that the permitted processors will be able to divert any more construction and demolition debris and trash away from the Authority. On the contrary, it is more likely that the current conditions related to the disposal of recovered wood will create a shake-out among the recyclers resulting in greater quantities of construction and demolition debris flowing to the Authority.

The results of the current year warrant an increase in the assumed Class 1 generation rate and a decrease in the Class 3 generation rate. The Class 1 generation rate is increased from 4.80 to 4.90 p.p.d. under the assumption that the material that has returned to the County will remain in the County and that the population associated with the development in the Acreage will be accounted for in the population estimates for the next several years. The Class 3 generation rate is decreased from 1.70 p.p.d. to 1.50 p.p.d., reflecting the downward trend in the delivery of this material and the potential for some of this material to return.

The model can be programmed to incorporate changing per capita generation rates using an average annual growth/reduction rate. Historically, the per capita generation of solid waste in this country has increased at the rate of 3% to 4% per year throughout the 1960s and 1970s, largely due to the increased use of packaging materials and disposable products. This increase has slowed considerably as a result of increased awareness and concern for recycling and reuse of solid waste as well as improved markets for recovered materials. The Environmental Protection Agency projects stable per capita waste generation rates through 2000 (Characterization of Municipal Solid Waste in the United States: 1994 Update, pp.146-147, Tables 46 & 47) and the Authority has implemented a source reduction program to educate the public and attempt to reduce the generation of solid waste. In light of the above factors, the model assumes that per capita waste generation rates will remain stable in the future.

It must be noted that the per capita waste generation rates used in the model are not comparable to or derivative of the residential generation rates used for Annual Special Assessment purposes. The residential rates used for the Special Assessment incorporate only residential generation, whereas the rates used herein include both the residential and commercial solid waste impact as a function of permanent population. Additionally, these generation rates include only the waste the Authority receives and do not include materials delivered to permitted recyclers or shipped out of the county. It is assumed that the material not coming to the Authority's system will continue to be diverted from the system. To the extent that this assumption is incorrect, the estimated landfill life will be shorter than that predicted by the model.

Given the fact that the Authority performs an annual review of waste generation and consumption data as part of the landfill depletion model update, any substantive change will be detected, its potential impact evaluated, and any planning revisions made long before the disposal capacity of the landfill is significantly impacted.

2.3 Waste Disposal

Class 1 material is assumed to be delivered to the plant unless the plant is at capacity, in which case it is delivered to the Class 1 landfill as raw garbage. Class 3 material is assumed to be delivered to the Class 3 landfill. Currently considerable quantities of Class 3 material are commingled at the transfer stations and delivered to the Resource Recovery Facility. Approximately 97,000 tons of trash and vegetation were delivered to the plant by the transfer stations in 1996/1997. With projected growth in the waste stream and processing constraints at the plant, this diversion of Class 3 material will not be operationally feasible in the future, justifying the assumption used in the model. The model incorporates an adjustment factor for the years 1998 to 2001 to account for the delivery of Class 3 material to the plant. Based upon an estimated 97,000 tons of Class 3 material delivered to the plant in 1996/1997 and the estimated increase in the Class 1 waste stream of approximately 20,000 tons per year, the adjustment has been set at 77,000 tons in 1998 and decreases by 20,000 tons per year to 0 tons in 2002.

2.4 Unforeseen Event

The waste generation rates used in the model do not include an allowance for increased depletion resulting from a hurricane or other natural disaster. Additionally, the model assumes that the Resource Recovery Facility will be operating without any extended outages other than scheduled maintenance and minor outages. To the extent that these assumptions do not hold true, the estimated landfill life will be shorter than that predicted by the model.

2.5 Recycling Rate

The total annual generation of Class 1 and Class 3 material is adjusted to account for recycling and waste reduction activities. During FY 1996-1997, 131,644 tons of recyclables were delivered to Authority facilities (*WIMS 047C*). Subtracting 13,978 tons of Martin and St. Lucie County materials and dividing this tonnage by the sum of the total Class 1 generation and the recycling tonnage of 921,219 tons produces an average reduction rate of 13%, which is equal to the rate for the prior year. Given the assumption of increased participation and the potential for the addition of a portion of the mixed paper stream in approximately five years, a recycling rate of 15% of Class 1 material is assumed in the model.

During the year, the Authority received 19,551 tons of clean fill from various sources, amounting to 8% of total incoming Class 3 material (net of vegetation) of 252,149 tons. The rates for the previous three years were 8% in 1993/1994, and 12% in 1994/1995, and 7% in 1995/1996. Although the majority of this material is designated as limited use material and is not suitable for construction or use outside of the landfill, it is suitable for landfill cover and has been diverted for that purpose. Restrictions imposed by the Authority to control the delivery of this material resulted in a decline in clean fill deliveries in 1995/1996 and the level seems to have stabilized at or around the current level. For this reason, an 8% reduction rate is assumed to account for diverted fill material.

With picking on the Class 3 working face, additional recovered materials amounted to 4,849 tons of wood, road material, and tires. The net Class 3 material delivered to the landfill after the diversion of clean fill totaled 164,567 tons. Therefore, material recovered from the landfill through the waste reduction system and picking operations amounted to 3% of the remaining waste stream, compared to 5% the prior year. The reduction in the quantity of recovered materials was the result of the decision to cease operation of the Class 3 Reduction System. This system was eliminated because of the diversion of most of the suitable material to private building debris recyclers and the subsequently reduced waste stream. A 3% reduction rate is assumed to account for recovered materials other than incoming fill material separated on the landfill working face.

2.6 Compacted Densities

Incoming solid waste tonnage is converted to consumed landfill volume by multiplying by the average compacted density. Although industry standards do exist, in reality landfill compacted densities vary widely based on the type of material landfilled and the operating procedures employed. Because the Authority landfills primarily ash and process residue from an RDF Resource Recovery Facility in the Class 1 landfill and diverts all clean vegetation and operates a recycling operation on the Class 3 landfill, the accuracy of industry averages cannot be relied upon for Authority system planning purposes.

The Authority avoids some uncertainty in estimating the compacted densities by conducting an annual survey using GPS technology to determine the volume of landfill space consumed. The landfill is surveyed at least annually and the calculated waste volume for the prior year is subtracted from that for the present year to determine the volume depleted during the year. Using Authority waste tonnage data, the average landfill compacted density for the year and life-to-date is calculated. These densities are used to arrive at the density assumptions used in the model.

Solid Waste Authority of Palm Beach County
North County Landfill Depletion Summary

Class 1

	1992/1993	1993/1994	1994/1995	1995/1996	1996/1997 (1)
Direct Haul	4,744	10,781	13,791	12,001	23,249
Transfer	24,605	43,085	12,165	9,011	38,590
Non-Processible	22,161	25,834	12,630	209	60
Residue	163,304	209,799	194,575	216,584	221,235
Uncombusted RDF	0	0	1,685	0	0
Ash	121,839	138,484	136,887	138,081	116,106
Total Tonnage to Landfill Disposal	**336,653**	**427,983**	**371,733**	**375,886**	**399,240**
Cubic Yards Depleted	**291,615**	**491,445**	**423,000**	**285,000**	**464,936**
Estimated Average Density	**2,309**	**1,742**	**1,758**	**2,638**	**1,717**

Class 3

	1992/1993	1993/1994	1994/1995	1995/1996	1996/1997
Direct haul	214,854	207,363	202,935	199,613	143,311
Transfer	25,298	15,508	30,277	33,689	40,807
Total Tonnage	240,152	222,871	233,212	233,302	184,118
Transfer Out Tires	781	1,969	1,448	1,461	158
Recovered Fill	14,817	28,179	37,100	23,750	19,551
Recovered Road Material/Concrete	2,402	3,561	0	0	1,984
Recovered Ferrous and White Goods	3,098	0	2,707	2,572	0
Fuel to Okeelanta or Wheelabrator	1,874	17,334	0	0	0
Cardboard	0	0	0	0	58
Net Transfer to Reduction Program	0	0	20,423	0	0
Vegetation/Mulch	499	4,739	0	4,499	2,707
Total Recovered Material	23,471	55,782	61,678	32,282	24,458
Total Tonnage to Landfill Disposal	**216,681**	**167,089**	**171,534**	**201,020**	**159,660**
Cubic Yards Depleted	**241,677**	**318,571**	**264,000**	**172,000**	**420,541**
Estimated Average Density	**1,793**	**1,049**	**1,300**	**2,337**	**759**

Lifetime

	Class 1	Class 3
Tons Disposed Through 11/11/91	735,890	537,637
Less October 1991	22,374	20,127
Less 11 Days of November	8,529	5,211
Tons Disposed Through 9/30/91	704,987	512,299
Tons Disposed 10/01/91 - 9/30/92	320,385	268,449
Tons Disposed 10/01/92 - 9/30/93	336,653	216,681
Tons Disposed 10/01/93 - 9/30/94	427,983	167,089
Tons Disposed 10/01/94 - 9/30/95	371,733	171,534
Tons Disposed 10/01/95 - 9/30/96	375,886	201,020
Tons Disposed 10/01/96 - 9/30/97	399,240	159,660
Total Tonnage to Landfill Disposal Through 9/30/97	**2,936,866**	**1,696,732**
Cubic Yards Depleted at 10/10/93	1,743,555	1,569,429
Estimated Average Density to 10/10/93	1,562	1,271
Cubic Yards Depleted at 10/18/94	2,235,000	1,888,000
Estimated Average Density to 10/18/94	1,602	1,234
Cubic Yards Depleted at 11/26/95	2,658,000	2,152,000
Estimated Average Density to 11/26/95	1,627	1,242
Cubic Yards Depleted at 11/21/96	2,943,000	2,324,000
Estimated Average Density to 11/21/96	1,725	1,323
Cubic Yards Depleted at 9/30/97 (1)	3,349,000	2,690,000
Estimated Average Density to 9/30/97	1,754	1,262

(1) Yardage Pro-Rated for density calculation to account for timing differences.

As can be seen on the previous page, the average density over the life of the landfill is 1,754 pounds per cubic yard in the Class 1 landfill and 1,262 pounds per cubic yard in the Class 3 landfill. The annual average density varies from one year to the next. In order to eliminate extreme fluctuations, the life to date average is used. The 1995/1996 estimated compacted densities were considerably higher than usual at 2,638 pounds per cubic yard in the Class 1 and 2,337 pounds per cubic yard in the Class 3 landfill. Although the reason for the extreme values is unknown, there are several possible reasons, including settlement and measurement errors. The Authority has endeavored to decrease the measurement error through the use of GPS technology in the place of aerial topography.

The results for the current year seem to validate the existence of measurement error in the previous survey, particularly with respect to the Class 3 landfill. The average density for 1996/1997 is calculated at 759 pounds per cubic yard versus 2,337 for 1995/1996, indicating an underestimate of the prior year consumption estimate and an overestimate of the current year consumption. The average density of the Class 1 landfill for 1996/1997 is estimated at 1,717 pounds per cubic yard versus 2,638 in the previous year.

For this revision of the model, the assumed densities in the model are increased to the life-to-date averages of 1,750 pounds per cubic yard and 1,260 pounds per cubic yard versus the previously assumed 1,620 pounds per cubic yard and 1,240 pounds per cubic yard for the Class 1 and Class 3 landfills, respectively.

The model calculates the Class 1 volume depleted by applying the above compacted density to plant residues, which amounted to 85% of landfilled Class 1 material in FY 1996-1997, and the estimated density of raw garbage of 1,200 pounds per cubic yard to the estimated quantity of landfilled raw garbage, and summing the two. The Class 3 volume is calculated by multiplying the estimated compacted density by the pounds of landfilled solid waste.

Although some uncertainty does exist, the use of GPS survey data represents a substantial improvement in the Authority's ability to determine the landfill volume remaining and to predict landfill longevity. Additionally, the use of survey data has become an integral part of the Authority's annual reporting efforts as a means to determine the level of landfill closure financial responsibility funding requirements and to determine dredge fill production.

2.7 Cover Material

Because of the availability of incinerator ash and the nature of the operations, the Authority's daily cover requirements are minimal. Intermediate and final cover consuming landfill volume is assumed to be 15% of the waste volume. This is the same assumption used in the previous model.

2.8 Available Landfill

The available landfill volumes have been calculated using CAD analysis. The total estimated landfill volume is 42,191,321 cubic yards. Through September 30, 1997, 3,349,000 cubic yards of Class 1 volume and 2,690,000 cubic yards of Class 3 volume have been depleted.

Traditionally, the Authority has used two landfill depletion scenarios, referred to as the "Maximize Class 1" and the "Balanced Footprint" scenarios. The "Maximize Class 1" scenario consists of 229.89 acres and 29,015,684 cubic yards of Class 1 space and 104.39 acres and 13,175,637 cubic yards of Class 3 space with the boundary at N888,400. This approach was used when the ***Comprehensive Solid Waste Management Plan*** called for a separate Class 3 landfill operating concurrently with the North County site. The goal of this approach is to maximize Class 1 volume within permit limitations. The "Balanced Footprint" scenario consists of 167.14 acres and 21,095,661 cubic yards of both Class 1 and Class 3 space with the boundary at N888,170. The goal of this approach is to roughly balance the life of the site. Because of differing Class 1 and Class 3 volumes, the life of the site is not actually balanced, although the volume is.

With the change in planning strategy from operating two sites concurrently to operating consecutive sites, the Authority has added a third scenario called the "Balanced Life" scenario. This approach leaves the boundary between the Class 1 and Class 3 landfill somewhat fluid, with the exact position to be determined at a later date in an effort to balance the life of the site and to eliminate the need to operate two sites concurrently and the considerable expense associated with that.

The landfill depletion model provides results for all three scenarios and can be programmed to evaluate other potential scenarios if necessary.

2.9 Resource Recovery Facility (NCRRRF)

The NCRRRF's rated capacity is 624,000 tons per year, however the plant has surpassed 800,000 tons of processible waste for the past two years. Processible waste processed at the NCRRRF in FY 1996/1997 totaled 830,176 tons, compared to 812,528 tons in 1995/1996, 792,932 tons in 1994/1995, 771,550 tons in 1993/1994, and 726,842 tons in 1992/1993. Due to the fact that periodic extended outages for routine maintenance can be expected and that these outages will most likely increase in frequency as the plant ages, long term production at the level achieved over the past few years is not assumed. For this reason, the previous model projected average annual processible waste to be 730,000 tons, with waste in excess of 730,000 tons landfilled as raw garbage.

Given that additional increases in throughput at the plant in its current configuration cannot be expected, the plant capacity assumption remains at 730,000 tons of processible waste, which includes an allowance for 10% downtime over the life of the facility. For the purpose of the model, it is assumed that the plant will not experience a catastrophic failure that will hinder its ability to process an average of 730,000 tons per year.

The residuals from the plant include ash, process residue, and unprocessibles. Unprocessibles are estimated at 3% of total delivered waste in the present model, which is in line with recent experience (3.0% in 1992/1993, 3.2% in 1993/1994, 3.1% in 1994/1995, 2.9% in 1995/1996, and 3.4% in 1996/1997). Ash and residue are estimated at 40% of processible waste. Process residue and ash totaled, 39.2% in 1992/1993, 45.1% in 1993/1994, 41.8% in 1994/1995, 43.7% in 1995/1996, and 40.6% in 1996/1997. The Operating and Maintenance Agreement with the plant operator requires a minimum 60% reduction over the life of the contract. The high residue rates in recent years are largely the result of the high throughput. Because of the contractual agreement and the lower estimated throughput in the model, the 40% residuals percentage is justifiable.

As the addition of a third boiler to the Resource Recovery Facility is an option, the model includes a scenario for the addition of a third boiler to the resource recovery facility, adding an additional 1,000 tons per day (312,000 tons per year) of processible capacity. The boiler is assumed to be online in the year 2002. Addition of the boiler prior to this is of little marginal benefit, and sufficient waste quantities are not expected to be available to fuel it.

3.0 Model Results

3.1 Summary of Results

The summary results of the landfill depletion model for the three space allocation scenarios and the two Resource Recovery Facility scenarios are presented below in Table 3.1 and in the following paragraphs. The landfill depletion model results are included in Appendix A of the Report for further inspection.

In the "Maximize Class 1" scenario, the estimated landfill depletion dates for the Class 1 and Class 3 landfills are 2027 and 2016, respectively, compared to 2027 and 2015 in the 1996 model.

In the "Balanced Footprint" scenario, the estimated landfill depletion dates for the Class 1 and Class landfills are 2021 and 2027, respectively, compared to 2021 and 2025 in the prior model.

If the life of the site is balanced to produce simultaneous depletion of both landfills, final depletion is expected to take place in 2023, unchanged from the previous model. The volume allocation associated with the "Balanced Life" scenario is approximately 57% Class 1 and 43% Class 3 landfill volume.
Finally, constructing a third boiler at the Resource Recovery Facility is anticipated to add approximately four years to the life of the site on a balanced basis, placing the ultimate depletion in the year 2028. The volume allocation associated with the "Balanced Life" scenario and the third boiler is approximately 48% Class 1 and 52% Class 3.

Table 3.1 Landfill Depletion Using Present Configuration

Scenario	Class 1	Class 3
Maximize Class 1	2027 (230 AC)	2016 (104 AC)
Balanced Footprint	2021 (167 AC)	2027 (167 AC)
Balanced Landfill Life	2023 (191 AC)	2023 (143 AC)
Third Boiler Results		
Maximize Class 1	2042 (230 AC)	2016 (104 AC)
Balanced Footprint	2029 (167 AC)	2027 (167 AC)
Balanced Landfill Life	2028 (160 AC)	2028 (174 AC)

3.2 Sensitivity Analysis - Three States of Nature

The above results are based upon a set of assumptions that represents a reasonable best guess. As with any model, these assumptions are based upon current circumstances and information. Some assumptions will inevitably vary; therefore, the actual results will deviate from the projections. In order to ascertain the potential magnitude of these deviations, the model has been run using "Most Likely", "Optimistic", and "Pessimistic" assumption sets.

The Optimistic assumption set uses waste generation rates 5% lower than the Most Likely assumption set, or 4.66 and 1.43 p.p.d. for Class 1 material and Class 3 material, respectively. Additional assumptions are a Class 1 recycling rate of 18%, a Class 3 recycling rate of 5%, a Class 3 compacted density of 1,600 pounds per cubic yard (the 1991-1992 rounded value) and a plant residue compacted density of 1,800 pounds per cubic yard (the 1994-1995 rounded value).

The Pessimistic assumption set uses a Class 1 waste generation rate of 5.15 p.p.d., which is 5% higher than the Most Likely assumption. The Class 3 waste generation rate is 1.80 p.p.d. to account for the possibility that a significant quantity of material currently managed by private recyclers returns to the system. Additional assumptions include a Class 1 recycling rate of 12%, a Class 3 recycling rate of 1%, a Class 3 compacted density of 1,000 pounds per cubic yard (the 1993-1994 rounded value), and a plant residue compacted density of 1,500 pounds per cubic yard.

The results of the sensitivity analysis are presented on Page 17. The analysis indicates that based on the current configuration, the landfills can be reasonably expected to be fully depleted at a time ranging from 2017 to 2029. Assuming addition of a third boiler at the NCRRRF and using the current landfill configuration, the landfills can be reasonably expected to be depleted during the time period ranging from 2020 to 2035.

This exercise was undertaken to demonstrate how the estimate can vary given the realization of extreme values of the

key assumptions. On a balanced life basis, the earliest predicted depletion date is 2017, which is seven years beyond the life of the bonds issued to finance the SWA facilities. Given an estimated ten year lead time to site, permit, and construct a replacement landfill, the earliest a decision regarding the development of future capacity must be made is approximately 2007. If a 3rd boiler is constructed at the NCRRRF the earliest a decision is required is approximately 2010.

4.0 Summary and Conclusions

The landfill depletion model is designed to forecast the estimated life of the Authority's North County landfills in order to facilitate facilities planning decisions and assess the impact of alternatives and alternative states of nature on landfill life. The model was last updated in February 1997 and was based on 1995/1996 operating data and existing assumptions. Given current information and expectations of future events, the ***1998 Landfill Depletion Model*** predicts the estimated life of the North County landfills as follows:

Current Configuration Depletion Year	2023
Current Configuration Remaining Life in Years	26
Current Configuration w/ 3rd Boiler Depletion Year	2028
Current Configuration w/3rd Boiler Remaining Life	31
Acreage	334.28 Acres
Landfill Capacity Available	42,191,321 Cubic Yards
Landfill Capacity Remaining	36,152,321 Cubic Yards
Projected Volume Class 1 (57%)	24,049,053 Cubic Yards
Projected Volume Class 3 (43%)	18,142,268 Cubic Yards
Projected Volume Class 1 w/ 3rd Boiler (48%)	20,251,834 Cubic Yards
Projected Volume Class 3 w/ 3rd Boiler (52%)	21,939,487 Cubic Yards

The above estimate is based on a reasonable Most Likely set of assumptions. As with any forecast, the result is subject to uncertainty. To assess the potential magnitude of this uncertainty, three sets of assumptions or States of Nature were evaluated: "Most Likely", "Optimistic", and "Pessimistic". Based on these states of nature, the predicted balanced North County Landfill depletion date ranges from 2017 to 2029, given two boilers at the NCRRRF, or 2020 to 2035, given the addition of a 3rd boiler at the NCRRRF in 2002.

In order to ensure the availability of landfill capacity and taking into consideration current reasonable average lead times, the Authority must make a decision regarding the development and/or availability of future landfill disposal capacity as early as 2007 under pessimistic circumstances and most likely in 2013 given the current configuration or in 2018 if the 3rd boiler option is elected.

This model is scheduled to be updated in the Spring of 1999 and may me updated sooner should conditions warrant.

Landfill Depletion Model Scenario Summary Report

Scenario Summary	Most Likely	Optimistic	Pessimistic
Changing Cells:			
Class_1_Generation Rate	4.90	4.66	5.15
Class_3_Generation Rate	1.50	1.43	1.80
Class 1 Recycling Rate	15%	18%	12%
Class 3 Recycling Rate	3%	5%	1%
Trash Density in Pounds per CY	1,260	1,600	1,000
Garbage Density in Pounds per CY	1,200	1,200	1,200
Plant Residuals Density in Pounds per CY	1,750	1,800	1,500
Result Cells:			
Class 1 Depletion - Maximize Class 1	2027	2033	2023
Class 3 Depletion - Maximize Class 1	2016	2022	2011
Balanced Depletion	2023	2029	2017
Class 1 Depletion with 3rd Boiler	2042	2049	2031
Class 3 Depletion with 3rd Boiler	2016	2021	2010
Balanced Depletion with 3rd Boiler	2028	2035	2020

Note: The model assumes zero population growth beyond 2020, which is consistent with Palm Beach County's assumption that the BEBR medium population projection for 2020 approximates the Palm Beach County build-out population. Potential prediction error increases as projected depletion extends beyond 2020.

Appendix A

Landfill Depletion Model Output

Palm Beach County

Landfill Depletion Model Summary Results

		Maximixe Class 1	Balanced Footprint
Total Estimated Volume		42,191,321	42,191,321
Class 1		29,015,684	21,095,661
Class 3		13,175,637	21,095,661
Volume Depleted to Date			
Class 1		3,349,000	3,349,000
Class 3		2,690,000	2,690,000
Total		6,039,000	6,039,000
Additional Volume			
			0
			0
			0
			0
		0	0
Class 1 Allocation	0.00%	0	0
Class 3 Allocation	0.00%	0	0
Estimated Acreage			
Class 1		229.89	167.14
Class 3		104.39	167.14
Total		334.28	334.28
Volume Remaining			
Class 1		25,666,684	17,746,661
Class 3		10,485,637	18,405,661
Total		36,152,321	36,152,321
Estimated Depletion			
Class 1		**2027**	**2021**
Class 3		**2016**	**2027**
Balanced Life		**2023**	**2023**
Class 1 w/ Third Boiler in the Year 2002		**2042**	**2029**
Class 3 w/ Third Boiler in the Year 2002		**2016**	**2027**
Balanced Life w/ Third Boiler in the Year 2002		**2028**	**2028**

Assumptions

	Class 1	Class 3
Per Capita Generation Rate	4.90	1.50
Fill as a % of Class 3 Generation	na	8%
Recycling Rate	15%	3%
Cover Material as a Percent of Landfill Volume	15%	15%
Raw Waste Density in Pounds per Cubic Yard	1,200	1,260
Plant Residue Density in Pounds per Cubic Yard	1,750	na

Solid Waste Authority of Palm Beach County

Estimated Population and Solid Waste Generation

Table 1

	Palm Beach County Permanent Population	Daily Per Capita Trash Generation	Annual Per Capita Trash Generation	Annual Estimated Trash Generation	Daily Per Capita Garbage Generation	Annual Per Capita Garbage Generation	Annual Estimated Garbage Generation	Daily Per Capita MSW Generation	Annual Per Capita MSW Generation	Annual Estimated MSW Generation
	(1)	lbs	lbs	tons	lbs	lbs	tons	lbs	lbs	tons
1998	1,023,496	1.50	548	280,182	4.9	1,789	915,261	6.40	2,336	1,195,443
1999	1,043,698	1.50	548	285,712	4.9	1,789	933,327	6.40	2,336	1,219,040
2000	1,064,300	1.50	548	291,352	4.9	1,789	951,750	6.40	2,336	1,243,102
2001	1,083,551	1.50	548	296,622	4.9	1,789	968,965	6.40	2,336	1,265,587
2002	1,103,150	1.50	548	301,987	4.9	1,789	986,492	6.40	2,336	1,288,479
2003	1,123,104	1.50	548	307,450	4.9	1,789	1,004,335	6.40	2,336	1,311,785
2004	1,143,418	1.50	548	313,011	4.9	1,789	1,022,502	6.40	2,336	1,335,512
2005	1,164,100	1.50	548	318,672	4.9	1,789	1,040,996	6.40	2,336	1,359,669
2006	1,183,090	1.50	548	323,871	4.9	1,789	1,057,978	6.40	2,336	1,381,849
2007	1,202,390	1.50	548	329,154	4.9	1,789	1,075,237	6.40	2,336	1,404,392
2008	1,222,005	1.50	548	334,524	4.9	1,789	1,092,778	6.40	2,336	1,427,302
2009	1,241,940	1.50	548	339,981	4.9	1,789	1,110,605	6.40	2,336	1,450,586
2010	1,262,200	1.50	548	345,527	4.9	1,789	1,128,722	6.40	2,336	1,474,250
2011	1,281,519	1.50	548	350,816	4.9	1,789	1,145,999	6.40	2,336	1,496,815
2012	1,301,135	1.50	548	356,186	4.9	1,789	1,163,540	6.40	2,336	1,519,725
2013	1,321,050	1.50	548	361,637	4.9	1,789	1,181,349	6.40	2,336	1,542,986
2014	1,341,270	1.50	548	367,173	4.9	1,789	1,199,431	6.40	2,336	1,566,604
2015	1,361,800	1.50	548	372,793	4.9	1,789	1,217,790	6.40	2,336	1,590,582
2016	1,381,294	1.50	548	378,129	4.9	1,789	1,235,222	6.40	2,336	1,613,351
2017	1,401,067	1.50	548	383,542	4.9	1,789	1,252,904	6.40	2,336	1,636,446
2018	1,421,123	1.50	548	389,032	4.9	1,789	1,270,839	6.40	2,336	1,659,871
2019	1,441,466	1.50	548	394,601	4.9	1,789	1,289,031	6.40	2,336	1,683,632
2020	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2021	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2022	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2023	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2024	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2025	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2026	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
2027	1,462,100	1.50	548	400,250	4.9	1,789	1,307,483	6.40	2,336	1,707,733
Annual Growth Rate to 2020	1.63%	0.00%	0.00%	1.63%	0.00%	0.00%	1.63%	0.00%	0.00%	1.63%

Sources and Notes:

(1) Bureau of Business and Economic Research, University of Florida, Florida Population Studies; As summarized in Table 1A.

(2) Per capita generation rates include commercial generation and thus are not related to the residential household generation rates used in the Assessment Billing Program.

(3) Waste quantity includes only waste received at SWA facilities.

Palm Beach County
Estimated Permanent Population Growth
Table 1A

Year Ended September	Palm Beach County Estimated Permanent Population
1994	937,190
1995	962,802
1996	981,793
1997	1,003,684
1998	1,023,496
1999	1,043,698
2000	1,064,300
2001	1,083,551
2002	1,103,150
2003	1,123,104
2004	1,143,418
2005	1,164,100
2006	1,183,090
2007	1,202,390
2008	1,222,005
2009	1,241,940
2010	1,262,200
2011	1,281,519
2012	1,301,135
2013	1,321,050
2014	1,341,270
2015	1,361,800
2016	1,381,294
2017	1,401,067
2018	1,421,123
2019	1,441,466
2020	1,462,100
2021	1,462,100
2022	1,462,100
2023	1,462,100
2024	1,462,100
2025	1,462,100

BEBR Estimated Permanent Population	
1994	937,190
1995	962,802
1996	981,793
1997	1,003,684
2000	1,064,300
2005	1,164,100
2010	1,262,200
2015	1,361,800
2020	1,462,100

Calculated Population Growth Rates	
1994-1997	2.28%
1997-2000	1.95%
2000-2005	1.79%
2005-2010	1.62%
2010-2015	1.52%
2015-2020	1.42%
1997-2020	1.64%

(1) Population estimates from Bureau of Economic and Business Research, Florida Population Studies, Bulletin No. 117, February 1997.

(2) Population estimates calculated as follows (for 1998):

P2/P1 = e^(nr)

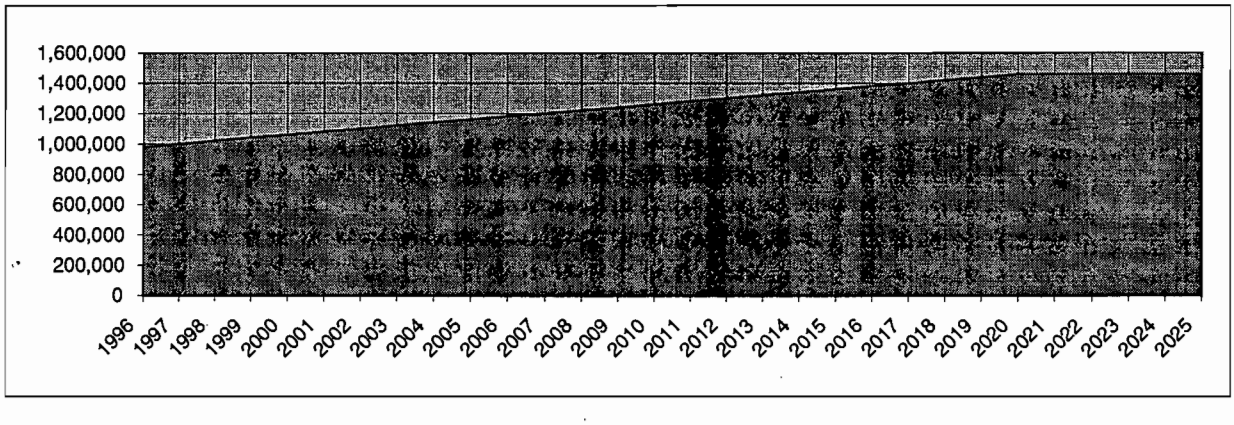
P2 = P1e^(nr)

P2 = 1003684e^(1(.0195467))

P2 = 1003684(1.019738988)

P2 = 1023495

(3) Build-out population equals 2020 estimate (Palm Beach County PZ&B).



Solid Waste Authority of Palm Beach County

Estimated Class 1 Landfill Depletion

Table 2

	Palm Beach County Garbage Generation Tons Per Year	Palm Beach County Garbage Generation Less Recycling	Plant Unprocessibles to Landfill	Plant Overcapacity and Direct Landfill	Plant Process Residue, Ash, and RDF to Landfill	Landfill Volume Consumed In Cubic Yards	Landfill Volume Consumed Including Cover	Landfill Volume Remaining 229.89 Acres N 888,400	Landfill Volume Remaining 167.14 Acres N 888,170
Total Estimated Volume to +160 NGVD								29,015,684	21,095,661
Volume Depleted Through Fiscal Year 1996/1997								3,349,000	3,349,000
Remaining Volume								25,666,684	17,746,661
1998	915,261	854,972	0	102,395	292,000	504,372	580,028	25,086,656	17,166,633
1999	933,327	850,328	0	97,751	292,000	496,632	571,127	24,515,529	16,595,505
2000	951,750	845,988	0	93,410	292,000	489,398	562,808	23,952,721	16,032,697
2001	968,965	840,621	0	88,043	292,000	480,453	552,521	23,400,200	15,480,176
2002	986,492	838,518	0	85,941	292,000	476,949	548,491	22,851,709	14,931,685
2003	1,004,335	853,685	0	101,108	292,000	502,227	577,561	22,274,147	14,354,124
2004	1,022,502	869,126	0	116,549	292,000	527,963	607,157	21,666,990	13,746,967
2005	1,040,996	884,847	0	132,270	292,000	554,164	637,288	21,029,702	13,109,679
2006	1,057,978	899,282	0	146,704	292,000	578,222	664,955	20,364,747	12,444,724
2007	1,075,237	913,952	0	161,375	292,000	602,672	693,073	19,671,675	11,751,651
2008	1,092,778	928,861	0	176,284	292,000	627,521	721,649	18,950,025	11,030,002
2009	1,110,605	944,014	0	191,437	292,000	652,776	750,692	18,199,334	10,279,310
2010	1,128,722	959,414	0	206,837	292,000	678,442	780,208	17,419,125	9,499,102
2011	1,145,999	974,099	0	221,522	292,000	702,917	808,355	16,610,771	8,690,747
2012	1,163,540	989,009	0	236,431	292,000	727,767	836,932	15,773,839	7,853,816
2013	1,181,349	1,004,147	0	251,569	292,000	752,996	865,946	14,907,893	6,987,870
2014	1,199,431	1,019,516	0	266,939	292,000	778,613	895,404	14,012,489	6,092,465
2015	1,217,790	1,035,121	0	282,544	292,000	804,621	925,314	13,087,175	5,167,151
2016	1,235,222	1,049,939	0	297,361	292,000	829,317	953,714	12,133,461	4,213,437
2017	1,252,904	1,064,968	0	312,391	292,000	854,366	982,521	11,150,940	3,230,916
2018	1,270,839	1,080,213	0	327,636	292,000	879,774	1,011,740	10,139,200	2,219,176
2019	1,289,031	1,095,676	0	343,099	292,000	905,546	1,041,377	9,097,822	1,177,799
2020	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	8,026,383	106,360
2021	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	6,954,944	(965,080)
2022	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	5,883,505	(2,036,519)
2023	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	4,812,065	(3,107,958)
2024	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	3,740,626	(4,179,397)
2025	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	2,669,187	(5,250,836)
2026	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	1,597,748	(6,322,275)
2027	1,307,483	1,111,360	0	358,783	292,000	931,686	1,071,439	526,309	(7,393,715)

Assumptions:

MSW Growth Rate	**1.63%**
Recycling Rate (Net of Ferrous)	**15.00%**
Recycling Growth Rate	**0.00%**
Cover Material	**15.00%**
Raw Garbage Density In Lbs per Cubic Yard	**1,200**
Process Residue Density In Lbs per Cubic Yard	**1,750**
Daily Average Plant Throughput	**2,000**
Plant Capacity (Processible Tons)	**730,000**
Process Residue, Ash, and RDF to Landfill	**40.00%**
Unprocessibles to Landfill (Percent of Delivered)	**3.00%**
Percent of Unprocessibles to Class 1	**0.00%**

Depletion Dates		
	229.89 Acres	**2027**
	167.14 Acres	**2021**
	Balanced Life	**2023**

Note: Net Class 1 adjusted upward 1998-2001 to reflect incinerated Class 3 material, starting with 77,000 tons in 1998.

Solid Waste Authority

Estimated Class 1 Landfill Depletion
Third Boiler at NCRRRF
Table 2A

	Palm Beach County Garbage Generation Tons Per Year	Palm Beach County Garbage Generation Less Recycling	Plant Unprocessibles to Landfill	Plant Overcapacity and Direct Landfill	Plant Process Residue, Ash, and RDF to Landfill	Landfill Volume Consumed In Cubic Yards	Landfill Volume Consumed Including Cover	Landfill Volume Remaining 229.89 Acres N 888,400	Landfill Volume Remaining 167.14 Acres N 888,170
Total Estimated Volume to +160 NGVD								29,015,684	21,095,661
Volume Depleted Through Fiscal Year 1995/1996								3,349,000	3,349,000
Remaining Volume								25,666,684	17,746,661
1998	915,261	854,972	0	102,395	292,000	504,372	580,028	25,086,656	17,166,633
1999	933,327	850,328	0	97,751	292,000	496,632	571,127	24,515,529	16,595,505
2000	951,750	845,988	0	93,410	292,000	489,398	562,808	23,952,721	16,032,697
2001	968,965	840,621	0	88,043	292,000	480,453	552,521	23,400,200	15,480,176
2002	986,492	838,518	0	0	335,407	383,323	440,821	22,959,379	15,039,356
2003	1,004,335	853,685	0	0	341,474	390,256	448,794	22,510,584	14,590,561
2004	1,022,502	869,126	0	0	347,651	397,315	456,912	22,053,672	14,133,649
2005	1,040,996	884,847	0	0	353,939	404,501	465,177	21,588,496	13,668,472
2006	1,057,978	899,282	0	0	359,713	411,100	472,765	21,115,730	13,195,707
2007	1,075,237	913,952	0	0	365,581	417,807	480,478	20,635,253	12,715,229
2008	1,092,778	928,861	0	0	371,545	424,622	488,316	20,146,937	12,226,914
2009	1,110,605	944,014	0	0	377,606	431,549	496,282	19,650,655	11,730,632
2010	1,128,722	959,414	0	0	383,766	438,589	504,378	19,146,278	11,226,254
2011	1,145,999	974,099	0	0	389,640	445,302	512,098	18,634,180	10,714,157
2012	1,163,540	989,009	0	0	395,603	452,118	519,936	18,114,244	10,194,221
2013	1,181,349	1,004,147	0	0	401,659	459,038	527,894	17,586,350	9,666,326
2014	1,199,431	1,019,516	0	0	407,807	466,065	535,974	17,050,376	9,130,352
2015	1,217,790	1,035,121	0	0	414,048	473,198	544,178	16,506,198	8,586,174
2016	1,235,222	1,049,939	0	0	419,975	479,972	551,968	15,954,230	8,034,206
2017	1,252,904	1,064,968	0	0	425,987	486,843	559,869	15,394,361	7,474,337
2018	1,270,839	1,080,213	0	5,986	416,800	486,320	559,268	14,835,093	6,915,069
2019	1,289,031	1,095,676	0	21,449	416,800	512,092	588,906	14,246,187	6,326,164
2020	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	13,627,220	5,707,197
2021	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	13,008,253	5,088,229
2022	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	12,389,286	4,469,262
2023	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	11,770,318	3,850,295
2024	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	11,151,351	3,231,328
2025	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	10,532,384	2,612,361
2026	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	9,913,417	1,993,394
2027	1,307,483	1,111,360	0	37,134	416,800	538,232	618,967	9,294,450	1,374,426

Assumptions:

MSW Growth Rate	**1.63%**
Recycling Rate (Net of Ferrous)	**15.00%**
Recycling Growth Rate	**0.00%**
Cover Material	**15.00%**
Raw Garbage Density In Lbs per Cubic Yard	**1,200**
Process Residue Density In Lbs per Cubic Yard	**1,750**
Daily Average Plant Throughput	**2,000**
Plant Capacity (Processible Tons)	**730,000**
Process Residue, Ash, and RDF to Landfill	**40.00%**
Unprocessibles to Landfill (Percent of Delivered)	**3.00%**
Add Third Boiler In Year	**2002**
New Plant Capacity	**1,042,000**
Percent of Unprocessibles to Class 1	**0.00%**

Depletion Dates		
	229.89 Acres	**2042**
	167.14 Acres	**2029**
	Balanced Life	**2028**

Note: Net Class 1 adjusted upward 1998-2001 to reflect incinerated Class 3 material, starting with 77,000 tons in 1998.

Solid Waste Authority of Palm Beach County
Estimated Class 3 Landfill Depletion
Table 3

	Palm Beach County Trash Generation Tons Per Year	Palm Beach County Fill Generation Tons Per Year	Solid Waste Authority Class 3 Reduction	Palm Beach County Trash Generation Net of Reduction	Plant Unprocessibles to Landfill	Palm Beach County Class 3 Landfill Disposal	Landfill Volume Consumed in Cubic Yards	Landfill Volume Consumed Including Cover	Landfill Volume Remaining 104.39 Acres N 888,400	Landfill Volume Remaining 167.14 Acres N 888,170
Total Estimated Volume to +160 NGVD									**13,175,637**	**21,095,661**
Volume Depleted Through Fiscal Year 1996/1997									**2,690,000**	**2,690,000**
Remaining Volume									**10,485,637**	**18,405,661**
1998	280,182	22,415	7,733	173,034	22,577	195,612	310,495	357,069	10,128,568	18,048,592
1999	285,712	22,857	7,886	197,970	22,577	220,547	350,075	402,586	9,725,982	17,646,006
2000	291,352	23,308	8,041	223,003	22,577	245,580	389,809	448,281	9,277,701	17,197,725
2001	296,622	23,730	8,187	247,706	22,577	270,283	429,020	493,373	8,784,328	16,704,351
2002	301,987	24,159	8,335	269,493	22,577	292,071	463,604	533,145	8,251,183	16,171,206
2003	307,450	24,596	8,486	274,368	22,577	296,945	471,342	542,043	7,709,140	15,629,163
2004	313,011	25,041	8,639	279,331	22,577	301,908	479,219	551,102	7,158,038	15,078,061
2005	318,672	25,494	8,795	284,383	22,577	306,961	487,239	560,325	6,597,713	14,517,736
2006	323,871	25,910	8,939	289,022	22,577	311,600	494,603	568,793	6,028,920	13,948,943
2007	329,154	26,332	9,085	293,737	22,577	316,315	502,087	577,400	5,451,520	13,371,543
2008	334,524	26,762	9,233	298,529	22,577	321,106	509,693	586,147	4,865,373	12,785,397
2009	339,981	27,198	9,383	303,399	22,577	325,976	517,423	595,036	4,270,337	12,190,360
2010	345,527	27,642	9,537	308,349	22,577	330,926	525,279	604,071	3,666,266	11,586,289
2011	350,816	28,065	9,683	313,068	22,577	335,645	532,771	612,686	3,053,580	10,973,603
2012	356,186	28,495	9,831	317,860	22,577	340,437	540,377	621,433	2,432,147	10,352,170
2013	361,637	28,931	9,981	322,725	22,577	345,303	548,099	630,314	1,801,832	9,721,856
2014	367,173	29,374	10,134	327,665	22,577	350,242	555,940	639,331	1,162,501	9,082,525
2015	372,793	29,823	10,289	332,680	22,577	355,258	563,901	648,486	514,015	8,434,038
2016	378,129	30,250	10,436	337,442	22,577	360,020	571,460	657,179	(143,164)	7,776,859
2017	383,542	30,683	10,586	342,273	22,577	364,850	579,127	665,996	(809,160)	7,110,863
2018	389,032	31,123	10,737	347,172	22,577	369,750	586,904	674,940	(1,484,100)	6,435,923
2019	394,601	31,568	10,891	352,142	22,577	374,719	594,793	684,012	(2,168,112)	5,751,911
2020	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(2,861,325)	5,058,698
2021	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(3,554,539)	4,365,485
2022	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(4,247,752)	3,672,271
2023	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(4,940,965)	2,979,058
2024	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(5,634,178)	2,285,845
2025	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(6,327,392)	1,592,632
2026	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(7,020,605)	899,418
2027	400,250	32,020	11,047	357,183	22,577	379,760	602,794	693,213	(7,713,818)	206,205

Assumptions:

MSW Growth Rate	**1.63%**
Recycling/Reduction Rate	**3.00%**
Recycling Growth Rate	**0.00%**
Clean Fill Material Deliveries	**8.00%**
Cover Material	**15.00%**
Trash Density in Lbs per Cy	**1,260**
Percent of NCRRRF Unprocessibles to Class 3	**100.00%**

Note: Net Class 3 adjusted downward 1998-2001 to reflect incinerated Class 3 Material, starting with 77,000 tons in 1998.

Depletion Dates		
	104.39 Acres	**2016**
	167.14 Acres	**2027**
	Balanced Life	**2023**

Solid Waste Authority of Palm Beach County

Estimated Class 3 Landfill Depletion
Third Boiler at NCRRRF
Table 3A

	Palm Beach County Trash Generation Tons Per Year	Palm Beach County Fill Generation Tons Per Year	Solid Waste Authority Class 3 Reduction	Palm Beach County Trash Generation Net of Reduction	Plant Unprocessibles to Landfill	Palm Beach County Class 3 Landfill Disposal	Landfill Volume Consumed In Cubic Yards	Landfill Volume Consumed Including Cover	Landfill Volume Remaining 104.39 Acres N 888,400	Landfill Volume Remaining 167.14 Acres N 888,170
Total Estimated Volume to +160 NGVD									**13,175,637**	**21,095,661**
Volume Depleted Through Fiscal Year 1996/1997									**2,690,000**	**2,690,000**
Remaining Volume									**10,485,637**	**18,405,661**
1998	280,182	22,415	7,733	178,034	22,577	200,612	318,431	366,196	10,119,441	18,039,465
1999	285,712	22,857	7,886	202,970	22,577	225,547	358,011	411,713	9,707,728	17,627,752
2000	291,352	23,308	8,041	228,003	22,577	250,580	397,746	457,408	9,250,320	17,170,344
2001	296,622	23,730	8,187	252,706	22,577	275,283	436,957	502,500	8,747,820	16,667,843
2002	301,987	24,159	8,335	269,493	25,156	294,649	467,697	537,851	8,209,969	16,129,992
2003	307,450	24,596	8,486	274,368	25,611	299,979	476,156	547,580	7,662,389	15,582,412
2004	313,011	25,041	8,639	279,331	26,074	305,405	484,769	557,484	7,104,904	15,024,928
2005	318,672	25,494	8,795	284,383	26,545	310,929	493,538	567,568	6,537,336	14,457,359
2006	323,871	25,910	8,939	289,022	26,978	316,001	501,589	576,827	5,960,509	13,880,532
2007	329,154	26,332	9,085	293,737	27,419	321,156	509,771	586,237	5,374,272	13,294,295
2008	334,524	26,762	9,233	298,529	27,866	326,395	518,087	595,800	4,778,472	12,698,495
2009	339,981	27,198	9,383	303,399	28,320	331,720	526,539	605,520	4,172,952	12,092,975
2010	345,527	27,642	9,537	308,349	28,782	337,131	535,128	615,398	3,557,554	11,477,578
2011	350,816	28,065	9,683	313,068	29,223	342,291	543,319	624,817	2,932,737	10,852,760
2012	356,186	28,495	9,831	317,860	29,670	347,530	551,635	634,381	2,298,356	10,218,380
2013	361,637	28,931	9,981	322,725	30,124	352,850	560,079	644,091	1,654,266	9,574,289
2014	367,173	29,374	10,134	327,665	30,585	358,250	568,651	653,949	1,000,317	8,920,340
2015	372,793	29,823	10,289	332,680	31,054	363,734	577,355	663,959	336,358	8,256,381
2016	378,129	30,250	10,436	337,442	31,498	368,941	585,620	673,463	(337,105)	7,582,918
2017	383,542	30,683	10,586	342,273	31,949	374,222	594,003	683,104	(1,020,209)	6,899,815
2018	389,032	31,123	10,737	347,172	32,227	379,399	602,221	692,554	(1,712,763)	6,207,260
2019	394,601	31,568	10,891	352,142	32,227	384,369	610,109	701,626	(2,414,389)	5,505,634
2020	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(3,125,216)	4,794,807
2021	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(3,836,044)	4,083,980
2022	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(4,546,871)	3,373,152
2023	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(5,257,698)	2,662,325
2024	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(5,968,526)	1,951,497
2025	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(6,679,353)	1,240,670
2026	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(7,390,181)	529,843
2027	400,250	32,020	11,047	357,183	32,227	389,410	618,111	710,827	(8,101,008)	(180,985)

Assumptions:

MSW Growth Rate	**1.63%**
Recycling/Reduction Rate	**3.00%**
Recycling Growth Rate	**0.00%**
Clean Fill Material Deliveries	**8.00%**
Cover Material	**15.00%**
Trash Density in Lbs per Cy	**1,260**
Percent of NCRRRF Unprocessibles to Class 3	**100.00%**

Note: Net Class 3 adjusted downward 1997-2000 to reflect incinerated Class 3 Material, starting with 72,000 tons in 1997.

Depletion Dates	**104.39 Acres**	**2016**
	167.14 Acres	**2027**
	Balanced Life	**2028**

Solid Waste Authority
North County Landfill Depletion
Assuming Balanced Landfill Life
Table 4

	Class 1 Landfill Volume Depleted	Class 3 Landfill Volume Depleted	Total Landfill Volume Depleted	Cumulative Class 1 Volume Depleted	Cumulative Class 3 Volume Depleted	Cumulative Class 1 Percentage Volume	Cumulative Class 3 Percentage Volume	Landfill Volume Remaining
Total Estimated Volume to +160 NGVD								**42,191,321**
Volume Depleted Through Fiscal Year 1996/1997								**6,039,000**
Remaining Volume								**36,152,321**
1998	580,028	357,069	937,097	3,929,028	3,047,069	56.32%	43.68%	**35,215,224**
1999	571,127	402,586	973,713	4,500,155	3,449,655	56.61%	43.39%	**34,241,511**
2000	562,808	448,281	1,011,089	5,062,963	3,897,936	56.50%	43.50%	**33,230,422**
2001	552,521	493,373	1,045,894	5,615,484	4,391,309	56.12%	43.88%	**32,184,528**
2002	548,491	533,145	1,081,636	6,163,975	4,924,454	55.59%	44.41%	**31,102,891**
2003	577,561	542,043	1,119,604	6,741,537	5,466,497	55.22%	44.78%	**29,983,287**
2004	607,157	551,102	1,158,259	7,348,694	6,017,599	54.98%	45.02%	**28,825,028**
2005	637,288	560,325	1,197,613	7,985,982	6,577,924	54.83%	45.17%	**27,627,415**
2006	664,955	568,793	1,233,748	8,650,937	7,146,717	54.76%	45.24%	**26,393,667**
2007	693,073	577,400	1,270,472	9,344,009	7,724,117	54.75%	45.25%	**25,123,195**
2008	721,649	586,147	1,307,796	10,065,658	8,310,264	54.78%	45.22%	**23,815,399**
2009	750,692	595,036	1,345,728	10,816,350	8,905,300	54.85%	45.15%	**22,469,671**
2010	780,208	604,071	1,384,279	11,596,559	9,509,371	54.94%	45.06%	**21,085,391**
2011	808,355	612,686	1,421,041	12,404,913	10,122,057	55.07%	44.93%	**19,664,350**
2012	836,932	621,433	1,458,365	13,241,845	10,743,491	55.21%	44.79%	**18,205,986**
2013	865,946	630,314	1,496,260	14,107,791	11,373,805	55.36%	44.64%	**16,709,725**
2014	895,404	639,331	1,534,736	15,003,195	12,013,136	55.53%	44.47%	**15,174,990**
2015	925,314	648,486	1,573,800	15,928,509	12,661,622	55.71%	44.29%	**13,601,190**
2016	953,714	657,179	1,610,893	16,882,223	13,318,801	55.90%	44.10%	**11,990,297**
2017	982,521	665,996	1,648,517	17,864,744	13,984,797	56.09%	43.91%	**10,341,779**
2018	1,011,740	674,940	1,686,680	18,876,484	14,659,738	56.29%	43.71%	**8,655,099**
2019	1,041,377	684,012	1,725,389	19,917,862	15,343,749	56.49%	43.51%	**6,929,710**
2020	1,071,439	693,213	1,764,652	20,989,301	16,036,963	56.69%	43.31%	**5,165,058**
2021	1,071,439	693,213	1,764,652	22,060,740	16,730,176	56.87%	43.13%	**3,400,405**
2022	1,071,439	693,213	1,764,652	23,132,179	17,423,389	57.04%	42.96%	**1,635,753**
2023	1,071,439	693,213	1,764,652	24,203,618	18,116,602	57.19%	42.81%	**(128,900)**
2024	1,071,439	693,213	1,764,652	25,275,058	18,809,816	57.33%	42.67%	**(1,893,552)**
2025	1,071,439	693,213	1,764,652	26,346,497	19,503,029	57.46%	42.54%	**(3,658,205)**
2026	1,071,439	693,213	1,764,652	27,417,936	20,196,242	57.58%	42.42%	**(5,422,857)**
2027	1,071,439	693,213	1,764,652	28,489,375	20,889,455	57.70%	42.30%	**(7,187,509)**

Assumptions: **See Table 1, Table 2, and Table 3.**

Landfill Depletion Model 1998.xls6/24/98

Solid Waste Authority
North County Landfill Depletion
Assuming Balanced Landfill Life
Third Boiler at NCRRRF
Table 4A

	Class 1 Landfill Volume Depleted	Class 3 Landfill Volume Depleted	Total Landfill Volume Depleted	Cumulative Class 1 Volume Depleted	Cumulative Class 3 Volume Depleted	Cumulative Class 1 Percentage Volume	Cumulative Class 3 Percentage Volume	Landfill Volume Remaining
Total Estimated Volume to +160 NGVD								**42,191,321**
Volume Depleted Through Fiscal Year 1996/1997								**6,039,000**
Remaining Volume								**36,152,321**
1998	580,028	366,196	946,224	3,929,028	3,056,196	56.25%	43.75%	**35,206,097**
1999	571,127	411,713	982,840	4,500,155	3,467,909	56.48%	43.52%	**34,223,257**
2000	562,808	457,408	1,020,216	5,062,963	3,925,317	56.33%	43.67%	**33,203,041**
2001	552,521	502,500	1,055,021	5,615,484	4,427,817	55.91%	44.09%	**32,148,020**
2002	440,821	537,851	978,672	6,056,305	4,965,669	54.95%	45.05%	**31,169,347**
2003	448,794	547,580	996,374	6,505,099	5,513,248	54.13%	45.87%	**30,172,973**
2004	456,912	557,484	1,014,397	6,962,012	6,070,733	53.42%	46.58%	**29,158,576**
2005	465,177	567,568	1,032,745	7,427,188	6,638,301	52.80%	47.20%	**28,125,832**
2006	472,765	576,827	1,049,592	7,899,953	7,215,128	52.27%	47.73%	**27,076,239**
2007	480,478	586,237	1,066,714	8,380,431	7,801,365	51.79%	48.21%	**26,009,525**
2008	488,316	595,800	1,084,116	8,868,747	8,397,165	51.37%	48.63%	**24,925,409**
2009	496,282	605,520	1,101,801	9,365,028	9,002,685	50.99%	49.01%	**23,823,607**
2010	504,378	615,398	1,119,775	9,869,406	9,618,083	50.64%	49.36%	**22,703,832**
2011	512,098	624,817	1,136,915	10,381,504	10,242,900	50.34%	49.66%	**21,566,917**
2012	519,936	634,381	1,154,317	10,901,440	10,877,281	50.06%	49.94%	**20,412,601**
2013	527,894	644,091	1,171,985	11,429,334	11,521,371	49.80%	50.20%	**19,240,616**
2014	535,974	653,949	1,189,923	11,965,308	12,175,321	49.57%	50.43%	**18,050,692**
2015	544,178	663,959	1,208,137	12,509,486	12,839,279	49.35%	50.65%	**16,842,555**
2016	551,968	673,463	1,225,431	13,061,454	13,512,742	49.15%	50.85%	**15,617,125**
2017	559,869	683,104	1,242,973	13,621,323	14,195,846	48.97%	51.03%	**14,374,152**
2018	559,268	692,554	1,251,822	14,180,591	14,888,400	48.78%	51.22%	**13,122,330**
2019	588,906	701,626	1,290,531	14,769,497	15,590,026	48.65%	51.35%	**11,831,798**
2020	618,967	710,827	1,329,795	15,388,464	16,300,853	48.56%	51.44%	**10,502,004**
2021	618,967	710,827	1,329,795	16,007,431	17,011,681	48.48%	51.52%	**9,172,209**
2022	618,967	710,827	1,329,795	16,626,398	17,722,508	48.40%	51.60%	**7,842,415**
2023	618,967	710,827	1,329,795	17,245,365	18,433,336	48.34%	51.66%	**6,512,620**
2024	618,967	710,827	1,329,795	17,864,333	19,144,163	48.27%	51.73%	**5,182,825**
2025	618,967	710,827	1,329,795	18,483,300	19,854,990	48.21%	51.79%	**3,853,031**
2026	618,967	710,827	1,329,795	19,102,267	20,565,818	48.16%	51.84%	**2,523,236**
2027	618,967	710,827	1,329,795	19,721,234	21,276,645	48.10%	51.90%	**1,193,442**

Assumptions: **See Table 1, Table 2, and Table 3.**

Landfill Depletion Model 1998.xls6/24/98

Appendix B

Incoming Waste Tonnages
Ten Year History

Solid Waste Authority of Palm Beach County
Historical Solid Waste Tonnages
Adjusted for Revised Solid Waste Densities

85/86	Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furn.	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
	OCT	0.00	0.00	32.65	23,718.52	0.00	273.71	23.91	0.00	118.75	0.00	42,504.37	0.00	1.74	329.35	3.75	0.00	22,933.28	3,407.00	93,345.03
	NOV	0.00	0.00	12.24	23,075.80	0.00	473.52	0.00	0.00	141.25	0.00	41,433.41	0.00	12.88	43.04	0.00	0.00	24,610.05	2,415.85	92,217.84
	DEC	0.00	0.00	58.18	27,322.89	0.00	181.56	17.25	0.00	37.50	0.00	45,837.13	0.00	0.18	1,124.52	0.00	0.00	23,147.46	2,041.58	99,766.03
	JAN	0.00	0.00	25.28	26,489.35	0.00	143.27	38.89	0.00	226.75	0.00	46,896.31	0.00	15.15	273.82	4.52	0.00	30,082.72	1,882.85	106,056.71
	FEB	0.00	0.00	25.81	22,411.99	0.00	111.69	4.37	0.00	43.75	0.00	43,533.78	803.38	0.84	209.93	4.25	0.00	21,172.99	2,015.95	90,136.51
	MAR	0.00	0.00	14.89	19,738.94	0.00	108.36	3.22	0.00	83.84	0.00	49,707.50	3,421.84	47.39	360.85	4.30	0.00	20,182.28	2,022.01	95,655.02
	APR	0.00	0.00	25.58	22,019.13	0.00	124.56	4.42	0.00	90.00	0.00	45,560.25	10,059.82	0.66	333.27	0.45	0.00	23,628.76	2,510.97	104,557.87
	MAY	0.00	0.00	57.31	17,857.85	0.00	65.71	0.00	0.00	18.75	0.00	44,131.03	18,823.31	32.85	77.54	3.55	0.00	24,649.83	2,815.38	108,132.89
	JUN	0.00	0.00	21.24	21,010.29	0.00	182.23	4.89	0.00	360.00	0.00	44,881.97	17,375.85	2.38	3,727.63	1.00	0.00	25,140.90	3,172.81	115,660.98
	JUL	0.00	0.00	9.71	18,951.68	0.00	212.54	10.09	0.00	438.75	0.00	45,445.73	11,316.05	2.15	74.82	1.00	0.00	27,363.67	3,076.43	106,902.81
	AUG	0.00	0.00	23.17	19,665.82	0.00	373.49	8.93	0.00	195.00	0.00	42,704.94	12,186.03	18.05	63.36	7.70	0.00	23,020.79	2,809.52	101,074.80
	SEP	0.00	0.00	40.82	25,350.12	0.00	439.80	4.66	0.00	38.92	0.00	44,136.87	13,576.23	19.09	606.22	3.67	0.00	22,406.48	2,573.91	109,196.80
	Total	0.00	0.00	346.66	267,409.95	0.00	2,690.44	116.65	0.00	1,773.08	0.00	536,775.27	87,184.31	151.34	7,223.95	34.19	0.00	288,519.24	30,724.02	1,222,931.09
	Average	0.00	0.00	28.89	22,284.18	0.00	224.20	9.89	0.00	147.76	0.00	44,731.27	7,263.69	12.61	602.00	2.85	0.00	24,043.27	2,560.34	101,910.92
	Percent	0.00%	0.00%	0.03%	21.87%	0.00%	0.22%	0.01%	0.00%	0.14%	0.00%	43.89%	7.13%	0.01%	0.59%	0.00%	0.00%	23.59%	2.51%	100.00%

86/87	Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
	OCT	0.00	0.00	28.36	33,778.82	0.00	393.77	0.00	0.00	48.75	0.00	45,630.98	16,590.42	4.58	290.22	2.30	0.00	16,833.42	2,899.80	118,299.22
	NOV	0.00	0.00	35.32	28,495.31	0.00	261.49	8.77	0.00	27.50	0.00	45,504.00	13,112.31	2.66	281.09	1.05	0.00	16,581.92	2,186.44	108,497.86
	DEC	0.00	0.00	62.87	31,451.87	0.00	413.85	44.54	0.00	57.32	0.00	55,055.42	11,845.30	1.27	289.71	8.33	0.00	18,425.12	2,097.92	117,733.31
	JAN	0.00	0.00	60.87	30,277.89	0.00	411.70	10.72	0.00	150.62	0.00	51,699.26	8,858.43	0.38	660.96	5.59	0.00	16,772.10	2,270.95	111,177.09
	FEB	0.00	0.00	100.20	29,516.31	0.00	1,078.77	7.71	0.00	85.25	0.00	47,977.67	9,284.84	1.66	117.69	2.50	0.00	16,070.60	2,079.60	106,323.02
	MAR	0.00	0.00	35.48	17,241.63	0.00	363.16	10.64	0.00	998.88	0.00	55,711.88	8,426.25	3.75	44.54	0.95	0.00	17,750.43	2,567.70	103,175.27
	APR	0.00	0.00	42.75	20,831.52	0.00	352.68	11.94	0.00	904.41	0.00	50,328.29	4,609.04	2.18	77.00	0.00	0.00	17,033.33	2,675.57	97,068.72
	MAY	0.00	0.00	77.52	23,435.89	0.00	305.82	0.00	0.00	322.29	0.00	48,960.85	4,957.62	12.12	3.63	3.90	0.00	16,032.65	2,521.97	98,634.27
	JUN	0.00	0.00	23.43	25,624.36	0.00	318.31	8.30	0.00	281.98	0.00	46,957.20	4,176.42	0.14	14.95	0.00	0.00	17,931.40	3,207.66	100,542.15
	JUL	0.00	0.00	33.14	24,345.24	0.00	300.39	0.00	0.00	208.12	0.00	49,564.90	3,889.55	10.04	39.45	1.25	0.00	17,884.48	3,288.51	99,585.06
	AUG	0.00	0.00	47.99	23,557.19	0.00	368.11	7.77	0.00	253.39	0.00	45,242.56	4,665.84	0.47	99.52	3.70	0.00	16,282.77	2,835.51	93,364.81
	SEP	0.00	0.00	96.14	22,885.71	0.00	434.22	3.51	0.00	266.66	0.00	48,129.41	4,062.24	6.01	266.96	0.00	0.00	16,567.31	2,980.59	97,762.80
	Total	0.00	0.00	643.85	311,438.92	0.00	5,002.27	112.10	0.00	3,627.19	0.00	592,762.22	94,496.26	47.28	2,185.96	29.57	0.00	208,165.74	31,632.22	1,250,143.56
	Average	0.00	0.00	53.65	25,953.24	0.00	416.86	9.34	0.00	302.27	0.00	49,396.85	7,874.69	3.94	182.16	2.46	0.00	17,347.14	2,636.02	104,178.63
	Percent	0.00%	0.00%	0.05%	24.91%	0.00%	0.40%	0.01%	0.00%	0.29%	0.00%	47.42%	7.56%	0.00%	0.17%	0.00%	0.00%	16.65%	2.53%	100.00%

SWA scale system output converts volume transactions to tonnage using assumed waste densities. Currently available information allows the retrieval of tonnage information on volume transactions. For 92/93 and on "actuals" are used. For prior years, assumed weights have been replaced with more accurate estimates based on reasonable and reliable density estimates. Animals not included due to inconsistent recording. Animal tonnage is insignificant.

87/88

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	0.00	210.76	23,142.60	0.00	203.09	7.83	0.00	307.68	0.00	50,145.73	3,761.04	0.55	216.55	0.00	0.00	16,797.22	3,223.35	100,016.39
NOV	0.00	0.00	211.56	21,954.85	0.00	75.88	3.82	0.00	899.60	0.00	50,279.05	3,069.62	0.24	162.25	0.00	0.00	17,028.29	2,548.12	96,231.30
DEC	0.00	0.00	215.23	22,949.80	0.00	93.09	9.50	0.00	318.23	0.00	53,532.36	2,812.24	3.67	1,052.60	1.62	0.00	16,727.68	1,960.80	99,677.01
JAN	0.00	0.00	45.98	20,303.32	0.00	162.03	35.04	0.00	224.63	0.00	52,228.10	4,137.48	0.74	83.03	1.12	0.00	17,945.73	1,270.15	96,437.34
FEB	0.00	0.00	71.66	19,236.14	0.00	205.13	14.48	0.00	929.91	0.00	53,829.24	3,425.54	0.80	940.59	0.00	0.00	17,840.77	1,274.36	97,768.82
MAR	0.00	0.00	124.40	24,563.60	0.00	138.00	8.63	0.00	940.87	0.00	58,845.36	3,345.92	0.55	19.45	7.24	0.00	18,832.27	1,554.55	108,380.83
APR	0.00	0.00	116.41	21,334.22	0.00	84.34	5.74	0.00	1,460.20	0.00	52,492.48	3,685.82	0.00	22.53	0.00	0.00	18,192.37	1,501.67	98,895.78
MAY	0.00	0.00	110.49	21,145.85	0.00	136.40	63.25	0.00	786.55	0.00	53,790.86	5,028.27	0.23	22.65	1.00	0.00	19,491.15	1,530.05	102,106.57
JUN	0.00	0.00	168.33	26,428.47	0.00	259.92	200.65	0.00	394.63	0.00	54,940.00	3,378.51	23.07	0.00	2.65	0.00	20,494.74	1,850.50	106,059.47
JUL	0.00	0.00	153.27	25,460.82	0.00	125.89	263.15	0.00	677.80	0.00	51,892.97	2,277.22	2.35	207.87	1.40	0.00	19,431.31	1,728.82	102,222.88
AUG	0.00	0.00	140.45	30,459.67	0.00	188.71	55.92	0.00	122.71	0.00	56,676.19	3,871.20	0.00	320.77	3.92	0.00	20,605.62	2,373.05	114,598.21
SEP	0.00	0.00	156.48	27,851.54	0.00	185.96	4.21	0.00	185.84	0.00	50,675.04	4,385.25	0.81	66.96	2.42	0.00	19,089.34	2,219.36	104,815.21
Total	0.00	0.00	1,745.24	284,830.84	0.00	1,848.44	672.22	0.00	7,228.65	0.00	639,227.20	42,978.11	33.01	3,115.45	21.37	0.00	224,476.49	23,032.78	1, 229,209.80
Average	0.00	0.00	145.44	23,735.90	0.00	154.04	56.02	0.00	602.39	0.00	53,268.93	3,581.51	2.75	259.62	1.78	0.00	18,706.37	1,919.40	102,434.15
Percent	0.00%	0.00%	0.14%	23.17%	0.00%	0.15%	0.05%	0.00%	0.59%	0.00%	52.00%	3.50%	0.00%	0.25%	0.00%	0.00%	18.26%	1.87%	100.00%

88/89

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	0.00	87.69	26,181.30	0.00	148.86	3.98	0.00	160.12	0.00	52,270.88	3,934.36	3.99	81.09	7.27	0.00	19,745.70	2,979.17	105,804.20
NOV	0.00	0.00	115.50	20,594.23	0.00	65.51	3.21	0.00	134.98	0.00	55,707.52	4,166.16	2.84	8.56	3.65	0.00	20,423.35	2,818.71	104,042.22
DEC	0.00	0.00	22.82	19,791.84	0.00	59.12	36.39	0.00	76.28	0.00	57,471.58	4,655.35	1.51	54.53	2.25	0.00	20,760.60	3,043.60	105,977.87
JAN	0.00	0.00	36.53	18,400.88	0.00	221.87	4.54	0.00	196.23	0.00	60,790.77	4,118.68	2.24	73.82	2.75	0.00	21,503.73	2,531.37	107,883.60
FEB	0.00	0.00	10.38	18,629.32	0.00	155.11	0.00	0.00	401.14	0.00	54,998.22	6,719.68	2.12	1.90	0.00	0.00	21,886.88	2,437.62	103,242.34
MAR	0.00	0.00	18.99	16,682.59	0.00	150.81	0.00	0.00	389.27	0.00	63,944.25	7,583.63	20.20	28.09	2.60	0.00	26,236.49	2,993.14	120,050.26
APR	0.00	0.00	21.40	19,338.76	0.00	120.56	20.54	0.00	579.52	0.00	57,997.92	4,788.47	5.33	7.79	2.12	0.00	23,904.27	3,076.20	109,862.89
MAY	0.00	0.00	27.21	17,633.23	0.00	57.52	4.79	0.00	859.36	0.00	62,303.68	5,934.25	8.65	0.18	0.00	0.00	27,354.77	3,292.18	117,573.87
JUN	0.00	0.00	7.74	18,338.71	0.00	59.44	232.87	0.00	1,156.07	0.00	58,867.27	6,022.51	0.94	14.68	0.00	0.00	26,288.47	3,557.21	114,545.90
JUL	0.00	0.00	0.00	19,422.48	0.00	104.99	421.12	0.00	870.20	0.00	56,348.08	3,449.17	0.94	3,600.13	0.00	0.00	24,201.07	3,230.77	111,649.95
AUG	0.00	0.00	44.01	22,220.62	0.00	128.50	391.36	0.00	802.56	0.00	56,738.55	3,791.56	1.18	8.65	3.65	0.00	27,373.20	3,348.82	116,652.65
SEP	0.00	0.00	54.96	17,290.95	0.00	123.76	123.09	0.00	818.28	0.00	53,969.32	2,401.99	0.28	21.99	1.20	0.00	27,857.25	3,247.14	105,706.20
Total	0.00	0.00	447.23	234,524.89	0.00	1,396.05	1,241.89	0.00	8,543.99	0.00	693,409.02	57,567.99	48.22	3,899.59	25.69	0.00	287,335.77	36,553.91	1, 322,994.25
Average	0.00	0.00	37.27	19,543.74	0.00	116.34	103.49	0.00	545.33	0.00	57,784.09	4,797.33	4.02	324.97	2.14	0.00	23,944.65	3,046.16	110,249.52
Percent	0.00%	0.00%	0.03%	17.73%	0.00%	0.11%	0.09%	0.00%	0.49%	0.00%	52.41%	4.35%	0.00%	0.29%	0.00%	0.00%	21.72%	2.76%	100.00%

89/90

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	0.00	34.55	15,313.72	0.00	66.78	9.28	0.00	478.88	0.00	56,519.68	2,248.03	0.71	2.55	2.00	0.00	24,348.26	2,919.45	101,943.88
NOV	0.00	0.00	8.85	14,758.80	0.00	188.91	9.31	0.00	498.72	0.00	57,318.34	1,997.30	0.01	0.00	0.00	0.00	22,957.82	2,555.62	100,291.68
DEC	0.00	0.00	13.63	13,037.13	0.00	190.40	2.62	0.00	455.70	0.00	58,818.71	1,835.76	0.80	23.66	0.00	0.00	20,140.62	807.94	93,127.97
JAN	0.00	0.00	63.78	11,003.99	0.00	334.94	5.72	0.00	544.58	0.00	66,560.11	1,929.79	0.00	5.82	3.14	0.00	28,276.96	2,658.09	111,386.91
FEB	0.00	0.00	107.26	11,903.65	0.00	132.15	5.32	0.00	332.27	0.00	45,456.98	2,467.87	1.82	364.42	1.50	0.00	23,693.25	2,408.02	86,874.51
MAR	0.00	0.00	121.91	14,178.32	0.00	117.73	13.22	0.00	223.16	0.00	81,876.36	2,280.23	1.15	96.84	5.87	0.00	24,046.59	2,418.85	105,380.24
APR	0.00	0.00	70.08	8,975.38	0.00	143.85	92.00	0.00	283.16	0.00	59,283.07	1,999.96	1.57	28.23	1.25	0.00	21,566.82	2,035.72	94,480.87
MAY	0.00	175.80	95.69	9,695.40	0.00	184.30	1.01	0.00	329.16	0.00	59,631.02	1,758.35	0.06	3.38	6.61	0.00	23,251.28	1,920.19	97,052.27
JUN	0.00	728.91	53.07	9,083.53	0.00	92.51	8.20	0.00	750.67	0.00	56,762.99	2,060.84	0.17	52.03	8.21	0.00	23,143.72	1,720.30	94,463.15
JUL	0.00	219.05	37.98	9,191.74	0.00	237.13	3.03	0.00	406.45	0.00	56,961.91	2,328.84	0.00	9.94	0.00	0.00	24,150.09	1,915.79	95,481.94
AUG	0.00	0.00	77.17	8,960.82	0.00	339.17	8.47	0.00	356.32	0.00	57,663.01	1,715.79	0.13	14.62	7.28	0.00	28,692.09	1,814.19	97,649.26
SEP	0.00	14.29	61.25	7,838.11	0.00	151.48	51.45	0.00	348.85	0.00	51,194.57	1,042.39	0.00	118.87	5.12	0.00	20,909.52	1,605.17	83,340.87
Total	0.00	1,138.05	743.20	133,940.77	0.00	2,179.15	207.63	0.00	5,007.94	0.00	685,847.77	23,664.95	6.42	720.36	40.98	0.00	283,177.01	24,779.33	1,1 61,453.56
Average	0.00	94.84	61.93	11,161.73	0.00	181.60	17.30	0.00	417.33	0.00	57,153.98	1,972.08	0.54	60.03	3.42	0.00	23,598.08	2,064.94	96,787.80
Percent	0.00%	0.10%	0.06%	11.53%	0.00%	0.19%	0.02%	0.00%	0.43%	0.00%	59.05%	2.04%	0.00%	0.06%	0.00%	0.00%	24.38%	2.13%	100.00%

90/91

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	81.97	47.00	15,023.85	0.00	155.57	2,944.28	2.79	2,282.29	23.19	60,219.29	2,638.54	0.62	97.73	0.00	0.00	16,930.47	2,367.97	102,815.55
NOV	0.00	152.42	112.59	12,342.72	0.00	123.36	2,921.79	333.82	914.45	20.37	56,903.50	1,195.99	0.54	0.98	1.30	0.00	13,911.55	1,876.25	90,811.61
DEC	0.00	551.38	88.92	8,354.20	0.00	106.59	3,487.84	18.00	615.22	34.28	58,938.83	1,833.42	1.44	22.60	4.11	0.00	12,264.98	1,548.83	87,870.64
JAN	0.00	162.13	31.28	9,378.26	0.00	197.17	3,676.14	405.14	819.44	28.88	65,854.11	1,284.45	2.29	27.50	7.10	0.00	14,351.88	1,743.10	97,766.87
FEB	0.00	110.51	50.75	10,674.68	0.00	173.18	3,591.33	501.01	650.82	19.63	57,626.91	1,519.55	0.89	43.23	0.00	0.00	12,742.73	1,741.77	89,646.95
MAR	0.00	99.10	120.83	11,729.20	0.00	170.90	19.29	523.50	730.80	18.10	61,303.55	2,064.64	0.51	15.54	2.40	0.00	14,078.65	2,060.76	92,937.77
APR	0.00	38.37	24.84	10,741.64	0.00	173.18	6,368.85	264.17	480.14	24.89	63,033.24	2,393.04	0.22	6.48	0.00	0.00	14,569.79	2,130.92	100,249.97
MAY	0.00	18.62	10.70	10,753.04	0.00	513.74	4,184.88	217.91	760.23	25.62	59,583.95	2,370.90	0.25	7.68	0.00	0.00	14,371.58	2,330.96	95,130.05
JUN	0.00	49.02	55.42	10,355.48	0.00	975.99	3,713.10	85.43	760.24	24.41	52,543.94	748.90	0.07	19.30	0.00	0.00	13,240.29	2,428.48	85,000.03
JUL	0.00	17.41	75.77	10,986.06	0.00	275.30	2,332.08	856.40	344.48	17.92	57,483.19	1,312.80	107.00	6.70	0.00	0.00	15,384.84	2,501.05	91,683.00
AUG	0.00	6.31	160.56	9,797.51	0.00	1,365.16	2,732.13	894.21	483.60	6.14	53,990.34	2,419.23	0.13	7.33	0.00	1,612.39	13,291.99	2,652.12	89,421.16
SEP	0.00	12.34	69.50	9,912.47	0.00	236.89	3,607.27	269.53	551.36	14.34	52,055.03	8,429.70	0.70	20.06	0.00	2,294.24	12,662.70	2,907.03	93,043.16
Total	**0.00**	**1,299.58**	**848.18**	**130,249.25**	**0.00**	**4,467.03**	**39,558.98**	**4,373.91**	**9,193.07**	**259.77**	**699,515.88**	**28,211.16**	**114.66**	**275.11**	**14.91**	**3,906.63**	**167,801 .44**	**26,289.22**	**1,116,378.76**
Average	**0.00**	**108.30**	**70.68**	**10,854.10**	**0.00**	**372.25**	**3,296.58**	**364.49**	**766.09**	**21.65**	**58,292.99**	**2,350.93**	**9.56**	**22.93**	**1.24**	**325.55**	**13,983.45**	**2,190.77**	**93,031.56**
Percent	**0.00%**	**0.12%**	**0.08%**	**11.67%**	**0.00%**	**0.40%**	**3.54%**	**0.39%**	**0.82%**	**0.02%**	**62.66%**	**2.53%**	**0.01%**	**0.02%**	**0.00%**	**0.35%**	**15.03%**	**2.35%**	**100.00%**

91/92

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	97.97	60.44	14,291.72	0.00	368.07	5,653.25	126.68	633.89	11.74	59,194.73	5,611.94	0.33	13.20	8.08	3,360.38	17,724.19	3,038.68	110,195.28
NOV	0.00	50.14	31.27	11,422.81	0.00	203.73	5,882.20	348.30	402.53	5.14	55,735.10	3,220.68	0.46	4.19	0.00	585.82	15,615.25	2,392.27	95,899.67
DEC	0.00	125.20	207.95	10,238.59	0.00	305.73	4,621.20	93.88	302.03	4.28	61,957.35	1,891.35	0.49	777.78	0.00	39.12	14,068.06	2,606.02	97,239.00
JAN	0.00	74.80	247.83	10,700.41	0.00	203.96	6,149.55	700.52	556.79	9.76	61,899.91	3,126.39	1.33	42.50	0.00	49.29	15,507.89	2,327.81	101,598.74
FEB	0.00	47.65	50.30	9,091.28	0.00	261.68	5,901.09	907.57	619.70	8.06	57,714.58	4,371.98	0.57	16.10	6.92	116.04	14,135.61	1,964.27	95,413.40
MAR	0.00	99.03	88.50	8,953.83	0.00	329.54	5,885.62	787.74	517.66	5.45	62,950.66	1,691.59	1.07	15.67	0.00	140.89	14,994.37	2,391.42	98,852.84
APR	0.00	172.15	61.54	9,295.16	0.00	342.67	5,403.70	663.97	481.84	3.65	59,248.00	1,754.76	2.12	12.23	0.00	843.61	14,924.16	2,368.89	95,576.65
MAY	0.00	800.29	77.67	8,078.48	0.00	333.78	6,094.16	565.52	598.91	4.21	53,686.53	1,533.65	0.48	6.61	0.00	827.11	14,408.37	2,337.96	89,356.09
JUN	0.00	25.61	68.78	8,445.59	0.00	534.43	3,916.78	877.36	1,154.30	5.59	58,559.67	1,040.53	5.71	21.28	0.00	1,177.30	16,482.16	2,717.63	95,052.91
JUL	0.00	127.42	105.47	10,160.89	0.00	426.52	3,572.38	638.21	618.49	4.36	53,841.19	1,533.45	0.00	29.84	4.94	1,120.77	17,079.89	2,597.67	91,879.49
AUG	0.00	25.72	30.74	9,716.42	0.00	438.89	3,357.42	631.90	682.15	15.04	53,686.20	1,336.98	0.17	17.20	0.00	983.06	14,844.87	3,157.92	88,926.48
SEP	0.00	148.34	43.33	9,364.14	0.00	506.17	4,205.66	562.92	783.66	4.54	54,287.71	1,312.56	1.45	40.36	5.49	613.00	16,212.91	3,982.62	92,054.87
Total	**0.00**	**1,794.52**	**1,092.02**	**119,778.89**	**0.00**	**4,255.15**	**60,645.01**	**6,904.55**	**7,549.95**	**81.84**	**692,763.63**	**28,425.82**	**14.16**	**998.36**	**25.43**	**8,856.39**	**185,997 .33**	**31,863.36**	**1,152,047.42**
Average	**0.00**	**149.54**	**91.00**	**9,981.57**	**0.00**	**354.60**	**5,053.75**	**575.38**	**629.16**	**6.82**	**57,730.30**	**2,368.82**	**1.18**	**83.28**	**2.12**	**821.37**	**15,499.76**	**2,655.28**	**96,003.95**
Percent	**0.00%**	**0.16%**	**0.09%**	**10.40%**	**0.00%**	**0.37%**	**5.26%**	**0.60%**	**0.66%**	**0.01%**	**60.13%**	**2.47%**	**0.00%**	**0.09%**	**0.00%**	**0.86%**	**16.14%**	**2.77%**	**100.00%**

92/93

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	77.35	14.38	10,903.42	0.00	355.68	3,533.10	321.79	378.56	3.01	52,221.19	901.68	0.12	4.19	8.19	220.34	13,869.03	5,002.03	87,812.04
NOV	0.00	360.79	27.92	8,825.82	0.00	394.90	2,549.39	428.23	302.53	1.50	55,468.68	581.06	0.45	21.22	0.00	2,157.91	11,487.47	3,758.22	86,343.89
DEC	0.00	331.07	27.28	9,499.07	0.00	552.32	5,181.17	310.89	444.92	14.05	56,058.88	2,300.00	1.21	19.42	0.00	5,062.61	13,145.18	3,909.95	96,856.20
JAN	0.00	173.61	40.13	9,114.27	0.00	434.87	6,400.60	188.23	341.62	8.81	60,202.58	1,050.70	0.71	41.92	3.63	4,579.96	12,551.50	4,215.28	99,346.22
FEB	0.00	14.40	23.15	9,584.71	0.00	478.89	5,723.80	152.05	817.92	2.32	54,269.58	735.62	0.70	0.54	53.51	3,976.35	12,382.16	4,007.23	92,022.93
MAR	0.00	75.68	110.47	8,841.61	0.00	530.04	6,273.66	121.48	491.57	7.54	68,710.54	2,392.36	0.98	336.72	0.00	7,070.72	16,866.14	6,198.21	116,027.70
APR	0.00	34.12	76.43	9,944.01	0.00	383.12	5,193.91	79.52	56.98	9.32	60,660.25	2,131.30	1.27	63.35	11.05	5,985.82	16,724.81	6,605.61	107,981.07
MAY	0.00	227.65	42.26	9,593.94	0.00	486.49	4,664.85	78.67	0.00	3.83	54,408.59	1,060.04	0.35	34.43	0.00	4,944.42	14,048.62	5,107.11	94,701.45
JUN	0.00	564.37	5.13	9,488.19	0.00	709.25	2,861.08	123.27	0.00	5.47	58,938.35	478.75	0.00	0.88	2.47	4,029.72	17,305.44	5,757.88	98,270.21
JUL	0.00	0.00	22.51	8,472.31	0.00	495.69	2,499.41	83.05	0.00	11.07	53,867.84	546.89	0.00	8.05	0.00	3,854.97	15,397.63	4,623.59	89,861.01
AUG	0.00	0.00	14.73	9,584.47	0.00	480.30	2,210.00	73.47	0.00	6.02	55,685.09	1,060.26	0.00	10.20	2.14	3,433.70	16,182.33	6,013.31	94,736.02
SEP	0.00	0.00	19.50	9,200.25	0.00	1,969.37	1,642.74	125.07	0.00	8.33	54,527.79	1,013.15	0.00	100.88	14.12	4,910.03	15,750.49	6,438.13	95,719.65
Total	**0.00**	**1,859.04**	**423.89**	**113,031.87**	**0.00**	**7,270.72**	**48,733.71**	**2,083.90**	**2,632.10**	**81.27**	**683,039.36**	**14,231.79**	**5.79**	**639.78**	**95.11**	**50,226.75**	**175,710.7 8**	**63,634.73**	**1,163,700.59**
Average	**0.00**	**154.92**	**35.32**	**9,419.32**	**0.00**	**605.89**	**4,061.14**	**173.68**	**219.34**	**6.77**	**56,919.95**	**1,185.98**	**0.48**	**53.32**	**7.93**	**4,185.56**	**14,642.57**	**5,302.89**	**96,975.05**
Percent	**0.00%**	**0.16%**	**0.04%**	**9.71%**	**0.00%**	**0.62%**	**4.19%**	**0.18%**	**0.23%**	**0.01%**	**58.70%**	**1.22%**	**0.00%**	**0.05%**	**0.01%**	**4.32%**	**15.10%**	**5.47%**	**100.00%**

93/94

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	0.00	15.93	10,696.23	0.00	346.29	2,527.73	326.60	0.00	7.53	57,951.42	921.08	0.00	0.00	0.00	38.45	13,920.76	5,952.24	92,904.26
NOV	0.00	0.00	9.15	9,295.81	0.00	238.24	2,049.64	259.28	0.00	4.24	62,388.85	947.14	1.04	26.25	4.36	126.35	13,600.95	5,891.84	94,840.96
DEC	0.00	0.00	7.92	8,534.30	0.00	316.63	3,682.78	214.95	0.00	12.35	63,047.82	535.68	0.00	5.46	2.83	38.00	13,519.71	5,135.75	95,232.18
JAN	0.00	0.00	0.35	8,278.81	0.00	236.64	3,665.13	98.45	2.50	7.75	85,347.52	1,754.17	0.00	1.90	0.00	105.57	14,138.56	5,471.66	97,105.25
FEB	0.00	0.00	2.00	8,307.13	0.00	253.80	3,296.75	141.71	4.59	5.68	62,027.92	1,343.54	0.00	5.35	0.00	46.63	12,715.75	5,818.47	91,771.72
MAR	0.00	0.00	2.80	9,042.00	0.00	284.63	4,981.57	270.71	0.00	7.89	67,724.24	1,364.55	0.00	18.64	12.20	104.71	17,727.87	7,660.00	109,221.61
APR	0.00	0.00	0.00	8,296.71	0.00	423.56	3,681.48	288.96	481.68	7.78	62,891.49	1,738.27	0.00	0.11	0.00	51.21	16,596.09	7,319.86	99,957.16
MAY	0.00	0.00	0.00	6,896.98	0.00	377.93	4,172.70	190.47	3,080.32	3.12	60,920.42	742.46	0.00	2.22	0.00	67.42	17,328.07	6,672.39	102,454.50
JUN	0.00	0.00	2.02	5,636.53	0.00	221.16	3,419.74	138.00	3,685.28	6.58	61,485.20	1,400.25	0.00	2.69	5.77	46.30	16,592.79	11,163.86	103,827.99
JUL	0.00	0.00	0.21	5,197.87	0.00	208.80	3,820.97	132.24	8,616.33	1.12	53,447.76	1,223.95	0.00	5.37	0.00	64.41	14,664.40	9,794.67	95,197.90
AUG	0.00	0.00	10.50	5,050.35	0.00	494.76	4,393.45	150.32	8,129.79	6.80	60,436.48	2,871.95	0.00	0.66	0.00	33.21	15,023.95	12,306.78	108,909.04
SEP	0.00	0.00	1.82	4,376.04	0.00	200.89	4,016.09	153.66	6,411.05	7.45	56,355.67	900.69	0.09	0.89	0.92	37.79	15,147.24	11,711.81	99,322.30
Total	0.00	0.00	52.70	83,608.56	0.00	3,601.35	44,068.01	2,363.55	26,391.54	78.07	734,024.59	15,764.13	1.13	69.76	25.90	760.25	180,996.18	96,539.17	1,198,544.69
Average	0.00	0.00	4.39	6,884.05	0.00	300.11	3,672.33	196.96	2,199.30	6.51	61,168.72	1,313.68	0.09	5.81	2.16	63.35	15,083.02	8,044.93	99,045.41
Percent	0.00%	0.00%	0.00%	7.05%	0.00%	0.30%	3.71%	0.20%	2.22%	0.01%	61.76%	1.33%	0.00%	0.01%	0.00%	0.06%	15.23%	8.12%	100.00%

94/95

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furniture	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	0.00	0.00	5,813.06	0.00	202.61	4,639.19	214.12	9,027.62	10.12	57,406.66	1,606.69	0.00	6.06	0.00	19.50	13,652.16	12,080.64	104,682.69
NOV	0.00	0.00	1.97	4,464.08	0.00	164.84	4,102.55	204.08	6,342.22	5.18	63,172.61	1,175.69	0.00	12.21	13.24	29.66	14,143.77	13,141.75	106,994.05
DEC	0.00	0.00	0.00	5,763.37	0.00	191.33	5,677.96	206.60	833.47	13.07	67,147.64	616.11	0.00	3.14	0.00	11.59	14,621.54	12,004.79	107,292.81
JAN	0.00	0.00	0.00	7,631.11	0.00	225.65	6,158.41	238.23	1,607.89	2.74	64,057.30	1,579.91	0.00	0.00	0.00	10.81	13,118.35	11,430.76	106,061.46
FEB	0.00	0.00	4.65	5,355.27	0.00	463.72	5,417.67	181.67	1,416.42	2.65	57,401.18	2,525.08	0.00	7.60	0.00	46.06	10,691.54	10,027.76	93,741.69
MAR	0.00	0.00	4.10	7,823.84	0.00	800.66	6,077.03	235.31	2,509.41	1.49	64,831.59	7,332.05	0.00	0.00	13.25	23.37	13,259.57	12,993.26	115,904.93
APR	0.00	0.00	10.51	6,420.77	0.00	323.54	4,663.70	220.77	2,379.72	4.27	57,667.76	2,798.72	0.00	0.00	0.00	23.90	12,583.10	11,631.56	98,946.32
MAY	0.00	0.00	1.13	7,306.66	0.00	146.32	5,265.93	237.67	3,901.20	2.11	61,356.02	3,000.30	0.00	6.36	0.00	12.43	13,444.69	12,966.37	107,653.39
JUN	0.00	0.00	1.93	5,473.61	0.00	191.70	4,361.86	179.77	3,357.07	3.09	59,699.47	1,774.45	0.00	1.69	0.00	16.11	13,712.41	13,554.72	102,530.08
JUL	0.00	0.00	0.73	5,676.56	0.00	122.51	4,679.20	156.66	2,262.42	0.20	56,095.61	1,686.89	0.00	21.63	0.00	22.30	13,650.54	11,846.61	96,441.86
AUG	0.00	0.00	0.43	6,667.61	0.00	166.29	4,063.45	334.92	2,270.35	2.15	60,087.61	2,969.14	0.19	36.60	1.66	23.92	12,726.66	11,365.36	100,956.76
SEP	0.00	0.00	2.20	6,385.02	0.00	149.53	4,019.46	503.70	1,171.57	5.50	55,633.63	2,664.50	0.09	0.00	0.00	286.67	11,947.97	12,312.66	97,084.72
Total	0.00	0.00	27.65	76,803.36	0.00	3,150.90	59,346.41	2,913.70	37,099.66	52.77	724,759.30	29,969.73	0.28	101.71	28.15	530.54	158,152.32	145,358.48	1,238,292.96
Average	0.00	0.00	2.30	6,400.26	0.00	262.58	4,945.53	242.81	3,091.64	4.40	60,396.61	2,497.48	0.02	8.48	2.35	44.21	13,179.36	12,113.04	103,191.08
Percent	0.00%	0.00%	0.00%	6.20%	0.00%	0.25%	4.79%	0.24%	3.00%	0.00%	58.53%	2.42%	0.00%	0.01%	0.00%	0.04%	12.77%	11.74%	100.00%

95/96

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furn.	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	0.00	0.00	5.49	6,306.43	0.00	150.58	3,529.75	639.43	1,103.24	0.30	62,568.40	713.09	0.00	2.48	0.00	109.65	14,031.60	10,258.65	101,419.49
NOV	0.00	0.00	0.47	7,577.50	0.00	165.44	3,848.98	151.54	1,170.79	5.60	59,920.30	1,236.95	0.00	0.51	0.00	30.75	11,677.69	9,065.06	95,051.76
DEC	0.00	0.00	0.09	8,466.83	0.00	146.73	4,637.96	198.79	1,110.82	4.64	60,711.75	1,630.56	0.00	6.21	0.00	23.32	11,758.61	8,826.18	93,540.71
JAN	0.00	0.00	0.00	6,199.45	0.00	184.29	5,761.94	355.70	1,066.16	4.97	67,707.15	30.16	0.00	0.00	0.00	49.41	14,569.86	8,771.91	104,741.00
FEB	0.00	0.00	0.19	6,921.47	0.00	315.23	6,827.95	216.42	1,240.79	2.55	60,711.78	0.00	0.00	1.75	0.00	6.85	12,744.83	8,960.11	97,949.92
MAR	0.00	0.00	0.00	9,752.63	0.00	145.62	6,749.53	212.68	1,724.66	5.14	64,177.95	0.00	0.00	1.92	0.00	7.23	12,201.36	7,431.40	102,410.12
APR	0.00	0.00	0.00	11,704.69	0.00	273.41	6,566.69	285.33	1,469.64	2.62	64,690.16	0.00	0.00	8.26	0.00	21.58	13,627.35	7,629.74	106,699.47
MAY	0.00	0.00	0.37	9,956.33	0.00	196.96	5,977.02	253.66	1,165.66	2.70	64,875.94	0.00	0.00	0.00	3.41	15.31	14,642.38	11,365.54	108,455.50
JUN	0.00	0.00	0.22	9,174.17	0.00	65.15	4,281.26	142.95	1,704.25	4.08	56,741.40	0.00	0.00	1.77	0.00	62.75	12,667.57	11,084.11	96,069.70
JUL	0.00	0.00	0.00	9,420.41	0.00	63.50	3,693.63	166.17	4,162.89	4.62	61,493.70	0.00	0.00	1.11	4.59	9.05	14,742.65	10,223.82	103,966.34
AUG	0.00	0.00	0.03	9,566.82	0.00	152.44	4,174.49	162.07	3,233.39	6.96	59,474.35	0.00	0.00	0.00	0.00	1.16	13,345.50	10,894.01	101,031.24
SEP	0.00	0.00	2.35	9,021.73	0.00	83.17	3,486.62	324.63	2,771.44	2.51	57,535.10	0.00	0.00	0.00	0.00	5.58	13,330.75	11,579.33	98,143.21
Total	0.00	0.00	9.21	108,108.46	0.00	1,922.52	59,538.06	3,107.37	21,983.95	46.91	742,807.98	3,610.78	0.00	24.01	8.00	342.84	159,958.35	110,072.06	1,211,518.48
Average	0.00	0.00	0.77	9,009.04	0.00	160.21	4,961.34	258.95	1,830.33	3.91	61,900.67	300.90	0.00	2.00	0.67	28.57	13,329.86	9,172.67	100,959.87
Percent	0.00%	0.00%	0.00%	8.92%	0.00%	0.16%	4.91%	0.26%	1.81%	0.00%	61.31%	0.30%	0.00%	0.00%	0.00%	0.03%	13.20%	9.09%	100.00%

96/97

Month	Animals	Reef	Asbestos	C/D	Residue	Tires	Sludge	Direct	Fill	Furn.	Garbage	LC	Pesticide	Special	Trailers	Mulch	Trash/Other	Vegetation	Total
OCT	24.08	0.00	0.00	4,899.37	2,604.72	74.95	5,092.65	299.32	3,420.44	9.67	63,684.82	0.00	0.00	0.30	0.00	25.27	12,500.11	12,159.05	104,794.95
NOV	25.16	0.00	0.00	3,735.92	3,700.11	84.80	4,816.39	251.30	2,871.07	9.65	60,493.45	0.00	0.00	0.00	1.23	74.90	9,107.87	10,911.88	96,063.73
DEC	32.73	0.00	0.00	3,539.05	3,364.94	121.22	6,343.78	253.38	2,370.37	6.20	68,224.69	0.00	0.00	0.00	0.00	4.25	9,110.56	8,784.40	102,155.57
JAN	30.40	0.00	0.00	4,926.70	2,674.21	105.04	7,023.80	359.02	1,726.86	5.61	69,890.70	0.00	0.00	0.00	0.00	0.00	11,397.53	9,101.15	107,241.04
FEB	38.46	0.00	0.18	5,586.94	2,458.25	137.71	5,164.91	143.22	1,943.51	4.82	64,004.73	0.00	0.00	0.91	0.00	16.64	10,277.50	8,723.36	96,523.16
MAR	25.11	0.00	0.05	3,689.92	2,483.20	88.34	5,759.53	167.09	853.66	5.71	69,172.09	0.00	0.00	0.00	0.00	15.21	10,792.54	10,725.67	103,776.32
APR	29.60	0.00	0.54	3,868.09	2,559.37	154.13	4,690.37	237.72	1,172.69	4.97	67,967.76	0.00	0.00	0.00	0.00	23.60	11,769.09	10,722.18	103,220.31
MAY	24.29	0.00	1.29	3,551.83	3,433.44	82.48	4,838.42	154.68	1,295.94	4.71	66,075.02	0.00	0.00	0.00	1.95	32.44	11,359.21	11,390.90	102,226.60
JUN	24.27	0.00	0.00	4,166.48	3,215.69	109.49	3,227.39	185.34	1,608.05	5.57	65,857.00	0.00	0.00	0.00	11.11	45.31	12,539.44	14,122.95	102,679.50
JUL	27.17	0.00	6.29	4,738.95	3,393.17	106.50	3,323.82	143.17	779.05	7.73	62,495.40	0.00	0.00	1.97	3.38	268.59	16,303.76	15,176.51	106,777.48
AUG	24.29	0.00	0.00	5,585.27	3,581.30	174.93	3,555.21	155.23	1,135.23	6.11	61,959.66	0.00	0.00	0.00	0.00	343.32	18,084.09	14,138.28	108,702.92
SEP	22.07	0.00	0.00	4,599.54	2,210.41	97.91	4,044.28	119.86	174.08	4.63	63,486.23	0.00	0.00	0.00	0.00	337.57	12,813.16	15,228.09	103,137.81
Total	**327.85**	**0.00**	**8.35**	**52,868.06**	**35,658.81**	**1,275.50**	**67,900.55**	**2,489.33**	**19,550.95**	**75.58**	**783,111.57**	**0.00**	**0.00**	**3.18**	**17.67**	**1,189.10**	**146,074.88**	**141,186.62**	**1,239,299.41**
Average	**27.32**	**0.00**	**0.70**	**4,405.67**	**2,971.57**	**106.29**	**4,825.05**	**207.44**	**1,629.25**	**6.30**	**65,259.30**	**0.00**	**0.00**	**0.27**	**1.47**	**99.09**	**12,172.91**	**11,765.55**	**103,274.95**
Percent	**0.03%**	**0.00%**	**0.00%**	**4.27%**	**2.88%**	**0.10%**	**4.67%**	**0.20%**	**1.58%**	**0.01%**	**63.19%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.10%**	**11.79%**	**11.39%**	**100.00%**

Solid Waste Authority of Palm Beach County
Twelve Year Waste Tonnage Study

Construction and Demolition Debris

Year Ended September	Tons Delivered	Percent Change	Tipping Fee	Comments
1986	267,410		$21.00	
1987	311,439	16.46%	$26.00	
1988	284,831	-8.54%	$30.00	
1989	234,525	-17.66%	$33.50	
1990	133,941	-42.89%	$46.50	First Permitted Processors; Site 7 Class 3 Open May
1991	130,249	-2.76%	$50.00	
1992	119,779	-8.04%	$37.00	
1993	113,032	-5.63%	$43.00	
1994	83,809	-25.85%	$46.00	
1995	76,803	-8.36%	$46.00	
1996	108,108	40.76%	$40.00	
1997	88,527	-18.11%	$37.00	
Average Annual Rate		-9.56%		

Land Clearing Debris

Year Ended September	Tons Delivered	Percent Change	Tipping Fee	Comments
1986	87,164		$21.00	
1987	94,496	8.41%	$26.00	
1988	42,978	-54.52%	$30.00	
1989	57,568	33.95%	$33.50	
1990	23,665	-58.89%	$46.50	First Permitted Processors; Site 7 Class 3 Open May
1991	28,211	19.21%	$20.00	
1992	28,426	0.76%	$37.00	
1993	14,232	-49.93%	$43.00	
1994	15,764	10.76%	$46.00	
1995	29,970	90.12%	$46.00	
1996	3,611	-87.95%	$40.00	Waste Code Deleted; Combined with CD
1997	0	-100.00%	$37.00	Waste Code Deleted; Combined with CD
Average Annual Rate		-100.00%		

Trash

Year Ended September	Tons Delivered	Percent Change	Tipping Fee	Comments
1986	288,519		$21.00	
1987	208,166	-27.85%	$26.00	
1988	224,476	7.84%	$30.00	
1989	287,336	28.00%	$33.50	
1990	283,177	-1.45%	$46.50	First Permitted Processors; Site 7 Class 3 Open May
1991	167,801	-40.74%	$50.00	First Year of Assessment
1992	185,997	10.84%	$37.00	
1993	175,711	-5.53%	$43.00	
1994	180,996	3.01%	$46.00	
1995	158,152	-12.62%	$40.00	
1996	159,958	1.14%	$40.00	
1997	146,075	-8.68%	$23.00	
Average Annual Rate		-6.00%		

Vegetation

Year Ended September	Tons Delivered	Percent Change	Tipping Fee	Comments
1986	30,724		$21.00	
1987	31,632	2.96%	$26.00	
1988	23,033	-27.18%	$30.00	
1989	36,554	58.70%	$33.50	
1990	24,779	-32.21%	$46.50	First Permitted Processors; Site 7 Class 3 Open May
1991	26,289	6.09%	$25.00	First Year of Assessment
1992	31,863	21.20%	$37.00	
1993	63,635	99.71%	$25.00	
1994	96,539	51.71%	$18.00	Negotiated Rate; Residential Credit paid to Privates
1995	145,356	50.57%	$18.00	
1996	110,072	-24.27%	$25.00	
1997	141,187	28.27%	$20.00	
Average Annual Rate		14.87%		

Mulch

Year Ended September	Tons Delivered	Percent Change	Tipping Fee	Comments
1986	0		$21.00	
1987	0	0.00%	$36.00	
1988	0	0.00%	$30.00	
1989	0	0.00%	$33.50	
1990	0	0.00%	$46.50	First Permitted Processors; Site 7 Class 3 Open May
1991	3,907	0.00%	$25.00	First Year of Assessment
1992	9,856	152.27%	$37.00	
1993	50,227	409.61%	$0.00	High Permitted Processor Inventories Disposed
1994	760	-98.49%	$4.00	Negotiated Rate
1995	531	-30.22%	$0.00	
1996	343	-35.35%	$0.00	
1997	1,189	246.65%	$20.00	
Average Annual Rate		na		

Garbage

Year Ended September	Tons Delivered	Percent Change	Tipping Fee	Comments
1986	536,775		$21.00	
1987	592,762	10.43%	$26.00	
1988	639,227	7.84%	$30.00	
1989	693,409	8.48%	$33.00	
1990	685,848	-1.09%	$46.50	Plant Operational; Class 1 at Site 7 Open in August.
1991	699,516	1.99%	$83.50	First Year of Assessment
1992	692,764	-0.97%	$37.00	
1993	683,039	-1.40%	$43.00	
1994	734,025	7.46%	$46.00	
1995	724,759	-1.26%	$40.00	
1996	742,808	2.49%	$40.00	
1997	783,112	5.43%	$23.00	Tipping Fee Reduced for Economic Flow Control
Average Annual Rate		3.49%		

Year Ended September	Tons Delivered	Percent Change	Total Tipping Fee	Comments
1986	1,222,931			
1987	1,250,144	2.23%		
1988	1,229,210	-1.67%		
1989	1,322,994	7.63%		
1990	1,161,454	-12.21%		Plant Operational, First Permitted Processors
1991	1,116,379	-3.88%		First Year of Assessment
1992	1,152,047	3.19%		
1993	1,163,701	1.01%		
1994	1,188,544	2.13%		
1995	1,238,293	4.19%		
1996	1,211,518	-2.16%		
1997	1,239,299	2.29%		
Average Annual Rate		0.12%		

Notes:

(1) Above figures include only weighed waste and no "each" charges, such as animals, passenger cars, and appliances, are included. The quantities are immaterial.

(2) The Authority has a "miscellaneous" waste code which is used primarily to account for SWA internal transfers. Waste coded to "miscellaneous" is not included above. The quantities are immaterial.

(3) SWA scale system output converts volume transactions to tonnage using assumed waste densities. Currently available information allows for the retrieval of tonnage information on volume transactions. For 92/93 and on "actual" weights are presented. For prior years, assumed weights for trash, building debris, and land clearing debris have been replaced with more accurate estimates based on reasonable density estimates, as the conversion rates used at the time weren't reasonable.

ATTACHMENT B

U.S. EPA'S LANDFILL AIR EMISSIONS ESTIMATION MODEL

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility Class I and III Landfills
Solid Waste Acceptance Rates

Year	Historic / Projected Mass Acceptance Rates in Tons per Year Class I (tons)	Class III (tons)	Mass Acceptance Rates in Mg Incremental Class I (Mg)	Cumulative Class I (Mg)	Incremental Class III (Mg)	Cumulative Class III (Mg)
1990	352,493	256,150	319,781	0	232,379	0
1991	352,494	256,150	319,782	319,781	232,379	232,379
1992	320,385	268,449	290,653	639,563	243,537	464,758
1993	336,653	216,681	305,412	930,217	196,573	708,295
1994	427,983	167,089	388,266	1,235,628	151,583	904,868
1995	371,733	171,534	337,236	1,623,894	155,616	1,056,451
1996	375,886	201,020	341,004	1,961,131	182,365	1,212,066
1997	399,240	159,660	362,191	2,302,134	144,844	1,394,432
Subtotal	2,936,866	1,696,732	---	---	---	---
1998	394,395	195,612	357,795	2,664,325	177,459	1,539,275
1999	389,751	220,547	353,582	3,022,120	200,080	1,716,734
2000	385,410	245,580	349,644	3,375,702	222,790	1,916,815
2001	380,043	270,283	344,775	3,725,346	245,201	2,139,605
2002	377,941	292,071	342,868	4,070,121	264,967	2,384,806
2003	393,108	296,945	356,628	4,412,989	269,389	2,649,772
2004	408,549	301,908	370,636	4,769,617	273,891	2,919,161
2005	424,270	306,961	384,898	5,140,252	278,475	3,193,052
2006	438,704	311,600	397,992	5,525,150	282,684	3,471,527
2007	453,375	316,315	411,302	5,923,142	286,961	3,754,210
2008	468,284	321,106	424,827	6,334,444	291,307	4,041,171
2009	483,437	325,976	438,574	6,759,271	295,725	4,332,479
2010	498,837	330,926	452,545	7,197,845	300,216	4,628,204
2011	513,522	335,645	465,867	7,650,390	304,497	4,928,420
2012	528,431	340,437	479,393	8,116,258	308,844	5,232,917
2013	543,569	345,303	493,126	8,595,650	313,259	5,541,762
2014	558,939	350,242	507,069	9,088,776	317,740	5,855,021
2015	574,544	355,258	521,226	9,595,845	322,290	6,172,760
2016	589,361	360,020	534,668	10,117,072	326,610	6,495,050
2017	604,391	364,850	548,304	10,651,740	330,992	6,821,660
2018	619,636	369,750	562,134	11,200,044	335,437	7,152,652
2019	635,099	374,719	576,162	11,762,177	339,945	7,488,090
2020	650,783	379,760	590,390	12,338,339	344,518	7,828,035
2021	650,783	379,760	590,390	12,928,729	344,518	8,172,553
2022	650,783	379,760	590,390	13,519,120	344,518	8,517,071
2023	650,783	379,760	590,390	14,109,510	344,518	8,861,589
2024				14,699,900		9,206,108

Source: SWA, November 15, 1997, *1988 Landfill Depletion Model*, Density Comparison Table, and Appendix A.

Note: It is assumed that process residue, ash, unprocessibles, and C&D are all biodegradable. These are included in the totals shown, and will produce conservative estimates of gas production.

Solid Waste Authority of Palm Beach County

North County Resource Recovery Facility Class I and III Landfills

LAEEM Calculated Landfill Gas Generation Rates

	Class I Landfill				Class III Landfill			
Year	Methane (m3/yr)	Gas (m3/yr)	Gas (ft3/yr)	Gas (cfm)	Methane (m3/yr)	Gas (m3/yr)	Gas (ft3/yr)	Gas (cfm)
1990	0	0	0	0	0	0	0	0
1991	1,279,000	2,558,000	90,322,980	172	650,400	929,500	32,820,645	62
1992	2,508,000	5,016,000	177,114,960	337	1,257,000	1,823,000	64,370,130	122
1993	3,572,000	7,144,000	252,254,640	480	1,790,000	2,725,000	96,219,750	183
1994	4,654,000	9,308,000	328,665,480	625	2,268,000	3,405,000	120,230,550	229
1995	6,025,000	12,050,000	425,485,500	810	2,586,000	3,878,000	136,932,180	261
1996	7,137,000	14,274,000	504,014,940	959	2,858,000	4,348,000	153,527,880	292
1997	8,221,000	16,442,000	580,567,020	1,105	3,274,000	4,907,000	173,266,170	330
1998	9,348,000	18,696,000	660,155,760	1,256	3,736,000	5,294,000	186,931,140	356
1999	10,410,000	20,820,000	735,154,200	1,399	4,243,000	5,796,000	204,656,760	389
2000	11,420,000	22,840,000	806,480,400	1,534	4,794,000	6,369,000	224,889,390	428
2001	12,370,000	24,740,000	873,569,400	1,662	5,392,000	7,011,000	247,558,410	471
2002	13,260,000	26,520,000	936,421,200	1,782	5,982,000	7,717,000	272,487,270	518
2003	14,110,000	28,220,000	996,448,200	1,896	6,560,000	8,474,000	299,216,940	569
2004	14,990,000	29,980,000	1,058,593,800	2,014	7,133,000	9,219,000	325,522,890	619
2005	15,880,000	31,760,000	1,121,445,600	2,134	7,700,000	9,953,000	351,440,430	669
2006	16,800,000	33,600,000	1,186,416,000	2,257	8,260,000	10,680,000	377,110,800	717
2007	17,730,000	35,460,000	1,252,092,600	2,382	8,813,000	11,390,000	402,180,900	765
2008	18,680,000	37,360,000	1,319,181,600	2,510	9,358,000	12,090,000	426,897,900	812
2009	19,650,000	39,300,000	1,387,683,000	2,640	9,896,000	12,780,000	451,261,800	859
2010	20,630,000	41,260,000	1,456,890,600	2,772	10,430,000	13,460,000	475,272,600	904
2011	21,630,000	43,260,000	1,527,510,600	2,906	10,950,000	14,140,000	499,283,400	950
2012	22,650,000	45,300,000	1,599,543,000	3,043	11,480,000	14,800,000	522,588,000	994
2013	23,680,000	47,360,000	1,672,281,600	3,182	11,990,000	15,450,000	545,539,500	1,038
2014	24,720,000	49,440,000	1,745,726,400	3,321	12,500,000	16,100,000	568,491,000	1,082
2015	25,780,000	51,560,000	1,820,583,600	3,464	13,000,000	16,740,000	591,089,400	1,125
2016	26,860,000	53,720,000	1,896,853,200	3,609	13,500,000	17,370,000	613,334,700	1,167
2017	27,940,000	55,880,000	1,973,122,800	3,754	12,970,000	18,000,000	635,580,000	1,209
2018	29,040,000	58,080,000	2,050,804,800	3,902	12,460,000	18,620,000	657,472,200	1,251
2019	30,150,000	60,300,000	2,129,193,000	4,051	11,970,000	19,230,000	679,011,300	1,292
2020	31,270,000	62,540,000	2,208,287,400	4,201	11,510,000	19,840,000	700,550,400	1,333
2021	32,410,000	64,820,000	2,288,794,200	4,355	11,050,000	20,440,000	721,736,400	1,373
2022	33,500,000	67,000,000	2,365,770,000	4,501	10,620,000	21,010,000	741,863,100	1,411
2023	34,550,000	69,100,000	2,439,921,000	4,642	10,200,000	21,570,000	761,636,700	1,449
2024	35,550,000	71,100,000	2,510,541,000	4,777	9,804,000	22,100,000	780,351,000	1,485
2025	34,160,000	68,320,000	2,412,379,200	4,590	9,420,000	21,230,000	749,631,300	1,426

Landfill Air Emissions Estimation Model, Version 1.1 for Windows, August 1997
SWA NCRRF Class I Landfill, Methane

Run Date: 12/9/98
Source: c:\landfill\swa_cl1a.prm

Model Parameters

Lo : 100.00 m^3 / Mg
k : 0.0400 1/yr
NMOC : 595.00 ppmv
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

Landfill Parameters

Landfill type : No Co-Disposal
Year Opened : 1990 Current Year : 1998 Closure Year: 2024
Capacity : 14699900 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 0.00 Mg/year

Model Results

Year	Refuse In Place (Mg)	Methane Emission Rate (Mg/yr)	Methane Emission Rate (Cubic m/yr)
1991	3.198E+05	8.534E+02	1.279E+06
1992	6.396E+05	1.673E+03	2.508E+06
1993	9.302E+05	2.383E+03	3.572E+06
1994	1.236E+06	3.105E+03	4.654E+06
1995	1.624E+06	4.019E+03	6.025E+06
1996	1.961E+06	4.762E+03	7.137E+06
1997	2.302E+06	5.485E+03	8.221E+06
1998	2.664E+06	6.236E+03	9.348E+06
1999	3.022E+06	6.947E+03	1.041E+07
2000	3.376E+06	7.618E+03	1.142E+07
2001	3.725E+06	8.252E+03	1.237E+07
2002	4.070E+06	8.849E+03	1.326E+07
2003	4.413E+06	9.417E+03	1.411E+07
2004	4.770E+06	9.999E+03	1.499E+07
2005	5.140E+06	1.060E+04	1.588E+07
2006	5.525E+06	1.121E+04	1.680E+07
2007	5.923E+06	1.183E+04	1.773E+07
2008	6.334E+06	1.246E+04	1.868E+07

Model Results

Year	Refuse In Place (Mg)	Methane Emission Rate (Mg/yr)	Methane Emission Rate (Cubic m/yr)
2009	6.759E+06	1.311E+04	1.965E+07
2010	7.198E+06	1.377E+04	2.063E+07
2011	7.650E+06	1.443E+04	2.163E+07
2012	8.116E+06	1.511E+04	2.265E+07
2013	8.596E+06	1.580E+04	2.368E+07
2014	9.089E+06	1.649E+04	2.472E+07
2015	9.596E+06	1.720E+04	2.578E+07
2016	1.012E+07	1.792E+04	2.686E+07
2017	1.065E+07	1.864E+04	2.794E+07
2018	1.120E+07	1.937E+04	2.904E+07
2019	1.176E+07	2.011E+04	3.015E+07
2020	1.234E+07	2.086E+04	3.127E+07
2021	1.293E+07	2.162E+04	3.241E+07
2022	1.352E+07	2.235E+04	3.350E+07
2023	1.411E+07	2.305E+04	3.455E+07
2024	1.470E+07	2.372E+04	3.555E+07
2025	1.470E+07	2.279E+04	3.416E+07
2026	1.470E+07	2.190E+04	3.282E+07
2027	1.470E+07	2.104E+04	3.153E+07
2028	1.470E+07	2.021E+04	3.030E+07
2029	1.470E+07	1.942E+04	2.911E+07
2030	1.470E+07	1.866E+04	2.797E+07
2031	1.470E+07	1.793E+04	2.687E+07
2032	1.470E+07	1.722E+04	2.582E+07
2033	1.470E+07	1.655E+04	2.480E+07
2034	1.470E+07	1.590E+04	2.383E+07
2035	1.470E+07	1.528E+04	2.290E+07
2036	1.470E+07	1.468E+04	2.200E+07
2037	1.470E+07	1.410E+04	2.114E+07
2038	1.470E+07	1.355E+04	2.031E+07
2039	1.470E+07	1.302E+04	1.951E+07
2040	1.470E+07	1.251E+04	1.875E+07
2041	1.470E+07	1.202E+04	1.801E+07
2042	1.470E+07	1.155E+04	1.731E+07
2043	1.470E+07	1.109E+04	1.663E+07
2044	1.470E+07	1.066E+04	1.597E+07
2045	1.470E+07	1.024E+04	1.535E+07
2046	1.470E+07	9.838E+03	1.475E+07
2047	1.470E+07	9.453E+03	1.417E+07

Landfill Air Emissions Estimation Model, Version 1.1 for Windows, August 1997
SWA NCRRF Class I Landfill, NMOC

Run Date: 12/9/98
Source: C:\LANDFILL\SWA_CL1A.PRM

Model Parameters

Lo : 100.00 m^3 / Mg
k : 0.0400 1/yr
NMOC : 595.00 ppmv
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

Landfill Parameters

Landfill type : No Co-Disposal
Year Opened : 1990 Current Year : 1998 Closure Year: 2024
Capacity : 14699900 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 0.00 Mg/year

Model Results

Year	Refuse In Place (Mg)	NMOC Emission Rate (Mg/yr)	NMOC Emission Rate (Cubic m/yr)
1991	3.198E+05	5.456E+00	1.522E+03
1992	6.396E+05	1.070E+01	2.985E+03
1993	9.302E+05	1.524E+01	4.251E+03
1994	1.236E+06	1.985E+01	5.538E+03
1995	1.624E+06	2.570E+01	7.169E+03
1996	1.961E+06	3.044E+01	8.493E+03
1997	2.302E+06	3.507E+01	9.783E+03
1998	2.664E+06	3.987E+01	1.112E+04
1999	3.022E+06	4.441E+01	1.239E+04
2000	3.376E+06	4.871E+01	1.359E+04
2001	3.725E+06	5.276E+01	1.472E+04
2002	4.070E+06	5.658E+01	1.578E+04
2003	4.413E+06	6.021E+01	1.680E+04
2004	4.770E+06	6.393E+01	1.784E+04
2005	5.140E+06	6.775E+01	1.890E+04
2006	5.525E+06	7.166E+01	1.999E+04
2007	5.923E+06	7.564E+01	2.110E+04
2008	6.334E+06	7.969E+01	2.223E+04

Model Results

Year	Refuse In Place (Mg)	NMOC Emission Rate (Mg/yr)	NMOC Emission Rate (Cubic m/yr)
2009	6.759E+06	8.382E+01	2.338E+04
2010	7.198E+06	8.801E+01	2.455E+04
2011	7.650E+06	9.228E+01	2.574E+04
2012	8.116E+06	9.661E+01	2.695E+04
2013	8.596E+06	1.010E+02	2.818E+04
2014	9.089E+06	1.055E+02	2.942E+04
2015	9.596E+06	1.100E+02	3.068E+04
2016	1.012E+07	1.146E+02	3.196E+04
2017	1.065E+07	1.192E+02	3.325E+04
2018	1.120E+07	1.239E+02	3.456E+04
2019	1.176E+07	1.286E+02	3.588E+04
2020	1.234E+07	1.334E+02	3.721E+04
2021	1.293E+07	1.382E+02	3.856E+04
2022	1.352E+07	1.429E+02	3.986E+04
2023	1.411E+07	1.474E+02	4.111E+04
2024	1.470E+07	1.517E+02	4.231E+04
2025	1.470E+07	1.457E+02	4.065E+04
2026	1.470E+07	1.400E+02	3.906E+04
2027	1.470E+07	1.345E+02	3.752E+04
2028	1.470E+07	1.292E+02	3.605E+04
2029	1.470E+07	1.242E+02	3.464E+04
2030	1.470E+07	1.193E+02	3.328E+04
2031	1.470E+07	1.146E+02	3.198E+04
2032	1.470E+07	1.101E+02	3.072E+04
2033	1.470E+07	1.058E+02	2.952E+04
2034	1.470E+07	1.017E+02	2.836E+04
2035	1.470E+07	9.767E+01	2.725E+04
2036	1.470E+07	9.384E+01	2.618E+04
2037	1.470E+07	9.016E+01	2.515E+04
2038	1.470E+07	8.662E+01	2.417E+04
2039	1.470E+07	8.323E+01	2.322E+04
2040	1.470E+07	7.996E+01	2.231E+04
2041	1.470E+07	7.683E+01	2.143E+04
2042	1.470E+07	7.382E+01	2.059E+04
2043	1.470E+07	7.092E+01	1.979E+04
2044	1.470E+07	6.814E+01	1.901E+04
2045	1.470E+07	6.547E+01	1.826E+04
2046	1.470E+07	6.290E+01	1.755E+04
2047	1.470E+07	6.044E+01	1.686E+04

Landfill Air Emissions Estimation Model, Version 1.1 for Windows, August 1997
SWA NCRRF Class III Landfill, Methane

Run Date: 12/9/98
Source: C:\LANDFILL\SWA_CL3A.PRM

Model Parameters

Lo : 100.00 m^3 / Mg
k : 0.0400 1/yr
NMOC : 595.00 ppmv
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

Landfill Parameters

Landfill type : No Co-Disposal
Year Opened : 1990 Current Year : 1998 Closure Year: 2024
Capacity : 9206108 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 0.00 Mg/year

Model Results

Year	Refuse In Place (Mg)	Methane Emission Rate (Mg/yr)	Methane Emission Rate (Cubic m/yr)
1991	2.324E+05	6.201E+02	9.295E+05
1992	4.648E+05	1.216E+03	1.823E+06
1993	7.083E+05	1.818E+03	2.725E+06
1994	9.049E+05	2.271E+03	3.405E+06
1995	1.056E+06	2.587E+03	3.878E+06
1996	1.212E+06	2.901E+03	4.348E+06
1997	1.394E+06	3.274E+03	4.907E+06
1998	1.539E+06	3.532E+03	5.294E+06
1999	1.717E+06	3.867E+03	5.796E+06
2000	1.917E+06	4.249E+03	6.369E+06
2001	2.140E+06	4.677E+03	7.011E+06
2002	2.385E+06	5.148E+03	7.717E+06
2003	2.650E+06	5.653E+03	8.474E+06
2004	2.919E+06	6.151E+03	9.219E+06
2005	3.193E+06	6.640E+03	9.953E+06
2006	3.472E+06	7.123E+03	1.068E+07
2007	3.754E+06	7.598E+03	1.139E+07

Model Results

Year	Refuse In Place (Mg)	Methane Emission Rate (Mg/yr)	Methane Emission Rate (Cubic m/yr)
2008	4.041E+06	8.066E+03	1.209E+07
2009	4.332E+06	8.527E+03	1.278E+07
2010	4.628E+06	8.982E+03	1.346E+07
2011	4.928E+06	9.431E+03	1.414E+07
2012	5.233E+06	9.874E+03	1.480E+07
2013	5.542E+06	1.031E+04	1.545E+07
2014	5.855E+06	1.074E+04	1.610E+07
2015	6.173E+06	1.117E+04	1.674E+07
2016	6.495E+06	1.159E+04	1.737E+07
2017	6.822E+06	1.201E+04	1.800E+07
2018	7.153E+06	1.242E+04	1.862E+07
2019	7.488E+06	1.283E+04	1.923E+07
2020	7.828E+06	1.323E+04	1.984E+07
2021	8.173E+06	1.363E+04	2.044E+07
2022	8.517E+06	1.402E+04	2.101E+07
2023	8.862E+06	1.439E+04	2.157E+07
2024	9.206E+06	1.474E+04	2.210E+07
2025	9.206E+06	1.417E+04	2.123E+07
2026	9.206E+06	1.361E+04	2.040E+07
2027	9.206E+06	1.308E+04	1.960E+07
2028	9.206E+06	1.256E+04	1.883E+07
2029	9.206E+06	1.207E+04	1.809E+07
2030	9.206E+06	1.160E+04	1.738E+07
2031	9.206E+06	1.114E+04	1.670E+07
2032	9.206E+06	1.071E+04	1.605E+07
2033	9.206E+06	1.029E+04	1.542E+07
2034	9.206E+06	9.883E+03	1.481E+07
2035	9.206E+06	9.495E+03	1.423E+07
2036	9.206E+06	9.123E+03	1.367E+07
2037	9.206E+06	8.765E+03	1.314E+07
2038	9.206E+06	8.421E+03	1.262E+07
2039	9.206E+06	8.091E+03	1.213E+07
2040	9.206E+06	7.774E+03	1.165E+07
2041	9.206E+06	7.469E+03	1.120E+07
2042	9.206E+06	7.176E+03	1.076E+07
2043	9.206E+06	6.895E+03	1.033E+07
2044	9.206E+06	6.625E+03	9.930E+06
2045	9.206E+06	6.365E+03	9.540E+06
2046	9.206E+06	6.115E+03	9.166E+06

Landfill Air Emissions Estimation Model, Version 1.1 for Windows, August 1997
SWA NCRRF Class III Landfill, NMOC

Run Date: 12/9/98
Source: C:\LANDFILL\SWA_CL3A.PRM

Model Parameters

Lo : 170.00 m^3 / Mg
k : 0.0500 1/yr
NMOC : 4000.00 ppmv
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

Landfill Parameters

Landfill type : No Co-Disposal
Year Opened : 1990 Current Year : 1998 Closure Year: 2024
Capacity : 9206108 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 0.00 Mg/year

Model Results

Year	Refuse In Place (Mg)	NMOC Emission Rate (Mg/yr)	NMOC Emission Rate (Cubic m/yr)
1991	2.324E+05	5.664E+01	1.580E+04
1992	4.648E+05	1.105E+02	3.083E+04
1993	7.083E+05	1.645E+02	4.589E+04
1994	9.049E+05	2.044E+02	5.702E+04
1995	1.056E+06	2.314E+02	6.455E+04
1996	1.212E+06	2.580E+02	7.198E+04
1997	1.394E+06	2.899E+02	8.087E+04
1998	1.539E+06	3.110E+02	8.678E+04
1999	1.717E+06	3.391E+02	9.461E+04
2000	1.917E+06	3.714E+02	1.036E+05
2001	2.140E+06	4.075E+02	1.137E+05
2002	2.385E+06	4.474E+02	1.248E+05
2003	2.650E+06	4.902E+02	1.368E+05
2004	2.919E+06	5.320E+02	1.484E+05
2005	3.193E+06	5.728E+02	1.598E+05
2006	3.472E+06	6.127E+02	1.709E+05
2007	3.754E+06	6.517E+02	1.818E+05
2008	4.041E+06	6.899E+02	1.925E+05

Model Results

Year	Refuse In Place (Mg)	NMOC Emission Rate (Mg/yr)	NMOC Emission Rate (Cubic m/yr)
2009	4.332E+06	7.273E+02	2.029E+05
2010	4.628E+06	7.639E+02	2.131E+05
2011	4.928E+06	7.998E+02	2.231E+05
2012	5.233E+06	8.350E+02	2.329E+05
2013	5.542E+06	8.696E+02	2.426E+05
2014	5.855E+06	9.035E+02	2.521E+05
2015	6.173E+06	9.369E+02	2.614E+05
2016	6.495E+06	9.697E+02	2.705E+05
2017	6.822E+06	1.002E+03	2.796E+05
2018	7.153E+06	1.034E+03	2.884E+05
2019	7.488E+06	1.065E+03	2.972E+05
2020	7.828E+06	1.096E+03	3.058E+05
2021	8.173E+06	1.127E+03	3.143E+05
2022	8.517E+06	1.156E+03	3.224E+05
2023	8.862E+06	1.183E+03	3.301E+05
2024	9.206E+06	1.210E+03	3.374E+05
2025	9.206E+06	1.151E+03	3.210E+05
2026	9.206E+06	1.094E+03	3.053E+05
2027	9.206E+06	1.041E+03	2.904E+05
2028	9.206E+06	9.903E+02	2.763E+05
2029	9.206E+06	9.420E+02	2.628E+05
2030	9.206E+06	8.960E+02	2.500E+05
2031	9.206E+06	8.523E+02	2.378E+05
2032	9.206E+06	8.108E+02	2.262E+05
2033	9.206E+06	7.712E+02	2.152E+05
2034	9.206E+06	7.336E+02	2.047E+05
2035	9.206E+06	6.978E+02	1.947E+05
2036	9.206E+06	6.638E+02	1.852E+05
2037	9.206E+06	6.314E+02	1.762E+05
2038	9.206E+06	6.006E+02	1.676E+05
2039	9.206E+06	5.713E+02	1.594E+05
2040	9.206E+06	5.435E+02	1.516E+05
2041	9.206E+06	5.170E+02	1.442E+05
2042	9.206E+06	4.918E+02	1.372E+05
2043	9.206E+06	4.678E+02	1.305E+05
2044	9.206E+06	4.450E+02	1.241E+05
2045	9.206E+06	4.233E+02	1.181E+05
2046	9.206E+06	4.026E+02	1.123E+05
2047	9.206E+06	3.830E+02	1.068E+05

ATTACHMENT C

APPLICATION REPLACEMENT PAGES

Application Processing Fee

Check one :

[ ] Attached - Amount : $0.00 [X] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations :

The increase in landfill gas generation at both the Class I and III landfills requires the existing landfill ga collection flare blowers to be upgraded. The existing blowers are designed and permitted for up to 1,050 scfm of landfill gas to each blower. The SWA has replaced the existing blowers with ones that will be designed to handle 1,800 scfm for each flare. The information provided in this application is related to th requested incremental increase in potential landfill gas flow to each flare. The increase is calculated as t future potential flow (1,800 scfm) minus the existing actual flow (1,000 scfm at the Class I Landfill and scfm at the Class III Landfill).

This application contains a request to modify the existing PSD Permit No. PSD-FL-108(B) for the incremental increase in design gas flow rate to each of two flares, to update the permit to reflect applicab requirements from 40 CFR 60 Subpart WWW and Chapter 62-204.800(7)(b)72., and a request to modify existing permit condition limiting the sulfur inlet concentration in the landfill gas to each flare.

The modified gas collection and flare system will meet the requirements of 40 CFR 60 Subpart WWW.

2. Projected or Actual Date of Commencement of Construction : 09-Feb-1998

3. Projected Date of Completion of Construction : 01-Apr-1998

Professional Engineer Certification

1. Professional Engineer Name : Alex H. Makled
   Registration Number : 45935

2. Professional Engineer Mailing Address :

Organization/Firm : Camp Dresser & McKee, Inc.
Street Address : 1601 Belvedere Road
City : West Palm Beach State : FL Zip Code : 33406

3. Professional Engineer Telephone Numbers :

Telephone : (561)689-3336	Fax : (561)689-9713

Application Contact

1. Name and Title of Application Contact :

Name : Alex H. Makled
Title : Principal Engineer

2. Application Contact Mailing Address :

Organization/Firm : Camp Dresser & McKee, Inc.
Street Address : 1601 Belvedere Road
City : West Palm Beach
State : FL Zip Code : 33406

3. Application Contact Telephone Numbers :

Telephone : (561)689-3336 Fax : (561)689-9713

Application Comment

This is an Air Construction Permit Application for a proposed minor modification to the existing PSD permit and PPSA for North County Resource Recovery Facility (NCRRF) site landfill gas systems. This application covers the replacement of 1,050-scfm flare blowers with ones that are designed to handle 1,800 scfm each at the Class I and III landfills. Both landfills are subject to 40 CFR 60 Subpart WWW New Source Performance Standards for Municipal Solid Waste Landfills and Chapter 62-204.800(7)(b)72., F.A.C.. This application, in addition to containing information on the proposed upgrade of the gas flare blower system, does the following:

- Addresses the applicable requirements for 40 CFR 60 Subpart WWW and Chapter 62-204.800(7)(b)72., F.A.C. for MSW landfills;

-Updates emissions calculations based on the November, 1997, version of AP-42,

- Presents controlled emissions calculations based on the future-potential-minus-existing-actual incremental increase of 800 scfm at the Class I Landfill flare, and 1,200 scfm at the Class III Landfill flare, and

-Requests revisions to existing air permit conditions for the flares to reflect applicable requirements in 40 CFR 60 Subpart WWW, and to remove the sulfur flare inlet condition.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility, Location, and Type

1. Facility UTM Coordinates : Zone : 17 East (km) : 585.80 North (km) : 2960.20			
2. Facility Latitude/Longitude : Latitude (DD/MM/SS) : 26 46 Longitude (DD/MM/SS) : 80 8 45			
3. Governmental Facility Code : 3	4. Facility Status Code : A	5. Facility Major Group SIC Code : 49	6. Facility SIC(s) :
7. Facility Comment : This is an active municipal solid waste landfill facility with a Class I and III landfill, each equipped with existing active gas collection and control systems. The SWA has upgraded the flare blower system for both its Class I and Class III landfills. The existing two flare blowers were originally designed to handle 1,050 scfm, and have been replaced with ones designed to handle 1,800 scfm, each.			

Facility Contact

1. Name and Title of Facility Contact : Marc Bruner Director, Planning & Env. Programs
2. Facility Contact Mailing Address : Organization/Firm : Solid Waste Auth. of Palm Beach Co. Street Address : 7501 North Jog Road City : West Palm Beach State : FL Zip Code : 33412-2414
3. Facility Contact Telephone Numbers : Telephone : (561)640-4000 Fax : (561)683-4067

Emissions Unit Information Section 1

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Class I Landfill Gas Collection System Flare		
2. Emissions Unit Identification Number : 001 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment : Emission estimates for the flare are based on 1997 landfill gas sampling data, EPA 's AP-42 Emission Factor Document, and vendor information. Emissions were calculated on the future potential gas flow (1,800 scfm) minus existing actual gas flow (1,000 scfm) incremental increase of 800 scfm to the flare. Existing actual gas flow is based on recent data, rather than on a 2-year average, because the gas flow rate has increased exponentially. See Appendix D.		

Emissions Unit Information Section 1

Class I Landfill Gas Collection System Flare

Emissions Unit Control Equipment 1

1. Description : The existing active gas collection and open flare system is designed to handle 1,050 scfm. The flare blower has been replaced with one that is designed for a 1,800 scfm gas flow rate.
2. Control Device or Method Code : 23

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1
Class I Landfill Gas Collection System Flare

Emissions Unit Details

1. Initial Startup Date :	01-Apr-1998
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer : LFG Specialties, Inc.	Model Number : PCF820I8
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	60	mmBtu/hr	
2. Maximum Incinerator Rate :		lb/hr	tons/day
3. Maximum Process or Throughput Rate :		1800	scfm of LFG
4. Maximum Production Rate :			
5. Operating Capacity Comment : Blower and flare capacity is 1,800 scfm of gas w/ heat content up to 550 Btu/scf. Emission estimates are based on the potential-minus-actual incremental increase in gas flow rate (800 scfm).			

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Class I Landfill Gas Collection System Flare

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Flaring of landfill gas from Class I Landfill	
2. Source Classification Code (SCC) : 3-06-001-08	
3. SCC Units : Million Cubic Feet Burned (all gaseous fuels)	
4. Maximum Hourly Rate : 0.11	5. Maximum Annual Rate : 946.08
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur : 0.00	8. Maximum Percent Ash : 0.00
9. Million Btu per SCC Unit : 550	
10. Segment Comment : Percent sulfur is 0.0020 (20 ppm) based on rounding up of '96 & '97 gas samples. See App. D. MMcu.ft. burned is based on 1,800 scfm total flow. Application is for 800-scfm increase only.	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 1
Class I Landfill Gas Collection System Flare

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - CO			NS
2 - VOC	023		EL
3 - NOX			NS

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1
Class I Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **CO**
2. Total Percent Efficiency of Control : 0.00 %
3. Potential Emissions : 8.7000000 lb/hour 38.1200000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 0 Units lb/MMBtu Reference AP-42, 11/97
7. Emissions Method Code : 3
8. Calculations of Emissions : 800 scfm increase in landfill gas flow 50% of gas by volume is methane: 400 scfm increase in flow Energy content of methane: 980 Btu/scf 400 scfm * 60 min/hr * 980 Btu/scf = 23.52 MMBtu/hr 23.52 MMBtu/hr * 0.37 lb CO / MMBtu = 8.7 lb/hr 8.7 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 38.1 tons per year
9. Pollutant Potential/Estimated Emissions Comment : Based on the incremental increase of 800 scfm of landfill gas flow rate and the CO emission factor referenced in AP-42 Section 13 Industrial Flares, 11/97, confirmed by vendor. See App. D.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1
Class I Landfill Gas Collection System Flare

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1
Class I Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : **VOC**
2. Total Percent Efficiency of Control : 98.00 %
3. Potential Emissions : 0.1300000 lb/hour 0.5600000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 595 Units ppmv Reference AP-42, 11/97
7. Emissions Method Code : 3
8. Calculations of Emissions : gas flow to flare: 800 scfm * 1/35.31 m3/cf = 22.66 std m3/min 22.66 m3/min * 60 min/hr = 1359.4 m3/hr Conc. of NMOC in gas: 595 ppmv MW of NMOC (as hexane): 86.18 g/mol 595 ppm * 41.57 mol/m3 (@ std. conditions) * 86.18 g/mol = 2.13 g/m3 2.13 g/m3 * 1359.4 m3/hr * 1/453.6 lb/g = 6.39 lb/hr uncontrolled NMOC 6.39 lb/hr * (1 - 0.98) = 0.13 lb/hr controlled NMOC 0.13 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 0.56 tons per year

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1

Class I Landfill Gas Collection System Flare

9. Pollutant Potential/Estimated Emissions Comment :

Calculations are based on incremental increase of 800 scfm in landfill gas flow rate and AP-42 Section 2.4 (updated 11/97).

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1
Class I Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 3

1. Pollutant Emitted : **NOX**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 1.6000000 lb/hour 7.0100000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 0 Units lb/MMBtu Reference AP-42, 11/97
7. Emissions Method Code : 3
8. Calculations of Emissions : 800 scfm increase in landfill gas flow 50% of gas by volume is methane: 400 scfm increase in flow Energy content of methane: 980 Btu/scf 400 scfm * 60 min/hr * 980 Btu/scf = 23.52 MMBtu/hr 23.52 MMBtu/hr * 0.068 lb NOx / MMBtu = 1.6 lb/hr 1.6 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 7.01 tons per year
9. Pollutant Potential/Estimated Emissions Comment : Based on the incremental increase of 800 scfm of landfill gas flow rate and the NOx emission factor referenced in AP-42 Section 13 Industrial Flares, 11/97, confirmed by vendor. See App. D.

Emissions Unit Information Section 2

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Class III Landfill Gas Collection System Flare		
2. Emissions Unit Identification Number : 002 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment : Emission estimates for the flare are based on 1997 landfill gas sampling data, EPA 's AP-42 Emission Factor Document, and vendor information. Emissions were calculated on the future potential gas flow (1,800 scfm) minus existing actual gas flow (600 scfm) incremental increase of 1,200 scfm to the flare. Existing actual gas flow is based on recent data, rather than on a 2-year average, because the gas flow rate has increased exponentially. See Appendix D.		

Emissions Unit Information Section 2

Class III Landfill Gas Collection System Flare

Emissions Unit Control Equipment 1

1. Description : The existing active gas collection and open flare system is designed to handle 1,050 scfm. The flare blower has been replaced with one that is designed for 1,800 scfm gas flow rate.
2. Control Device or Method Code : 23

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

Emissions Unit Details

1. Initial Startup Date :	01-Apr-1998	
2. Long-term Reserve Shutdown Date :		
3. Package Unit : Manufacturer : LFG Specialties, Inc.		Model Number : PCF820I8
4. Generator Nameplate Rating :	MW	
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :	 0.00	 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	60	mmBtu/hr	
2. Maximum Incinerator Rate :		lb/hr	tons/day
3. Maximum Process or Throughput Rate :		1800	scfm of LFG
4. Maximum Production Rate :			
5. Operating Capacity Comment : Blower and flare capacity is 1,800 scfm of gas w/ heat content up to 550 Btu/scf. Emission estimates are based on the incremental increase in gas flow rate (1,200 scfm)			

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 2

Class III Landfill Gas Collection System Flare

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Flaring of landfill gas from Class III Landfill	
2. Source Classification Code (SCC) : 3-06-001-08	
3. SCC Units : Million Cubic Feet Burned (all gaseous fuels)	
4. Maximum Hourly Rate : 0.11	5. Maximum Annual Rate : 946.08
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur : 0.04	8. Maximum Percent Ash : 0.00
9. Million Btu per SCC Unit : 550	
10. Segment Comment : Percent sulfur is 0.04 (400 ppm) based on rounding up of '96 & '97 gas samples (see App. D). MMcu.ft. burned is for 1,800 scfm total flow. Application is for 1,200 scfm increase only.	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - CO			NS
2 - SO2			NS
3 - VOC	023		EL
4 - NOX			NS

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **CO**
2. Total Percent Efficiency of Control : 0.00 %
3. Potential Emissions : 13.0500000 lb/hour 57.2000000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 0 Units lb/MMBtu Reference AP-42, 11/97
7. Emissions Method Code : 3
8. Calculations of Emissions : 1,200 scfm increase in landfill gas flow 50% of gas by volume is methane: 600 scfm increase in flow Energy content of methane: 980 Btu/scf 600 scfm * 60 min/hr * 980 Btu/scf = 35.28 MMBtu/hr 35.28 MMBtu/hr * 0.37 lb CO / MMBtu = 13.05 lb/hr 13.05 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 57.2 tons per year
9. Pollutant Potential/Estimated Emissions Comment : Based on the incremental increase of 1,200 scfm of landfill gas flow rate and the CO emission factor referenced in AP-42 Section 13 Industrial Flares, 11/97, confirmed by vendor. See App. D.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : **SO2**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 4.7900000 lb/hour 20.9800000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 400 Units ppmv Reference 1997 LFG measurement
7. Emissions Method Code : 1
8. Calculations of Emissions :

gas flow to flare: 1,200 scfm * 1/35.31 m3/cf = 33.98 std m3/min
33.98 m3/min * 60 min/hr = 2039.1 m3/hr

Conc. of sulfur in gas: 400 ppmv
MW of sulfur: 32.06 g/mol
MW of S02: 64.07

400 ppm * 41.57 mol/m3 (@ std. conditions) * 32.06 g/mol = 0.53 g/m3
Assume all sulfur oxidizes with O2 in flare.
0.53 g/m3 * 64.07/32.06 = 1.06 g/m3 SO2
1.06 g/m3 * 2039.1 m3/hr * 1/453.6 lb/g = 4.79 lb/hr SO2

4.79 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 20.98 tons per year

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

9. Pollutant Potential/Estimated Emissions Comment :

Calculation is based on the incremental increase of 1,200 scfm of landfill gas flow rate and projected sulfur concentration in landfill gas of 400 ppmv. See App. D.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 3

1. Pollutant Emitted : **VOC**
2. Total Percent Efficiency of Control : 98.00 %
3. Potential Emissions : 0.1900000 lb/hour 0.8400000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 595 Units ppmv Reference AP-42, 11/97
7. Emissions Method Code :
8. Calculations of Emissions : gas flow to flare: 1,200 scfm * 1/35.31 m3/cf = 33.98 std m3/min 33.98 m3/min * 60 min/hr = 2039.1 m3/hr Conc. of NMOC in gas: 595 ppmv MW of NMOC (as hexane): 86.18 g/mol 595 ppm * 41.57 mol/m3 (@ std. conditions) * 86.18 g/mol = 2.13 g/m3 2.13 g/m3 * 2039.1 m3/hr * 1/453.6 lb/g = 9.58 lb/hr uncontrolled NMOC 9.58 lb/hr * (1 - 0.98) = 0.19 lb/hr controlled NMOC 0.19 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 0.84 tons per year

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

9. Pollutant Potential/Estimated Emissions Comment :

Calculations are based on incremental increase of 1,200 scfm in landfill gas flow rate and AP-42 Section 2.4 (updated 11/97).

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2
Class III Landfill Gas Collection System Flare

Pollutant Potential/Estimated Emissions : Pollutant 4

1. Pollutant Emitted : **NOX**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 2.4000000 lb/hour 10.5100000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 0 Units lb/MMBtu Reference AP-42, 11/97
7. Emissions Method Code : 3
8. Calculations of Emissions : 1,200 scfm increase in landfill gas flow 50% of gas by volume is methane: 600 scfm increase in flow Energy content of methane: 980 Btu/scf 600 scfm * 60 min/hr * 980 Btu/scf = 35.28 MMBtu/hr 35.28 MMBtu/hr * 0.068 lb NOx / MMBtu = 2.4 lb/hr 2.4 lb/hr * 8760 hr/yr * 1/2000 ton/lb = 10.51 tons per year
9. Pollutant Potential/Estimated Emissions Comment : Based on the incremental increase of 1,200 scfm of landfill gas flow rate and the NOx emission factor referenced in AP-42 Section 13 Industrial Flares, 11/97, confirmed by vendor. See App. D.

SWA of PBC Class I and III Landfills Emission Rates and Gas Flow Rates

Landfill Air Emissions Estimation Model (LAEEM) Parameters for AP-42 defaults:

Lo : 100.00 m^3 / Mg
k : 0.0400 1/yr
NMOC : 595.00 ppmv
Methane : 50.0000 % volume (MW = 16.04)
Carbon Dioxide : 50.0000 % volume

Landfill Gas Flow Rate Conversions

Emission Type/Case	Potential - Actual Gas Flow Increase scfm	Std. m3/yr	Std. m3/min	Mg/yr	Comments
Class I Blower					
Landfill gas: 1,800 (fut) - 1,000 (exist) =	800	11,907,994	22.66		Single flare. All gas goes to flare.
Methane	400	5,953,997	11.33	3969.7	Gas = 50% methane by volume.
Class III Blower					
Landfill gas: 1,800 (fut) - 660 (exist) =	1,200	17,861,990	33.98		Single flare. All gas goes to flare.
Methane	600	8,930,995	16.99	5954.6	Gas = 50% methane by volume.

41.57 Conversion from std. m3/yr to Mg/yr

SWA of PBC Class I & III Landfill Total HAPs and NMOC Emissions

Input Information:

Methane concentration in landfill gas: 500000 ppmdv with MW of: 16.04
Equivalent mass/volume conc. is: 333368009 ug/m3 [ug/m3 = (ppm)41.57(MW)] @ 20^0 C
Methane emission rate: 9924.3603 Mg/yr 314.70 g/s

HAP	Molecular Weight	Default Conc. (ppmv)	Mass Conc. (ug/m3)	Uncontrolled Emissions (Mg/yr)	Uncontrolled Emissions (tons/yr)	Controlled Emissions (tons/yr)
1,1,1-Trichlorethane (methyl chloroform)	133.42	0.480	2662.02	7.92E-02	8.03E-02	1.61E-03
1,1,2,2-Tetrachloroethane	167.85	1.11	7744.51	2.31E-01	2.34E-01	4.67E-03
1,1-Dichloroethane (ethylidene dichloride)	98.95	2.35	9665.70	2.88E-01	2.92E-01	5.83E-03
1,1-Dichloroethene (vinylidene chloride)	96.94	0.20	809.93	2.41E-02	2.44E-02	4.89E-04
1,2-Dichloroethane (ethylene dichloride)	98.96	0.41	1674.19	4.98E-02	5.05E-02	1.01E-03
1,2-Dichloropropane (propylene dichloride)	112.98	0.18	845.32	2.52E-02	2.55E-02	5.10E-04
Acrylonitrile	53.06	6.33	13961.13	4.16E-01	4.21E-01	8.42E-03
Benzene	78.11	1.91	6201.40	1.85E-01	1.87E-01	3.74E-03
Carbon disulfide	76.13	0.58	1844.90	5.49E-02	5.56E-02	1.11E-03
Carbon tetrachloride	153.84	0.004	25.58	7.61E-04	7.72E-04	1.54E-05
Carbonyl sulfide	60.07	0.49	1223.50	3.64E-02	3.69E-02	7.38E-04
Chlorbenzene	112.56	0.25	1188.41	3.54E-02	3.58E-02	7.17E-04
Chloroethane (ethyl chloride)	64.52	1.25	3352.39	9.98E-02	1.01E-01	2.02E-03
Chlorform	119.39	0.03	148.88	4.43E-03	4.49E-03	8.98E-05
Dichlorobenzene	147.00	0.21	1301.51	3.87E-02	3.93E-02	7.85E-04
Dichloromethane (methylene chloride)	84.94	14.3	50489.13	1.50E+00	1.52E+00	3.05E-02
Ethylbenzene	106.16	4.61	20342.83	6.06E-01	6.14E-01	1.23E-02
Hexane	86.18	6.57	23535.39	7.01E-01	7.10E-01	1.42E-02
Mercury	200.61	2.92E-04	2.43	7.25E-05	7.34E-05	1.47E-06
Methyl ethyl ketone (2-butanone)	72.10	7.09	21248.64	6.33E-01	6.41E-01	1.28E-02
Methyl isobutyl ketone (hexone)	100.16	1.87	7785.48	2.32E-01	2.35E-01	4.70E-03
NMOCs (as hexane)	86.18	595	2131439	6.35E+01	6.43E+01	1.29E+00
Perchloroethylene (tetrachloroethylene)	165.83	3.73	25711.15	7.65E-01	7.76E-01	1.55E-02
Toluene	92.13	39.3	150502.31	4.48E+00	4.54E+00	9.08E-02
Trichloroethylene	131.38	2.82	15400.26	4.58E-01	4.65E-01	9.29E-03
Vinyl chloride	62.50	7.34	19068.90	5.68E-01	5.75E-01	1.15E-02
Xylenes	106.16	12.1	53394.42	1.59E+00	1.61E+00	3.22E-02
Total HAPs				**76.56**	**77.57**	**1.55**
Total NMOC	86.18	595	2131439.49	6.35E+01	6.43E+01	1.29E+00

These calculations are for emissions of hazardous air pollutants (HAPs), as listed in Title III of the 1990 Clean Air Act Amendments.

SWA of PBC Class I & III Landfills Secondary Pollutant Emission Rates from Flare

Energy content of methane: 980 Btu/cf 34603.8 Btu/m3

CO and NOx Emission Rates Based on Vendor Emission Factors

Pollutant	Change in Methane Flow Rate to Flare (std. m^3/yr)	Energy input to flare (MMBtu/yr)	Emission Factor (lb/MMBtu)	Emissions from Flare (lb/yr)	Emissions from Flare (ton/yr)
Class I Landfill					
Carbon Monoxide	5.95E+06	206030.9	0.37	76231.4	38.12
Nitrogen Oxides	5.95E+06	206030.9	0.068	14010.1	7.01
Class III Landfill					
Carbon Monoxide	8.93E+06	309046.4	0.37	114347.2	57.17
Nitrogen Oxides	8.93E+06	309046.4	0.068	21015.2	10.51

SO2 and HCl Emission Rates Based on Mass Balance

Pollutant	Total Landfill Gas Flow Rate to Flare (Std. m^3/yr)	Concentration of S or Cl in Landfill Gas (ppmV)	Emission rate of S or Cl (m^3/yr)	Molecular Weight of S or Cl (g/gmol)	Temperature at Standard Conditions (°C)	Uncontrolled Mass Emissions of S or Cl (kg/yr)	Control Efficiency (%)	Ratio of Molecular Weights SO_2/S or HCl/Cl	Controlled Mass Emissions of Pollutant (kg/yr)	Controlled Mass Emissions of Pollutant (lb/hr)	Controlled Mass Emissions of Pollutant (ton/yr)
Class I Landfill											
Sulfur - Sulfur Dioxide	1.19E+07	20	238.16	32.06	20	317.42	0	2.00	634.27	0.160	0.70
Chlorine - Hydrogen Chloride	1.19E+07	42.0	500.14	35.45	20	736.98	91	1.03	68.24	0.017	0.08
Class III Landfill											
Sulfur - Sulfur Dioxide	1.79E+07	400	7144.80	32.06	20	9522.63	0	2.00	19028.0	4.79	20.98
Chlorine - Hydrogen Chloride	1.79E+07	42.0	750.20	35.45	20	1105.46	91	1.03	102.35	0.026	0.11

The calculation methodology for CO and NOx is provided by the vendor, attached. The calculation of SO2 and HCl is from: U.S. EPA, *Compilation of Air Pollutant Emission Factors*, Report No. AP-42, Fifth Edition, Supplement C, Section 2.4, updated November, 1997.

SWA of PBC Class I & III Landfills
Comparison of Incremental Emissions from Two Flares with PSD Thresholds

Pollutant	Emission Rate (tons/yr)	PSD Significant Increase (tons/yr)
Carbon Monoxide	95.3	100
Nitrogen Oxides	17.5	40
Sulfur Dioxide	21.7	40
Hydrogen Chloride	0.19	40
Vinyl Chloride	0.012	1
NMOC	1.29	50

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit by:

Donald L. Lockhart, Executive Director
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412-2414

DEP File No. 0990234-002-AC, PSD-FL-108(D)
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
Palm Beach County

Enclosed is Final Permit Number 0990234-002-AC, PSD-FL-108(D). This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The permit modification is to allow for an upgrade of the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. This permit modification will clarify previous permit conditions and remove a limitation on the sulfur content of the landfill gas, which the applicant can not control. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 5-11-99 to the person(s) listed:

Donald L. Lockhart *
Steve Palmer, DEP, Siting Coordination Office
James Stormer, PBCHD
John Bunyak, NPS
Alex H. Makled, P.E., CDM
Isidore Goldman, P.E., SED
Gregg Worley, EPA

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 5-11-99 (Date)

Z 333 618 109

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to	Donald Lockhart
Street & Number	Solid Waste
Post Office, State, & ZIP Code	Authority of PBCO
Postage	$ 0.34
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	5-11-99

PS Form **3800**, April 1995

0990234-002-AC
PSD FI-108D

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Donald Lockhart, Ex. Dir.
Solid Waste Authority
of Palm Bch Co.
7501 N. Jog Rd
West Palm Bch, FL
33412-2414

4a. Article Number
Z 333 618 109

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
5/13/99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature *(Addressee or Agent)*
X

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

FINAL DETERMINATION

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
DEP File No. 0990234-002-AC, PSD-FL-108(D)

The Department distributed a public notice package on March 24, 1999 to allow the applicant to upgrade the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm at the Applicant's North County Resource Recovery Facility's Class I and III landfills located at 7501 North Jog Road, West Palm Beach, Palm Beach County. This permit modification will clarify previous permit conditions and remove a limitation on the sulfur content of the landfill gas, which the applicant can not control. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The Public Notice of Intent to Issue was published in The Palm Beach Post on April 6, 1999.

COMMENTS/CHANGES

No comments were received by the Department from the public, EPA, the Siting Coordination office, the Department's district office, the local program, or from the applicant.

The Department made no changes to the permit text.

CONCLUSION

The final action of the Department is to issue the final permit with no changes.

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

May 7, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Donald L. Lockhart, Executive Director
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412-2414

Re: DEP File No. 0990234-002-AC, PSD-FL-108(D)
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade

The applicant, Solid Waste Authority of Palm Beach County, applied on September 21, 1998, to the Department for an air construction permit for its Class I and III Landfill Gas Flare Upgrade located at the North County Resource Recovery Facility, 7501 North Jog Road, West Palm Beach, Palm Beach County. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The modification is to upgrade the blower motors for each landfill gas flare (emissions units 003 and 004) from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. The Department has reviewed the applicant's request. The conditions of permit modification PSD-FL-108(B) are hereby replaced entirely with the following specific conditions.

New Specific Conditions:

1. Hours of Operation: These emissions units may operate continuously, i.e., 8,760 hours/year. [Rule 62-210.200, F.A.C., Definitions-potential to emit (PTE)]

2. Landfill Gas Collection and Control: The owner or operator shall comply with the applicable requirements of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. [Rule 62-204.800(7)(b), F.A.C., and 40 CFR 60 Subpart WWW]

3. Landfill Gas Flow Rate: The owner or operator shall not allow more than 1800 scfm of landfill gas to be directed to each flare. The actual flow rate shall be determined for each flare on a monthly average basis by dividing the measured flow by the hours that each flare was operated each month. Compliance with this limitation shall be by measuring landfill gas flows to each flare and recording flows with a totalizing meter. Records of the totalizing meter values shall be recorded in an operators log monthly, or whenever the meter is reset for any purpose, whichever is more frequent. The owner or operator shall maintain a strip chart recorder to record the flow rate to each flare as a backup device in the event that the totalizer meter is not functioning; the strip chart recorder shall also be used in conjunction with an operators log to document the hours each month that each flare was operated. [Rule 62-4.070(3), F.A.C., and request of the applicant]

4. Pursuant to 40 CFR 60.18 General Control Device Requirements: The owner or operator shall comply with the following requirements for flares. [Note: The numbering of the rule has been preserved in the following condition for ease of reference.]

   (c) (1) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

   (2) Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).

(3) Flares shall be used only with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f).

(4) (iii) Nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), less than the velocity, Vmax, as determined by the method specified in paragraph (f)(5), and less than 122 m/sec (400 ft/sec) are allowed.

(d) Owners or operators of flares used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices.

(e) Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

(f) (1) Reference Method 22 shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.

(2) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$HT = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C;

K = Constant, 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/kcal) where the standard temperature for (g mole/scm) is 20°C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946–77 (Incorporated by reference as specified in 40 CFR 60.17); and

H_i = Net heat of combustion of sample component i, kcal/ g mole at 25°C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

(4) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, Vmax, for flares complying with paragraph (c)(4)(iii) shall be determined by the following equation.

$\text{Log10 (Vmax)} = (HT+28.8)/31.7$

Vmax = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

HT = The net heating value as determined in paragraph (f)(3).

[Rule 62-204.800(7)(b), F.A.C., and 40 CFR 60.18]

5. Reporting Requirements: The owner or operator shall annually determine and report the actual exit velocity of each flare using the methods specified in 40 CFR 60.18. The owner or operator shall annually analyze and report the sulfur content of the landfill gas directed to each flare using ASTM Method D1072-90, or later method. The actual exit velocity and sulfur content shall be reported to the Department as an attachment to the facility's annual operating report. [Rule 62-4.070(3), F.A.C., and requirement of previous PSD FL-108(B), dated February 20, 1996, clerked February 21, 1996]

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

Howard L. Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this permit modification was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 5-11-99 to the person(s) listed:

Donald L. Lockhart *
Alex H. Makled, P.E., CDM
Steve Palmer, DEP, Siting Coordination Office
Isidore Goldman, P.E., SED
James Stormer, PBCHD
Gregg Worley, EPA
John Bunyak, NPS

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kyri Tiber 5-11-99

(Clerk) (Date)

Memorandum

Florida Department of
Environmental Protection

BAR

TO: Howard L. Rhodes

THRU: Clair Fancy
Al Linero

FROM: Joe Kahn

DATE: May 7, 1999

SUBJECT: Solid Waste Authority of Palm Beach County
North County RRF Site, Landfill Gas System Modifications
0990234-002-AC, PSD-FL-108(D)

Attached for approval and signature is the final permit modification for the PSD permit for the landfill gas systems for the Class I and III landfills. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. This permit modification allows for an increase in gas flow to each landfill gas flare (one for each landfill). This modification also clarifies previous conditions and removes a previous condition limiting the sulfur content of the landfill gas. The potential emissions for this modification are less than the PSD significance levels, so this action is not subject to the requirements of PSD, although this permitting action modifies a previous PSD permit. The Public Notice requirements have been met on April 6, 1999 by publishing in The Palm Beach Post. We received no comments about this project.

I recommend your approval and signature.

Attachments

/jk

SOLID WASTE AUTHORITY

YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

RECEIVED
APR 16 1999
BUREAU OF
AIR REGULATION

April 12, 1999

Mr. Joe Kahn
Professional Engineer II
New Source Review Section, Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road MS 5505
Tallahassee, FL 32399-2400

Re: Solid Waste Authority of Palm Beach County - North County Resource Recovery Facility Landfill, Landfill Gas Flare Upgrade (PSD - 108(D)
DEP File # 0990234-002-AC

Dear Mr. Kahn,

Please find the attached "Proof of Publication" for the Solid Waste Authority (SWA) North County Resource Recovery Facility Class I & III Landfills Landfill Gas Flare upgrades, as required by the Draft Air Construction Permit received by the SWA on April 1, 1999.

If you have any questions or comments, please do not hesitate to contact me.

Sincerely,

Richard A. Statom
Assistant Director
Environmental Programs

Cc. M. Bruner, SWA
A. Makled, CDM

Palm Bch Co
SE District

7501 North Jog Road, West Palm Beach, Florida 33412 (561) 640-4000 FAX (561) 640-3400

THE PALM BEACH POST

Published Daily and Sunday
West Palm Beach, Palm Beach County, Florida

PROOF OF PUBLICATION

STATE OF FLORIDA
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared **Peter W. Ortado** who on oath says that he is **Classified Advertising Supervisor** of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being a **Notice** in the matter of **Intent to Issue Air Construction Permit** in the --- Court, published in said newspaper in the issues of **April 6, 1999.**

Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before this 6 day of April, A.D. 1999

Personally known XX or Produced Identification _____
Type of Identification Produced _____

Karen McLinton
Notary Public, State of Florida
Commission No. CC 591337
My Commission Exp. 11/15/2000
1-800-3-NOTARY Fla. Notary Service & Bonding Co.

NO. 565317
PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 0990234-002-AC, PSD FL-108(D)
Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Solid Waste Authority of Palm Beach County, to modify an existing construction permit for the North County Resource Recovery Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The permit modification is to allow for an upgrade of the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. This permit modification will clarify previous permit conditions and remove a limitation on the sulfur content of the landfill gas, which the applicant cannot control. The applicant's mailing address is: 7501 North Jog Road, West Palm Beach, Florida 33412-2414.

The landfill flares are used to comply with federal regulations for control of landfill gas and the proposed project is necessary for compliance with the federal requirements. The proposed project does not result in net emissions increases that are significant for the Prevention of Significant Deterioration program. Emissions increases will occur primarily for nitrogen oxides, carbon monoxide and sulfur dioxide. An air quality impact analysis was not required.

The Department will issue the Final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material facts. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:
Dept. of Environmental Protection
Bureau of Air Regulation
Suite 4, 111 S. Magnolia Drive
Tallahassee, Florida, 32301
Telephone: 850/488-0114
Fax: 850/922-6979
Division of Environmental Science and Engineering
Palm Beach County
Health Department
901 Evernia Street
West Palm Beach, Florida 33401
Telephone: 561/355-3070
Dept. of Environmental Protection
Southeast District
400 North Congress Avenue
West Palm Beach, Florida 33401
Telephone: 561/681-6600

The complete project file includes the application, technical evaluations, Draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, Joseph Kahn, P.E., at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

/s/ Sandra J. Bourhan
Records Manager, SWA
PUBLISHED: April 6, 1999
Tuesday
Palm Beach Post

Department of
Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

March 24, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Donald L. Lockhart, Executive Director
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412-2414

Re: DEP File No. 0990234-002-AC, PSD-FL-108(D)
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade

Dear Mr. Lockhart:

Enclosed is one copy of the Draft air construction permit modification for the North County Resource Recovery Facility Class I and III landfill gas flare upgrade located at 7501 North Jog Road, West Palm Beach, Palm Beach County. The Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice of Intent to Issue Air Construction Permit must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Joseph Kahn, P.E. at 850/921-9519 or Mr. Linero at 850/488-0114.

Sincerely,

A. A. Linero 3/24

for C. H. Fancy, P.E., Chief,
Bureau of Air Regulation

CHF/jk

Enclosures

In the Matter of an
Application for Permit by:

Donald L. Lockhart, Executive Director
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412-2414

DEP File No. 0990234-002-AC, PSD-FL-108(D)
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
Palm Beach County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of Draft permit modification attached) for the proposed project, detailed in the application specified above and the enclosed Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Solid Waste Authority of Palm Beach County, applied on September 21, 1998, to the Department for an air construction permit for its Class I and III Landfill Gas Flare Upgrade located at the North County Resource Recovery Facility, 7501 North Jog Road, West Palm Beach, Palm Beach County. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The permit modification is to allow for an upgrade of the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. This permit modification will clarify previous permit conditions and remove a limitation on the sulfur content of the landfill gas, which the applicant can not control.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit modification is required to perform the proposed work.

The Department intends to issue this air construction permit modification based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the Final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any

written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

3/24

for C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit (including the Public Notice of Intent to Issue Air Construction Permit, Technical Evaluation and Preliminary Determination, and the Draft permit modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 3-24-99 to the person(s) listed:

Donald L. Lockhart *
Steve Palmer, DEP, Siting Coordination Office
James Stormer, PBCHD
John Bunyak, NPS
Alex H. Makled, P.E., CDM
Isidore Goldman, P.E., SED
Gregg Worley, EPA

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kimi Jobes 3-24-99
(Clerk) (Date)

Z 333 618 089

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Donald Lockhart	
Street & Number 7501 W A of Palm Bch	
Post Office, State, & ZIP Code West Palm Bch Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 09902234-002-AC PSD-FL-108D	3-24-98

PS Form **3800**, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Donald L. Lockhart, ED
Solid Waste Authority
of Palm Bch Co.
7501 N. Jog Road
West Palm Beach, Fl
33412-2414

4a. Article Number
Z 333 618 089

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
3/30/99

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*
X

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0990234-002-AC, PSD FL-108(D)

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Solid Waste Authority of Palm Beach County, to modify an existing construction permit for the North County Resource Recovery Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The permit modification is to allow for an upgrade of the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. This permit modification will clarify previous permit conditions and remove a limitation on the sulfur content of the landfill gas, which the applicant can not control. The applicant's mailing address is: 7501 North Jog Road, West Palm Beach, Florida 33412-2414.

The landfill flares are used to comply with federal regulations for control of landfill gas and the proposed project is necessary for compliance with the federal requirements. The proposed project does not result in net emissions increases that are significant for the Prevention of Significant Deterioration program. Emissions increases will occur primarily for nitrogen oxides, carbon monoxide and sulfur dioxide. An air quality impact analysis was not required.

The Department will issue the Final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period

shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection
Bureau of Air Regulation
Suite 4, 111 S. Magnolia Drive
Tallahassee, Florida, 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Division of Environmental
Science
and Engineering
Palm Beach County Health
Department
901 Evernia Street
West Palm Beach, Florida 33401
Telephone: 561/355-3070

Dept. of Environmental Protection
Southeast District
400 North Congress Avenue
West Palm Beach, Florida 33401
Telephone: 561/681-6600

The complete project file includes the application, technical evaluations, Draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, Joseph Kahn, P.E., at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade
Palm Beach County

DEP File No. 0990234-002-AC
PSD-FL-108(D)

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

March 23, 1999

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. GENERAL INFORMATION

1.1 APPLICANT NAME AND ADDRESS

Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412-2414

Authorized Representative: Donald L. Lockhart, Executive Director

1.2 REVIEWING AND PROCESS SCHEDULE

September 21, 1998	Received permit application and fee
October 20, 1998	Department's request for additional information
January 19, 1999	Received response to request for additional information
January 19, 1999	Application complete

2. FACILITY INFORMATION

2.1 FACILITY LOCATION

The facility, North County Resource Recovery Facility, is located at 7501 North Jog Road, West Palm Beach, Palm Beach County. The UTM coordinates are Zone 17; 585.8 km E; 2960.2 km N.

2.2 STANDARD INDUSTRIAL CLASSIFICATION CODES (SIC)

Industry Group No.	49	Electric, Gas, and Sanitary Services
Industry No.	4953	Refuse Systems

2.3 FACILITY CATEGORY

The facility consists of a resource recovery facility with a municipal waste combustor plant and active Class I and III landfills. Each landfill is equipped with an existing active gas collection and control system. Landfill gas is controlled at each landfill with an identical open, unassisted flare, LFG Specialties, Inc. model PCF820I8. The tip diameters of the flares are not equal because the Class III flare has a reducer at the flare tip. The diameter of the Class I flare is 8.329 inches; the Class III is 6.00 inches.

This facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).

3. PROJECT DESCRIPTION

This project addresses the following emissions unit(s):

EMISSIONS UNIT NO.	EMISSIONS UNIT DESCRIPTION
003	Landfill Gas Collection System, Class I
004	Landfill Gas Collection System, Class III

This permitting action is to allow for an upgrade of the blower motors for each landfill gas flare from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. The revised application pages received January 19, 1999 state that the maximum flow rate of each of the existing blowers is 1050 scfm. However, the previous permit, PSD-FL-108(B), limits flow rate of each blower to 900 scfm in specific condition 10. This permitting action will also clarify that the permitted flow rate of 1800 scfm shall be the permitted maximum flow rate for each flare and shall describe the compliance method for demonstrating compliance with this maximum flow rate.

The applicant requested that the existing limit on sulfur content of the landfill gas be removed in this permitting action, and that the appropriate requirements of 40 CFR 60 Subpart WWW be included. This permitting action will address those requests, although the requirements of Subpart WWW will be incorporated by reference since the pending Title V permit will include those requirements in detail.

The flares are subject to the NSPS requirements of 40 CFR 60.18. Part of those requirements establishes a maximum exit velocity that is dependent on the heating value of the gas. The applicant used EPA's landfill emission model that assumes the landfill gas is composed of 50% methane, with a heating value of 980 Btu/scf. The remaining gas is considered to be carbon dioxide by the landfill emission model, so no credit is provided for the heating value of the NMOCs present in the gas. (The NMOCs represent only 0.77% by weight of the landfill gas.[1]) We can assume then that the heating value of the landfill gas will be about 490 Btu/scf. This is close to the measured values of 490.9 for the Class I landfill and 445.5 Btu/scf for the Class III landfill. At the current flare tip diameters and assumed landfill gas heating value, the maximum exit velocities and projected exit velocities of the Class I and Class III flares are[2]:

Landfill	Gas Heating Value (Btu/scf)	Flare Tip Diameter (in.)	Vmax (ft/sec)	Vprojected (ft/sec)
Class I	491	8.329	100.7	79.3
Class III	490	6.00	100.7	152.8

Thus, the projected exit velocity for the Class III flare will exceed the maximum velocity before the maximum flow rate of 1800 scfm is achieved. This will occur at 1186 scfm assuming a Class III landfill gas heating value of 490 Btu/scf. At the current Class III landfill gas heating value of 445.5 Btu/scf[3], the maximum velocity of 89.0 ft/sec will be exceeded at 1048 scfm. This problem can be avoided if the reducer in the Class III flare is changed or removed when flows exceed approximately 1000 scfm. The applicant is aware of this issue and will act accordingly to change the reducer in the Class III flare when necessary.[4]

The draft permit for this project will supersede the previous permit amendment, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996.

4. PROJECT EMISSIONS

The emissions associated with this project are primarily NMOCs (VOCs), HAPs, and emissions associated with the combustion process. All emissions are estimated because of the difficulty in measuring emissions from an open flare. The applicant updated its application to use the most recent emission factors available, and estimated emissions from this project as those resulting from the difference between past actual gas flows and future potential gas flows for each landfill flare. The estimated NMOC and HAP emissions are after control. The primary combustion byproduct emissions are CO and NOx. The applicant also estimated emissions of SO_2 and HCl. Sulfur dioxide emissions result from the conversion of sulfur present in the landfill gas to sulfur dioxide during the combustion process. The Class III landfill has a far greater sulfur content in its landfill gas, partly because Class III wastes include sulfur containing materials such as

gypsum wallboard. The landfill operator can not control the sulfur content of the landfill gas and the sulfur present does not impair the operation of the flare so removal of the sulfur is not required. The applicant has demonstrated that emissions of SO_2 from this project are far below the PSD significance level at the projected sulfur concentrations for gas from each landfill, so this permit will not limit the sulfur content.

The following table summarizes the potential maximum emissions increases of air pollutants, estimated in the application using the difference between past actual and future potential landfill gas flow rates. Emissions are shown in TPY:

Pollutant	Maximum Emissions Change, Class I	Maximum Emissions Change, Class III	Maximum Emissions Change, Total	PSD Significance Levels [1]	Subject to PSD Review?
NOx	7.0	10.5	17.5	40	No
CO	38.1	57.2	95.3	100	No
PM/PM_{10} [2]	3.4	5.0	8.4	25/15	No
SO_2	0.7	21.0	21.7	40	No
VOC	0.6	0.8	1.4	40	No

1 Rule 212.400-2, F.A.C.

2 Particulate matter emissions were estimated by the Department.[5] All PM is assumed to be PM_{10}.

The proposed project results in net emissions increases in PSD pollutants that are less than significant. Therefore the modification is not subject to PSD.

5. RULE APPLICABILITY

The proposed project is subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-214, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The landfill gas collection systems are subject to the collection and control requirements of 40 CFR 60 Subpart WWW and the flares are subject to the requirements of 40 CFR 60.18.

This facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment for the criteria pollutants PM_{10}, carbon monoxide, sulfur dioxide, and nitrogen dioxide; and also designated as a maintenance area for ozone.

The proposed project is not subject to review under Rule 62-212.400., F.A.C., Prevention of Significant Deterioration (PSD) as discussed above.

The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules.

5.1 STATE REGULATIONS

Chapter 62-4	Permits
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.200	Definitions
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports

Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods

5.2 FEDERAL RULES

40 CFR 60	NSPS Subpart WWW (landfills)
40 CFR 60	Applicable sections of Subpart A, General Requirements
40 CFR 60.18	General control device requirements (flares)

6. AIR POLLUTION CONTROL TECHNIQUES

The applicant controls emissions of NMOCs from the Class I and III landfills using the existing collection and control system. The existing landfill flares are the control devices. The flares result in an estimated reduction in NMOC emissions of 98% for each landfill.

Combustion of the landfill gas will result in combustion byproducts, primarily NOx and CO. Thermal NOx is formed in the combustion process as a result of the dissociation of molecular nitrogen present in air and its oxidation in the high temperature of the flame. Fuel NOx is formed similarly, although the source of the nitrogen is the fuel itself. Thermal NOx is expected to be the primary mechanism for NOx formation for this source. Thermal NOx is a consequence of the flare operation and cannot be effectively controlled in open, unassisted flares. CO is emitted from combustion processes due to incomplete fuel combustion. Combustion design is the primary means of control of CO, although control techniques for CO from open, unassisted landfill flares are limited. The existing flares have been designed for maximum control of NMOCs, which should result in reducing CO emissions.

Sulfur dioxide is emitted from the flares as a result of the combustion of the sulfur present in the landfill gas and conversion of that sulfur from its various forms to sulfur dioxide. The open flares have an excess of oxygen available for combustion so all sulfur is expected to be converted to sulfur dioxide. There are no effective available control options for sulfur dioxide from open landfill gas flares. Removal of sulfur from the landfill gas prior to combustion is possible but costly, and is neither required nor warranted at this facility. This option might be considered when the landfill gas must be "cleaned" prior to use because the sulfur oxides will damage combustion equipment such as a combustion turbine. This is not necessary for these flares.

A small amount of particulate matter (assumed to be all PM_{10}) is estimated to be emitted as a result of the combustion process. This is controlled similarly to CO, so the flare design should be sufficient to minimize these emissions.

6.1 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

The existing flares are specifically subject to the requirements of 40 CFR 60.18. The Class I and III landfills are subject to the requirements of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills (NSPS). Subpart WWW was adopted by the Department by reference in Rule 62-204.800, F.A.C. The principal requirements of Subpart WWW are the installation and operation of a collection and control system for landfill gas. Pursuant to this subpart, the control device may be an open flare designed and operated in accordance with 40 CFR 60.18. The existing collection and control systems are consistent with the requirements of the NSPS rules. No National Emission Standards for Hazardous Air Pollutants exist for this project.

6.2 COMPLIANCE PROCEDURES

The applicant will be required to record the gas flow rate to each flare on a monthly average basis and measure the sulfur content of the landfill gas at least annually using ASTM Method D1072-90, or later method, and report the sulfur content results annually. The test method for visible emissions is specified by the NSPS as Method 22.

6.6 EXCESS EMISSIONS

Allowable Excess Emissions: The provisions of Rule 62-210.700, F.A.C., regarding excess emissions are not applicable because there are no unit-specific emission limits imposed solely by state rule. State rules can not vary a federal requirement, so the provisions of Rule 62-210.700, F.A.C., do not apply to the NSPS provisions.

7. SOURCE IMPACT ANALYSIS

An impact analysis was not required for this project because it is not subject to the requirements of PSD.

8. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant and other available information, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations. The Department will issue a draft permit to the applicant that allows the applicant to modify the flares to increase the landfill gas flow rate to 1800 scfm for each flare. This technical evaluation and preliminary determination was drafted by:

Joseph Kahn, P.E.
Mail Station #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
850/921-9519

REFERENCES

[1] Percentage of the annual mass emissions of total HAPs versus the annual emission of methane, as calculated by the applicant in its Attachment C of its response to the Department's request for additional information.

[2] Calculations were made using the equations specified in 40 CFR 60.18(4) and (5) using the projected maximum flow rate of 1800 scfm and the diameters provided by the applicant as specified in its Utility Flare System Compliance Study performed by Waste Energy Technology, dated November 5, 1997.

[3] Provided by the applicant in its 1997 Annual Operational Testing Report prepared by Waste Energy Technology, January 8, 1998, revised May 5, 1998.

[4] Telephone discussion with Robert Worobel of SWA on March 5, 1999.

[5] The emission factor used was $1.0X10^{-3}$ lb/hr/dscfm, from Table 2.4-5 from Section 2.4 of AP-42. Scfm increases were adjusted for an estimated moisture content of 4.3% (Class I) and 3.9% (Class III) to obtain dscfm increases of 765.6 (Class I) and 1153.2 (Class III). Year-round operation of 8760 hours per year was assumed.

DRAFT

^DRAFT

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Donald L. Lockhart, Executive Director
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412-2414

Re: DEP File No. 0990234-002-AC, PSD-FL-108(D)
North County Resource Recovery Facility
Class I and III Landfill Gas Flare Upgrade

The applicant, Solid Waste Authority of Palm Beach County, applied on September 21, 1998, to the Department for an air construction permit for its Class I and III Landfill Gas Flare Upgrade located at the North County Resource Recovery Facility, 7501 North Jog Road, West Palm Beach, Palm Beach County. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. The modification is to upgrade the blower motors for each landfill gas flare (emissions units 003 and 004) from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm. The Department has reviewed the applicant's request. The conditions of permit modification PSD-FL-108(B) are hereby replaced entirely with the following specific conditions.

New Specific Conditions:

1. Hours of Operation: These emissions units may operate continuously, i.e., 8,760 hours/year. [Rule 62-210.200, F.A.C., Definitions-potential to emit (PTE)]

2. Landfill Gas Collection and Control: The owner or operator shall comply with the applicable requirements of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. [Rule 62-204.800(7)(b), F.A.C., and 40 CFR 60 Subpart WWW]

3. Landfill Gas Flow Rate: The owner or operator shall not allow more than 1800 scfm of landfill gas to be directed to each flare. The actual flow rate shall be determined for each flare on a monthly average basis by dividing the measured flow by the hours that each flare was operated each month. Compliance with this limitation shall be by measuring landfill gas flows to each flare and recording flows with a totalizing meter. Records of the totalizing meter values shall be recorded in an operators log monthly, or whenever the meter is reset for any purpose, whichever is more frequent. The owner or operator shall maintain a strip chart recorder to record the flow rate to each flare as a backup device in the event that the totalizer meter is not functioning; the strip chart recorder shall also be used in conjunction with an operators log to document the hours each month that each flare was operated. [Rule 62-4.070(3), F.A.C., and request of the applicant]

4. Pursuant to 40 CFR 60.18 General Control Device Requirements: The owner or operator shall comply with the following requirements for flares. [Note: The numbering of the rule has been preserved in the following condition for ease of reference.]

   (c) (1) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

   (2) Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).

DRAFT

(3) Flares shall be used only with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f).

(4) (iii) Nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), less than the velocity, Vmax, as determined by the method specified in paragraph (f)(5), and less than 122 m/sec (400 ft/sec) are allowed.

(d) Owners or operators of flares used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices.

(e) Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

(f) (1) Reference Method 22 shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.

(2) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$HT = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C;

K = Constant, 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/kcal) where the standard temperature for (g mole/scm) is 20°C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946–77 (Incorporated by reference as specified in 40 CFR 60.17); and

H_i = Net heat of combustion of sample component i, kcal/ g mole at 25°C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

(4) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, Vmax, for flares complying with paragraph (c)(4)(iii) shall be determined by the following equation.

$\text{Log10 (Vmax)} = (HT+28.8)/31.7$

Vmax = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

DRAFT

HT = The net heating value as determined in paragraph (f)(3).

[Rule 62-204.800(7)(b), F.A.C., and 40 CFR 60.18]

5. Reporting Requirements: The owner or operator shall annually determine and report the actual exit velocity of each flare using the methods specified in 40 CFR 60.18. The owner or operator shall annually analyze and report the sulfur content of the landfill gas directed to each flare using ASTM Method D1072-90, or later method. The actual exit velocity and sulfur content shall be reported to the Department as an attachment to the facility's annual operating report. [Rule 62-4.070(3), F.A.C., and requirement of previous PSD FL-108(B), dated February 20, 1996, clerked February 21, 1996]

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

DRAFT

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this permit modification was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on _____ to the person(s) listed:

Donald L. Lockhart *
Alex H. Makled, P.E., CDM
Steve Palmer, DEP, Siting Coordination Office
Isidore Goldman, P.E., SED
James Stormer, PBCHD
Gregg Worley, EPA
John Bunyak, NPS

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) (Date)

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy

THRU: Al Linero 3/23

FROM: Joe Kahn

DATE: March 23, 1999

SUBJECT: Solid Waste Authority of Palm Beach County
North County RRF Site, Landfill Gas System Modifications
0990234-002-AC, PSD-FL-108(D)

Attached for approval and signature is a draft permit modification for the PSD permit for the landfill gas systems for the Class I and III landfills. This permitting action will supersede the previous permit modification, PSD-FL-108(B), dated February 20, 1996, clerked February 21, 1996. This permit modification allows for an increase in gas flow to each landfill gas flare (one for each landfill). This modification also clarifies previous conditions and removes a previous condition limiting the sulfur content of the landfill gas. The potential emissions for this modification are less than the PSD significance levels, so this action is not subject to the requirements of PSD, although this permitting action modifies a previous PSD permit.

I recommend your approval and signature.

Attachments

/jk

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

P.E. Certification Statement

Solid Waste Authority of Palm Beach County
NCRRF, Class I and III Landfill Gas Flare Upgrade

DEP File No.: 0990234-002-AC
PSD-FL-108(D)

Project: Air Construction Permit for Gas Flow Rate Increases to Class I and III LF Flares

I HEREBY CERTIFY that the engineering features described in the above referenced application and related additional information submittals, if any, and subject to the proposed permit conditions, provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).

This review was conducted by me.

(Seal)

Joseph Kahn, P.E.

3/23/99
Date

Permitting Authority:
Florida Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation
New Source Review Section
Mail Station #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Telephone: 850/488-0114
Fax: 850/922-6979

INTEROFFICE MEMORANDUM

Date: 19-Mar-1999 12:08pm
From: Joseph Kahn TAL
KAHN_J
Dept: Air Resources Management
Tel No: 850/921-9519

To: Marc Bruner (mcbruner@swa.org@PMDF@EPIC66)

Subject: Re: Comments on draft permit - PSD-FL-108(D)

Marc,

Thanks for the comments. The intent to issue should go out early next week. I made the changes you suggested in comments 2 and 3.

Regarding the emissions unit numbering, the EU numbers are assigned by our data management system, ARMS. There is little flexibility in the system to allow for changing these numbers. Currently ARMS shows four emissions units for your facility: EU 001 and 002 are the RDF boilers, and 003 and 004 are for the LF gas systems. I did add a reference to the EUs in the permit modification because I forgot it the first time. The third sentence of the first paragraph now reads, "The modification is to upgrade the blower motors for each landfill gas flare (emissions units 003 and 004) from a permitted flow rate of 900 scfm to a permitted flow rate of 1800 scfm."

When the Title V permit is issued, there may be some change in the numbering but I'm going to leave them as is for this permitting action. (Because ARMS is designed to keep a history linked to each EU, to change the numbering the existing EUs 001 - 004 would have to be inactivated and the new numbers would start with 005, which might be more confusing.) The Title V permit should result in the final numbers for the entire facility.

Let me know if you have any questions about this. Thanks again for the comments.

-Joe

INTEROFFICE MEMORANDUM

Date: 18-Mar-1999 05:25pm
From: Marc Bruner
mcbruner@swa.org@PMDF@EPIC66
Dept:
Tel No:

To: 'Joe Kahn' (kahn_j@Al@DER)

Subject: Comments on draft permit - PSD-FL-108(D)

Dear Joe:

I thought that since this message will be a brief one, that email will be preferable to regular mail. Thank you for the opportunity to review the draft permit. Authority staff and consultants have reviewed the draft documents, and in general we have no major concerns. There are several items that we would like you to consider, to correct small errors or to clarify certain items. Specifically these items include:

1. Technical Evaluation - Section 3. Project Description. The flare units are identified as emissions units number 3 and 4. They were numbered units 1 and 2 in the application, and I believe they are combined as Unit 17 in the Title V application currently under review. This comment provides no specific suggestion for a numbering convention for the flares, but simply suggests that we select a numbering convention that can address these different numbering systems.

2. Technical Evaluation - Section 6.1 - The fourth sentence in this paragraph includes a citation to 40 CFR 60.8. This citation refers to performance tests. 40 CFR 60.18 refers to performance requirements for flares, and may be the more appropriate reference.

3. Modification Letter - Condition 4 - Reporting Requirements - This is numbered incorrectly and should be Condition 5.

These are the only comments we have. Once again, thank you for the chance to review the draft.

Very truly yours,
Marc Bruner

CDM Camp Dresser & McKee Inc.

consulting
engineering
construction
operations

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 561 689-3336 Fax: 561 689-9713

January 14, 1999

Mr. Joseph Kahn, P.E.
New Source Review Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

SUBJECT: Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility Site Class I & III Landfills
DEP File No. 0990234-002-AC (PSD-FL-108(B))
Landfill Gas System Modifications Air Permit Application
Response to Request for Additional Information

Dear Mr. Kahn:

On behalf of the Solid Waste Authority (SWA) of Palm Beach County, Camp Dresser and McKee Inc. (CDM), is providing the following information in response to your request, dated October 20, 1998. We appreciate your help in going over your request for additional information with us on November 13th, and with Dr. Marc Bruner of the SWA on November 16th. The clarification you provided has assisted the SWA in decision making about air permitting for the ultimate build-out of the Class I and III Landfills' gas collection systems.

As you know, the permit application is for changing out the blowers in each of the two flares, one for the Class I collection system, and one for the Class III collection system. The new blowers will increase the gas flow rate capacity of each flare from 900 scfm to 1,800 scfm. This increase will allow the existing flares to operate at their maximum capacity, but this increase will not be enough to accommodate all of the gas expected at build-out of the landfill. Substantial landfill gas collection system expansions, including the addition of other control devices, will be needed by the time the capacities of both landfills are reached, currently expected in about the year 2023. The SWA would like to request that the DEP proceed with the current permit application for an incremental increase in flare emissions with the understanding that the SWA's next air permit application for these landfill gas systems, in a few years, will be for ultimate build-out.

The responses below are in the order of the requests for information in your October 20th letter. Each request is paraphrased (not repeated verbatim), and followed with a response.

Comment No. 1:

The permit application appears to avoid PSD review because the future emissions do not appear to have been calculated for the ultimate capacity of the landfills. Are the emissions in the application representative of the maximum emission rate based on ultimate landfill capacities at closure? In what year will maximum emissions occur? Will another flow rate increase be requested to accommodate future expansions? In 1996, the 900-scfm flow rate was projected to last until 2004, but the current incremental request is only two years later. This looks like the project is being segmented to avoid major modification PSD review. Please provide a calculation of future potential minus existing actual emissions, with future potential being based on the ultimate capacity of the landfill. Please summarize assumptions used to calculate methane emissions.

Response :

The Class I & III Landfills are currently expected to reach capacity in the year 2023, based on the 1998 Landfill Depletion Model, enclosed as Attachment A. This current application is for change-out of the existing flare blower motors only, to reach the existing flares' physical maximum flow rate. This change will increase each flare's maximum flow rate from 900 scfm to 1,800 scfm. The Class I Landfill is currently operating at about 700 to 1,100 scfm now. The Class III Landfill is producing less, roughly 300 to 660 scfm. Based on the acceptance rate projections in Attachment A, and the U.S. EPA's Landfill Air Emissions Estimation Model runs shown in Attachment B, it is estimated that the Class I Landfill would reach 1,800 scfm in the year 2003. In 2023, the flow rate in the Class I Landfill could be up to 4,600 scfm. For the Class III Landfill, the modeling shows that 1,800 scfm may provide sufficient capacity for its ultimate build-out.

The blower motor replacement is urgently needed (and has already been performed), and we would like to proceed with this request for an incremental increase in gas flow. The SWA will return to the DEP with another modification request. However, the SWA plans to have the next modification be for conditions at maximum landfill capacity.

This minor modification application is not intended to, and does not, circumvent the PSD process. EPA's guidance (NSR Workshop Manual, Section III. B. 1., p. A.36, October 1990) for evaluating multiple minor projects to determine if they should have been considered a single project suggests that the reviewer consider first whether the projects could be proposed over a relatively short period of time, and second, whether the changes could be considered part of a single project. The example the guidance gives for "relatively short period of time" is "a few months." The currently proposed incremental change is expected to provide enough capacity in the system to last, without additional increases, for about four years.

Because the Class I Landfill's current landfill gas flow rate is about 1,000 scfm, its future potential minus existing actual flow rate is 800 scfm. For the Class III Landfill, with an existing flow rate of about 600 scfm, the future potential minus existing actual flow rate is 1,200 scfm. (Note that "actual" flow is based on one year of data, rather than the two required by DEP rules. This is because data has only been collected for the last year. Also, because landfill gas flow is increasing exponentially, the most recent data is most representative of existing gas flow.) Application correction pages included as Attachment C, show calculation of emissions for each flare based on these future potential minus existing actual net flow rate increases.

Comment No. 2:

The sulfur calculations in Appendix D, Part 4 do not match those in Section H of the forms for the Class III Landfill. The proposed sulfur inlet rate is half the project SO_2 emission rate, and three times the permit limit. Provide the existing actual emissions in comparison with future potential emissions.

Response:

The sulfur calculations in Appendix D, Part 4, are based on <u>actual</u> measured sulfur inlet concentrations in 1996 and 1997. The calculation in the forms is maximum <u>potential</u> to emit for the proposed increases, based on higher flow rates and higher estimated sulfur inlet concentrations in the future. Please note that we have requested that the sulfur limit condition be removed from the original permit because there appears to be no basis in the regulations for having it.

The proposed SO_2 emissions increase of 20.6 tpy for both flares is well below the PSD significant increase level of 40 tpy. A "synthetic minor" permit limit for SO_2 is not necessary. The detailed calculation of future potential emissions minus existing actual emissions is provided in Attachment C.

Comment No. 3:

Please use the EPA Landfill Gas Model to predict NMOC emissions.

Response:

The EPA Landfill Air Emissions Estimation Model calculation of NMOC emissions is presented in Attachment B. The calculation of future potential emissions minus existing actual emissions is provided in the application replacement pages in Attachment C. This calculation is based on the same assumed NMOC concentration in the landfill gas (595 ppm)

that is used in the model, but on a 800 scfm gas flow rate to the Class I flare and a 1,200 scfm increase to the Class III flare, the maximum potential minus existing actual incremental flow increases to each flare.

Comment No. 4:

Please correct the typographical error in the calculation of the SO_2 emission rate for emission unit 002.

Response:

This correction has been included in the replacement pages in Attachment C.

Comment No 5:

Explain why the methodology for SO_2 emissions and VOC emissions are different.

Response:

They are both based on assumed inlet concentrations to the flare. The VOCs are assumed to be destroyed by 98%, and the sulfur is assumed to pass through the flare without destruction, but oxidize with O_2 to form SO_2. The correction pages in Attachment C have additional lines added to the VOC emissions calculation to show this more clearly.

Additionally and in reference to the gas flow record keeping issue discussed in our telephone conference on January 7, 1999, please note that the SWA is currently and will continue performing a daily inspection of the gas system and report monthly gas flow data based on a resettable totalizer. The totalizer is reset at the first day of each month. The monthly average is calculated by dividing total gas flow by the number of operating hours in each month to obtain a cubic feet per hour (CFH) value. This CFH value is then divided by sixty to obtain cubic feet per minute (CFM) value which is used for compliance determination. Furthermore, the SWA uses a stripchart recorder to qualify and backup the totalizer data. The monthly data is tabulated and submitted to FDEP in the annual report. A copy of the previous annual report is included in Attachment D for your information.

SWA and Camp Dresser & McKee (CDM) appreciate DEP's assistance on this project. If there are any questions regarding this application, please contact our office.

Very truly yours,

CAMP DRESSER & McKEE INC.

Alex H. Makled, P.E., DEE
Florida License No. 45935

Enclosures

File: 2678-23062-042.PA.FDEP

cc: Mr. Isidore Goldman, P.E., Southeast District DEP (w/enclosure)
Mr. Jack Mesojedec, SWA (w/enclosure)
Mr. Robert Worobel, SWA (w/enclosure)
Mr. Richard Statom, SWA (w/enclosure)

bs4287

SOLID WASTE AUTHORITY

YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

December 22, 1998

Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416

Attn: Tom Tittle

Re: Your Letter Dated Dec 14, 1998
Notification of Potential Permit Violation PSD-FL-108(B)
Landfill Gas Collection and Control System

Dear Mr. Tittle:

The following information is provided in response to your letter to Don Lockhart, and my subsequent telephone discussion with Terri Long. I hope it will clarify the situation.

In regard to the flow rate at the Class I flare, Alex Makled of the firm Camp, Dresser and McKee submitted a letter to DEP dated June 5, 1996 (copy attached). In that letter, It was indicated that the maximum flow rate of the flare units is 1050, with a design point of 900 cfm. DEP, in a response dated June 25, 1996, agreed with out rationale on this issue. This may have created a misunderstanding, in that we interpreted this agreement meant that we could operate our flares to their maximum flow rate of 1050 cfm, instead of the design point of 900 cfm.

In this same June 5 letter the Authority indicates that it is our intent to monitor gas flow on a quarterly basis, rather than monthly, and that this data will be summarized in the annual operating report. Again, the Department agreed with this rationale. This may have again created an unclear situation. If this rationale means that the gas flows are evaluated as quarterly averages, then we may have gone over the 900 cfm design point threshold for two quarters, rather than six individual months. Also, if compliance could be interpreted as an annual average, summarized in the annual operating report, the average for the year to date is in fact under 900 cfm.

Based on the information in these two letters, a situation appears to have developed in which the Authority has believed it was approved to operate the flare system in a fashion different than the Department believed to be the case. As the Authority interpreted the response, to the June 5 1996 letter, we have been operating in accord with the clarification and confirmation provided by the Department. As you note in you letter, the Authority currently has as application under review with the Department to increase the capacity of each flare to 1800 cfm. The approval of this pending application should resolve the issues of uncertainty which currently exist.

Until the pending application is processed, the Authority will inform the Department if the average flow rate for the Class I flare (total gas flow divided by actual operating hours) exceeds 900 cfm in any month. It is important to note that the objective of the operation of the flare system is to manage NMOC's and odors from the landfill, and our efforts will continue to focus on maximizing this control in compliance with our permit limitations.

If you have any questions, please contact me at (561) 969-9164 EXT. 5607.

Very truly yours,

Marc C. Bruner,
Director of Planning & Environmental Programs

Attachments

Cc: Don Lockhart, SWA (w/o attach.)
John Booth, SWA (w/o attach.)
Bob Worobel, SWA (w/o attach.)
Joe Kahn, FDEP, Tallahassee
Joe Lurix, FDEP, Solid Waste, WPB
Terri Long, FDEP, Air, WPB
PBCHD, Air Section

CDM Camp Dresser & McKee Inc.

environmental services

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 407 689-3336 Fax: 407 689-9713

June 5, 1996

Mr. Howard L. Rhodes
Director
Division of Air Resources Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B)

ATTENTION: Ms. Teresa Heron

Dear Mr. Rhodes:

We are writing this letter on behalf of the Solid Waste Authority of Palm Beach County (SWA) seeking clarification/confirmation of our understanding of the new specific conditions added to the North County Resource Recovery Facility (NCRRF) permit No. PSD-FL-108(B). These conditions were added by the Department as an amendment to include the construction and operation of the gas collection and control system for the NCRRF landfills. The permit amendment was issued by the Department on February 20, 1996 (copy attached).

For ease of reference and review, we have repeated each of the new conditions in this letter as shown in bold, followed by our response.

Specific Condition No. 1. **This source shall be allowed to operate continuously (i.e., 8760 hours/year).**

Response: No comments.

Specific Condition No. 2. **The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400° F.**

Response: As indicated in our permit application submittal, the proposed utility flare system is designed in accordance with the U.S. Environmental Protection Agency (EPA) established criteria for open flares, 40 CFR 60.18, with an approximate

operating temperature of 1400° F. Obviously the flame temperature readings will vary depending on the point of measurement.

Specific Condition No. 3. **There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.**

Response: No comments.

Specific Condition No. 4. **For inventory purposes, the pollutant emission rates from each of the flare systems are:**

Pollutant	Emission Factors	Pounds/Hour	Tons/Year
NO_x	0.07 lb/million Btu	1.67	7.33
VOC	36 lb/million ft^3	1.94	8.51
SO_2	0.002 lb/scf	1.67	1.33
PM_{10}	1.69 E-05 lb/scf	0.91	3.99
CO	0.37 lb/million Btu	9.10	39.87

Response: We have two comments on this condition as follows:

Comment No. 1: It is our understanding that these emission rates are included in this permit as design data and will be used for informational purposes only during the operation of the landfill gas collection and control system.

Comment No. 2: In reference to the VOC emission rate, please note that based on the pollutant emission calculations included in the permit application, the estimated uncontrolled (prior to destruction in the flare system)VOC emission from each unit is 97.2 lb/hour. Based on a 98% destruction efficiency, this number will be reduced to 1.94 lb/hour. Additionally, please note that the SO_2 emission rate included in the above table under the tons/year column should be 7.33 tons/year and not 1.33 tons/year.

Specific Condition No. 5. **This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfill upon adoption by the Florida Department of Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.**

Response: The system is designed to meet the proposed NSPS regulations. However, since the NSPS regulations have not been officially adopted by FDEP yet, and because they may be modified by FDEP before final adoption, we cannot assure the Department, at this time, that the installed system meets a set of regulations that are not yet in effect.

Specific Condition No. 6. **Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.**

Response: It is SWA's intent to conduct the visible emission tests using EPA Method 22 within 60 days of final completion of construction of the entire system (Class I and Class III systems). It is also SWA's intent to include the gas flow rate from the well fields measured at the flare stations and the flare temperature data in the test reports. These test reports will be submitted to the Department after the initial start up and annually thereafter.

Specific Condition No. 7. **Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.**

Response: We requested that this condition be deleted during our review of the draft permit, so it is unclear why this condition was included. Please note that we have little to no control over the amount of sulfur in the landfill gas and the primary purpose of installing the flare system is to destroy hazardous air pollutants that may be emitted from the landfills. The proposed flare system is designed to meet EPA emission standards for landfill gas disposal using a utility flare. We respectfully request that this specific condition be deleted from the permit.

Specific Condition No. 8.	An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.
Response:	Please see response to Specific Condition No 7.
Specific Condition No. 9.	Pursuant to Rule 62-296.320 (2), F.A.C., Objectionable odors caused by these sources are prohibited.
Response:	No comments.
Specific Condition No. 10.	Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.
Response:	Based on the landfill gas model generation rates included in the permit application, the inlet flow to each flare unit is expected to be around 900 scfm in the year 2004. Also, please note that each of the proposed flare units has a design point of 900 scfm with a maximum flow rate of 1050 scfm.
Specific Condition No. 11.	Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturer's written instructions. The checking and recording of the gas flow, temperature, and pressure, shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station. The permittee shall keep a hard copy of the gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The data shall be summarized and included as part of the facility's annual operating report. These sources shall comply with recording and record keeping requirements specified in 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

Response: As indicated in the landfill gas system permit application and construction drawings, the system design includes provisions for gas sampling ports, pressure taps, temperature reading and flow control devices at each wellhead; and a flow sensor for flow measurement and thermocouples for temperature monitoring at the flare station. Also, each wellhead assembly is fitted with a set of mating flanges which are set up to accommodate future installation of orifice plates to determine flow rates. The installed devices/features will be calibrated and maintained at all times in accordance with the manufacturer's written instructions.

Currently, it is the intent of SWA to monitor gas flow, temperature, pressure, and composition at the flare station on a quarterly basis. Flare flame temperature will be monitored using the skid installed thermocouples as indicated on the project design/shop drawings. SWA will keep hard copy of this monitoring data on site at all times. This data will be summarized and included as part of the facility's annual operating report.

Additionally, it is the intent of SWA to comply with any additional future record keeping and monitoring requirements that may be added as a result of FDEP's adoption of the NSPS regulations for municipal solid waste landfills, provided that such requirements can be met without major modifications to the installed landfill gas system.

Specific Condition No. 12. **The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph F of 40 CFR 60.18. Samples shall be taken, and results reported annually.**

Response: No comments.

Specific Condition No. 13. **Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph F of 40 CFR 60.18.**

Response: No comments.

Specific Condition No. 14. **The Southeast District office shall be given at least 15 days written notice prior to compliance testing.**

Response: SWA will give the Southeast District office 15 days written

notice prior to compliance testing. At the present time, the flare system for the class I landfill is scheduled to be delivered to the site on June 17, 1996 with system start-up is tentatively scheduled to begin later that week.

Specific Condition No. 15. **Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.**

Response: Prior to placing the flare in service, SWA will fire the pilot gas for the flares by propane in accordance with the design criteria which is at a rate of approximately 25 scfh.

We respectfully request that the Department review and concur with our proposed plan to comply with the permit amendment conditions. If you have any questions, please do not hesitate to call.

Very truly yours,

CAMP DRESSER & McKEE INC.

Alex H. Makled, P.E.

AHM/mjm
Enclosures

File: 2678-08-PM2[4]

cc: John D. Booth, SWA
Robert F. Worobel, SWA
Marc C. Bruner, Ph.D., SWA

bcc: D. Munksgaard
J. Curro
D. Strobridge

mm0996

Department of Environmental Protection

07-09-96P12:17 RCVD

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 25, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Alex H. Makled, P.E
Camp Dresser & McKee Inc.
1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406

RE: Solid Waste Authority of Palm Beach County
PSD-FL-108(B) Issued February 20, 1996

Dear Mr. Makled:

The Department is in receipt of your letter dated June 5, 1996 requesting clarification and confirmation of the new specific conditions added to the North County Resource Recovery Facility (NCRRF), permit No. PSD-FL-108(B). The Department has reviewed your letter and has the following comments:

Specific Condition No. 2. The Department agrees with your rationale. However as the condition states, the flame temperature shall be at a minimum of 1400 degrees Fahrenheit.

Specific Condition No. 4. The Department agrees with your rationale. The typographical error of 1.33 tons SO_2/year should be corrected. An emission limit of 7.33 tons SO_2/year shall be changed in the Title V permit.

Specific Condition No. 7. The Department will not delete this condition. This condition provides the Department with reasonable assurance that the operation of this flare system will not cause or contribute to a violation of the sulfur dioxide (SO_2) ambient air quality standard and/or that the proposed SO_2 emissions will not exceed the threshold level requiring review pursuant to Prevention of Significant Deterioration (PSD). This condition is a standard condition for recently issued permits for landfill operations.

Specific Condition No.8. See Specific Condition No.7.

The Department agrees with your rationale on Specific Conditions 5, 6, 10, 11, 14, and 15. If you have any questions, please call Ms. Teresa Heron at (904)488-1344.

Sincerely,

A. A. Linero, Administrator
New Source Review Section
Bureau of Air Regulation

cc: Isidore Goldman, SED
Buck Oven., DEP

AAL/th/t

Department of Environmental Protection

Lawton Chiles
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

DEC 14 1998

Mr. Donald Lockhart, Executive Director
Solid Waste Authority of Palm Beach
7501 Jog Road
West Palm Beach, Florida 33412

RE: Notification of Potential Permit Violation PSD-FL-108(B)
Landfill Gas Collection and Control System

Dear Mr. Lockhart:

Specific Condition 10 of the above referenced permit, issued February 20, 1996, states the following: "Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm."

Specific Condition 11 of the above referenced permit states in part, "...The checking and recording of the gas flow, temperature, and pressure shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station."

The Department has reviewed the 1998 monthly flow rates (requested by the Department) for the Class I and Class III flare stations. For the months of February, April, May, June, July and August, 1998, the average monthly flow rate for the Class I flare station exceeded 900 scfm.

The Department is currently reviewing an application (received October, 1998) for PSD modification to increase the capacity of the flare stations to 1800 scfm each. As this application would be a corrective action required by the Department as a result of an enforcement case, the Department, at this time, is withholding enforcement action pending the issuance of the permit modification.

Please be advised, under Permit PSD-FL-108(A), General Condition 8 states the following:

"8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance."

The Department can find no record of having received the timely notification required under this condition in reference to the exceedance of the Class I flare flow rates.

If you have any questions, please contact Ms. Terri Long at telephone number (561) 681-6625.

Sincerely,

Tom Tittle
Air Compliance/Enforcement Supervisor

cc: Joe Kahn, FDEP, Tallahassee
Joe Lurix, FDEP, Solid Waste, WPB
PBCHD, Air Section

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

October 20, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Donald L. Lockhart
Executive Director
Solid Waste Authority of Palm Beach Co.
7501 North Jog Road
West Palm Beach, Florida 33412-2414

Re: DEP File No. 0990234-002-AC (PSD-FL-108(B))
Landfill Gas System Modifications

Dear Mr. Lockhart:

The Bureau of Air Regulation reviewed the above application received on September 21st and found that additional information is required. The completeness items are listed below.

1. The application is for the incremental emissions increase from expansion of the class I and III landfills and the application compares that increase to the PSD significance levels for a major modification to a major facility for the various pollutants. However, this approach appears to avoid PSD review because the future emissions do not appear to have been calculated for the ultimate capacity of the landfills. For both emissions units 001 and 002, are the calculated methane and NMOC, and CO emissions in the application representative of the maximum emission rate based on ultimate landfill capacities at closure? In what year do maximum emissions occur? (Note that in a letter from CDM to the Department dated June 5, 1996, the 900 scfm flare inlet flow rate was projected to be sufficient until the year 2004.) Will another flow rate increase be required to accommodate future landfill expansions? If the application is not based on maximum emissions, please revise the emission calculations for maximum emissions. In order to assess PSD applicability for VOC (NMOC) and CO, please provide a comparison of past actual to future potential emissions, with future potential based on maximum potential emissions. In addition to responses above, please summarize the assumptions used to obtain landfill methane emissions.

2. Regarding removal of the sulfur permit limit, the calculations shown for sulfur to the flare for the class III landfill in Appendix D, part 4 of the application do not match the calculations for SO_2 emissions in section H for emissions unit 002 of the application. Using the assumptions provided in section H for emissions unit 002, the calculated sulfur to the class III flare is 1.8 lb/hr (exactly half of the projected SO_2 emission rate from this flare, and almost three times the existing permit limit). The application describes that the increase in SO_2 emissions from these projects is below the PSD significance level for a major modification to a major facility, but the application does not identify what is the maximum potential to emit for SO_2 at maximum landfill capacity, as compared with past actual emissions. Since removal of this permit limit will increase potential to emit for SO_2, please perform this past actual to future potential emissions comparison.

3. The EPA landfill gas emissions model will predict the NMOC emission rate in Mg/yr. Please compare the emissions predicted by the model with the rates calculated in the application.

4. There is a typographical error in the emission calculation for SO_2 emissions for emissions unit 002. The factor of 2 to convert from the MW of sulfur to the MW of SO_2, is not shown in the calculations. However, the result, 14271 kg/yr, includes this factor. You may wish to update your copies of the application to correct this typographical error.

5. The emission calculation methodology for SO_2 emissions for emissions unit 002 seems applicable to VOC emissions for emissions units 001 and 002. Please comment on why different methods were used to estimate emissions for these two pollutants.

Permit applicants are advised that Rule 62-4.055, F.A.C. now requires applicants to respond to requests for information within 90 days. If there are any questions, please call me at 850/921-9519.

Sincerely,

Joseph Kahn, P.E.
New Source Review Section

/jk

cc: Isidore Goldman, SED
Jim Stormer, PBCHD
Alex Makled, P.E., CDM

Z 333 612 485

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to	Donald Lockhart
Street & Number	Solid Waste Auth.
Post Office, State, & ZIP Code	WPB Bch FL
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	10-20-98

0990234-002-AC
PSO-FL-108(A)

PS Form **3800**, April 1995

Fold at line over top of envelope to the right of the return address

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Donald L. Lockhart, E.D.
Solid Waste Authority
of Palm Bch Co.
7501 N. Jog Rd
West Palm Beach, FL
33412-2414

4a. Article Number
Z 333 612 485

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
10/22/98

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X R. Murphy

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

AC 1C

CDM Camp Dresser & McKee Inc.

consulting engineering construction operations

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 561 689-3336 Fax: 561 689-9713

September 15, 1998

Mr. A.A. Linero, P.E.
Administrator
New Source Review Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blairstone Road
Tallahassee, FL 32399-2400

Subject: Solid Waste Authority of Palm Beach County
Request for a Minor Modification-PSD-FL-108 (B)

0990234-002-AC

Dear Mr. Linero:

Transmitted herewith is a check in the amount of $4,500.00. As indicated in your letter, copy attached, this check is required to process the Solid Waste Authority's request for minor modification of PSD-FL-108(B).

We appreciate the Department's expeditious review of this request. If you should have any questions, please call me at your convenience.

Very truly yours,

CAMP DRESSER & McKEE INC.

Alex H. Makled, P.E., DEE
Principal Engineer

AHM/bes
Enclosure

File: 2678-23062-042.PA.FDEP

cc: Mr. Isidore Goldman, P.E. Southeast District DEP w/o enclosure
Mr. Robert Worobel, SWA w/enclosure
Mr. Richard Statom, SWA w/enclosure

BS4094.WPD cc: J. Kahn

SOLID WASTE AUTHORITY PALM BEACH COUNTRY
7501 NORTH JOG ROAD
WEST PALM BEACH, FLORIDA 33412

No. 117976 [redacted]

CHECK NO.	DATE	AMOUNT
0117976	09/04/98	*****4500.00**

PAY:

FOUR THOUSAND, FIVE HUNDRED DOLLARS & ZERO CENTS

VOID AFTER 90 DAYS

TO THE
ORDER OF:

DEPT. OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE RD
TALLAHASSEE,FL
32399-2407

Barnett Bank of Palm Beach County
West Palm Beach, FL 33409

AUTHORIZED SIGNATURE

[redacted] [redacted]

Florida Department of
Environmental Protection

Memorandum

TO: Al Linero, P.E.
Administrator, New Source Review Section

FROM: Steve Palmer, P.E.
Siting Coordination Office

DATE: August 27, 1998

SUBJECT: Solid Waste Authority of Palm Beach County Request for Modification of Conditions of Certification for North County Resource Recovery Facility; PA 8420E.

We received this request for modification on August 26, 1998. In the previous modification to these Conditions of Certification we included language that allows automatic modification of the conditions when a federally delegated program permit is modified. Consequently this modification request will be evaluated on the basis of the PSD permit modification review.

Attached is a copy of the documentation submitted in support of the request. If you need additional copies, please let me know. Also, please add me to the mailing list for correspondence relating to the PSD review and send me a proposed review schedule as soon as it is developed.

If I can be of assistance, please call me.

attachment--

xc (w/o attachment): Alex H. Makled, P.E., DEE

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

August 31, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Alex H. Makled, P.E.
Principal Engineer
Camp Dresser & McKee, Inc.
1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406

Re: Solid Waste Authority of Palm Beach County
Request for a Minor Modification - PSD-FL-108(B)

Dear Mr. Makled:

The Bureau of Air Regulation received your request for a revision to the above referenced minor modification. Before we can begin processing your request, we will need a processing fee of $4,500 pursuant to Rule 62-4.050(4)(a)4 and (4)(a)2.b, F.A.C. We have forwarded a copy of your request to Mr. Joseph Kahn who will begin review upon receipt of the fee.

If you have any questions regarding the construction permit, please call call Mr. Joseph Kahn at (850)921-9519.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/kt

cc: J. Kahn

P 265 659 410

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	Alex Makled
Street & Number	Camp Dresser
Post Office, State, & ZIP Code	& McKee
Postage	WP Bch. FL
Certified Fee	$
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	8-31-98

PS Form **3800**, April 1995

PSD-FI-108(B)

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Alex H. Makled, PE
Camp Dresser + McKee
1601 Belvedere Rd
West Palm Bch, FL
33406

4a. Article Number
P 265 659 410

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
SEP 02 1998

5. Received By: *(Print Name)*
R Simpson

6. Signature: *(Addressee or Agent)*
X R Simpson

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

ATTACHMENT D

LANDFILL GAS SYSTEM
ANNUAL OPERATING REPORT

ANNUAL OPERATING REPORT FOR THE CLASS I AND CLASS III LANDFILLS AT THE NORTH COUNTY RESOURCE RECOVERY FACILITY (NCRRF)

SWA
SOLID WASTE AUTHORITY

Operating Year Two

January 1, 1997 - December 31, 1997

Prepared For:

The Department of Planning & Environmental Programs

Solid Waste Authority
of
Palm Beach County, Florida

February 1998

(Revised May 5, 1998)

Prepared By:
Adam D. Vernati
Landfill Gas Technician
Utilities Department

INTRODUCTION:

The Solid Waste Authority of Palm Beach County (SWA) owns and operates a comprehensive waste disposal facility at its North Jog Road location in Palm Beach County known as the North County Resource Recovery Facility (NCRRF). The Florida Department of Environmental Protection (FDEP) issued permit amendment PSD-FL-108(B) to the waste-to-energy operating permit for the installation and operation of a landfill gas collection system to control emissions from the NCRRF Class I and Class III landfills. Per the specific conditions identified in the PSD-FL-108(B) permit, yearly compliance testing has been performed. The SWA has retained Waste Energy Technology, Inc. (WET) to complete the gas extraction monitoring and analysis of each flare system. The results of the compliance testing and operational data for each of the flare systems as a requirement of the permit are provided in this annual operating report.

DIRECTOR OF ENGINEERING & PUBLIC WORKS: John D. Booth, P.E.

DIRECTOR OF PLANNING & ENVIRONMENTAL PROGRAMS: Marc C. Bruner, Ph.D.

ASSISTANT DIRECTOR OF PLANT ENGINEERING, UTILITIES & FACILITIES MAINTENANCE: Robert F. Worobel

UTLITIES/FACILITIES MAINTENANCE SUPERINTENDENT: Ronald G. Schultz

ANNUAL OPERATING REPORT FOR THE CLASS I AND CLASS III LANDFILLS AT THE NORTH COUNTY RESOURCE RECOVERY FACILITY (NCRRF)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Florida Department of Environmental Protection (FDEP) received the Solid Waste Authority's (SWA) request of August 11,1995, and supporting information to install a landfill gas collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). The FDEP acknowledged the request and issued a permit amendment identified as PSD-FL-108(B) on February 20, 1996.

This Annual Operating Report is one of the requirements identified as a new specific condition of the PSD-FL-108(B) permit. The data obtained in this report, along with the results of the specified testing protocol, insures compliance with the operating permit.

The landfill gas collection systems were operated and maintained per design specifications. All gas monitoring and sampling equipment was maintained according to manufacturers instructions. Any calibrations or equipment modifications made to said equipment was logged per permit requirements and has been included as part of the annual report.

The official compliance testing of the Class I and Class III flares was performed by Waste Energy Technologies, Inc. (WET) on November 5, 1997. The results of this testing indicated passing results for both flares and full compliance with PSD-FL-108(B) permit. Reporting will continue on an annual basis.

ANNUAL OPERATING REPORT FOR THE CLASS I AND THE CLASS III LANDFILLS AT THE NORTH COUNTY RESOURCE RECOVERY FACILITY (NCRRF)

Specific conditions review of amended Permit No. PSD-Fl-108(B) issued by the Florida Department of Environmental Protection on February 20,1996.

We have repeated each of the specific conditions in this Annual Report as shown in bold, followed by the respective comment and /or data.

Specific condition No.1

This source shall be allowed to operate continuously (i.e., 8760 hours/year).

Comment /Supporting Data: The operating permit allows for continuous operation of the flares. The Class I flare has operated for 8587 hours and the Class III flare has operated for 8589 hours. Compliance testing on both Class I and Class III flares was conducted on November 5,1997. The data compiled for this report commenced on January 1,1997 through December 31,1997.

Specific condition No. 2

The utility flare system shall be designed, manufactured, and operated according to U.S Environmental Protection Agency criteria as specified in 40 CFR 60.18 in order to ensure high efficiency combustion of landfill gas at the 98 percent level of destruction of total hydrocarbons with a flame temperature of at or above 1400 degrees Fahrenheit.

Comment /Supporting Data: The utility flare systems were designed, manufactured, and are operated according to the U.S Environmental Protection Agency's established criteria for open flares, 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 98 percent level of destruction of total hydrocarbons. The factory installed thermocouples, located within the flame, are used to monitor flare stability.

Specific condition No. 3

There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.

Comment /Supporting Data: The visible emission evaluation performed during compliance testing ,support and confirm no indication of visible emissions from the flares.

Specific condition No.4

For inventory purposes, the pollutant emission rates from each of the flare systems are:

EMISSIONS RATE

Pollutant	Emission Factors	Pounds /Hour	Tons/Year
NOx	**0.07 lb./million Btu**	**1.67**	**7.33**
VOC	**36 lb./million cubic ft.**	**1.94**	**8.51**
SO_2	**0.002 lb./scf**	**1.67**	**7.33**
PM_{10}	**1.69 E-05 lb./scf**	**0.91**	**3.99**
CO	**0.37 lb./million Btu**	**9.10**	**39.87**

Comment /Supporting Data: The Typographical error of 1.33 tons SO_2 per year in the original permit has been changed to 7.33 tons SO_2 per year in the above table.

Specific Condition No. 5

This source shall meet the applicable requirements of 40 CFR subpart WWW, NSPS for Municipal Solid Waste Landfills upon adoption by the Florida Department of Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.

Comment /Supporting Data: The system is designed, manufactured, and operated to meet NSPS regulations for MSW Landfills. Future expansion of the system is presently being evaluated and final as-built drawings will be submitted accordingly.

Specific Condition No. 6

Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of two hours. Such tests shall be conducted within 60 days of completion of construction and initial start-up operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.

Comment /Supporting Data: EPA Method 22 testing per permit requirements was conducted on November 5,1997, by Mr. Tom Siergert of South Florida Environmental Services. The test results indicated no visible emissions during the two hour evaluation. The log sheets are included in the compliance report, in Appendix 5. The gas flow rate and temperature data were also recorded per the permit conditions and are in the compliance report as well.

Specific Condition No.7

Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.

Comment /Supporting Data: The sulfur content of the flare input gas was tested and determined to be 0.13 pounds per hour for the Class I flare and 0.63 pounds per hour for the Class III flare.

Specific Condition No.8

An analysis shall be performed to determine the sulfur content of input gas to the flare by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare start-up. Additional testing shall be performed on a yearly basis and the results included as part of the facility's annual operating report.

Comment /Supporting Data: Total sulfur content of input gas to the flare in ppmv was determined by GC analysis EPA 15/ASTM D5504, approved substitute method for ASTM D1072-90. A Tedlar bag served as sample container for the analysis. The results of the total sulfur determination for Class I input gas was 0.13 pounds per hour and Class III was input gas was 0.63 pounds per hour. Testing will continue to be performed on a yearly basis and the results will be included in the annual operating report.

Specific Condition No.9

Pursuant to Rule 62-296.302(2), F.A.C., Objectionable Odors caused by these sources are prohibited.

Comment /Supporting Data: The installation, commissioning and continuous operation of landfill gas wells has greatly reduced the presence of objectionable odors produced by the landfill.

Specific Condition No.10

Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

Comment /Supporting Data: The flow of landfill gas for each of the flare systems are reported in Table No. 1 Through Table No. 17 for this operating year. The average of the quarterly data indicates that the Class I flare flow rate was 738 scfm and the Class III flare flow rate was 392 scfm.

Specific Condition No. 11

Proper devices shall be installed at all wellheads and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control prior to collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times according to manufacturers' written instructions. The checking and recording of the gas flow, temperature, and pressure shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station.

The permittee shall keep a hard copy of the gas extraction monitoring and analysis data, as well as instrumentation history records on site at all times. The data shall be summarized and included as part of the facility's annual operating report. The sources shall comply with recording and record keeping requirements specified in 40CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

Comment /Supporting Data: Permanent recording keeping practices were established and maintained since commercial operation began in 1996. A detailed account of well field status has been recorded in the compliance report. A summary of the monthly and quarterly data for 1997 can be found in Table No. 1 through Table No. 17 . The instrumentation installed in the Class I and Class III flare were calibrated and maintained according to manufacturers written instructions. Refer to Appendix 1 for the Gas Sampling and Monitoring Equipment Log. Also, Refer to Appendix 2 for the Gas System Modification/Maintenance Log.

Specific Condition No. 12.

The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in Paragraph f of 40 CFR 60.18. Samples shall be taken and results reported annually.

Comment /Supporting Data: The net heating value of input gas to the flare in Btu/scf was determined from major gas components by ASTM D1946-77 and ASTM D2382-76 with calculated real gas properties per ASTM D3588-91. A SUMA type canister served as a sample container for the analysis. The results of the net heating value of the input gas for the Class I flare was 490.9 Btu/scf and the Class III flare was 445.5 Btu/scf.

Specific Condition No. 13.

Actual exit velocity of each flare shall be calculated and reported on an annual basis using methods specified in Paragraph f of 40 CFR 60.18.

Comment /Supporting Data: The flare tip velocity was determined by EPA method 2C. The Class I exit velocity was 30.10 ft/sec. And the Class III exit velocity was 36.98 ft/sec. Details of the test procedures and supporting calculations can be found in the compliance report.

Specific Condition No. 14.

The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

Comment /Supporting Data: The Southeast District office was provided with written notice on October 1, 1997 that compliance testing would take place on October21, 1997. However, this date was changed and a second notice was sent on October 20, 1997 stating that the compliance testing would be completed on November 5, 1997.

Specific Condition No.15.

Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.

Comment /Supporting Data: The pilot light is ignited as an automatic function of the startup procedures for the flare. Programmed timers and thermocouple sensors provide the controls to safely start the flare. The pilot gas is automatically shut off after stable conditions of the LFG flame are achieved.

TABLE 1

AVERAGE MONTHLY SUMMARY FOR JANUARY 1997

	CLASS I	CLASS III
Volumetric Flow	774 scfm.	373 scfm.
Inlet Gas Temperature	92 deg. F	81deg. F
Operating Temperature	1068 deg. F.	941 deg. F.
Vacuum Pressure	33.5 in/wc	16.8 in/wc.
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition (%CH4)	60%	49%

TABLE 2

AVERAGE MONTHLY SUMMARY FOR FEBRUARY 1997

	CLASS I	CLASS III
Volumetric Flow	761 scfm.	347 scfm.
Inlet Gas Temperature	89 deg. F.	81 deg. F.
Operating Temperature	1130 deg. F.	969 deg. F.
Vacuum Pressure	33.9 in/wc.	10.3 in/wc
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition(%CH4)	63%	49%

TABLE 3

AVERAGE MONTHLY SUMMARY FOR MARCH 1997

	CLASS I	CLASS III
Volumetric Flow	817scfm	345scfm.
Inlet Gas Temperature	91deg.F.	83 deg. F.
Operating Temperature	1102 deg. F.	915 deg. F.
Vacuum Pressure	33.4 in/wc.	9.5 in/wc.
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition (%CH4)	62%	55%

TABLE 4

AVERAGE FIRST QUARTER SUMMARY FOR 1997

	CLASS I	CLASS III
Volumetric Flow	784 scfm.	355 scfm.
Inlet Gas Temperature	91 deg. F.	82 deg. F.
Operating Temperature	1100 deg. F.	942 deg.F
Vacuum Pressure	33.6 in/wc.	12.2 in/wc
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition (%CH4)	62%	51%

TABLE 5

AVERAGE MONTHLY SUMMARY FOR APRIL 1997

	CLASS I	CLASS III
Volumetric Flow	752 scfm.	337 scfm.
Inlet Gas Temperature	91 deg. F.	83 deg. F.
Operating Temperature	1126 deg. F.	926 deg. F.
Vacuum Pressure	33.5 in/wc.	5.7 in/wc.
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition(%CH4)	58%	54%

TABLE 6

AVERAGE MONTHLY SUMMARY FOR MAY 1997

	CLASS I	CLASS III
Volumetric Flow	806 scfm.	431scfm.
Inlet Gas Temperature	95 deg. F.	85 deg. F.
Operating Temperature	1121 deg. F.	934 deg. F.
Vacuum Pressure	31.3 in/wc.	5.9 in/wc.
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition (%CH4)	54%	47%

TABLE 7

AVERAGE MONTHLY SUMMARY FOR JUNE 1997

	CLASS I	CLASS III
Volumetric Flow	716 scfm.	446 scfm.
Inlet Gas Temperature	95 deg. F.	87 deg. F.
Operating Temperature	1066 deg. F.	861 deg. F.
Vacuum Pressure	32.5 in/wc.	7.9 in/wc.
Outlet Pressure	0.4 in/wc.	0.1 in/wc.
Composition (%CH4)	65%	49%

TABLE 8

AVERAGE SECOND QUARTER SUMMARY FOR 1997

	CLASS I	CLASS III
Volumetric Flow	758 scfm.	405 scfm.
Inlet Gas Temperature	94 deg. F.	85 deg. F.
Operating Temperature	1104 deg. F.	907 deg. F.
Vacuum Pressure	32.4 in/wc.	6.5 in/wc.
Outlet Pressure	0.3 in/wc.	0.1 in/wc.
Composition(%CH4)	59%	50%

TABLE 9

AVERAGE MONTHLY SUMMARY FOR JULY 1997

	CLASS I	CLASS III
Volumetric Flow	800 scfm.	506 scfm.
Inlet Gas Temperature	97 deg. F.	88 deg. F.
Operating Temperature	1171 deg. F.	947 deg. F.
Vacuum Pressure	32.9 in/wc.	6.2 in/wc.
Outlet Pressure	0.5 in/wc.	0.1 in.wc.
Composition (%CH4)	63%	51%

TABLE 10

AVERAGE MONTHLY SUMMARY FOR AUGUST 1997

	CLASS I	CLASS III
Volumetric Flow	757 scfm.	463 scfm.
Inlet Gas Temperature	92 deg. F.	87 deg. F.
Operating Temperature	1170 deg. F.	814 deg. F.
Vacuum Pressure	33.6 in/wc.	5.8 in/wc.
Outlet Pressure	0.5 in/wc.	0.1 in/wc.
Composition (%CH4)	65%	46%

TABLE 11

AVERAGE MONTHLY SUMMARY FOR SEPTEMBER 1997

	CLASS I	CLASS III
Volumetric Flow	656 scfm.	447 scfm.
Inlet Gas Temperature	90 deg. F.	87 deg. F.
Operating Temperature	1082 deg. F.	883 deg. F.
Vacuum Pressure	34.2 in/wc.	6.0 in/wc.
Outlet Pressure	0.4 in/wc.	0.1 in/wc.
Composition(%CH4)	62%	50%

TABLE 12

AVERAGE THIRD QUARTER SUMMARY FOR 1997

	CLASS I	CLASS III
Volumetric Flow	738 scfm.	472 scfm.
Inlet Gas Temperature	93 deg. F.	87 deg. F.
Operating Temperature	1141 deg. F.	881 deg. F.
Vacuum Pressure	33.6 in/wc.	6.0 in/wc.
Outlet Pressure	0.5 in/wc.	0.1 in/wc.
Composition (%CH4)	63%	49%

TABLE 13

AVERAGE MONTHLY SUMMARY FOR OCTOBER 1997

	CLASS I	CLASS III
Volumetric Flow	552 scfm.	423 scfm.
Inlet Gas Temperature	88 deg.F.	87 deg. F.
Operating Temperature	1093 deg. F.	915 dg. F.
Vacuum Pressure	34.0 in/wc.	6.6 in/wc.
Outlet Pressure	0.5 in/wc.	0.5 in/wc.
Composition (%CH4)	59%	47%

TABLE 14

AVERAGE MONTHLY SUMMARY FOR NOVEMBER 1997

	CLASS I	CLASS III
Volumetric Flow	625 scfm.	280 scfm.
Inlet Gas Temperature	89 deg. F.	82 deg. F.
Operating Temperature	1068 deg. F.	985 deg. F.
Vacuum Pressure	31.5 in/wc.	8.6 in/wc.
Outlet Pressure	0.5 in/wc.	0.5 in/wc.
Composition(%CH4)	64%	48%

TABLE 15

AVERAGE MONTHLY SUMMARY FOR DECEMBER 1997

	CLASS I	CLASS III
Volumetric Flow	833 scfm.	298 scfm.
Inlet Gas Temperature	85 deg. F.	76 deg.F.
Operating Temperature	1071 deg. F.	964 deg. F.
Vacuum Pressure	29.9 in/wc.	8.2 in/wc.
Outlet Pressure	0.4 in/wc.	0.5 in/wc.
Composition (%CH4)	62%	47%

TABLE 16

AVERAGE FOURTH QUARTER SUMMARY FOR 1997

	CLASS I	CLASS III
Volumetric Flow	670 scfm.	334 scfm.
Inlet Gas Temperature	87 deg. F.	82 deg. F.
Operating Temperature	1077 deg. F.	955 deg. F.
Vacuum Pressure	31.8 in/wc.	7.8 in/wc
Outlet Pressure	0.5 in/wc.	0.5 in/wc.
Composition (%CH4)	62%	47%

TABLE 17

AVERAGE OF QUARTERLY SUMMARIES FOR 1997

	CLASS I	CLASS III
Volumetric Flow	738 scfm.	392 scfm.
Inlet Gas Temperature	91 deg. F.	84 deg. F.
Operating Temperature	1106 deg. F.	921 deg. F.
Vacuum Pressure	32.9 in/wc.	8.1 in/wc.
Outlet Pressure	0.4 in/wc.	0.2 in/wc
Composition(%CH4)	62%	49%

KEY:

FOR LOCATION OF TEST/MONITORING POINTS

TABLES 1-17

:Volumetric Flow Measures @ CP-1
:Inlet Gas Temperatures Measured @ T1
:Operating Temperature Measured @CP-1
:Vacuum Pressure sampled @ FE
:Composition % of CH4 Sampled @ FE

Sample port/instrumentation locations can be found on the blower/flare skid details provided in Appendix 3 for Class I and Appendix 4 for Class III.

APPENDIX 1

Gas Sampling and Monitoring Equipment Log

Calibrations:

1/24/97—performed calibration on Gas Tech Model NP204 gas meter

2/27/97-- performed calibration on Gas Tech Model NP204 gas meter

3/19/97-- performed calibration on Gas Tech Model NP204 gas meter

4/3/97 -- performed calibration on Gas Tech Model NP204 gas meter

5/6/97 -- performed calibration on Gas Tech Model NP204 gas meter

6/20/97-- performed calibration on Gas Tech Model NP204 gas meter

7/23/97-- performed calibration on Gas Tech Model NP204 gas meter

8/15/97-- performed calibration on Gas Tech Model NP204 gas meter

9/8/97 -- performed calibration on Gas Tech Model NP204 gas meter

9/23/97—switched from Gas Tech NP204 gas meter to LandTec Model GEM 500 multigas meter.
--performed calibration on LandTec Model GEM 500.

10/9/97 -- performed calibration on LandTec Model GEM 500

11/6/97 -- performed calibration on LandTec Model GEM 500

11/17/97- Checked calibration of Class I and Class III gas flowmeters, Model DPR-100.
--No adjustment was necessary.

12/8/97 -- performed calibration on LandTec Model GEM 500

APPENDIX 2

GAS SYSTEM MODIFICATIONS/MAINTENANCE LOG

Modifications:

3/4/97 --Adjusted Class I flare skid propane regulator to 7 psi. per manufacturers instructions.

3/12/97 –Removed ½ inch pilot nozzle from the propane discharge and drilled out the center of the nozzle from 1/16 inch up to 1/8 inch. Reinstalled pilot nozzle.
--Raised gas probe #2, located on the Class III landfill, 7 feet.

6/13/97 -Raised drip leg #4, located on the Class I landfill, 5 feet.

7/9/97 --Coated the Class III condensate sump pump with anti-corrosive sealant.

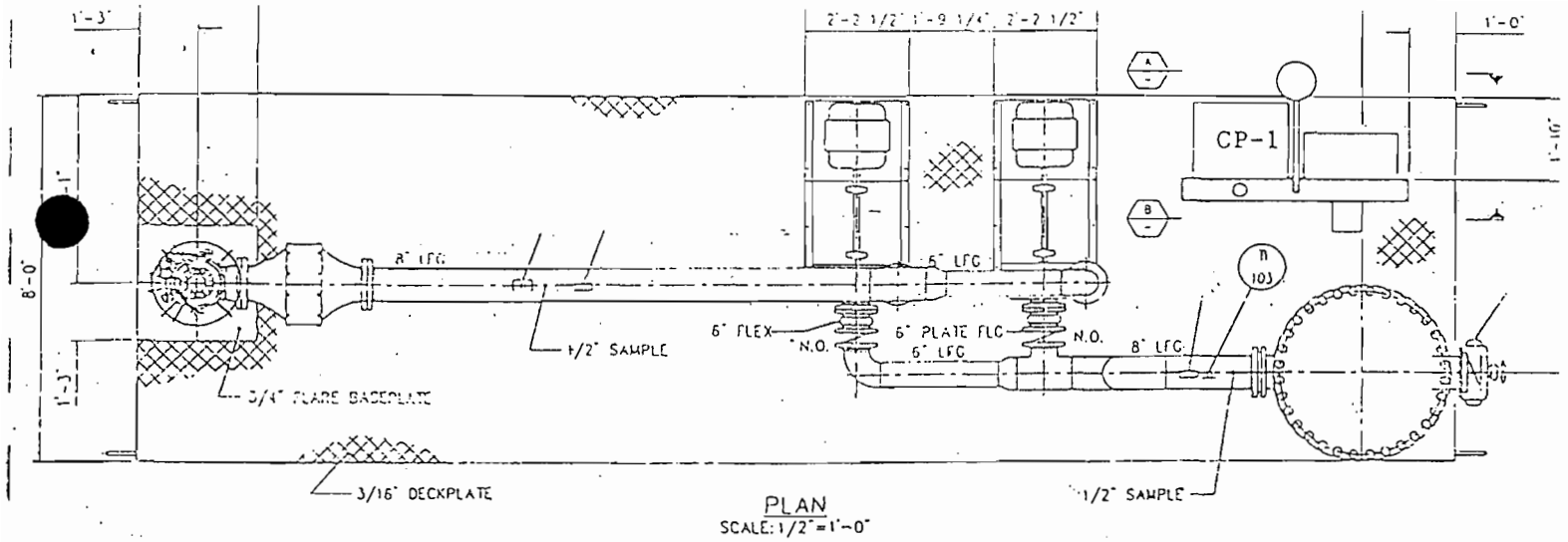
8/15/97 –Installed a 4 inch sampling plug in the Class I condensate sump.

8/18/97 –Installed a 4 inch sampling plug in the Class III condensate sump.

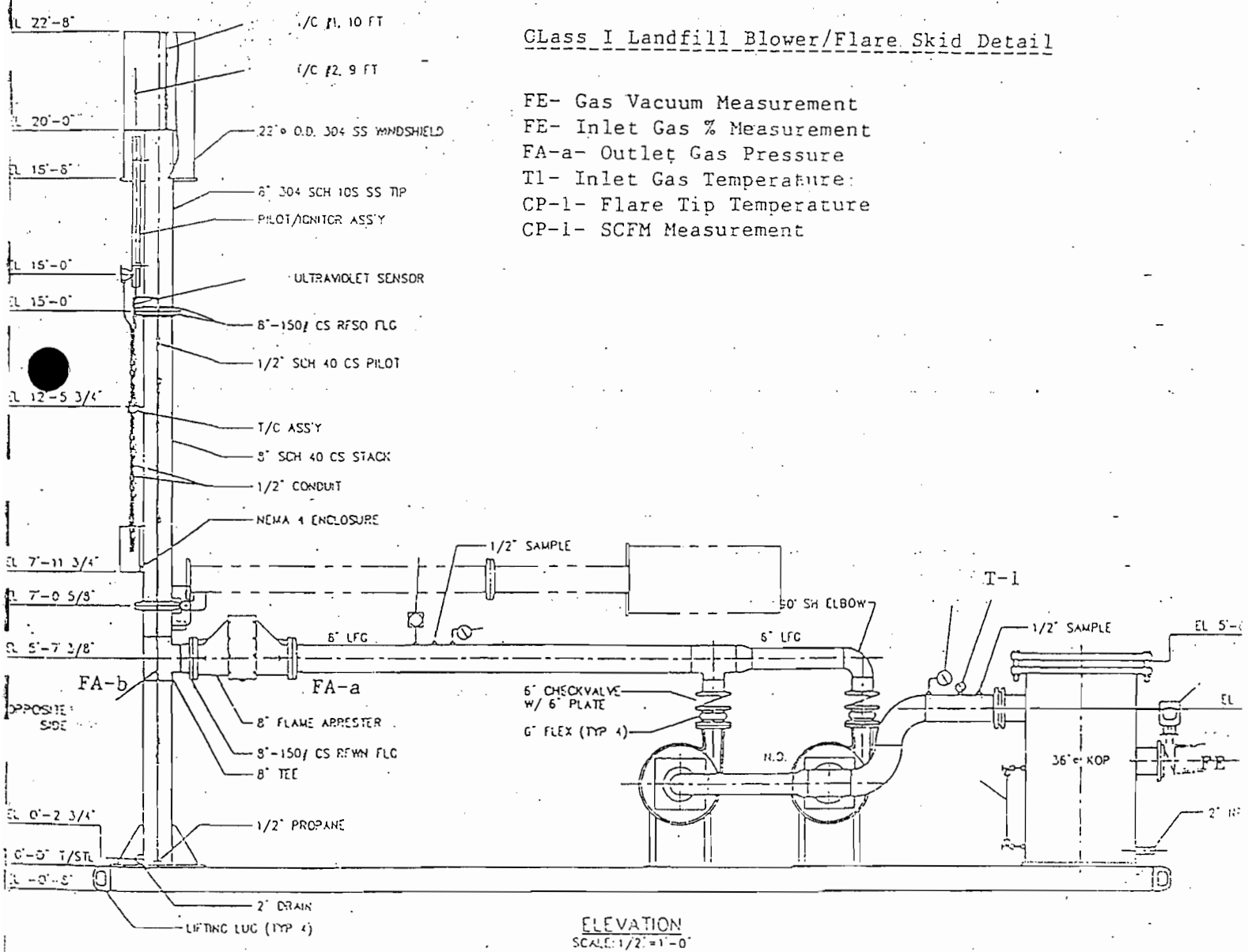
9/22/97 -Raised gas probe #4, located on the Class III landfill, 10 feet.

11/06/97-Drip leg #2, located on the Class I landfill, was excavated and condensate drainage was improved in the drip leg.
-Condensate knock out #4, located on the Class I landfill, was raised 5 feet.

12/17/97-Clear PVC sight glasses were installed on the Class I and Class III flame arrestor and flare stack condensate drains.



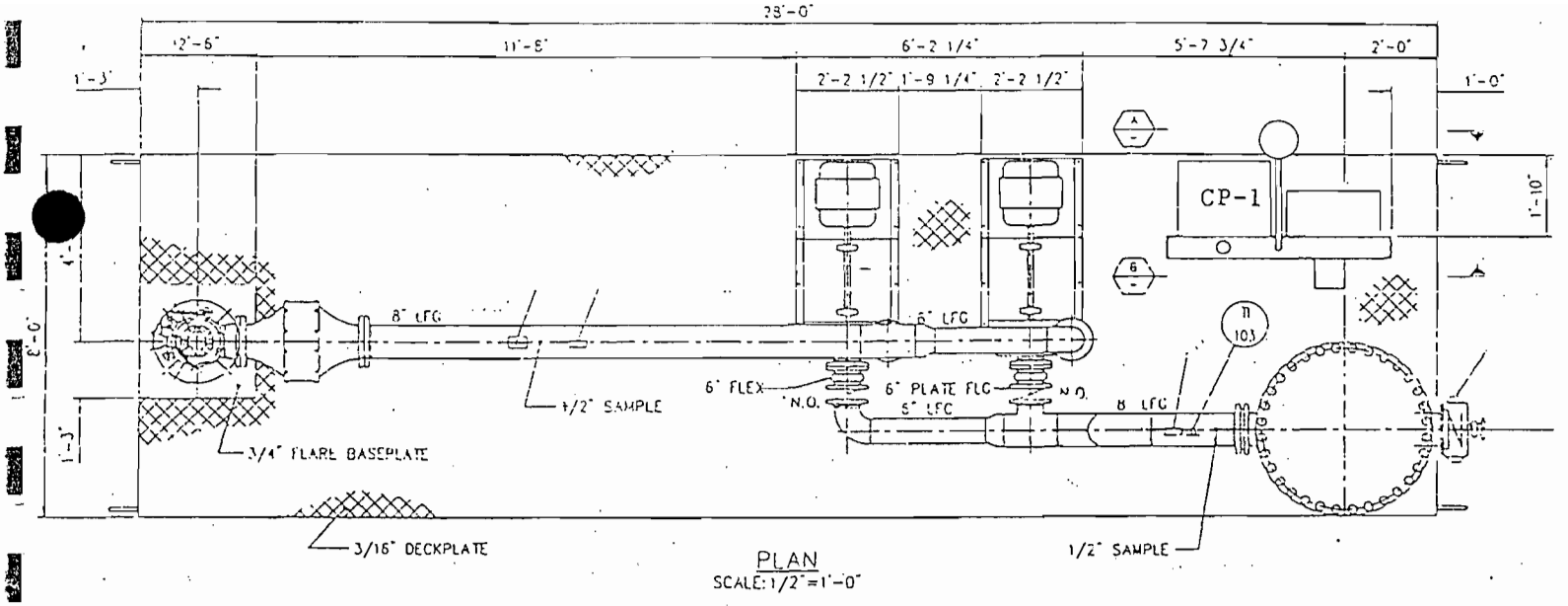
PLAN
SCALE: 1/2" = 1'-0"

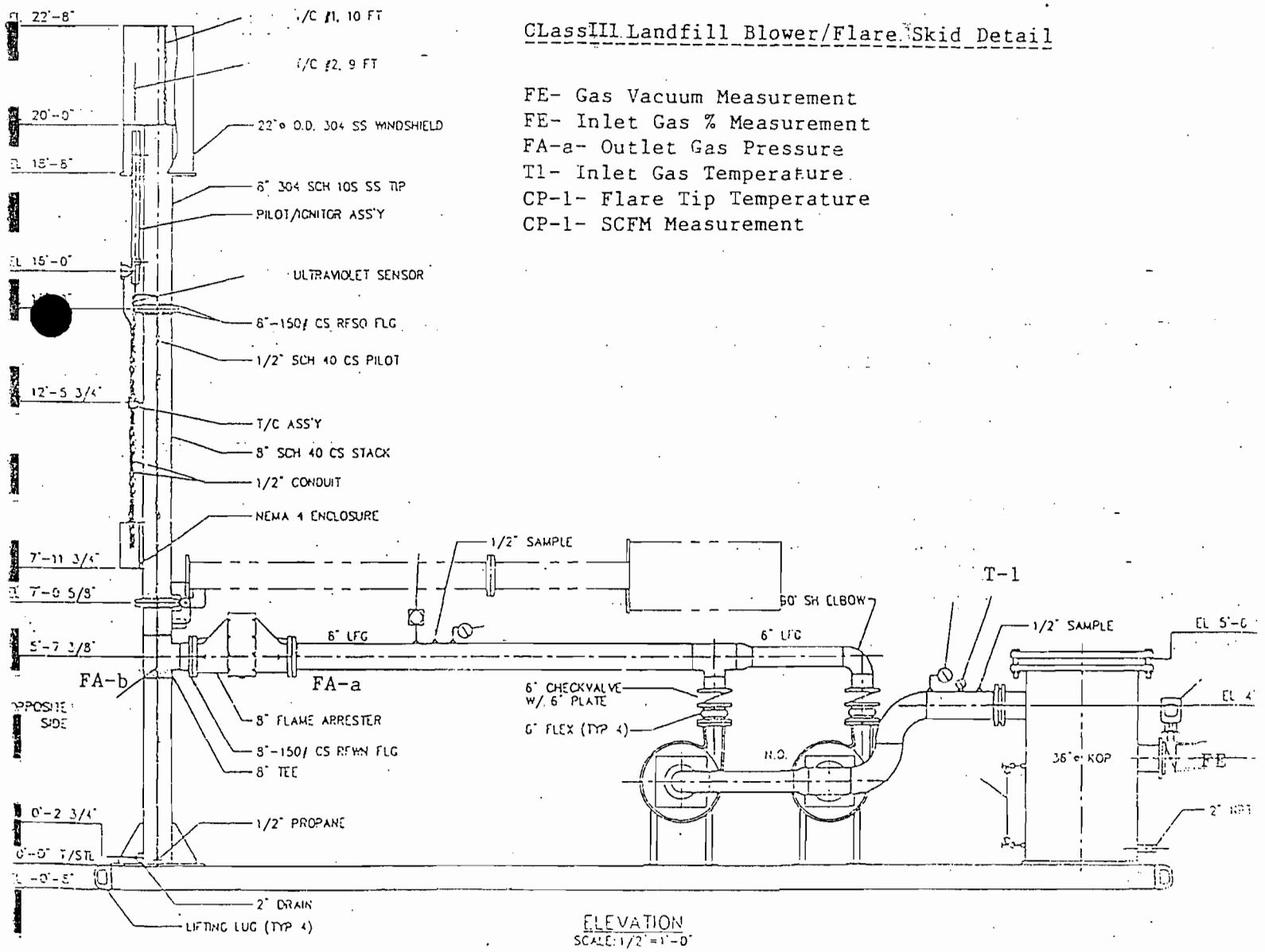


ELEVATION
SCALE: 1/2" = 1'-0"

CLass I Landfill Blower/Flare Skid Detail

FE- Gas Vacuum Measurement
FE- Inlet Gas % Measurement
FA-a- Outlet Gas Pressure
T1- Inlet Gas Temperature
CP-1- Flare Tip Temperature
CP-1- SCFM Measurement





CLassIII Landfill Blower/Flare Skid Detail

FE- Gas Vacuum Measurement
FE- Inlet Gas % Measurement
FA-a- Outlet Gas Pressure
T1- Inlet Gas Temperature
CP-1- Flare Tip Temperature
CP-1- SCFM Measurement

LANDFILL GAS MANAGEMENT SYSTEM ANNUAL OPERATIONAL TESTING REPORT - 1997

NORTH COUNTY RESOURCE RECOVERY FACILITY
Class I and Class III Landfills
Palm Beach County, Florida

PREPARED FOR:
The Solid Waste Authority of Palm Beach County
West Palm Beach, Florida

WET PROJECT No: 97433
January 8, 1998
Revised May 5, 1998

WASTE ENERGY TECHNOLOGY, INCORPORATED

ENVIRONMENTAL MANAGEMENT
ENGINEERS & CONTRACTORS

FORT WALTON BEACH, FLORIDA

WASTE ENERGY TECHNOLOGY, INCORPORATED

11 Tupelo Avenue, S.E. • Fort Walton Beach, Florida 32548-5414
Tel (850) 243-0033 • Fax (850) 243-0077

LANDFILL GAS MANAGEMENT SYSTEM
ANNUAL OPERATIONAL TESTING REPORT - 1997
FOR
NORTH COUNTY RESOURCE RECOVERY FACILITY
CLASS I AND CLASS III LANDFILLS
PALM BEACH COUNTY, FLORIDA

January 8, 1998
Revised May 5, 1998

Prepared for:

Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412
(561) 640-4000

Prepared by:

Waste Energy Technology, Inc.
11 Tupelo Avenue, SE
Fort Walton Beach, Florida 32548
(850) 243-0033

WET Project No: 97433

LANDFILL GAS MANAGEMENT SYSTEM
ANNUAL OPERATIONAL TESTING REPORT - 1997
FOR
NORTH COUNTY RESOURCE RECOVERY FACILITY
CLASS I AND CLASS III LANDFILLS
PALM BEACH COUNTY, FLORIDA

TABLE OF CONTENTS

L:\PROJECT\Swaom433\433FlareRep2.wpd

INTRODUCTION

The Solid Waste Authority of Palm Beach County (SWA) operates a comprehensive waste disposal facility at its Jog Road location in Palm Beach County, known as the North County Resource Recovery Facility (NCRRF) of Palm Beach County. The Florida Department of Environmental Protection (FLDEP) issued permit amendment PSD-FL-108(B) to the landfill's operating permit for installation and operation of a landfill gas collection system to control emissions from the NCRRF Class I and Class III landfills. SWA retained Waste Energy Technology, Inc. (WET) to perform the annual operational testing as specified in the above referenced FLDEP permit amendment Specific Conditions. A copy of the Permit Specific Conditions, dated February 20, 1996 is included as Appendix 1.

PERMIT SPECIAL CONDITIONS REVIEW

Annual Monitoring Data Recording

Permit Special Conditions 6, 8, 12, 13, and 14 address the annual operational testing requirements. These operational parameters require the field collection of gas samples and laboratory analysis, and the evaluation of results against PSD permit limit values. These are addressed in the Operational Assessment section below.

OPERATIONAL ASSESSMENT

LFG extraction monitoring of the Class I and Class III landfill gas collection systems was accomplished during the week of November 5 & 6, 1997. The FLDEP Southeast District office was given written notice of this scheduled compliance testing on October 20, 1997, satisfying the permit special condition 14 requirement. WET arrived onsite November 4, 1997, to verify steady state flow conditions and methane concentrations in preparation for permit compliance gas sampling and flow analysis. On November 5, 1997, South Florida Environmental Services (SFES), under a subcontract to WET, performed the visible emissions testing on the Class I & Class III Flares. Wet collected field data and gas samples to perform the following analysis for compliance with the annual permit specific conditions:

Specific Condition No. 6:	Compliance Testing of Visible emissions
Specific Condition No. 8:	Compliance Testing of Input Gas Total Sulfur Content
Specific Condition No. 12:	Compliance Testing of Input Gas Net Heating Value
Specific Condition No. 13:	Compliance Testing of Flare Tip Exit Velocity

Concurrently with the collection of this field data and gas samples, WET recorded LFG system operating data to include 1) Wellhead gas composition (percent methane), gas temperatures, and applied well pressures, and available header pressures, and 2) Blower Flare Station gas composition (percent methane), gas temperatures, and blower inlet and outlet available pressures.

Results of the WET field and laboratory analysis for the annual specific conditions are presented in the report titled "Utility Flare System Compliance Study", dated November 5, 1997, and are included as Appendix 3 to this document. Results of the corresponding field operational data gathered by WET, is included in Appendix 4, with project testing photographs shown in Appendix 5. The Trace Gas Analyses are included in Appendix 6 (Sulfur content) & 7 (Fixed gases). The Smoke Emission Test report is detailed in Appendix 8. A summary of the field and laboratory testing results are presented in Table 1, and a summary of the special permit condition test methods, permit limits, and measured results is presented in Table 2.

CONCLUSIONS

Based on the results of the study, the NCRRF Class I and Class III landfill gas collection and flaring systems are currently operating in compliance with the FLDEP permit PSD-FL-108(B).

Table 1: Flare Inlet Gas Testing - Summary of Testing Results

November 5, 1997	Class I	Class III
Pipe Duct Diameter	7.981 in.	7.981 in.
Pipe Duct Area	0.3474 sf	0.3474 sf
Pipe Duct Average Gas Velocity, ft/sec	35.1ft/sec	22.0 ft/sec
Average Gas Temperature, Deg. F	112.5 F	102.3 F
Average Gas Moisture, % volume	4.3 %	3.9%
Average Gas Pressure, in. Hg	30.26 in Hg	30.24 in HG
Barometric Pressure, in. Hg	30.20 in Hg	30.20 in Hg
Average Gas Volumetric Flow Rate:		
@ Field Conditions, acfm	731.6 acfm	458.6 acfm
@ Standard Conditions, scfm	682.6 scfm	435.6 scfm
@ Standard Conditions, dscfm	653.2 dscfm	418.6 dscfm
Flare Tip Diameter, inches	8.329 in.	6.00 in.
Flare Tip Area, sf	0.3784 sf	0.1963 sf
Flare Tip Exit Velocity, fps	30.10 fps	36.98 fps
Net Heating Value, Btu/scf	490.9 Btu/scf	445.5 Btu/scf
Maximum Permitted Exit Velocity, fps	101.0 fps	88.96 fps
Gas Composition by Laboratory Analysis: For determination of Net Heating Value		
Methane, % by volume	54.00%	49.00%
Carbon Dioxide, % by volume	24.00%	34.00%
Nitrogen, % by volume	14.00%	14.00%
Oxygen, % by volume	4.50%	1.90%
Gas Composition Field Analysis		
Methane, % by volume	55%	50%

Table 2: Flare Inlet Permit Testing - Summary of Permit Requirements and Results

	Permit Test Method	Permit Limits	Measured Results			
Flare Inlet Test location			**Class I**	**Pass/Fail**	**Class III**	**Pass/Fail**
Date			11/05/97		11/05/97	
Flare Flow Rate (SC#10)	Pitot Tube	900 scfm maximum	682.6 scfm	Pass	435.6 scfm	Pass
Net Heating Value (SC#12)	40 CFR 60.18(f)	200 Btu/scf minimum	490.9 Btu/scf	Pass	445.5 Btu/scf	Pass
	i.e. ASTM D1946-77 and ASTM D2382-76					
Flare Tip Exit Velocity (SC#13)	40 CFR 60.18(f)	60 fps @ 300 Btu/scf				
	i.e. EPA Method 2C	120 fps @ 600 Btu/scf				
-Class I		101.0 @ 490.9 Btu/scf	30.10 ft/sec	Pass		
-Class III		88.96 @ 445.5 Btu/scf			36.98ft/sec	Pass
Sulfur Content (SC#8)	ASTM D1072-90	0.65 lbs/hr maximum	0.13 lbs/hr	Pass	0.63 lbs/hr	Pass
	Substituted EPA15/ASTM D5504					
Visible Emissions (SC#6)	EPA Method 22	20% opacity maximum	0% opacity	Pass	0% opacity	Pass
		during 2 hour observation				
-Flow Rate per Thermal Flow Meter			684 scfm		418 scfm	
-Flame Detection Thermocouple Temperature, Deg F			1140 F		966 F	

APPENDIX SECTION 1

NCRRF Permit No: PSD-FL-108(B)

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

February 20, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Dear Mr. Lowe:

Re: North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B), Solid Waste Authority of Palm Beach County

The Department received your request of August 11, 1995, and supporting information to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). This request will require adding new specific conditions to the above referenced PSD permit. This permit is amended as follows:

NEW SPECIFIC CONDITIONS:

1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).

2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400°F.

3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.

4. For inventory purposes, the pollutant emission rates from each of the flare systems are:

EMISSION RATE

Pollutant	Emission Factors	Pounds/Hour	Tons/Year
NO_x	0.07 lb/million Btu	1.67	7.33
VOC	36 lb/million ft^3	1.94	8.51
SO_2	0.002 lb/scf	1.67	1.33
PM_{10}	1.65 E-05 lb/scf	0.91	3.99
CO	0.37 lb/million Btu	9.10	39.87

5. This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfills upon adoption by the Florida Department of Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.

6. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.

7. Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.

8. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.

9. Pursuant to Rule 62-296.320(2), F.A.C., Objectionable Odors caused by these sources are prohibited.

10. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

11. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturers' written instructions. The checking and recording of the gas flow, temperature, and pressure, shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station.

The permittee shall keep a hard copy of the gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The data shall be summarized and included as part of the facility's annual operating report. These sources shall comply with recording and recordkeeping requirements specified in 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

12. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph f of 40 CFR 60.18. Samples shall be taken, and results reported annually.

13. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph f of 40 CFR 60.18.

14. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

15. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.

A copy of this letter shall be filed with the PSD-FL-108, and shall become a part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/th/t

cc: J. Kahn, SED
J. Bunyak, NPS
A. Makled, P.E.
J. Harper, EPA
H. Oven, PPS
J. Koerner, PBCHU

Attachments available upon request:

Application to construct/modify the NCRRF facility submitted on August 11, 1995.

Additional correspondence submitted on October 30, November 3 and December 4, 1995.

APPENDIX SECTION 2

FLDEP Permit Compliance Testing Notification

FILE #44,100

YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

MEMORANDUM

September 19, 1997

TO: Michael P. Voich

FROM: Robert F. Worobel. RFW

RE: LFG Flare Compliance Testing

I have coordinated the testing of our Site 7 landfill flares with Waste Energy Technology. The plans will be to conduct compliance testing on both "candle type" flare systems per the specific conditions in the PSD-FL-108 (B) permit. The testing is anticipated to take a full day to complete and has been scheduled to start on the morning of October 21, 1997. The balance of the testing program will be conducted on October 22, 1997, if required.

Please notify the proper local, state, and federal authorities and all SWA personnel concerned with this testing.

If you have any questions or require additional information, please contact me.

RFW/kal
cc: J. Booth
R. Statom
K. Kinley
R. Schultz
File #22,700

7501 North Jog Road, West Palm Beach, Florida 33412 (561) 640-4000 FAX 683-4067

SOLID WASTE AUTHORITY

YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

FILE COPY

October 1, 1997

Florida Department of Environmental Protection
Southeast District
Post Office Box 15425
West Palm Beach, FL 33416

Attn: Mr. Andrew Neita

RE: North County Solid Waste Disposal Facility (NCSWDF)
PSD-FL-108(B) issued February 20, 1996; amended June 25, 1996

Dear Mr. Neita:

This letter serves to provide the FDEP Southeast District office with written notice that the SWA plans to perform compliance testing for the Class I and Class III landfill gas collection systems as required by the PSD-FL-108(B) permit. The testing program is scheduled to start on October 21, 1997 and is anticipated to take a full day to complete. The balance of the testing program will be conducted on October 22, 1997, if required.

If you have any questions or comments regarding the testing program, please contact me at (407) 640-4000 ext. 4614.

Sincerely,

Michael P. Voich
Environmental Specialist

cc: Mr. John Booth, SWA
Mr. Richard Statom, SWA
Mr. Bob Worobel, SWA
Mr. Marc Bruner, SWA

SOLID WASTE AUTHORITY

YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

FILE COPY

October 20, 1997

Florida Department of Environmental Protection
Southeast District
Post Office Box 15425
West Palm Beach, FL 33416

Attn: Mr. Tom Tittle

RE: North County Solid Waste Disposal Facility (NCSWDF)
PSD-FL-108(B) issued February 20, 1996; amended June 25, 1996

Dear Mr. Tittle:

This letter serves to provide the FDEP Southeast District office with written notice that the NCSWDF Landfill Gas Collection System Compliance Testing scheduled for October 21st and 22nd, 1997 has been rescheduled for November 5th, 1997.

If you have any questions or comments regarding the testing program, please contact me at (561) 640-4000 ext. 4614.

Sincerely,

Michael P. Voich
Environmental Specialist

cc: Mr. Andrew Neita, FDEP
Mr. John Booth, SWA
Mr. Richard Statom, SWA
Mr. Bob Worobel, SWA
Mr. Marc Bruner, SWA

APPENDIX SECTION 3

Utility Flare System Compliance Study

UTILITY FLARE SYSTEM COMPLIANCE STUDY

Performed by

WASTE ENERGY TECHNOLOGY, INC.

At the

Solid Waste authority of Palm Beach County

Class I and Class III Flare Stack

West Palm Beach, Florida

November 5, 1997

TABLE OF CONTENTS

UTILITY FLARE SYSTEM COMPLIANCE STUDY
Performed by
WASTE ENERGY TECHNOLOGY, INC.
At the
Solid Waste Authority of Palm Beach County
Class I and Class III Flare Stack
West Palm Beach, Florida
November 5, 1997

1.0 INTRODUCTION

A utility flare system test program was performed by Waste Energy Technology, Inc. (WET), on the Southwest, Class I landfill area and Northeast, Class III landfill area Flare Stacks of Solid Waste Authority of Palm Beach County (SWA) in West Palm Beach, Florida on November 5, 1997. The tests were authorized by Solid Waste Authority of Palm Beach County and performed by Waste Energy Technology, Inc.

The purpose of this test program was to determine the landfill gas flare net heating value and sulfur content, flare tip exit velocity and flare visible emissions during normal operating conditions.

The tests were conducted by Scott Fowler of WET. Robert Worobel and Adam Vernati of Solid Waste Authority of Palm Beach County provided assistance and coordinated plant operating conditions during the test program.

2.0 DISCUSSION OF RESULTS

The following table summarizes the results for maximum permitted velocity, opacity, total sulfur content, net heat value and flare stack exit velocities.

TABLE 2.1

	Class I	Class III
Parameter		
Net Heating Value		
Btu/scf	490.9	445.5
MJ/scm	18.33	16.63
Maximum Permitted Velocity		
ft/sec	101.0	88.96
m/sec	30.67	27.11
Exit Velocity		
ft/sec	30.10	36.98
m/sec	9.16	11.27
*Sulfur Content		
lbs/hr	0.13	0.63
grams/hr	58.97	285.77
Opacity		
%	0	0

L:PROJECT\SWAOM433\TABLE2.WB3

* Flare inlet total sulfur input rate.

A summary of test conditions can be found in Table 6.1. Visible emission test results and major components have been appended. No problems were encountered with the testing equipment during the course of the test program. Source operation appeared normal during the entire test program.

3.0 TEST PROCEDURES

All testing, sampling, analytical, and calibration procedures used for this test program were performed as described in the Code of Federal Regulations, Title 40, Part 60, Appendix A (40CFR60), Methods 1 through 4 and 22 and the latest revisions thereof. Where applicable, the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, United States Environmental Protection Agency (USEPA) 600/4-77-027b was used to determine the precise procedures.

Sample recovery was performed at the test site by WET. Samples were transported to an approved lab for analysis.

Copies of all sample analysis sheets are appended to this report.

Calculations were performed by computer and by hand; an explanation of the nomenclature and calculations along with the complete test results are appended. Also appended are the calibration data and copies of the raw field data sheets.

Raw data are kept on file at the WET offices in Fort Walton Beach, Florida. All samples from this test program (not already used in analysis) will be retained for 60 days after the submittal of the report, after which they will be discarded unless WET is advised otherwise.

3.1 Net Heating Value Determination

Net heating value of input gas to the flare in Btu/scf was determined from major gas components by ASTM D1946-77 and ASTM D2382-76 with calculated real gas properties per ASTM D3588-91. A SUMA-type cannister served as a sample container for the analysis.

3.2 Total Sulfur Determination

Total sulfur content of input gas to the flare in ppmv was determined by GC analysis EPA15/ASTM D5504, approved substitute method for ASTM D1072-90. A Tedlar bag served as sample container for the analysis.

3.3 Volumetric Flowrate Determination

In order to determine the total sulfur inlet emission rate on a lbs/hr basis, the gas velocity and volumetric flowrate were determined using reference Method 2.

Velocity pressures were determined by traversing the test locations with a standard pitot tube. Temperatures were measured using a K-type thermocouple with a calibrated digital temperature indicator. The molecular weight and moisture content of the gases were determined to permit the calculation of the volumetric flowrate. Sampling points utilized were determined using Method 1, 40CFR60.

3.4 Moisture (H_2O) Determination

Determining the moisture content in the gas stream is necessary to calculate the stack gas volumetric air flow on a dry basis and the total sulfur inlet emission rate in lbs/hr. For this purpose, WET used the wet bulb/dry bulb method.

1. American National Standards Institute (ANSI)/American Standard Testing Method (ASTM) Method E337-62 reapproved 1979, wet bulb/dry bulb measurements were made at each flare stack inlet location during each sampling run and the water vapor content was calculated as follows:

$$Bws = \left[\frac{e' - AP\,(t - t')}{P} \right]$$

Where:

e′ = saturated vapor pressure or water, in Hg, at the wet bulb temperature (t′)
A = 3.67×10^{-4} [1 + 0.00064 (t′ - 32)]
P = absolute pressure, in. Hg, in the duct
t = dry bulb temperature, °F
t′ = wet bulb temperature, °F

3.5 Visible Emissions Determination

Reference Method 22, 40CFR60, procedures were used to make a visual determination of visible emissions from the flare stack. The method specifies that the qualified observer stand at a distance sufficient to provide a clear view of the emissions with the sun not directly in the observer's eyes.

Opacity observations were made at the point of greatest opacity in the portion of the plume where condensed water vapor was not present. Observations were made at 15-second intervals for the duration of the time period.

The observer, Tom Seigert (South Florida Environmental Services), meets the certification requirements of Method 22.

4.0 QUALITY ASSURANCE PROCEDURES

Waste Energy Technology, Inc. recognizes the previously described reference methods to be very technique oriented and have attempted to minimize all factors which can increase error by implementing its Quality Assurance Program into every segment of its testing activities.

4.1 CALIBRATION PROCEDURES

PITOT TUBES

The pitot tubes used during this test program are fabricated according to the specification described and illustrated in the Code of Federal Regulations, Title 40, Part 60, Appendix A, Methods 1 through 5 as published in the Federal Register, Volume 42, No. 160; hereafter referred to by the appropriate method number. The pitot tubes comply with the alignment specifications in Method 2, Section 4, and the pitot tube assemblies are in compliance with specifications in the same section.

Pitot tube assemblies are calibrated in accordance with Method 2, Section 4, against a standard hemispherical pitot utilizing a wind tunnel meeting the specification in Method 2, Section 4.1.2.

TEMPERATURE SENSING DEVICES

The potentiometer and thermocouples are calibrated against a mercury thermometer in a calibration well. Alternatively, readings are checked utilizing a NBS traceable millivolt source.

DRY GAS METERS

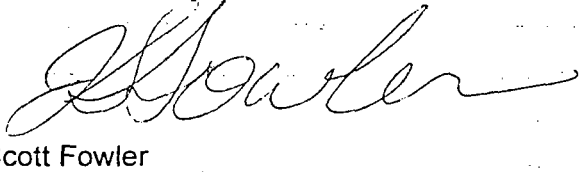
The test meters are calibrated according to Method 5, Section 5.3 and "Procedures for Calibrating and Using Dry Gas Volume Meters as Calibration Standards": by P.R. Westlin and R. T. Shigehara, March 10, 1978.

5.0 ACKNOWLEDGMENTS

Waste Energy Technology, Inc. would like to thank all personnel involved in this project for their assistance in completing this test program, especially Robert Worobel and Adam Vernati of Solid Waste Authority of Palm Beach County.

Respectfully submitted,

WASTE ENERGY TECHNOLOGY, INC.



Scott Fowler
Field Services Manager

SF/ssg

L:\PROJECT\SWAOM433\433FLTEST.WPD

6.0 TEST CONDITION SUMMARY

TABLE 6.1

Plant: Solid Waste Authority of Palm Beach County	**Source: Class I and Class III Flare Stacks**	
Test Location	Class I Flare Inlet	Class III Flare Inlet
Source Condition	Normal	Normal
Date	11/05/97	11/05/97
Average Gas Volumetric Flow Rate:		
@ Flue Conditions, acfm	731.6	458.6
@ Flue Conditions, scfm	682.6	435.6
@ Standard Conditions, dscfm	653.2	418.6
Flare tip diameter, inches	8.329	6.000
Flare tip area, square feet	0.3784	0.1963
Average Gas Temperature, deg. F	112.5	102.3
Average Flue Gas Velocity, ft/sec	35.1	22.0
Flue Gas Moisture, percent by volume	4.30	3.90
Average Flue Pressure, in. Hg	30.26	30.24
Barometric Pressure, in. Hg	30.20	30.20

L:\PROJECT\SWAOM43TABLE2.WB3

7.0 SAMPLE CALCULATIONS

Sample Calculation
The sulfur input rate is calculated in the following manner:

Southwest (Class I)
Sulfur Content 38.5 ppm
DSCFM 653.2

$$\text{lbs/dscf} = 38.5 \text{ ppm} \times \frac{32}{385 \times 10^6}$$

$$= 3.20 \times 10^{-6} \text{ lbs/dscf}$$

$$\text{lbs/hr} = 3.20 \times 10^{-6} \text{ lbs/dscf} \times 653.2 \text{ DSCFM} \times 60 \text{ min/hr}$$

$$= 0.13 \text{ lbs/hr}$$

Northeast (Class III)
Sulfur Content 300.0 ppm
DSCFM 418.6

$$\text{lbs/dscf} = \text{ppm} \times \frac{\text{Molecular wt (S)}}{385 \times 10^6}$$

$$= 300 \text{ PPM} \times \frac{32}{385 \times 10^6}$$

$$= 2.49 \times 10^{-5} \text{ lbs/dscf}$$

$$\text{lbs/hr} = \text{lbs/dscf} \times \text{DSCFM} \times 60 \text{ min/hr}$$

$$= 2.49 \times 10^{-5} \text{ lbs/dscf} \times 418.6 \text{ DSCFM} \times 60 \text{ min/hr}$$

$$= 0.63 \text{ lbs/hr}$$

SAMPLE CALCULATION
Class I Flare

The exit velocity and maximum permitted velocity is calculated in the following manner:

$$\text{Exit Velocity (ft/sec)} = \frac{\text{Volumetric Flowrate (SCFM)}}{\text{Flare Tip Area}} \times \frac{1}{60}$$

Maximum Permitted Velocity (M/Sec) as per 40CFR60, Section 60.18

$$\log_{10}(V_{MAX}) = \frac{H_T + 28.8}{31.7}$$

Where H_T = Net Heat Value of Landfill Gas, MJ/scm
28.8 and 31.7 = Constants

Example Calculation of the Class I flare stack maximum permitted velocity

$$\log_{10}(V_{MAX}) = \frac{18.33 + 28.8}{31.7}$$

Where: Net Heat Value = (54% x 909.1 LNHV Btu/scf) = 490.9 Btu/scf or 18.33 MJ/scm (300 Btu/scf = 11.2 MJ/scm)

V_{MAX} = 30.67 m/sec

$\frac{30.67 \text{ m/sec}}{0.3048}$ = 101.0 ft/sec Where: 0.3048 meters = 1 ft.

Exit Velocity

Example Calculation of Class I flare stack
Flare Tip Area 0.3784
Flow Rate 682.6 scfm

$$\frac{682.6 \text{ SCFM}}{0.3784 \text{ ft}^2} \times \frac{1 \text{ min}}{60 \text{ sec}} = 30.1 \text{ ft/sec}$$

30.1 ft/sec x 0.3048 = 9.16 m/sec

SAMPLE CALCULATION
Class III Flare

The exit velocity and maximum permitted velocity is calculated in the following manner:

$$\text{Exit Velocity (ft/sec)} = \frac{\text{Volumetric Flowrate}}{\text{Flare Tip Area}} \text{ (SCFM)} \times \frac{1}{60}$$

Maximum Permitted Velocity (M/Sec) as per 40CFR60, Section 60.18

$$\log_{10}(V_{MAX}) = \frac{H_T + 28.8}{31.7}$$

Where H_T = Net Heat Value of Landfill Gas, MJ/scm
28.8 and 31.7 = Constants

Example Calculation of the Class I flare stack maximum permitted velocity

$$\log_{10}(V_{MAX}) = \frac{16.63 + 28.8}{31.7}$$

Where: Net Heat Value = (49% x 909.1 LNHC Btu/scf) = 445.5 Btu/scf or16.63 MJ/scm (300 Btu/scf = 11.2 MJ/scm)

V_{MAX} = 27.11 m/sec

$$\frac{27.11 \text{ m/sec}}{0.3048} = 88.96 \text{ ft/sec}$$ Where: 0.3048 meters = 1 ft.

Exit Velocity

Example Calculation of Class III flare stack
Flare Tip Area 0.1963
Flow Rate 435.6 scfm

$$\frac{435.6 \text{ SCFM}}{0.1963 \text{ ft}^2} \times \frac{1 \text{ min}}{60 \text{ sec}} = 36.98 \text{ ft/sec}$$

36.98 ft/sec x 0.3048 = 11.27 m/sec

APPENDIX SECTION 4

Field Operational Data

WASTE [illegible]ERGY TECHNOLOGY, INC. - FLARE LOG WORKSHEET

WET\FORMAT\FLGWK[illegible]
REV 970712 \ JSF

SITE: SOLID WASTE AUTHORITY

FLARE LOCATION	DATE (YYMMDD)	TIME	AMB. TEMP. (°F)	BAR. PRES. ("Hg)	HDR INVAC ("wc)	BLWR B.P. ("wc)	LFG TEMP. (°F)	FLOW RATE (scfm)	BLWR AMPS (amps)	BLWR HRMTR (x 10 hrs)	LFG QUALITY % O2	% N2	% CH4	FLAME TEMP. (F)	COMMENTS	DATA BY:
CLASS I	971105	840	76	30.20	32	0.9	112	684	(1) 12.1	(1) 9533			55	1140		JSF
									(2) 8.4	(2) 9684						
CLASS III	971105	915	76	30.20	8	0.5	102	418	(1) 0	(1) 7425			50	966		JSF
									(1) 5.9	(2) 7893						

WASTE ENERGY TECHNOLOGY, INC. - WELLFIELD LOG WORKSHEET

WET\MASTERS\WELLFIELDS
REV 970712 \ JSF

SITE: SWA - CLASS I LANDFILL DATE: November 5, 1997

PERSONNEL: Scott Fowler / Adam Vernati TIME: 11:00 AM

WELL #	O/P (in)	LFG TEMP. (°F)	Ph ("wc)	Pw ("wc)	DP ("wc)	LFG FLOW (scfm)	%O2	% N2	%CH4	SYSTEM VAC. ("wc)	SYSTEM FLOW (scfm)	COMMENTS	Pw ADJ. ("wc)
1	8/2	95	-29	-28.0	0.90	47			45.0	32	684		
2	8/2	81	-19	-17.0	2.00	71			53.0				
3	8/2	98	-15	-12.0	1.30	56			57.0				
4	8/2	106	-15	-8.0	2.00	68			67.0				
5	8/2	117	-13	-12.0	1.00	47			57.0				
6	8/2	99	-15	-12.0	2.00	69			53.0				
7	8/2	119	-15	-14.0	0.50	33			56.0				
8	8/2	140	-15	-8.0	0.20	20			67.0				
9	8/2	160	-15	-8.5	1.60	55			30.0			CLOSED VALVE	-5.0
10	8/2	162	-15	-9.0	1.60	55			93.0				
11	8/2	151	-15	-12.0	0.20	20			79.0				
D-4			-15	-11.0									

WASTE ENERGY TECHNOLOGY, INC. - WELLFIELD LOG WORKSHEET

WETMASTERS\WELLFIELDS
REV 970712 \ JSF

SITE: SWA - CLASS III LANDFILL DATE: November 6, 1997

PERSONNEL: Scott Fowler / Adam Vernati TIME: 1:00 PM

WELL #	O/P (in)	LFG TEMP. (°F)	Ph ("wc)	Pw ("wc)	DP ("wc)	LFG FLOW (scfm)	%O2	% N2	%CH4	SYSTEM VAC. ("wc)	SYSTEM FLOW (scfm)	COMMENTS	Pw ADJ. ("wc)
L40		71	-7.3	0.0					25	-8	418		
L41		73	-7.3	-5.0					35				
L42		82	-7.3	0.0					59			SURGING IN HEADER LINE	
L43		88	-7.2	0.0					54				
L44		82	-7.3	0.1					63				0.0
L45		88		0.1					30			NO Ph PORT	0.0
L46		88	-7.4	0.2					7				0.0
L47		77	-7.3	-7.3					50				
L48		80	-7.0	0.0					50				
L49		76	-7.0	0.0					52				
L50		86	-7.1	-0.1					50				
L51		87	-7.0	-0.1					55				
L52		85	-7.1	-7.1					51				
L58		82	-7.0	0.1					1				
L59		78	-7.3	0.1					46				
L60		82	-7.2	-0.2					55				
L61		84	-7.2	-0.5					54				
L62		84	-7.1	-7.1					54			VALVE FULL OPEN	
L63		84	-6.9	0.0					65				
L64		84	-7.0	0.0					60				
T19		85	-7.0	0.0					47				
T80		84	-6.0	0.0					57				
T98		85	-3.9	0.0					50			SURGING IN HEADER LINE	

PITOT TRAVERSE DATA

Project: SOLID WASTE AUTHORITY Location: CLASS I FLARE STACK

Date NOVEMBER 5, 1997 Time 0830 Test No. 1, 2, 3

Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α	Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α
1.1	.22		112.5		3.1	.22		112.5	
1.2	.24		112.5		3.2	.24		112.4	
1.3	.25		112.4		3.3	.23		112.4	
1.4	.22		112.6		3.4	.23		112.4	
1.5	.23		112.5		3.5	.25		112.3	
1.6	.25		112.6		3.6	.22		112.2	
1.7	.22		112.6		3.7	.22		112.1	
1.8	.19		112.7		3.8	.20		112.2	
AVG	(.228)		(112.6)		AVG	(.226)		(112.3)	
2.1	.22	112.5							
2.2	.24	112.4			3 Run AVG				
2.3	.23	112.4			# ΔP T				
2.4	.23	112.4			1 .228 112.6				
2.5	.25	112.3			2 .214 112.7				
2.6	.22	112.2			3 .226 112.3				
2.7	.22	112.1							
2.8	.20	112.2			AVG .223 112.5				
AVG	(.214)	(112.7)			Wet Bulb 87°F				

P_{BAR} 30.20 "Hg Static 0.90 "H_2O P_s 30.26 "Hg C_p 0.99

$\sqrt{\Delta P}$ 0.472 t_s 112.5 °F x 460 = 573 °R

Flue Area .3474 ft^2 Duct dimensions 7.981 in.dia. B_{ws} 0.043 1-B_{ws} 0.957

(29.57 Md x 0.957 1-B_{ws}) + (18 x 0.043 B_w) = 29.28 Ms

$$Vs = 85.49 \times Cp \times \sqrt{\frac{(573)T}{29.28\ Ms \times 30.26\ Ps}} \times 0.472\sqrt{\Delta P} = 35.1\ ft/sec$$

Q_{acfm} = 35.1 Vs x .3474 Flue Area x 60 = 731.6 ACFM

Q_{acfm} = 17.647 x 731.6 ACFM x P_s/T_s = 682.6 SCFM

Q_{acfm} = 17.647 x 731.6 ACFM x P_s/T_s x 0.957 1-B_{ws} = 653.2 DSCFM

Pre-test leak check ✓ "H_2O Post-test leak check ✓ "H_2O Data taken By: JSA

A:\pitot.wpd

PITOT TRAVERSE DATA

Project: SOLID WASTE AUTHORITY Location: CLASS III FLARE STACK

Date NOVEMBER 5, 1997 Time 1130 Test No. 1, 2, 3

Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α	Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α
1.1	.08		102.3		3.1	.07		102.4	
1.2	.10		102.4		3-2	.10		102.4	
1.3	.11		102.4		3-3	.11		102.4	
1.4	.11		102.3		3_4	.11		102.4	
1.5	.11		102.4		3-5	.11		102.5	
1.6	.11		102.3		3.6	.11		102.5	
1.7	.10		102.4		3-7	.10		102.5	
1.8	.08		102.3		3-8	.08		102.4	
AVG	.100		102.4		AVG	.098		102.2	
2.1	.07	102.1				3	RUN	AVG	
2.2	.10	102.2				#	ΔP	T	
2.3	.11	102.3				1	.100	102.4	
2.4	.10	102.2				2	.096	102.2	
2.5	.10	102.2				3	.098	102.2	
2.6	.11	102.3							
2.7	.10	102.3				AVG	.098	102.3	
2.8	.08	102.3							
AVG	.096	102.2				WET	BULB	84°F	

P_{BAR} 30.20 "Hg Static 0.5 "H_2O P_s 30.24 "Hg C_p 0.99

$\sqrt{\Delta P}$ .313 t_s 102.3 °F x 460 = 562 °R

Flue Area .3474 ft² Duct dimensions 7.981 in.dia. B_{ws} .039 1-B_{ws} 0.961

(27.34 Md x .961 1-B_{ws}) + (18 x .039 B_w) = 26.97 Ms

$$Vs = 85.49 \times Cp \times \sqrt{\frac{(562)T}{26.97\ Ms \times 30.24\ Ps}} \times .313\sqrt{\Delta P} = 22.0\ ft/sec$$

Q_{acfm} = 22.0 Vs x .3474 Flue Area x 60 = 458.6 ACFM

Q_{acfm} = 17.647 x 458.6 ACFM x P_s/T_s = 435.6 SCFM

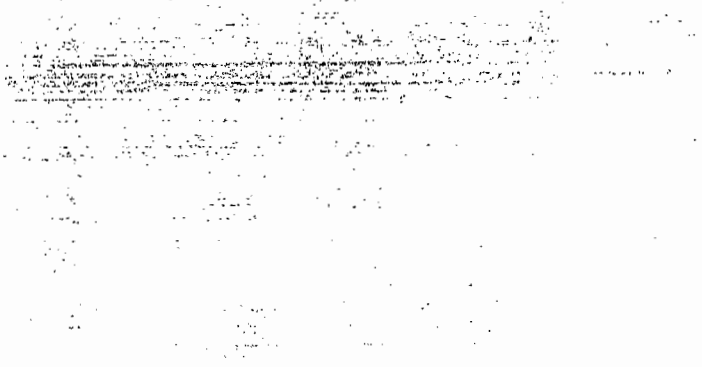
Q_{acfm} = 17.647 x 458.6 ACFM x P_s/T_s x .961 1-B_{ws} = 418.6 DSCFM

Pre-test leak check ✓ "H_2O Post-test leak check X "H_2O Data taken By:

A:\pitot_SWA.wpd

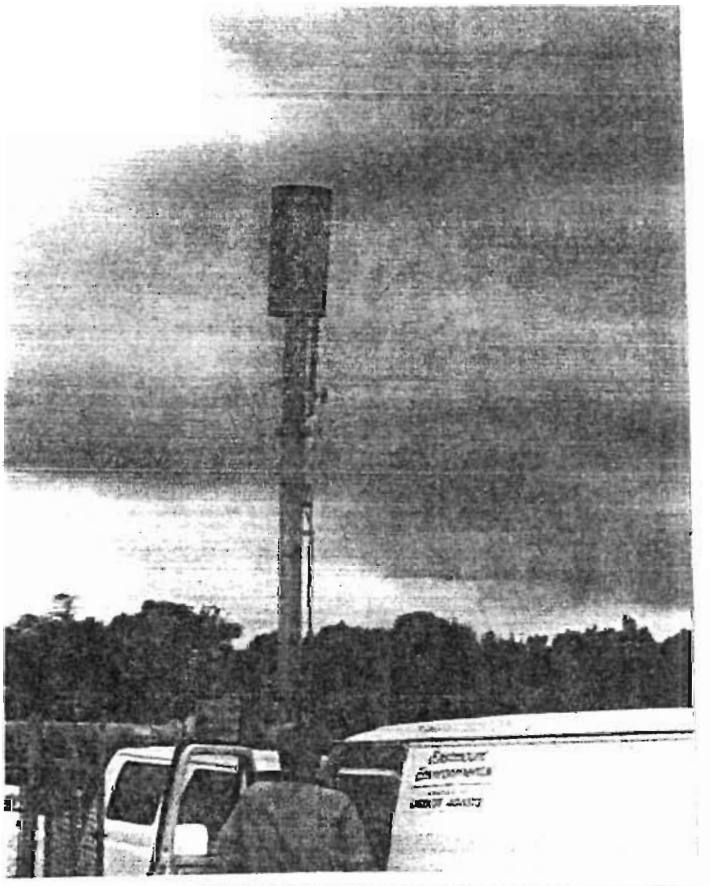
APPENDIX SECTION 5

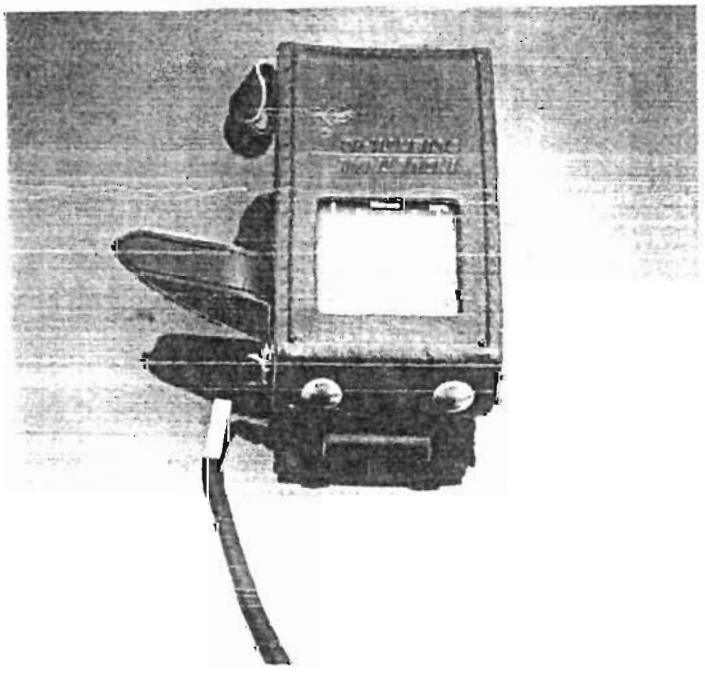
Project Photographs



PHOTOGRAPHIC RECORD OF FLARE TESTING PROCEDURE
FOR
NCRRF CLASS I AND CLASS III
WEST PALM BEACH, FLORIDA

PHOTOGRAPHS



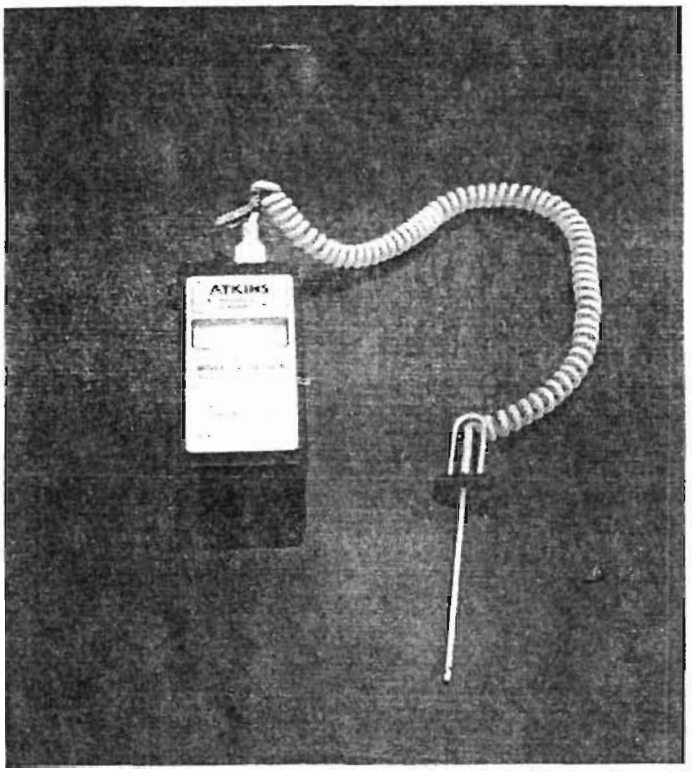


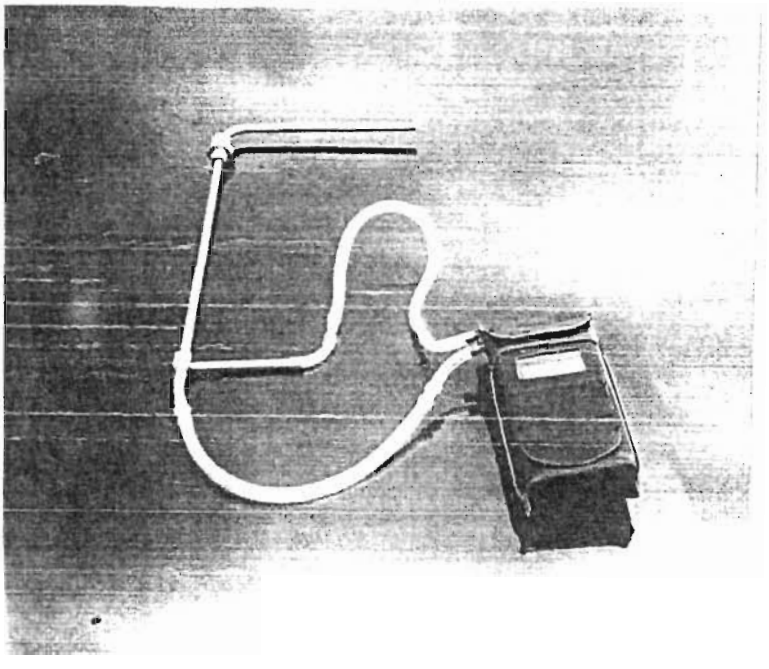
TOP TO BOTTOM

- Visible Emission Testing Class I Flare
- Combustible Gas Meter - ISC MDU 420

PHOTOGRAPHIC RECORD OF FLARE TESTING PROCEDURE
FOR
NCRRF CLASS I AND CLASS III
WEST PALM BEACH, FLORIDA

PHOTOGRAPHS



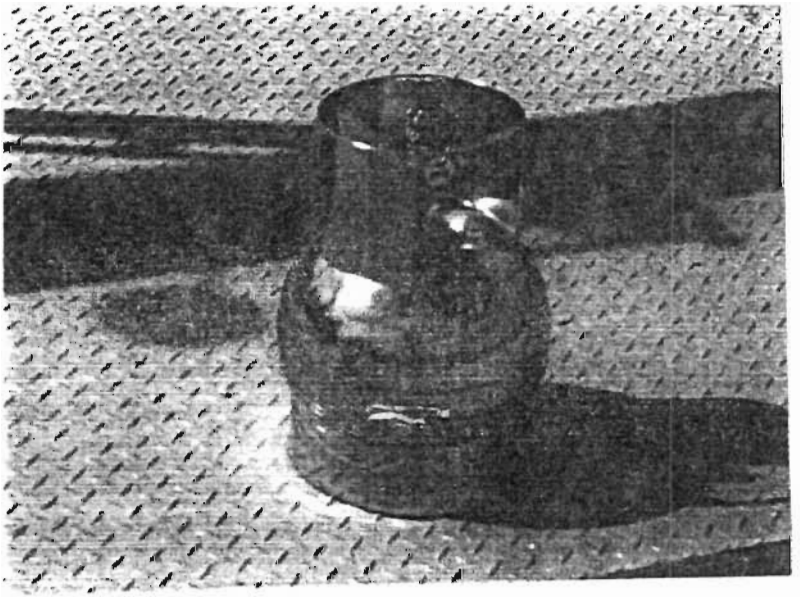


TOP TO BOTTOM

- Digital Thermometer w/ K Type Thermocouple
- S-Type Pitot Tube w/Digital Manometer - Neotronics PDM - 305

PHOTOGRAPHIC RECORD OF FLARE TESTING PROCEDURE
FOR
NCRRF CLASS I AND CLASS III
WEST PALM BEACH, FLORIDA

PHOTOGRAPHS

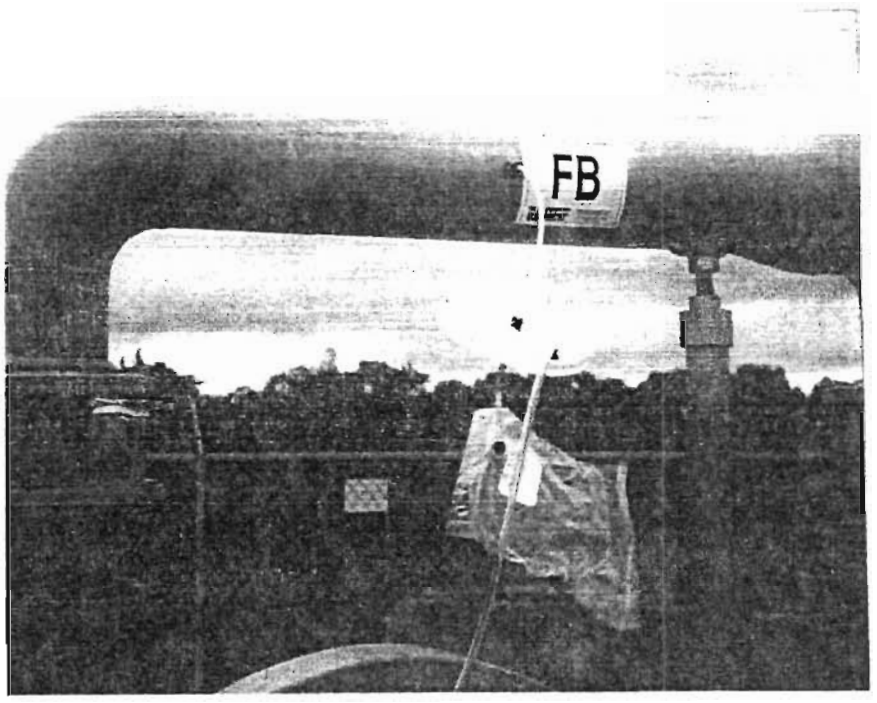


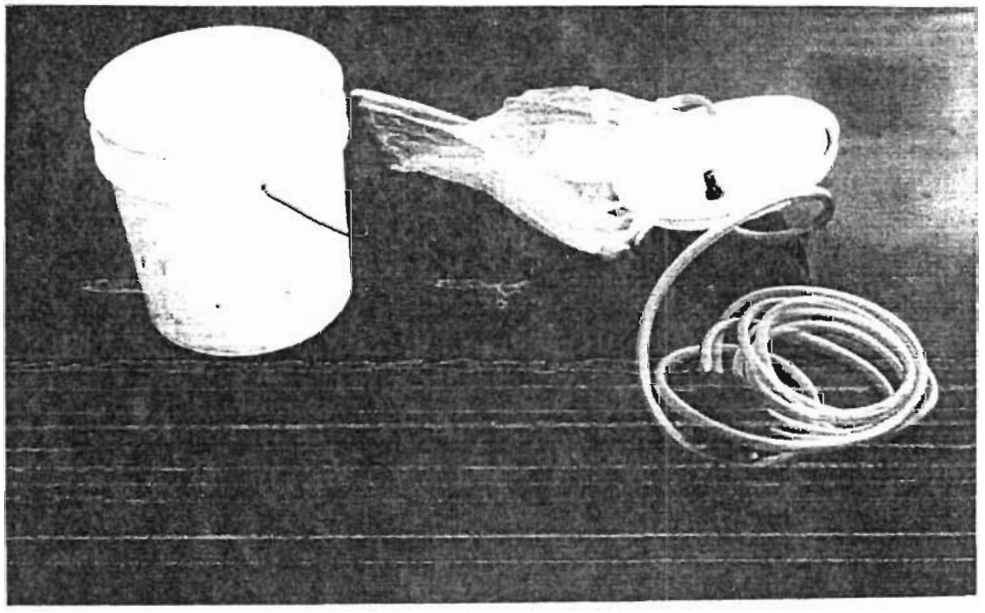
TOP TO BOTTOM

- SUMA Type Cannister
- SUMA Type Canniser w/ Teflon Adapter (Fixed Gases)

PHOTOGRAPHIC RECORD OF FLARE TESTING PROCEDURE
FOR
NCRRF CLASS I AND CLASS III
WEST PALM BEACH, FLORIDA

PHOTOGRAPHS





TOP TO BOTTOM

- Tedlar Bag w/ Vacuum Chamber (Sulfur Content Testing)

APPENDIX SECTION 6

Trace Gas Analysis Study
Fixed Gases

Quanterra Incorporated
18501 East Gale Avenue #130
City of Industry, California 91748

818 965-1006 Telephone
818 965-1003 Fax

Quanterra
Environmental Services

November 26, 1997

WASTE ENERGY TECHNOLOGY
11 Tupelo Ave. SE
Fort Walton Beach, FL 32548
ATTN: Mr. Scott Fowler

ANALYSIS NO.: 129291-0001/0002-SA
ANALYSIS: Fixed Gases (ASTM-D1946)
DATE SAMPLED: 11/04/97
DATE SAMPLES REC'D: 11/11/97

PROJECT: SWA

Enclosed with this letter is the report on the chemical and physical analyses for the samples from ANALYSIS NO.: 129291-0001/0002-SA as shown above.

The samples were received by Quanterra Incorporated, City of Industry, intact and with the chain-of-custody record attached.

Please note that ND means not detected at the reporting limits expressed.

Maria O. Jones
Project Manager

11/26/97
Date Approved

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
Waste Energy Technology

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
129291-0001-SA	F/S-CLASS I-93018	AIR	04 NOV 97	10:30	11 NOV 97
129291-0002-SA	F/S-CLASS III-11196	AIR	04 NOV 97	11:20	11 NOV 97

Quanterra
Environmental Services

Fixed Gases
ASTM-D1946

Client Name:	Waste Energy Technology		
Client ID:	F/S-CLASS I-93018		
LAB ID:	129291-0001-SA		
Matrix:	AIR	Sampled: 04 NOV 97	Received: 11 NOV 97
Authorized:	11 NOV 97	Prepared: N/A	Analyzed: 13 NOV 97
Instrument:	GC-1	Dilution: 1.7	

Parameter	Result	Qualifier	RL	Units
Carbon dioxide	24		0.17	% (v/v)
Oxygen	4.5		0.17	% (v/v)
Nitrogen	14		1.7	% (v/v)
Methane	54		0.17	% (v/v)
Carbon monoxide	ND		0.0017	% (v/v)

ND = Not Detected

Quanterra
Environmental Services

Fixed Gases
ASTM-D1946

Client Name: Waste Energy Technology
Client ID: F/S-CLASS III-11196
LAB ID: 129291-0002-SA
Matrix: AIR Sampled: 04 NOV 97 Received: 11 NOV 97
Authorized: 11 NOV 97 Prepared: N/A Analyzed: 13 NOV 97
Instrument: GC-1 Dilution: 1.7

Parameter	Result	Qualifier	RL	Units
Carbon dioxide	34		0.17	% (v/v)
Oxygen	1.9		0.17	% (v/v)
Nitrogen	14		1.7	% (v/v)
Methane	49		0.17	% (v/v)
Carbon monoxide	ND		0.0017	% (v/v)

ND = Not Detected

Quanterra
Environmental
Services

QC LOT ASSIGNMENT REPORT - MS QC
Air Toxics

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
129291-0001-SA	AIR	ASTM-D1946	13 NOV 97-A1	13 NOV 97-A1	
129291-0002-SA	AIR	ASTM-D1946	13 NOV 97-A1	13 NOV 97-A1	

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Air Toxics
Project: 129291

Category: ASTM-D1946 Fixed Gases (ASTM-D1946)
Matrix: AIR
QC Lot: 13 NOV 97-A1 Date Analyzed: 13 NOV 97
Concentration Units: % (v/v)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	RPD	Acceptance Limits Recov.	Acceptance Limits RPD
Methane	0.0100	0.0117	0.0112	117	112	4.4	80-120	20
Carbon dioxide	10.0	9.60	9.61	96	96	0.1	80-120	20

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT
Air Toxics
Project: 129291

Test: ASTM-D1946 Method ASTM-D1946 - Fixed Gases
Matrix: AIR
QC Run: 13 NOV 97-A1 Date Analyzed: 13 NOV 97

Analyte	Result	Units	Reporting Limit
Carbon dioxide	ND	% (v/v)	0.010
Oxygen	ND	% (v/v)	0.10
Nitrogen	ND	% (v/v)	1.0
Methane	ND	% (v/v)	0.00020
Carbon monoxide	ND	% (v/v)	0.0010

ND = Not Detected

BEST AVAILABLE COPY

Quanterra
Environmental Services

CANISTER FIELD DATA RECORD

-1

CLIENT: SWA

CANISTER SERIAL #: 93018

DATE CLEANED: 10/30/97 C

CLIENT SAMPLE #: WASTE Energy - SWA I

SITE LOCATION: SWA - F/S I

VFR ID: _____

Duration of sample: _____ hr/min

Flow setting: _____ ml/min

Initials: _____

READING	TIME	VAC. (inches Hg) or PRESS. (psia)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	10/30/97	
INITIAL FIELD VACUUM		30"	11/4/97	
FINAL FIELD READING		Ø	11/4/97	
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)	1"	11/11/97	dd
FINAL PRESSURE (PSIA)	24.6	11/11/97	dd

Pressurization gas: N2

COMMENTS Cap not on canister at arrival

Conc. Time (Hours)	Flow rate Range (ml/min)
0.5	188 - 166.7
1	79.2 - 83.3
2	38.8 - 41.7
4	19.3 - 20.8
8	13.2 - 13.9
8	9.8 - 10.4
10	7.92 - 8.3
12	6.8 - 6.9
24	3.2 - 3.5

Quanterra
Environmental Services

BEST AVAILABLE COPY

CANISTER FIELD DATA RECORD

-2

CLIENT: SWA

CANISTER SERIAL #: 1196

DATE CLEANED: 10/30/97 C

CLIENT SAMPLE #: Waste Energy - SWA III

FIELD LOCATION: SWA - F/5 III

VFR ID: _____

Duration of connect: _____ hrs/min

Flow setting: _____ ml/min

Initials: _____

LOADING	TIME	VAC. (inches Hg) or PRESS. (psia)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	10/30/97	[illegible]
INITIAL FIELD VACUUM		30"	11/4/97	[illegible]
FINAL FIELD READING		0	11/9/97	[illegible]
PRESSURE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION 11/11 db

INITIAL VACUUM (inches Hg and PSIA)	1"	[illegible] 11/11/97	db
FINAL PRESSURE (PSIA)	24.6	11/11/97	db

Pressurization gas: N2

COMMENTS: Cap loose on can at arrival db

Cond. Time (Hours)	Flow rate Range (ml/min)
0.5	188 - 188.7
1	79.1 - 80.2
2	38.8 - 41.7
4	19.8 - 20.8
6	13.1 - 13.9
8	9.8 - 10.4
10	7.81 - 8.2
12	6.6 - 6.9
24	3.2 - 3.5

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client	Project Manager	Date	Chain Of Custody Number
Waste Energy Tech	Scott Fowler	11/4/97	71478
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
11 Tupelo S.E	850-243-0033	129291	
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
FT Walton Beach / FL / 32548	S. Fowler	Maria Jones	
Project Name	**Carrier/Waybill Number**		
SWA			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Special Instructions/ Conditions of Receipt
F/S - Class I - 93018	11/4/97	10:30 A										Fixed gases (Landfill 945)
F/S - Class III - 11196	11/4/97	11:20 A										" "

Analysis (Attach list if more space is needed)

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: J S Fowler	11/4/97	12 noon	1. Received By		
2. Relinquished By			2. Received By: [signature]	11/11/97	11:40
3. Relinquished By			3. Received By		

Comments

UPS

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

APPENDIX SECTION 7

Trace Gas Analysis Study
Sulfur Analysis

Quanterra Incorporated
18501 East Gale Avenue #130
City of Industry, California 91748

818 965-1006 Telephone
818 965-1003 Fax

Quanterra
Environmental Services

November 21, 1997

WASTE ENERGY TECHNOLOGY
11 Tupelo Ave. SE
Fort Walton Beach, FL 32548
ATTN: Mr. Scott Fowler

ANALYSIS NO.: 129198-0001/0004-SA
ANALYSIS: Method EPA 15/16
(Sulfur Compounds)
DATE SAMPLED: 11/05/97
DATE SAMPLES REC'D: 11/06/97

PROJECT: SWA

Enclosed with this letter is the report on the chemical and physical analyses for the samples from ANALYSIS NO.: 129198-0001/0004-SA as shown above.

The samples were received by Quanterra Incorporated, City of Industry, intact and with the chain-of-custody record attached.

Please note that ND means not detected at the reporting limits expressed.

The preliminary results were faxed to Mr. Scott Fowler on November 13, 1997.

Maria O. Jones
Project Manager

11/21/97
Date Approved

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
Waste Energy Technology

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
129198-0001-SA	F/S-CLASS I (SWA IA)	AIR	05 NOV 97	11:00	06 NOV 97
129198-0002-SA	F/S-CLASS I (SWA IB)	AIR	05 NOV 97	11:00	06 NOV 97
129198-0003-SA	F/S-CLASS III (SWA IIIA)	AIR	05 NOV 97	11:00	06 NOV 97
129198-0004-SA	F/S-CLASS III (SWA IIIB)	AIR	05 NOV 97	11:00	06 NOV 97

Quanterra
Environmental Services

EPA 15/16-Sulfur Compounds
Method EPA 15/16

Client Name: Waste Energy Technology
Client ID: F/S-CLASS I (SWA IA)
LAB ID: 129198-0001-SA
Matrix: AIR Sampled: 05 NOV 97 Received: 06 NOV 97
Authorized: 06 NOV 97 Prepared: N/A Analyzed: 06 NOV 97
Instrument: GC-4 Dilution: 10

Parameter	Result	Qualifier	RL	Units
Hydrogen sulfide	20		2.0	ppm (v/v)
Carbonyl sulfide	ND		2.0	ppm (v/v)
Methyl mercaptan	7.5		2.0	ppm (v/v)
Carbon disulfide	ND		2.0	ppm (v/v)
Ethyl mercaptan	ND		2.0	ppm (v/v)
Dimethylsulfide	11		2.0	ppm (v/v)
Dimethyldisulfide	ND		2.0	ppm (v/v)

ND = Not Detected

Quanterra
Environmental Services

EPA 15/16-Sulfur Compounds
Method EPA 15/16

Client Name: Waste Energy Technology
Client ID: F/S-CLASS I (SWA IB)
LAB ID: 129198-0002-SA
Matrix: AIR | Sampled: 05 NOV 97 | Received: 06 NOV 97
Authorized: 06 NOV 97 | Prepared: N/A | Analyzed: 06 NOV 97
Instrument: GC-4 | Dilution: 10

Parameter	Result	Qualifier	RL	Units
Hydrogen sulfide	17		2.0	ppm (v/v)
Carbonyl sulfide	ND		2.0	ppm (v/v)
Methyl mercaptan	7.6		2.0	ppm (v/v)
Carbon disulfide	ND		2.0	ppm (v/v)
Ethyl mercaptan	ND		2.0	ppm (v/v)
Dimethylsulfide	11		2.0	ppm (v/v)
Dimethyldisulfide	ND		2.0	ppm (v/v)

ND = Not Detected

Quanterra
Environmental Services

EPA 15/16-Sulfur Compounds
Method EPA 15/16

Client Name:	Waste Energy Technology		
Client ID:	F/S-CLASS III (SWA IIIA)		
LAB ID:	129198-0003-SA		
Matrix:	AIR	Sampled: 05 NOV 97	Received: 06 NOV 97
Authorized:	06 NOV 97	Prepared: N/A	Analyzed: 06 NOV 97
Instrument:	GC-4	Dilution: 10	

Parameter	Result	Qualifier	RL	Units
Hydrogen sulfide	300	D	40	ppm (v/v)
Carbonyl sulfide	ND		2.0	ppm (v/v)
Methyl mercaptan	ND		2.0	ppm (v/v)
Carbon disulfide	ND		2.0	ppm (v/v)
Ethyl mercaptan	ND		2.0	ppm (v/v)
Dimethylsulfide	ND		2.0	ppm (v/v)
Dimethyldisulfide	ND		2.0	ppm (v/v)

D = Compound quantitated using a secondary dilution.
ND = Not Detected

Quanterra
Environmental Services

EPA 15/16-Sulfur Compounds
Method EPA 15/16

Client Name: Waste Energy Technology
Client ID: F/S-CLASS III (SWA IIIB)
LAB ID: 129198-0004-SA
Matrix: AIR Sampled: 05 NOV 97 Received: 06 NOV 97
Authorized: 06 NOV 97 Prepared: N/A Analyzed: 06 NOV 97
Instrument: GC-4 Dilution: 200

Parameter	Result	Qualifier	RL	Units
Hydrogen sulfide	280		40	ppm (v/v)
Carbonyl sulfide	ND		40	ppm (v/v)
Methyl mercaptan	ND		40	ppm (v/v)
Carbon disulfide	ND		40	ppm (v/v)
Ethyl mercaptan	ND		40	ppm (v/v)
Dimethylsulfide	ND		40	ppm (v/v)
Dimethyldisulfide	ND		40	ppm (v/v)

ND = Not Detected

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT - MS QC
Air Toxics

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
129198-0001-SA	AIR	EPA-15-16	06 NOV 97-A4	06 NOV 97-A4	
129198-0002-SA	AIR	EPA-15-16	06 NOV 97-A4	06 NOV 97-A4	
129198-0003-SA	AIR	EPA-15-16	06 NOV 97-A4	06 NOV 97-A4	
129198-0004-SA	AIR	EPA-15-16	06 NOV 97-A4	06 NOV 97-A4	

Quanterra
Environmental Services

UPLICATE CONTROL SAMPLE REPORT
ir Toxics
Project: 129198

Category: EPA-15-16 EPA Method 15-16
Matrix: AIR
QC Lot: 06 NOV 97-A4 Date Analyzed: 06 NOV 97
Concentration Units: ppm (v/v)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	RPD	Acceptance Limits Recov.	Acceptance Limits RPD
Hydrogen sulfide	0.950	1.21	1.14	128	120	5.9	60-160	25
Carbonyl sulfide	0.950	1.43	1.48	151	156	3.0	80-160	25
Methyl mercaptan	0.950	1.45	1.27	152	133	13	80-160	25
Carbon disulfide	0.950	1.12	1.14	118	120	1.1	80-120	25

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT
Air Toxics
Project: 129198

Test: EPA-15-16-G Method EPA 15/16 - Sulfur Compounds
Matrix: AIR
QC Run: 06 NOV 97-A4

Date Analyzed: 06 NOV 97

Analyte	Result	Units	Reporting Limit
Hydrogen sulfide	ND	ppm (v/v)	0.20
Carbonyl sulfide	ND	ppm (v/v)	0.20
Methyl mercaptan	ND	ppm (v/v)	0.20
Carbon disulfide	ND	ppm (v/v)	0.20
Ethyl mercaptan	ND	ppm (v/v)	0.20
Dimethylsulfide	ND	ppm (v/v)	0.20
Dimethyldisulfide	ND	ppm (v/v)	0.20

ND = Not Detected

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client	Project Manager	Date	Chain Of Custody Number
Waste Energy Tech	Scott Fowler	11/5/97	75057
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page**
11 Tupelo Ave S.E	850-243-0033	129198	1 of 1
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
FT Walton Bch / FL / 32548	S Fowler	Maria Jones	
Project Name	**Carrier/Waybill Number**		
SWA			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH		Analysis (Attach list if more space is needed): EPA 15/16	Special Instructions/ Conditions of Receipt
F/S - Class I (SWA IA)	11/5/97	11^00												✓	Sulfur Content
F/S - Class I (SWA IB)	11/5/97	11^00												✓	
F/S - Class III (SWA IIIA)	11/5/97	11^00												✓	" "
F/S - Class III (SWA IIIB)	11/5/97	11^00												✓	

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	J Stowers					
2.					11/6/97	0930
3.						

Comments

(Fed-Ex)

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

APPENDIX SECTION 8

Smoke Emissions Test Report (SFES)

South Florida
Environmental Services

SMOKE EMISSIONS TEST REPORT

PREPARED FOR:
Waste Energy Technology, Inc.
11 Tupelo Avenue, SE
Fort Walton Beach, FL 32548-5414

CONCERNING:
Smoke Emissions Test Program
Landfill Gas Recovery System
Solid Waste Authority of West Palm Beach
7501 Jog Road
West Palm Beach, FL
November 5, 1997

PREPARED BY:
Tom Siegert
Environmental Scientist
South Florida Environmental Services
6821 Vista Parkway North
West Palm Beach, Florida 33411

COMPENDIUM:

On November 5, 1997, South Florida Environmental Services performed Compliance Testing for Smoke Emissions for Solid Waste Authority of West Palm Beach, Florida. Testing was conducted on behalf of Waste Energy Technology, Inc. on the two Landfill Gas Flares which service the facility.

All testing and data reduction was conducted in accordance with EPA Method 22 as found in 40 CFR 60 Appendix A, as amended.

The two flares were responsible for gas combustion from class I and III landfills. For this facility, no smoke emissions were observed for either flare throughout the observation period.

Tom Siegert of South Florida Environmental Services was the smoke emissions evaluator during the observation period. Tom is a certified visible emission evaluator for Method 9 which meets and exceeds all requirements for Method 22. Ms. Terri Hilliard of the Florida Department of Environmental Protection in West Palm Beach observed the testing.

South Florida Environmental Services

Waste Energy Technology, Inc.
Solid Waste Authority of West Palm Beach
Landfill Gas Flare

SMOKE EMISSIONS TEST PROGRAM

Field Data Sheets

SFES # 97-576
November 5, 1997

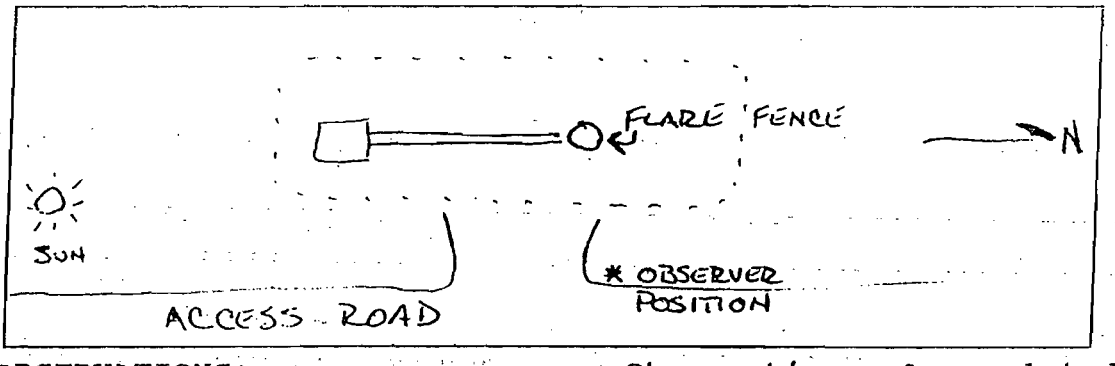
South Florida Environmental Services

South Florida Environmental Services

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Company SOLID WASTE AUTHORITY	Observer TOM SIEGERT
Location WEST PALM BEACH	Affiliation SFES
Representative	Date 11.5.97
Sky Conditions CLOUDY	Wind Direction E
Precipitation NONE	Wind Speed 0-5
Industry WASTE MANAGEMENT	Process Unit FLARE (CLASS I)

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	Clock Time	Observation period duration	Accumulated emission time
Begin Observation	8:15-8:35	20 MIN	0 MIN
	8:40-9:00	20 MIN	0 MIN
	9:05-9:25	20 MIN	0 MIN
	9:30-9:50	20 MIN	0 MIN
	9:55-10:15	20 MIN	0 MIN
	10:20-10:40	20 MIN	0 MIN
End Observation			

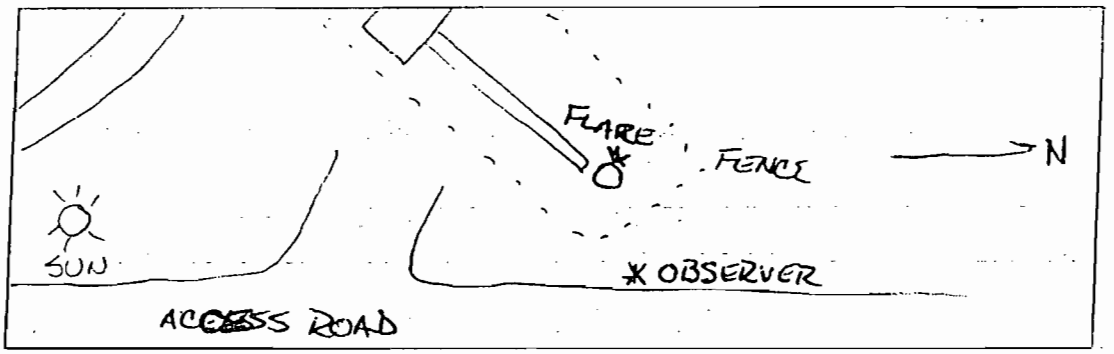
6821 Vista Parkway North, West Palm Beach, FL 33411
Tel: 407-687-5300 Fax: 407-687-3676

South Florida Environmental Services

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Company SOLID WASTE AUTH. Location WEST PALM BEACH Representative	Observer TOM SIEGERT Affiliation SEES Date 11-5-97
Sky Conditions CLOUDY Precipitation NONE	Wind Direction — Wind Speed —
Industry WASTE MANAGEMENT	Process Unit FLARE (CLASS III)

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS

	Clock Time	Observation period duration	Accumulated emission time
Begin Observation	10:55-11:15	20 MIN	0 MIN
	11:20-11:40	20 MIN	0 MIN
	11:45-12:05	20 MIN	0 MIN
	12:10-12:30	20 MIN	0 MIN
	12:35-12:55	20 MIN	0 MIN
	13:00-13:20	20 MIN	0 MIN
End Observation			

6321 Vista Parkway North, West Palm Beach, FL 33411
Tel: 407-687-5300 Fax: 407-687-3676

Waste Energy Technology, Inc.
Solid Waste Authority of West Palm Beach
Landfill Gas Flare

SMOKE EMISSIONS TEST REPORT

Certification

SFES # 97-576
November 5, 1997

South Florida Environmental Services

VISIBLE EMISSIONS EVALUATOR

This is to certify that

Tom Siegert

met the specifications of Federal Reference Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.

President

259749
Certificate Number

Vice President

West Palm Beach, Florida
Location

David B. Savage, Jr.
Program Manager

July 16, 1997
Date of Issue

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT MODIFICATION

In the Matter of an
Application for Permit Modification

Solid Waste Authority of Palm Beach County
North County Regional Resource Facility
7501 North Jog Road
West Palm Beach, Florida 33412

DEP File No. PSD-FL-108C
Palm Beach County

Enclosed is the Final Prevention of Significant Deterioration Permit Modification Number PSD-FL-108C allowing stack sampling on a five year basis instead of annual testing of emissions of beryllium and fluoride emitted form the Solid Waste Authority of Palm Beach County North County Resource Recovery Facility located at 7501 North Jog Road, West Palm Beach. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

C.H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT MODIFICATION (including the FINAL permit Modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 8-14-97 to the person(s) listed:

Mr. M. Bruner, SWA North County RRF *
Mr. B. Beals, EPA
Mr. J. Bunyak, NPS
Mr. D. Dee, Esquire
Mr. H. Oven, PPS
Mr. I. Goldman, SED
Mr. J. Koerner, PBCPHU

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 8-14-97
(Date)

FINAL DETERMINATION

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
NORTH COUNTY RESOURCE RECOVERY FACILITY
PERMIT PSD-FL-108C
Palm Beach County

An Intent to Issue a PSD permit modification to the Solid Waste Authority of Palm Beach County (SWA), for the North County Resource Recovery Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County, was distributed on June 13, 1997. The permit is to allow testing for beryllium and fluoride every five years instead of annually. The reason is that test results typically indicated emissions of these pollutants to be an order of magnitude lower than permitted or below the limits of detectability.

The Public Notice of Intent to Issue Air Construction Permit Modification was published in the Palm Beach Post on June 27, 1997. No comments were submitted during the Public Notice period.

The final action of the Department will be to issue the permit modification as drafted.

P 265 659 436

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Donald Lockhart	
Street & Number 3 W A	
Post Office, State, & ZIP Code WPB, FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 8-14-97 PSD-FT-1668C	

PS Form **3800**, April 1995

Fold at line over top of envelope to the right of the return address

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Donald Lockhart, Ex. Dir.
Solid Waste Authority of P. Bch
7501 N. Jog Road
West Palm Beach, FL
33412

4a. Article Number P 265 659 436

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 8/18/97

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

August 14, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Donald Lockhart, Executive Director
Solid Waste Authority of Palm Beach
7501 North Jog Road
West Palm Beach, Florida 33412

Re: Permit Modification No. PSD-FL-108C
Solid Waste Authority of Palm Beach County
North County Regional Resource Facility

Dear Mr. Lockhart:

The Department has reviewed your request on behalf of the Solid Waste Authority of Palm Beach County ("Authority") to conduct stack tests for beryllium and fluoride every five years instead of annually at the three units located at the North County Resource Recovery Facility. The information provided showed emissions were either an order of magnitude below the permit emission limits or were below detection limits (annual emission test reports for the period of 1989-1996). Therefore, the referenced PSD permit is hereby modified as follows:

SPECIFIC CONDITION No. 4

Each unit shall be tested within 180 days of issuance of this permit, and annually thereafter, except for beryllium and fluoride (every five years), to demonstrate compliance with emission standards mentioned in specific condition No. 3, using the following EPA test methods contained in 40 CFR 60, Appendix A, and in accordance with Rules 62-204.800 and 62-297.401, F.A.C. ~~Section 17-2.700~~.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Sincerely,

Howard L. Rhodes, Director
Division of Air Resources
Management

HLR/th

Memorandum

Florida Department of Environmental Protection

TO: Howard L. Rhodes

THROUGH: Clair Fancy CAF
Al Linero aal 8/14

FROM: Teresa Heron

DATE: August 14, 1997

SUBJECT: Solid Waste Authority of Palm Beach County
Amendment to PSD Permit (PSD-FL-108C)
Beryllium and Fluoride Testing for MWC

Attached is a PSD permit modification for the above mentioned facility to allow the stack sampling of the emissions of beryllium and fluoride on a five years basis instead of an annual basis. Stack tests conducted over the last 10 years have consistently indicated that emissions of these pollutants are at least an order of magnitude below the permit limits or below the detection limit for the DEP approved methods.

The units have acid gas control by a spray dryer absorber which is followed by an ESP. This along with historical test results, provides reasonable assurance that emissions of fluorides and beryllium will continue to be minimal. Note also that the units burn refuse derived fuel instead of straight municipal solid waste. This is a less difficult stream to process and control.

I recommend your approval.

HLR/th/t

14

THE PALM BEACH POST

Published Daily and Sunday
West Palm Beach, Palm Beach County, Florida

RECEIVED
JUL 28 1997
DEPT OF ENV PROTECTION
WEST PALM BEACH

PROOF OF PUBLICATION

STATE OF FLORIDA
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared **Chris Bull** who on oath says that she is **Classified Advertising Manager** of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being a **Notice** in the matter of **Permit Modification** in the - - - Court, was published in said newspaper in the issues of **June 27, 1997**.

Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that t the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Chris Bull

Sworn to and subscribed before me this 30 day of June A.D. 1997

Karen McLinton

Personally known XX or Produced Identification _____
Type of Identification Produced _____

Karen McLinton
Notary Public, State of Florida
Commission No. CC 591337
My Commission Exp. 11/15/2000
1-800-3-NOTARY Fla. Notary Service & Bonding Co.

RECEIVED
JUL 28 1997
DEPT OF ENV PROTECTION
WEST PALM BEACH

RECEIVED
AUG 08 1997
BUREAU OF
AIR REGULATION

NO. 313098

PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Modification No.: PSD-FL-108C
Solid Waste Authority of Palm Beach County
North County Regional Resource Facility
Palm Beach, Florida

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit modification to the Solid Waste Authority of Palm Beach County (SWA), for the North County Regional Resource Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C., and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Marc Bruner, Director of Planning, Solid Waste Authority of Palm Beach County, West Palm Beach, Palm Beach County, Florida 33412. The applicant, SWA, applied on May 29, 1997, to the Department for a permit modification to allow stack sampling of the emissions of Beryllium and Fluoride on a five years basis instead of the permitted annual basis for the refuse-derived fuel boilers at its North County Regional Resource facility. Stack tests conducted over the last 10 years have consistently indicated that emissions of these pollutants are at least an order of magnitude below the permit limits or below the detection limits for the Department approved test methods. The present emissions control equipment consisting of a spray dryer absorber with an electrostatic precipitator provides reasonable assurance that these emissions of these two pollutants will be minimized. Control of and annual or continuous monitoring of other key pollutants such as mercury, particulate matter, sulfur dioxide, dioxins, etc. provide good surrogates indicative of the control of beryllium and fluorides. The change in the testing frequency will result in savings to the SWA and no impacts on air emissions or air quality. The Department will issue the FINAL Permit Modification, in accordance with the conditions of the DRAFT Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice. The Department will issue FINAL Permit Modification with the conditions of The DRAFT Permit Modification unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. or a party requests mediation as an alternative remedy under Section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation. A person whose substantial interests are affected by the Department's proposed permitting

decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9370, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of motion in compliance with Rule 28-5.207 of the Florida Administrative Code. A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the Department's action or propsed action addressed in this notice of intent. Because the administrative hearing process is to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. A person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition. A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed and incorporating it by reference. The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives. As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes. A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 904/488-1344
Fax: 904/922-6979

Division of Env. Science & Engineering
Palm Beach County Health Unit
901 Evernia
West Palm Beach, Florida 33402-0029
Telephone: 561/355-3070
Fax: 561/355-2442

Department of Environmental Protection
Southeast District
400 South Congress Avenue, Suite A
West Palm Beach, Florida 33401
Telephone: (561) 681-6600
Fax: (561) 681-6755

The complete project file includes the Draft Permit Modification, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111 F.S. Interested persons may contact the Administrator, New Source Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 904/488-1344, for additional information.

/s/ Sandra J. Bourhan
Clerk to the Authority
PUBLISHED: June 27, 1997
Palm Beach Post

From -
Andrew Neita
Air/SED

Arlene Sword
~~Pls forward to whomever~~
you asked for it.
IG
Thanks!
Laurie
640-4000 + 4600
Solid Waste Authority

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 16, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mark Bruner
Director of Planning
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Re DRAFT Permit Modification No. PSD-FL-108C
North County Regional Resource Facility

Dear Mr. Brunner:

Enclosed is one copy of the Draft Permit Modification for the North County Regional Resource Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County. The Department's Intent to Issue Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Teresa Heron or Mr. Linero at 904/488-1344.

Sincerely,

C. H. Fancy, P.E., Chief,
Bureau of Air Regulation

CHF/th

Enclosures

P 265 659 225

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Mark Brunner.	
Street & Number Solid Waste Authority	
Post Office, State, & ZIP Code of PBC.	
Postage W. Palm.	$ Bch, Fl
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 6-13-97 PSD-FL-108C	

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mark Brunner, Dir. of Plan.
Solid Waste Authority of PBC
7501 N. 45th Road
West Palm Bch, Fl
33412

4a. Article Number P 265 659 225

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 6-16

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Modification No.: PSD-FL-108C
Solid Waste Authority of Palm Beach County
North County Regional Resource Facility
Palm Beach, Florida

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit modification to the Solid Waste Authority of Palm Beach County (SWA), for the North County Regional Resource Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C., and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Marc Bruner, Director of Planning, Solid Waste Authority of Palm Beach County, West Palm Beach, Palm Beach County, Florida 33412..

The applicant, SWA, applied on May 29,1997, to the Department for a permit modification to allow stack sampling of the emissions of Beryllium and Fluoride on a five years basis instead of the permitted annual basis for the refuse-derived fuel boilers at its North County Regional Resource facility. Stack tests conducted over the last 10 years have consistently indicated that emissions of these pollutants are at least an order of magnitude below the permit limits or below the detection limits for the Department approved test methods. The present emissions control equipment consisting of a spray dryer absorber with an electrostatic precipitator provides reasonable assurance that these emissions of these two pollutants will be minimized. Control of and annual or continuous monitoring of other key pollutants such as mercury, particulate matter, sulfur dioxide, dioxins, etc. provide good surrogates indicative of the control of beryllium and fluorides. The change in the testing frequency will result in savings to the SWA and no impacts on air emissions or air quality.

The Department will issue the FINAL Permit Modification, in accordance with the conditions of the DRAFT Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice.

The Department will issue FINAL Permit Modification with the conditions of the DRAFT Permit Modification unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. or a party requests mediation as an alternative remedy under Section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9370, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by

petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the Department's action or proposed action addressed in this notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives.

As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: 904/488-1344
Fax: 904/922-6979

Division of Env. Science & Engineering
Palm Beach County Health Unit
901 Evernia
West Palm Beach, Florida 33402-0029
Telephone: 407/355-3070
Fax: 407/355-2442

Department of Environmental Protection
Southeast District
400 South Congress Avenue, Suite A
West Palm Beach, Florida 33401
Telephone:(407) 681-6600
Fax: :(407) 681-6755

The complete project file includes the Draft Permit Modification, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 904/488-1344, for additional information.

Insert IP

Mediation is not available for this action.

In the Matter of an
Application for Permit Modification by:

Mr. Marc Bruner
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

DRAFT Permit Modification No. PSD-FL-108C
North County Regional Resource Facility
RDF Boilers 1 and 2
Palm Beach County

INTENT TO ISSUE PERMIT MODIFICATION

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit modification (copy of DRAFT Permit modification attached) for the proposed project, as detailed in the application specified above, for the reasons stated below.

The applicant, Solid Waste Authority of Palm Beach County, applied on May 29,1997, to the Department for a permit modification to allow stack sampling of the emissions of Beryllium and Fluoride every five years instead of an annual basis for its North County Regional Resource Facility located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that a permit modification is required to change the testing requirements as requested.

The Department intends to issue this Permit modification based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION". The notice shall be published one time only within 30 (thirty) days in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 904/488-1344; Fax 904/ 922-6979) within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit modification pursuant to Rule 62-103.150 (6), F.A.C.

The Department will issue the FINAL Permit Modification, in accordance with the conditions of the enclosed DRAFT Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE PERMIT MODIFICATION." Written comments should be provided to the Department's Bureau of

Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., or a party requests mediation as an alternative remedy under Section 120.573 F.S. before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9730, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the action or proposed action addressed in this notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives.

As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE PERMIT MODIFICATION (including the PUBLIC NOTICE, and DRAFT permit modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6-13-97 to the person(s) listed:

Mr. Marc Bruner, SWA North County Resource Recovery Facility
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. David S. Dee, Esquire
Mr. H. Oven, PPS
Ms. I. Goldman, SED
Mr. J. Koerner, PBCHU

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 6-13-97 (Date)

DRAFT

July XX, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Donald Lockhart, Executive Director
Solid Waste Authority of Palm Beach
7501 North Jog Road
West Palm Beach, Florida 33412

Re: DRAFT Permit Modification No. PSD-FL-108C
Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility

Dear Mr. Lockhart:

The Department has reviewed your amendment request on behalf of the Solid Waste Authority of Palm Beach County for the approval of stack tests for Beryllium and Fluoride every five years instead of the permitted requirement of an annual basis for the two refuse-derived fuel boilers at the North County Resource Recovery facility. Based on the information provided, the test results showed emissions were either an order of magnitude below the permitted emission limits or were below detectable limits (annual emission test reports for the period of 1989-1996). Therefore, the above mentioned permit is hereby modified as follows:

SPECIFIC CONDITION NO. 4

FROM:

Each unit shall be tested within 180 days of issuance of this permit, and annually thereafter, to demonstrate compliance with emission standards mentioned in specific condition No. 3, using the following EPA test methods contained in 40 CFR 60, Appendix A, and in accordance with F.A.C. Section 17-2.700.

TO:

Each unit shall be tested within 180 days of issuance of this permit, and annually thereafter, **except for Beryllium and Fluoride (every five years),** to demonstrate compliance with emission standards mentioned in specific condition No. 3, using the following EPA test methods contained in 40 CFR 60, Appendix A, and in accordance with **Chapter 62-297, F.A.C.**

DRAFT

A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Sincerely,

Howard L. Rhodes, Director
Division of Air Resources
Management

Mr. Marc Bruner, SWA
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS[
Mr. David S. Dee, Esq., L&P
Mr. H. Oven, DEP
Mr. I. Goldman, SED
Mr. J. Koerner, PBCPHU

HLR/th

Enclosures

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy

THROUGH: Al Linero 6/13

FROM: Teresa Heron

DATE: June 13, 1997

SUBJECT: Solid Waste Authority of Palm Beach County
Amendment to PSD Permit (PSD-FL-108C)
Beryllium and Fluoride Testing for MWC

Attached is a PSD permit modification for the above mentioned facility to allow the stack sampling of the emissions of beryllium and fluoride on a five years basis instead of an annual basis. Stack tests conducted over the last 10 years have consistently indicated that emissions of these pollutants are at least an order of magnitude below the permit limits or below the detection limit for the DEP approved methods.

The units have acid gas control by a spray dryer absorber which is followed by an ESP. This along with historical test results, provides reasonable assurance that emissions of fluorides and beryllium will continue to be minimal. Note also that the units burn refuse derived fuel instead of straight municipal solid waste. This is a less difficult stream to process and control.

I recommend your approval.

AL

SWA
SOLID WASTE AUTHORITY

YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

July 7, 1997

Mr. Clair Fancy
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32399

RE: Solid Waste Authority of Palm Beach County;
Amendment to PSD Permit (PSD-FL-108A)
May 29, 1997 Letter from David S. Dee of Landers & Parsons, P.A.

Dear Mr. Fancy:

Please be advised that I have reviewed the above referenced letter relating to the proposed Amendment and concur with its content and conclusions. The stack test data submitted with the letter is accurate and representative of the conditions observed over the timeframes indicated.

Should you have any questions, please let me know.

Sincerely,

John D. Booth, P.E. 49763
Director of Engineering & Public Works

JDB/kal

cc: David S. Dee
Hamilton S. Oven, Jr.
Marc C. Bruner
Al Linero

cc: J. Heron, BAR
D. Goldman, SEP
J. Koerner, P.B.Co.

7501 North Jog Road, West Palm Beach, Florida 33412 (561) 640-4000 FAX 683-4067

97-A02
Variance

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

May 30, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David S. Dee, Esq.
Landers and Parsons, P.A.
310 West College Avenue
Tallahassee, Florida 32301

Re: Solid Waste Authority
Palm Beach County

Dear Mr. Dee:

The Bureau of Air Regulation received your May 29, 1997, request for the above referenced project. Rule 62-4.050(4)(p)4, F.A.C., requires a $2,000 processing fee for a variance request; therefore, we will not be able to take action on your request until the fee is received.

Since a modification fee was paid for the Power Plant Siting review, no additional processing fee is required for the PSD modification. The $250 amendment fee submitted by Palm Beach County can be applied to the variance processing fee. If you have any questions, please call me at (904)488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/kt

cc: Teresa Heron, BAR

P 339 251 194

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to David Dee	
Street & Number Landers & Parsons	
Post Office, State, & ZIP Code 1000 FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date PSD-FL-108A JWA	

PS Form **3800**, April 1995

Fold at line over top of envelope to the right of the return address

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
David Dee, Esq.
Landers & Parsons
310 W. College Avenue
Tallahassee, FL
32301

4a. Article Number P 339 251 194

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 6-2-97

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X Gayle Andrews

PS Form **3811**, December 1994 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

LANDERS & PARSONS, P.A.
ATTORNEYS AT LAW

CINDY L. BARTIN
DAVID S. DEE
JOSEPH W. LANDERS, JR.
JOHN T. LaVIA, III
FRED A. McCORMACK
PHILIP S. PARSONS
ROBERT SCHEFFEL WRIGHT

HOWELL L. FERGUSON
OF COUNSEL

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

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

May 29, 1997

Mr. Clair Fancy
Bureau of Air Regulation
Department of Environmental
Protection
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32399

Re: Solid Waste Authority of Palm Beach County;
Amendment to PSD Permit (PSD-FL-108A)

Dear Mr. Fancy:

This law firm has been retained by the Solid Waste Authority of Palm Beach County ("Authority") to assist the Authority with certain environmental law issues affecting the Authority's North County Resource Recovery Facility ("Facility"). On behalf of the Authority, we are submitting this letter to the Florida Department of Environmental Protection ("DEP") to formally request an amendment to the Facility's Prevention of Significant Deterioration ("PSD") permit. Specifically, the Authority respectfully requests DEP to amend Specific Condition No. 4 of the Facility's PSD permit to require stack testing for Beryllium and Fluoride every five years, rather than every year.

Please note that the Authority is not requesting any change to any emissions limit or other substantive requirement in the PSD permit for the Facility. Consequently, there will be no adverse environmental impact if this request for a permit amendment is granted.

The following portions of this letter explain why the Authority believes this request for a permit amendment should be granted.

The PSD Permit

The Facility's PSD permit (DEP Permit No. PSD-FL-108A) establishes emissions limits for Beryllium (Be), Fluoride (F), and a variety of other substances. See Specific Condition No. 3. Specific Condition No. 4 of the PSD permit requires the Authority to conduct annual stack tests to demonstrate compliance with each of the emissions limits, including the emissions limits for Beryllium and Fluoride.

The Stack Test Data

In accordance with the PSD permit requirements, the Authority has conducted stack testing since the Facility commenced operations in 1989. The test results demonstrate that the Facility's emissions are well below the DEP emissions limits for Beryllium and Fluoride. For your reference, a summary of the emissions test data is attached to this letter as Exhibit "A".

Exhibit "A" shows that the Authority has conducted 42 test runs since 1989 to measure the Facility's emissions of Beryllium. In all of the test runs, the Facility's Beryllium emissions were below the emission limit in the Facility's PSD permit. In 29 of the test runs, the Facility's Beryllium emissions were more than an order of magnitude below the permit limits. In 6 test runs, the Beryllium emissions were below the detection limit for the DEP approved test method.

Exhibit "A" also shows that Fluoride emissions have been measured in 42 test runs conducted since 1989. In all of the test runs, the Fluoride emissions were well below the PSD permit limits. In 27 of the test runs, the Facility's Fluoride emissions were more than an order of magnitude below the permit limits. In all of the test runs conducted in 1995, the Facility's Fluoride emissions were below the detection limit.

Rationale for Reduced Testing

The test data in Exhibit "A" clearly demonstrate that the Facility is consistently complying with the PSD permit limits for Beryllium and Fluoride. Given this test data, the Authority believes it is not necessary to continue to perform annual stack tests to measure the Facility's Beryllium and Fluoride emissions. Testing on a less frequent basis (e.g., once every five years) should be adequate to provide the DEP with reasonable assurance that the PSD permit limits are being met.

The Authority's proposal to test once every five years is consistent with, and more stringent than, the new requirements promulgated by the U.S. Environmental Protection Agency ("EPA") for municipal waste combustors ("MWC"). EPA's 1995 Emission Guidelines and New Source Performance Standards for MWCs do not contain emission limits or stack testing requirements for Beryllium or Fluoride. See 40 CFR 60, Subpart Cb and Subpart Eb, respectively. Instead, EPA's MWC regulations establish emissions limits and stack test requirements for "MWC metals", "MWC acid gases", "MWC organics", and nitrogen oxides. These parameters serve as surrogates for other substances, such as Beryllium and Fluoride.

When adopting these new MWC regulations, EPA recognized that it is not necessary to perform stack tests for every pollutant that might be emitted from an MWC facility. If an MWC facility controls its emissions of MWC metals, MWC acid gases, and MWC organics in compliance with EPA's MWC regulations, the facility's emissions of other metals (e.g., Beryllium) and acid gases (e.g., Fluoride) will be minimized, too. EPA's MWC regulations require the use of continuous emissions monitors for opacity and sulfur dioxide, which help to ensure continuous compliance with the emissions limits for MWC metals and MWC acid gases.

The regulatory scheme set forth in EPA's MWC regulations reflects a balance between (a) the need for compliance monitoring data and (b) the cost of compliance testing. EPA's MWC regulations also reflect years of work and analysis by EPA concerning MWC facilities, MWC emissions, and the best method of regulating MWC emissions. Since DEP has adopted EPA's MWC regulations by reference in Rule 62-204.800(7)(b)7, F.A.C., the Authority believes DEP should adopt EPA's approach to monitoring MWC emissions. Specifically, DEP should recognize that it is not necessary or cost-effective to conduct annual stack tests to measure the Beryllium and Fluoride emissions from an MWC facility.

The Authority would like to reduce the frequency of the stack tests for Beryllium and Fluoride and thereby reduce the amount of time, energy and money that the Authority must spend on stack tests. The Authority's expenses are paid by the citizens of Palm Beach County. Consequently, a reduction in the Authority's expenses for stack testing would benefit the Authority and the public.

Conclusion

For all of the reasons set forth above, the Authority respectfully requests the Department to amend the Facility's PSD permit. As amended, the PSD permit should require the Authority to perform stack testing for Beryllium and Fluoride every five years, rather than every year.

Enclosed with this letter is the Authority's check (No. 106157) to the Department in the amount of $250 for the cost of processing the Authority's request for a permit amendment.

If you have any questions about this request, please call me at (904) 681-0311 or Mr. Marc Bruner at (561) 640-4000. Mr. Bruner is the Director of Planning and Environmental Programs for the Authority.

Thank you for your assistance and cooperation with this matter.

Sincerely,

David S. Dee

cc: Marc Bruner
Don Lockhart
Lee Rosenthal
Mark Hammond
Al Linero

/SWAPBC1

CC: EPA
NPS
Palm Bch Co.
SE District
T. Heron, BAR

SWA North County Resource Recovery Facility (NCRRF)
Annual Emission Test Report (Be & HF)
1989-1997

Table 1.0 Emission Rate Summary of Beryllium (lb/MMBtu)

	Unit 1				Unit 2				
Run Date	Run 1	Run 2	Run 3	**Average**	Run 1	Run 2	Run 3	**Average**	Permit limit
Oct-89	<2.00E-07	<1.90E-07	<1.97E-07	**<1.96E-07**	<2.18E-07	<2.10E-07	<2.03E-07	**<2.10E-07**	7.30E-07
Mar-92*	<3.91E-07	<4.18E-07	<4.07E-07	**<4.05E-07**	<4.03E-07	<4.13E-07	<4.21E-07	**<4.12E-07**	7.30E-07
Aug & Sep-92	<8.62E-09	<1.19E-08	<1.25E-08	**<1.10E-08**	<1.28E-08	<1.31E-08	<1.36E-08	**<1.32E-08**	7.30E-07
Oct-93	<1.06E-08	<1.03E-08	<1.17E-08	**<1.09E-08**	<9.26E-09	<1.07E-08	<1.07E-08	**<1.02E-08**	7.30E-07
Oct-94	<1.10E-08	<1.06E-08	<1.11E-08	**<1.09E-08**	<1.20E-08	<1.14E-08	<1.05E-08	**<1.13E-08**	7.30E-07
Oct & Nov-95	ND(1.08E-08)	ND(1.12E-08)	ND(1.06E-08)	**ND(1.09E-08)**	ND(9.35E-09)	ND(1.11E-08)	ND(1.25E-08)	**ND(1.10E-08)**	7.30E-07
Dec-96	<1.475E-07	<5.419E-08	<5.134E-08	**<8.43E-08**	<5.258E-08	<5.479E-08	<4.700E-08	**<5.15E-08**	7.30E-07

Table 2.0 Emission Rate Summary of Hydrogen Fluoride (lb/MMBtu)

	Unit 1				Unit 2				
Run Date	Run 1	Run 2	Run 3	**Average**	Run 1	Run 2	Run 3	**Average**	Permit limit
Oct-89	2.72E-04	1.11E-04	9.74E-05	**1.60E-04**	8.15E-05	6.95E-05	6.79E-05	**7.30E-05**	3.20E-03
Mar-92*	<7.44E-05	<6.66E-05	<7.11E-05	**<7.07E-05**	<5.60E-05	<6.73E-05	<7.82E-05	**<6.71E-05**	3.20E-03
Sep-92	<3.16E-04	<3.01E-04	<3.12E-04	**<3.10E-04**	<3.26E-04	<3.30E-04	<3.10E-04	**<3.22E-04**	3.20E-03
Oct-93	<3.71E-04	<3.64E-04	<3.62E-04	**<3.66E-04**	<3.44E-04	<3.48E-04	<3.41E-04	**<3.44E-04**	3.20E-03
Oct-94	<3.12E-04	<4.10E-04	<3.70E-04	**<3.64E-04**	5.37E-04	ND(3.84E-04)	ND(3.64E-04)	**1.79E-04**	3.20E-03
Oct & Nov-95	ND(1.17E-05)	ND(1.73E-05)	ND(1.18E-05)	**ND(1.36E-05)**	ND(1.30E-05)	ND(2.13E-05)	NA	**ND(1.72E-05)**	3.20E-03
Dec-96	<2.0E-04	<2.0E-04	<2.0E-04	<2.0E-04	<3.0E-04	<6.0E-04	<6.0E-04	**<5.0E-04**	3.20E-03

< Indicates the value is below the detection limit

* An Fd factor of 9,538 was used for all lb/MMBtu calculations

ND Not Detected used as zero (0). Detectable limits are presented in parentheses.

NA Not applicable; a third run was not conducted on Unit No. 2

EXHIBIT A

LANDERS & PARSONS, P.A.
ATTORNEYS AT LAW

CINDY L. BARTIN
DAVID S. DEE
JOSEPH W. LANDERS, JR.
JOHN T. LaVIA, III
FRED A. McCORMACK
PHILIP S. PARSONS
ROBERT SCHEFFEL WRIGHT

HOWELL L. FERGUSON
OF COUNSEL

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

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

May 29, 1997

Hamilton S. Oven, Jr.
Power Plant Siting Coordinator
Department of Environmental
Protection
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32399

Re: Solid Waste Authority of Palm Beach County;
Modification to Conditions of Certification (PA 84-20)

Dear Mr. Oven:

This law firm has been retained by the Solid Waste Authority of Palm Beach County ("Authority") to assist the Authority with certain environmental law issues affecting the Authority's North County Resource Recovery Facility ("Facility"). On behalf of the Authority, we are submitting this letter to the Florida Department of Environmental Protection ("DEP") to formally request a modification to the Conditions of Certification that were issued for the Facility pursuant to the Florida Electrical Power Plant Siting Act ("PPSA"). Pursuant to Section 403.516(1)(b), Florida Statutes, and DEP Rule 62-17.211(4), F.A.C., the Authority respectfully requests DEP to modify Specific Condition No. XIV.A.3.c of the Conditions of Certification and thereby require stack testing for Beryllium and Fluoride every five years, rather than every year.

Please note that the Authority is not requesting any change to any emissions limit or other substantive requirement in the Conditions of Certification for the Facility. Consequently, there will be no adverse environmental impact if this request for a modification is granted.

The following portions of this letter explain why the Authority believes this request for a PPSA modification should be granted.

The PPSA Conditions of Certification

The PPSA Conditions of Certification for the Facility (PA 84-20) establish emissions limits for Beryllium (Be), Fluoride (F), and a variety of other substances. Specific Condition No. XIV.A.3.c of the Conditions of Certification requires the Authority to conduct annual stack tests to demonstrate compliance with each of the emissions limits, including the emissions limits for Beryllium and Fluoride.

The Stack Test Data

In accordance with the Conditions of Certification, the Authority has conducted stack testing since the Facility commenced operations in 1989. The test results demonstrate that the Facility's emissions are well below the DEP emissions limits for Beryllium and Fluoride. For your reference, a summary of the emissions test data is attached to this letter as Exhibit "A".

Exhibit "A" shows that the Authority has conducted 42 test runs since 1989 to measure the Facility's emissions of Beryllium. In all of the test runs, the Facility's Beryllium emissions were below the emission limit in the Conditions of Certification. In 29 of the test runs, the Facility's Beryllium emissions were more than an order of magnitude below the PPSA permit limits in the Conditions of Certification. In 6 test runs, the Beryllium emissions were below the detection limit for the DEP approved test method.

Exhibit "A" also shows that Fluoride emissions have been measured in 42 test runs conducted since 1989. In all of the test runs, the Fluoride emissions were well below the permit limits in the Conditions of Certification. In 27 of the test runs, the Facility's Fluoride emissions were more than an order of magnitude below the PPSA permit limits. In all of the test runs conducted in 1995, the Facility's Fluoride emissions were below the detection limit.

Rationale for Reduced Testing

The test data in Exhibit "A" clearly demonstrate that the Facility is consistently complying with the emission limits for Beryllium and Fluoride. Given this test data, the Authority believes it is not necessary to continue to perform annual stack tests to measure the Facility's Beryllium and Fluoride emissions. Testing on a less frequent basis (e.g., once every five years)

should be adequate to provide the DEP with reasonable assurance that the emission limits in the Conditions of Certification are being met.

The Authority's proposal to test once every five years is consistent with, and more stringent than, the new requirements promulgated by the U.S. Environmental Protection Agency ("EPA") for municipal waste combustors ("MWC"). EPA's 1995 Emission Guidelines and New Source Performance Standards for MWCs do not contain emission limits or stack testing requirements for Beryllium or Fluoride. See 40 CFR 60, Subpart Cb and Subpart Eb, respectively. Instead, EPA's MWC regulations establish emissions limits and stack test requirements for "MWC metals", "MWC acid gases", "MWC organics", and nitrogen oxides. These parameters serve as surrogates for other substances, such as Beryllium and Fluoride.

When adopting these new MWC regulations, EPA recognized that it is not necessary to perform stack tests for every pollutant that might be emitted from an MWC facility. If an MWC facility controls its emissions of MWC metals, MWC acid gases, and MWC organics in compliance with EPA's MWC regulations, the facility's emissions of other metals (e.g., Beryllium) and acid gases (e.g., Fluoride) will be minimized, too. EPA's MWC regulations require the use of continuous emissions monitors for opacity and sulfur dioxide, which help to ensure continuous compliance with the emissions limits for MWC metals and MWC acid gases.

The regulatory scheme set forth in EPA's MWC regulations reflects a balance between (a) the need for compliance monitoring data and (b) the cost of compliance testing. EPA's MWC regulations also reflect years of work and analysis by EPA concerning MWC facilities, MWC emissions, and the best method of regulating MWC emissions. Since DEP has adopted EPA's MWC regulations by reference in Rule 62-204.800(7)(b)7, F.A.C., the Authority believes DEP should adopt EPA's approach to monitoring MWC emissions. Specifically, DEP should recognize that it is not necessary or cost-effective to conduct annual stack tests to measure the Beryllium and Fluoride emissions from an MWC facility.

The Authority would like to reduce the frequency of the stack tests for Beryllium and Fluoride and thereby reduce the amount of time, energy and money that the Authority must spend on stack tests. The Authority's expenses are paid by the citizens of Palm Beach County. Consequently, a reduction in the Authority's expenses for stack testing would benefit the Authority and the public.

Conclusion

For all of the reasons set forth above, the Authority respectfully requests the Department to modify the Facility's Conditions of Certification. As modified, the PPSA Conditions of Certification should require the Authority to perform stack tests for Beryllium and Fluoride every five years, rather than every year.

Today we sent copies of this letter by certified mail, return receipt requested, to all of the parties to the Facility's PPSA certification hearing (See Exhibit "B"). Pursuant to Section 403.518(1)(c), Florida Statutes, and DEP Rule 62-17.293, F.A.C., we have enclosed the Authority's check (No. 106158) to the Department in the amount of $10,000, to pay the Department's fee for processing the Authority's request for a PPSA modification. It is our understanding that DEP will return those portions of the processing fee that are not used.

If you have any questions about this request, please call me at (904) 681-0311 or Dr. Marc C. Bruner at (561) 640-4000. Dr. Bruner is the Director of Planning and Environmental Programs for the Authority.

Thank you for your assistance and cooperation with this matter.

Sincerely,

David S. Dee

cc: Marc Bruner
Don Lockhart
Lee Rosenthal
Mark Hammond
Clair Fancy
Al Linero

/SWA-PPSA

SWA North County Resource Recovery Facility (NCRRF)
Annual Emission Test Report (Be & HF)
1989-1997

Table 1.0 Emission Rate Summary of Beryllium (lb/MMBtu)

	Unit 1				Unit 2				
Run Date	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average	Permit limit
Oct-89	<2.00E-07	<1.90E-07	<1.97E-07	**<1.96E-07**	<2.18E-07	<2.10E-07	<2.03E-07	**<2.10E-07**	7.30E-07
Mar-92*	<3.91E-07	<4.18E-07	<4.07E-07	**<4.05E-07**	<4.03E-07	<4.13E-07	<4.21E-07	**<4.12E-07**	7.30E-07
Aug & Sep-92	<8.62E-09	<1.19E-08	<1.25E-08	**<1.10E-08**	<1.28E-08	<1.31E-08	<1.36E-08	**<1.32E-08**	7.30E-07
Oct-93	<1.06E-08	<1.03E-08	<1.17E-08	**<1.09E-08**	<9.26E-09	<1.07E-08	<1.07E-08	**<1.02E-08**	7.30E-07
Oct-94	<1.10E-08	<1.06E-08	<1.11E-08	**<1.09E-08**	<1.20E-08	<1.14E-08	<1.05E-08	**<1.13E-08**	7.30E-07
Oct & Nov-95	ND(1.08E-08)	ND(1.12E-08)	ND(1.06E-08)	**ND(1.09E-08)**	ND(9.35E-09)	ND(1.11E-08)	ND(1.25E-08)	**ND(1.10E-08)**	7.30E-07
Dec-96	<1.475E-07	<5.419E-08	<5.134E-08	**<8.43E-08**	<5.258E-08	<5.479E-08	<4.700E-08	**<5.15E-08**	7.30E-07

Table 2.0 Emission Rate Summary of Hydrogen Fluoride (lb/MMBtu)

	Unit 1				Unit 2				
Run Date	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average	Permit limit
Oct-89	2.72E-04	1.11E-04	9.74E-05	**1.60E-04**	8.15E-05	6.95E-05	6.79E-05	**7.30E-05**	3.20E-03
Mar-92*	<7.44E-05	<6.66E-05	<7.11E-05	**<7.07E-05**	<5.60E-05	<6.73E-05	<7.82E-05	**<6.71E-05**	3.20E-03
Sep-92	<3.16E-04	<3.01E-04	<3.12E-04	**<3.10E-04**	<3.26E-04	<3.30E-04	<3.10E-04	**<3.22E-04**	3.20E-03
Oct-93	<3.71E-04	<3.64E-04	<3.62E-04	**<3.66E-04**	<3.44E-04	<3.48E-04	<3.41E-04	**<3.44E-04**	3.20E-03
Oct-94	<3.12E-04	<4.10E-04	<3.70E-04	**<3.64E-04**	5.37E-04	ND(3.84E-04)	ND(3.64E-04)	**1.79E-04**	3.20E-03
Oct & Nov-95	ND(1.17E-05)	ND(1.73E-05)	ND(1.18E-05)	**ND(1.36E-05)**	ND(1.30E-05)	ND(2.13E-05)	NA	**ND(1.72E-05)**	3.20E-03
Dec-96	<2.0E-04	<2.0E-04	<2.0E-04	<2.0E-04	<3.0E-04	<6.0E-04	<6.0E-04	**<5.0E-04**	3.20E-03

< Indicates the value is below the detection limit

* An Fd factor of 9,538 was used for all lb/MMBtu calculations

ND Not Detected used as zero (0). Detectable limits are presented in parentheses.

NA Not applicable; a third run was not conducted on Unit No. 2

EXHIBIT A

EXHIBIT "B"

I hereby certify that a copy of the foregoing letter to Hamilton S. Oven concerning a modification of the Conditions of Certification for the North County Resource Recovery Facility was sent to those listed below by Certified Mail--Return Receipt Requested on this 29th day of May, 1997.

Stephanie Kruer, General Counsel
Department of Community Affairs
Sadowski Building
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399

Barbara Markham, General Counsel
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33402

Joel T. Daves, III, Esquire
Burdick & Daves
Post Office Box 790
West Palm Beach, Florida 33402
Counsel for City of Riveria Beach

Roger G. Saberson, Esquire
110 East Atlantic Avenue
Delray Beach, Florida 33444
Counsel for Treasure Coast Regional Planning Council

Terrell K. Arline, Esquire
1000 Friends of Florida
Post Office Box 5948
Tallahassee, Florida 32314
Counsel for Anti-Dump Coalition, Inc.. et al.

Bob Elias
Florida Public Service Commission
Gunter Building
2450 Shumard Oak Boulevard
Tallahassee, Florida 32399

Attorney

cc: Susan Coughanour

97-A02

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY, Petitioner.	)	DEP Case No.

PETITION FOR VARIANCE FROM
RULE 62-296.416(3)(b)2., FLORIDA ADMINISTRATIVE CODE

Petitioner, the Solid Waste Authority of Palm Beach County ("Authority"), hereby petitions the Florida Department of Environmental Protection ("DEP") pursuant to Section 120.542, Florida Statutes ("F.S."), for a variance to modify the requirements of DEP Rule 62-296.416(3)(b)2., Florida Administrative Code ("F.A.C."), and says:

Background Information

1. The Petitioner's address is:

Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412
Phone: (561) 640-4000
Fax: (561) 683-4067

In this proceeding, all correspondence and other documents should be sent to the Petitioner's attorney, Mr. David S. Dee, at the following address:

Landers and Parsons, P.A.
310 West College Avenue
Tallahassee, Florida 32301
Phone: (904) 681-0311
Fax: (904) 224-5595

2. The Authority owns and operates a waste-to-energy facility that is known as the North County Resource Recovery Facility ("Facility"). The Authority's Facility is subject to the testing requirements contained in DEP Rule 62-296.416.(3)(b)2, F.A.C., which provides:

> Beginning no later than on July 1, 1994, facilities subject to Rule 62-296.416(3)(b)1., F.A.C., shall perform semiannual individual emissions unit mercury emissions tests. Facilities shall stagger the semiannual testing of individual emissions units such that at least one test is performed quarterly.

3. Rule 62-296.416(3)(b)2 requires the Authority to measure the Facility's mercury emissions by conducting stack tests at the Facility each quarter. The Authority seeks a permanent variance from the testing requirements in Rule 62-296.416(3)(b)2., F.A.C., because the Authority wants to conduct annual tests at the Facility, rather than quarterly tests.

Legal Basis for Variance

4. Section 120.542(1), F.S., authorizes each state agency to grant variances to the requirements in the agency's rules. A variance is "a modification to all or part of the literal requirements of an agency rule. . . ." s. 120.52(18), F.S. Section 120.542(2), F.S., provides:

> Variances and waivers shall be granted when the person subject to the rule demonstrates that the purpose of the underlying statute will be or has been achieved by other means

> by the person and when application of a rule would create a substantial hardship. . . . For purposes of this section, "substantial hardship" means a demonstrated economic, technological, legal or other type of hardship to the person requesting the variance or waiver.

(emphasis added).

Purpose of Underlying Statutes

5. When DEP adopted Rule 62-296.416, F.A.C., the Department identified Sections 403.021, 403.031, 403.061 and 403.087, Florida Statutes, as the laws that were being implemented by Rule 62-296.416, F.A.C. The general purpose of these four statutes is to protect human health, safety, and welfare, and protect Florida's natural environment.

6. The general purpose of the testing requirements in Rule 62-296.416(3)(b)2 is to confirm that mercury emissions are being controlled adequately at those waste-to-energy facilities that use waste separation programs to reduce the facility's mercury emissions. In 1993, when Rule 62-296.416 was adopted by the Environmental Regulation Commission, it was unclear whether waste separation programs would adequately control the mercury emissions from waste-to-energy facilities. Given this uncertainty, the DEP required quarterly stack testing in Rule 62-296.416(3)(b)2 for those waste-to-energy facilities that use waste separation programs. By comparison, DEP required annual stack testing in Rule 62-296.416(3)(a)3 for those waste-to-energy facilities that use post-combustion mercury control equipment to

reduce mercury emissions.

7. In this case, the purpose of DEP Rule 62-296.416(3)(b)2 and the purpose of the underlying statutes already have been achieved, as explained below. Moreover, the purpose of the DEP rule and statutes will be achieved in the future even if DEP grants this petition for a variance.

The Authority's Test Data

8. The Authority has conducted stack tests to measure the mercury emissions from the Authority's Facility since the Facility commenced commercial operations in 1989. The test results demonstrate that the Facility's mercury emissions have been well below the emissions limits contained in DEP Rule 62-296.416(3)(b)1., F.A.C. A summary of the Authority's test results is attached hereto as Exhibit "A".

9. Exhibit "A" indicates that since 1989 the Authority has conducted 68 test runs to measure the Facility's mercury emissions. The average of three test runs is used to determine compliance with the DEP mercury emissions limit, pursuant to Rule 62-296.416(3)(d)1, F.A.C., and EPA Method 29, formerly Rule 62-296.416(3)(f)1 and EPA Method 101A. In all cases since 1989, the average of three consecutive test runs was below the applicable DEP emissions limit of 140 micrograms per dry standard cubic meter ("ug/dscm") of flue gas, corrected to 7 percent oxygen. Indeed, in all cases the average emissions were below the DEP emission limit of 70 ug/dscm, which will come into effect in July

1997. See Rule 62-296.416(3)(b)1.b, F.A.C.

10. The test results in Exhibit "A" suggest that the mercury emissions from the Authority's Facility are decreasing. From 1993 through January 1997, the Authority conducted 50 test runs for mercury. All of these most recent test runs were below the proposed DEP emissions limit of 70 ug/dscm. The average value of these 50 test runs is approximately 12 ug/dscm.

11. Thus, there is a substantial database to demonstrate that the Facility is consistently complying with the DEP emission limits for mercury. The Facility's mercury emissions are far less than the levels allowed under the DEP rules.

12. The Authority's mercury emissions should continue to be very low in the future. Several years ago batteries were identified as the primary source of mercury in municipal solid waste. In recent years, however, manufacturers have worked diligently to reduce the amount of mercury in batteries. State and federal legislation also has restricted the use of mercury in other materials that may become part of the solid waste stream. These actions have reduced the amount of mercury in municipal solid waste, as reflected in the stack test data which show that the Facility's mercury emissions are decreasing.

13. In light of the Authority's test data, the Authority wants to reduce the amount of stack testing that the Authority performs for mercury. The Authority wants to conduct stack tests for mercury on an annual basis, like those facilities that use post-combustion mercury control equipment, rather than conduct

tests on a quarterly basis. Quarterly testing is no longer necessary at the Facility. The Authority's existing database provides reasonable assurance that the Facility will comply with DEP's mercury limits and, therefore, the existing database satisfies the underlying purpose of DEP Rule 62-296.416(3)(b)2, F.A.C., and Sections 403.021, 403.031, 403.061, and 403.087, F.S.

Substantial Hardship

14. Testing for mercury on a quarterly basis constitutes a substantial hardship for the Authority. It is an economic hardship because the Authority must hire an independent consulting firm and testing laboratory to conduct the mercury testing. These services cost approximately $10,000 each year. The Authority will incur approximately $200,000 in additional expenses if the Authority is required to conduct quarterly stack tests at the Facility over the next 20 years of the Facility's operations. Since the Authority's expenses are paid by the citizens of Palm Beach County, the cost of quarterly testing imposes a significant burden on the public, as well as the Authority.

15. Quarterly testing for mercury also poses practical problems and hardships for the Authority. For most pollutants, the Authority performs stack tests once each year. Quarterly testing requires the Authority to spend its manpower and other resources on the mobilization, setup, and initiation of the stack sampling on three extra occasions each year. Logistically and

practically, it is not efficient or cost-effective to perform stack tests to measure one parameter only.

16. In this case, a variance would allow the Authority to perform annual stack tests for mercury, which would reduce the economic hardship for the Authority, while providing DEP with sufficient data to confirm that the Facility's emissions are below the applicable DEP limits. The variance would achieve the purpose of the underlying statutes, as well as the purpose of the DEP rules, because the variance would grant some relief to the Authority while protecting the public health, safety and welfare.

WHEREFORE, the Solid Waste Authority of Palm Beach County respectfully requests the Department of Environmental Protection to grant a permanent variance from Rule 62-296.416(3)(b)2., F.A.C., and thereby allow the Authority to perform mercury emissions tests at the Facility on an annual basis, rather than quarterly.

Respectfully submitted this 29th day of May, 1997.

LANDERS & PARSONS, P.A.

DAVID S. DEE, Esquire
Florida Bar No. 281999
310 W. College Avenue
P.O. Box 271
Tallahassee, Florida 32302
Phone: (904) 681-0311
Fax: (904) 224-5595

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that the original and one copy of the Petition for Variance were furnished to the Clerk, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399 on this 29th day of May, 1997.

Attorney

cc: Marc Bruner
Lee Rosenthal
Don Lockhart
Mike Hewett
Clair Fancy
Hamilton S. Oven

SWA North County Resource Recovery Facility (NCRRF)
Emission Test Report (Hg)
1989-1997

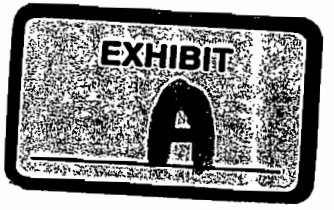
Table 3.0 Emission Rate Summary of Mercury (ug/dscm @ 7% 02)

	Unit 1				Unit 2				
Run Date	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average	Limit*
Oct-89	33.02	59.62	74.29	**55.72**	29.35	16.07	24.99	**23.39**	70
Mar-92	17.09	15.97	20.97	**18.01**	20.46	15.78	16.16	**17.46**	70
Sep-92	20.77	36.92	72.00	**43.34**	113.96	50.67	25.68	**63.51**	70
Oct-93	15.9	11.1	11.3	**12.8**	24.1	12.1	19.7	**18.6**	70
Jun-94	15.9	17.7	12.3	**15.3**	NA	NA	NA	NA	70
Aug-94	NA	NA	NA	NA	0.35	**	0.23	**0.29**	70
Oct-94	8.04	9.22	8.85	**8.7**	14.8	16.5	12.1	**14.5**	70
Jan-95	NA	NA	NA	NA	6.87	7.39	6.66	**6.97**	70
Apr-95	12	12.9	6	**10.3**	NA	NA	NA	NA	70
Aug-95	NA	NA	NA	NA	11.53	7.53	8.76	**9.27**	70
Oct-95	5.69	6.38	6.65	**6.24**	17	15.2	12.7	**15**	70
Feb-96	NA	NA	NA	NA	11.45	11.49	12.8	**11.91**	70
Apr-96	19.72	19.65	19.31	**19.56**	NA	NA	NA	NA	70
Aug-96	NA	NA	NA	NA	0.81	22.22	1.27	**8.1**	70
Dec-96	17.04	18.53	16.12	**17.20**	15.13	16.14	11.02	**14.10**	70
Jan-97	NA	NA	NA	NA	10.81	15.37	16.12	**14.1**	70

NA Not applicable (only one unit tested on a staggered semi-annual basis)

* Permit limit 2.4E-04 lbs/MMBtu (approximately 267 ug/dscm) 1989-July 1, 1995; Permit limit 140 ug/dscm @ 7% 02 July 1, 1995-1997; Permit limit 70 ug/dscm @ 7% 02 after July 1, 1997.

** Data not available (aborted test run)



No. 106157

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY

CHECK NUMBER

ORGANIZATION	ACCOUNT	PROJECT	INVOICE NO	INVOICE DATE	P.O. NUMBER	AMOUNT	DESCRIPTION
4034231	54901			05/09/97		250.00	PSD PERMIT MODIFICA

SOLID WASTE AUTHORITY PALM BEACH COUNTY
7501 NORTH JOG ROAD
WEST PALM BEACH, FLORIDA 33412

No. 106157

CHECK NO.	DATE	AMOUNT
0106157	05/16/97	******250.0

PAY:

TWO HUNDRED FIFTY DOLLARS & ZERO CENTS

VOID, AFTER 90 DAYS

TO THE
ORDER OF:

DEPT. OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE RD
TALLAHASSEE, FL
32399-2407

Barnett Bank of Palm Beach County
West Palm Beach, FL 33409

AUTHORIZED SIGNATURE

[redacted]