

# Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

April 28, 1988

Mr. Miguel Flores  
Chief, Permit Review and Technical  
Support Branch  
National Park Service-Air  
Post Office Box 25287  
Denver, Colorado 80225

Dear Mr. Flores:

RE: Bay County Resource Recovery Facility  
State Permit Number: AC 03-145061  
Federal Permit Number: PSD-FL-129

Enclosed for your review and comment is the response from the applicant to a request for additional information pursuant to the above referenced PSD application. Please review the enclosed response and submit any comments or questions by May 20, 1988, to Pradeep Raval, Tom Rogers or Barry Andrews at (904)488-1344 or write to them at the above address.

Sincerely,

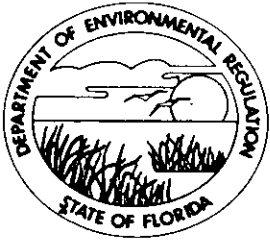
*M.V. Janes*

Margaret V. Janes  
Planner  
Bureau of Air Quality  
Management

/mj

cc: Pradeep Raval  
Tom Rogers  
Barry Andrews  
Ed Middleswart, NW Dist.

enclosure



# Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor

Dale Twachmann, Secretary

John Shearer, Assistant Secretary

April 28, 1988

Mr. Wayne Aronson, Chief  
Program Support Section  
U.S. EPA, Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

Dear Mr. Aronson:

RE: Bay County Resource Recovery Facility  
State Construction Permit Number: AC 03-145061  
Federal Number: PSD-FL-129

Enclosed for your review and comment is additional information submitted by the referenced applicant. Please submit any comments or questions to Pradeep Raval, Tom Rogers or Barry Andrews at the above address or call them at (904)488-1344 at your earliest convenience.

Sincerely,

*M. V. Janes*

Margaret V. Janes  
Planner  
Bureau of Air Quality  
Management

/mj

enclosure

cc: P. Raval  
T. Rogers  
B. Andrews  
E. Middleswart, NW Dist.

enclosure

Judicial Expense  
Account No 3319334684

4/26/88  
Pittsburgh, PA



Jul 4/88

AC 03-143061  
PSD-FL-129

Westinghouse  
Electric Corporation  
EN1073SB

Resource Energy Systems  
Division

Cost Building  
2400 Ardmore Boulevard  
Pittsburgh Pennsylvania 15221  
(412) 636 5800  
WIN 261 5800

April 26, 1988

RECEIVED

APR 27 1988

DER-BAQM

Mr. Clair Fancy  
Florida Dept. of Environmental Regulations  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399

Re: Bay County Waste-to-Energy Facility  
Request for Permit Modification

Dear Mr. Fancy:

Please find enclosed a letter from Flakt Inc., documenting the lime injection rate(s) and SO<sub>2</sub> removal efficiency that were stated in Westinghouse's February 3, 1988 submittal.

Also enclosed are data supporting the disposal costs for the additional residue that would be generated due to dry injection. The February 3rd submittal estimated that the costs would be \$20 per ton of residue disposed where, in actuality, the costs would be closer to \$22 per ton.

If there is any way that we may be able to help in expediting this matter, please feel free to contact either myself or Spencer Brady at (412) 636-5806.

Sincerely,

*Spencer J. Brady*  
for

D. S. Beachler, Manager  
Environmental & Quality Engineering

/tlb  
Enclosure  
EN1073SB-105E

cc: S. J. Brady - w/enclosure  
J. J. Zebroski - w/enclosure

Copied: Pradeep Raval  
Tom Rogus  
CHFIBT  
Barry Andrews  
Miguel Flores, NPS  
William J. ... EPA } 4.28.88 (MP)



April 26, 1988

Westinghouse Electric Corp.  
Resource Energy Systems Div.  
Cost Bldg.  
2400 Ardmore Blvd.  
Pittsburgh, PA 15221

ATTENTION: Mr. Dave Beechler

REFERENCE: Bay County Resource Recovery System  
Dry Injection Air Pollution Control System

Gentlemen:

Confirming our recent discussions, we are pleased to confirm that a dry injection system can be added to the above subject facility.

Based on a two train system processing 54,000 ACFM each at 435°F, we would anticipate a total hydrated lime usage of approximately 1,000 lb./hr. for two trains total and an SO<sub>2</sub> removal efficiency in the range of 20% assuming an SO<sub>2</sub> inlet of approximately 150 PPM. Significantly higher SO<sub>2</sub> removals can only be achieved if a fabric filter system would be added and/or a sodium based alkali utilized.

I trust that the above is sufficient for your current needs and that you will not hesitate to contact us if any additional information is required.

Very truly yours,

FLAKT, INC.  
ENVIRONMENTAL SYSTEMS DIVISION

A handwritten signature in cursive script that reads "Steve Achtner".

Steve Achtner  
Regional Sales Manager

/vh

cc: P. Nijhawan/Flakt, Inc.  
J. Buschmann/Flakt, Inc.  
D. d'Ambrosi/Flakt, Inc.

Mr. Richard Hopkins/Westinghouse

# Okaloosa eyeing Bay incinerator

Daily News Staff Report

FORT WALTON BEACH—Okaloosa County commissioners agreed Tuesday to consider shipping solid waste to Bay County, although such a move may be too expensive for Okaloosa's taste.

County Public Works Director Dave Heinrich said Bay County is soliciting counties for an extra 200 tons of solid waste a day to burn in its incinerator and convert to energy.

Bay County's incinerator, which began operation in February 1987, has a state permit to burn 350 tons of solid waste daily, although its capacity is 510 tons per day and has to run at capacity for optimum efficiency. Bay County has had to make up the 160-ton difference by burning wood chips.

Heinrich estimated it would cost \$15 a ton to truck Okaloosa County's solid waste about 50 miles to Bay County's plant.

Total costs would be \$40 a ton when combined with Bay County's out-of-county tipping fee of \$25 per ton.

The projected tipping fee at a proposed 1,500-acre landfill near Dorcas is about \$22 a ton.

Costs will probably make Bay County's proposal prohibitive, Heinrich said.

But Commissioner Don Ware, who has advocated an incineration system in Okaloosa County and has opposed plans by Waste Associates Co. to open a landfill near Dorcas, suggested that Heinrich investigate Bay County's offer.

Commissioner Joe Mosier agreed, if only to have a backup if opponents challenge the Dorcas landfill and delay its scheduled opening this summer.

The state Department of Environmental Regulation has ordered the closing of Okaloosa County's 160-acre Wright landfill by July 1. If the Dorcas site is not

ready to open by then, the county would have to seek an extension for the Wright landfill or use the 27-acre Baker landfill.

The Dorcas landfill's opponents, organized as Citizens for a Clean Environment, pleaded with commissioners again Tuesday to drop the landfill project.

"We're willing to do anything to stop this landfill," said Bonnie Billoni, who lives near the proposed site at U.S. 90 and County 393 east of Crestview. "I'm publicly asking you, pleading with you, to stop this landfill."

Opponent Donna Nixon said Waste Associates has plans to accept trash and garbage from outside Okaloosa County. She believes this will worsen the situation.

A recycling program would be worth any higher costs, Nixon said.

"Sure, it's expensive," she told the commissioners. "It might take your raise next year."

Dave -  
from J. Heinrich

APR 1988

RESOLUTION NO. 1370

WHEREAS, the Board of County Commissioners of Bay County, Florida (the "Board") has adopted Ordinance No. 82-10, short titled the "Bay County Solid Waste Disposal User Fee Ordinance" as amended by Ordinance No. 83-6 that provides for the assessment of user charges by resolution of the Board to fund the solid waste disposal system and resource recovery system (the "System"), and

WHEREAS, the Legislature of the State of Florida passed Chapter 83-370 (the "Special Act"), as amended, requiring persons within Bay County to deliver to solid waste disposal locations designated by the Board all solid waste which is discarded, collected or brought within Bay County, and

WHEREAS, the Board does hereby require all persons to deliver solid waste which is discarded, collected or brought within Bay County to one of the following appropriate solid waste disposal locations: the Resource Recovery Facility (the "Facility"), the Steelfield Road Landfill (the "Landfill"), the Panama City Transfer Station ("P.C. Station"), the Panama City Beach Transfer Station ("P.C.B. Station"), and the Bayou George Greenbox Station ("B.G. Greenbox"), and

WHEREAS, the Board is authorized by Florida Law to implement reasonable rules and regulations concerning the operation of the System, and

WHEREAS, the Board entered into a Service Contract authorized by the Participation Agreement dated October 30, 1986, with Bay Resource Management, Inc., a wholly owned subsidiary of Westinghouse Electric Corporation, that provides for the processing and combustion of solid waste at the Resource Recovery Facility and for payment of a Service Fee, and

---

WHEREAS, the Service Contract obligates the Board to have delivered to the Resource Recovery Facility solid waste of a specified quality and quantity for processing and sets forth standards for the operation of such Resource Recovery Facility, and

WHEREAS, the Board has considered information concerning the expenses that are incurred in the operation of the Facility, the

Landfill, the P.C. Station, the P.C.B. Station, and the B.G. Greenbox, and the hauling costs incurred in such operations, and

WHEREAS, the Board does desire to fund the System from revenues derived from user charges as assessed herein, and

WHEREAS, the Board does hereby determine that the present user charges being levied are insufficient to fund the System and a new schedule of user charges should be adopted that will adequately fund the System, and

WHEREAS, there exists a public need to levy user charges at the Facility, the Landfill, P.C. Station, P.C.B. Station, and the B.G. Greenbox to fund the operation, maintenance and construction of the System.

NOW THEREFORE BE IT RESOLVED, by the Board of County Commissioners of Bay County, Florida that the following schedule of user charges shall be and do hereby become effective as of July 1, 1987:

A. ESTABLISHMENT OF PER TON USER CHARGES AT THE FACILITY, P.C. STATION, P.C.B. STATION, THE LANDFILL AND B.G. GREENBOX.

1. Establishment of Per Ton User Charge At the Facility. The user charge for the deposit of solid waste at the Facility shall be Twenty-Two Dollars (\$22.00) per ton as determined by the weighing of vehicles at the Facility. The user charge will be prorated at 20 pound increments in accordance with the Twenty-Two Dollar (\$22.00) per ton standard for vehicles holding less than or more than one ton of solid waste. The minimum charge on any vehicle being weighed will be \$2.00.
2. Establishment of User Charges at the Landfill. The user charge for the deposit of solid waste at the Landfill shall be Twenty-Two Dollars (\$22.00) per ton as determined by the weighing of



vehicles at the Landfill. The user charge will be prorated at 20 pound increments in accordance with the Twenty-Two Dollars (\$22.00) per ton standard for vehicles holding less than or more than one ton of solid waste; however, the vehicles described in Section B(1) of this Resolution shall be charged the flat rate as indicated therein. The minimum charge on any vehicle being weighed will be \$2.00.

3. Establishment of User Charges At The P.C. Station. The user charge for the deposit of solid waste at the P.C. Station shall be Twenty-Five Dollars (\$25.00) per ton. The City of Panama City is the only customer at the P.C. Station, and the user charge reflects the cost of hauling the solid waste to the Facility and the Landfill and the cost of operating the P.C. Station. The solid waste from the P.C. Station will be weighed at the Facility and the Landfill, and the user charge will be prorated at 20 pound increments in accordance with the Twenty-Five Dollar (\$25.00) per ton standard for vehicles holding less than or more than one ton of solid waste. The minimum charge on any vehicle being weighed will be \$2.00.
4. Establishment of User Charges At The P.C.B. Station. The user charge for the deposit of solid waste at the P.C.B. Station shall be Twenty-Eight Dollars (\$28.00) per ton. The user charge reflects the cost of hauling the solid waste to the Facility and the Landfill and the cost of operating the P.C.B. Station. The solid waste will be weighed at the P.C.B. Station site and the user charge will be prorated at 20 pound increments in accordance with the Twenty-Eight Dollar (\$28.00) per ton standard for vehicles holding less than or more than one ton of solid waste; however, the vehicles described in Section B(1) of this Resolution shall be charged the flat rate as indicated therein. The minimum charge on any vehicle being weighed will be \$2.00.
5. Establishment of User Charges at B.G. Greenbox. The user charge for the deposit of solid waste at the B.G. Greenbox shall be the flat rate for cars and one-half ton trucks, station wagons and two-wheeled trailers as provided in Section B(1) of this Resolution.

B. ESTABLISHMENT OF FLAT RATE USER CHARGE SCHEDULES FOR THE FACILITY,  
THE LANDFILL, P.C.B. STATION, AND THE B.G. GREENBOX.

1. Flat Rate User Charge Schedule For the P.C.B. Station, B.G. Greenbox and the Landfill. The following rates and charges per vehicle for deposit of solid waste at the Landfill, P.C.B. Station, and the B.G. Greenbox shall be assessed regardless of the weight of the vehicles. The charges are determined by the vehicle capacity or load size and not the volume, quantity or

weight of waste in or on the vehicle. However, the Board reserves the right to require the vehicles listed in (1) and (2) below to weigh and be charged on the applicable per ton basis. The designation of "N/A" in the column under "P.C.B. Station/B.G. Greenbox Flat Rate Fee" shall mean that said vehicle shall not be accepted for dumping or unloading at the P.C.B. Station or the B.G. Greenbox. Flat rates are assessed herein to lower administrative costs of the Board and to accommodate vehicles in the flat rate categories with expeditious handling at the sites. The flat rates shall be as follows:

<u>VEHICLE</u>	<u>LANDFILL FLAT RATE FEE</u>	<u>P.C.B. STATION/ B.G. GREENBOX FLAT RATE FEE</u>
(1) Cars	\$ 2.00	\$ 2.00
(2) One-half ton trucks, station wagons and two-wheeled trailers	\$ 7.00	\$ 7.00
(3) Special wastes:		
(a) Mixed demolition material minimum charge per load (maximum determined by per ton user charge)	\$ 35.00	N/A
(b) Small dead animals (dogs, cats, fowls, etc.) shall be assessed a minimum charge per load.	\$ 7.00	N/A
(c) An individual bringing one small dead animal from his home or the highway will not be charged	N/A	N/A
(d) Large dead animals (cows, horses, hogs, etc.) shall be assessed a minimum charge per load (maximum determined by per ton user charge).	\$ 10.00	N/A

~~SCALES ARE Inoperative.~~ The following rates and charges per vehicle for the deposit of solid waste at the Facility, the Landfill and at the P.C.B. Station shall be followed at all times when scales are inoperative or not installed at said sites. The charges are determined by the vehicle capacity or load size and not the volume or quantity of waste in or on the vehicle. The designation of "N/A" in the column under "P.C.B. Station" shall mean that said vehicle shall

not be accepted for dumping or unloading at the P.C.B. Station. The rates and charges to be utilized when scales are inoperative or not installed are as follows:

<u>VEHICLE</u>	<u>LANDFILL/FACILITY</u>	<u>P.C.B. STATION</u>
(1) Three-quarter ton pickup trucks, over-sized two-wheeled trailers and over-sized one-half ton pickup trucks.	\$ 16.50	\$ 21.00
(2) Four-wheeled trailers	\$ 36.50	\$ 45.50
(3) Six-wheeled trailers	\$ 50.00	\$ 63.00
(4) Ten-Wheeled (tandem axle) trucks.	\$ 81.00	N/A
(5) Semi-trailers	\$ 176.00	N/A
(6) Compacted garbage or trash, by truck size according to manufacturer's specifications:		
(a) 16 yard truck	\$ 88.00	\$112.00
(b) 20 yard truck	\$110.00	\$140.00
(c) 24 yard truck	\$132.00	\$168.00
(d) 26 yard truck	\$143.00	\$182.00
(e) 30 yard truck	\$165.00	\$210.00
(f) 75 yard truck	\$412.50	N/A
(7) Roll off - open top containers		
(a) Twenty cubic yard or less	\$110.00	\$140.00
(b) Over twenty cubic	\$ 146.50	N/A

C. OPERATION OF SYSTEM. The County Manager shall have the authority to establish guidelines, rules and regulations in accordance with the Service Contract and for the operation of the System including hours of operation, method of collecting user charges, designation of solid waste disposal locations, and the acceptance or non-acceptance of burnable or nonburnable solid waste at the different waste disposal locations in the System.

THIS RESOLUTION SHALL TAKE EFFECT AS PROVIDED BY  
law.

DONE AND ADOPTED this 19<sup>th</sup> day of May, 1987.

STATE OF FLORIDA

COUNTY OF BAY

I, Harold Bazzel, Clerk of the Circuit Court, and ex officio  
Clerk and Auditor of the Board of County Commissioners do hereby  
certify that the above and foregoing Resolution was duly adopted by

the Board of County Commissioners of Bay County in regular session on  
the 19<sup>th</sup> day of May, 1987.

Harold Casel

Clerk of the Circuit Court  
and ex officio Clerk and  
Auditor to the Bay County  
Board of County Commissioners

By: Jimmy Hoffmann  
Deputy Clerk



Federal Express  
Airbill No 3319354684

PM  
4/26/88  
Pittsburgh, PA



File Copy

AC 03-145061  
PSD-FL-129

Westinghouse  
Electric Corporation  
EN1073SB

Resource Energy Systems  
Division

Cost Building  
2400 Ardmore Boulevard  
Pittsburgh Pennsylvania 15221  
(412) 636 5800  
WIN 261 5800

April 26, 1988

RECEIVED

APR 27 1988

DER-BAQM

Mr. Clair Fancy  
Florida Dept. of Environmental Regulations  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399

Re: Bay County Waste-to-Energy Facility  
Request for Permit Modification

Dear Mr. Fancy:

Please find enclosed a letter from Flakt Inc., documenting the lime injection rate(s) and SO<sub>2</sub> removal efficiency that were stated in Westinghouse's February 3, 1988 submittal.

Also enclosed are data supporting the disposal costs for the additional residue that would be generated due to dry injection. The February 3rd submittal estimated that the costs would be \$20 per ton of residue disposed where, in actuality, the costs would be closer to \$22 per ton.

If there is any way that we may be able to help in expediting this matter, please feel free to contact either myself or Spencer Brady at (412) 636-5806.

Sincerely,

D. S. Beachler, Manager  
Environmental & Quality Engineering

/t1b  
Enclosure  
EN1073SB-105E

cc: S. J. Brady - w/enclosure  
J. J. Zebroski - w/enclosure

Copies: Pradeep Raval  
Tom Rogus  
CHF/BT  
Barry Andrews  
Wiguel Flores, NPS  
Wolpe Aronson, EPA  
Ed W. Adair, NW Dist } 4/28 88 (MP)

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL NUMBER

13049354804

702 784

DATE

4/26/88

AIRBILL NUMBER

13049354804

From (Your Name) D. S. Beachler

Your Phone Number (Very Important) 412-636-5806

Company WEST INGHOUSE/RESOURCE ENERGY

Department/Floor No.

Street Address 2400 ARDMORE BLVD COST

City PITTSBURGH PA

State PA ZIP Required For Correct Invoicing 15201

To (Recipient's Name) Mr. Clair Fancy

Recipient's Phone Number (Very Important)

Company Florida Dept. of Environmental Regulation

Department/Floor No.

Street Address Florida Dept. of Environmental Regulation

City Tallahassee FL

State FL ZIP Street Address Zip Required 32309

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)

ARN500

HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION:

Street Address (See Service Guide or Call 800-238-5355)

PAYMENT  Cash  Recipient's FedEx Acct. No.  3rd Party FedEx Acct. No.  Bill Credit Card

City Tallahassee FL State FL ZIP 32309

SERVICES CHECK ONLY ONE BOX

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

PACKAGES WEIGHT YOUR DECLARED VALUE OVER SIZE

1  PRIORITY 1 Overnight Delivery Using Your Packaging  OVERNIGHT LETTER  GOVERNMENT DELIVERY USING OUR PACKAGING  COURIER-Pak Overnight Envelope  2  Overnight Box 12W x 17H x 3"  Overnight Tube 36 x 6 x 6"  3  STANDARD AIR Delivery not later than second business day

1  HOLD FOR PICK-UP  DELIVER WEEKDAY  DELIVER SATURDAY  4  DANGEROUS GOODS  5  CONSTANT SURVEILLANCE SERVICE (CSS)  6  DAY ACE  7  OTHER SPECIAL SERVICE

Total 1 LBS Total 1 LBS Total 1 LBS

SERVICE COMMITMENT

8  SATURDAY PICK-UP (Extra charge)

Received At 1 Regular Stop 2 On-Call Stop 3 Drop Box 4 B.S.C. 5 Station

PRIORITY 1 - Delivery is scheduled early next business morning in most locations. It may take two or more business days if the destination is outside our primary service areas. STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

9  FEDERAL EXPRESS CORP. EMPLOYEE NO. 1370

Date/Time For Federal Express Use 4/26/88

ZIP Zip Code of Street Address Required

Emp. No. Date

Cash Received  Return Signature  Third Party  Chg. To Del.  Chg. To Hold

Street Address

City Tallahassee FL State FL Zip 32309

Received By X

Date/Time Received FedEx Employee Number

Federal Express Use

Base Charges

Declared Value Charge

Origin Agent Charge

Total Charges

Other

Street Address

City Tallahassee FL State FL Zip 32309

Received By X

Date/Time Received FedEx Employee Number

PART #108001

FEC-S-751-1000

REVISION DATE 10/86

PRINTED U.S.A. GBFE

RECIPIENT'S COPY



April 26, 1988

Westinghouse Electric Corp.  
Resource Energy Systems Div.  
Cost Bldg.  
2400 Ardmore Blvd.  
Pittsburgh, PA 15221

ATTENTION: Mr. Dave Beechler

REFERENCE: Bay County Resource Recovery System  
Dry Injection Air Pollution Control System

Gentlemen:

Confirming our recent discussions, we are pleased to confirm that a dry injection system can be added to the above subject facility.

Based on a two train system processing 54,000 ACFM each at 435°F, we would anticipate a total hydrated lime usage of approximately 1,000 lb./hr. for two trains total and an SO<sub>2</sub> removal efficiency in the range of 20% assuming an SO<sub>2</sub> inlet of approximately 150 PPM. Significantly higher SO<sub>2</sub> removals can only be achieved if a fabric filter system would be added and/or a sodium based alkali utilized.

I trust that the above is sufficient for your current needs and that you will not hesitate to contact us if any additional information is required.

Very truly yours,

FLAKT, INC.  
ENVIRONMENTAL SYSTEMS DIVISION

A handwritten signature in cursive script that reads "Steve Achtner".

Steve Achtner  
Regional Sales Manager

/vh

cc: P. Nijhawan/Flakt, Inc.  
J. Buschmann/Flakt, Inc.  
D. d'Ambrosi/Flakt, Inc.

Mr. Richard Hopkins/Westinghouse

# Okaloosa eyeing Bay incinerator

Daily News Staff Report

**FORT WALTON BEACH**  
—Okaloosa County commissioners agreed Tuesday to consider shipping solid waste to Bay County, although such a move may be too expensive for Okaloosa's taste.

County Public Works Director Dave Heinrich said Bay County is soliciting counties for an extra 200 tons of solid waste a day to burn in its incinerator and convert to energy.

Bay County's incinerator, which began operation in February 1987, has a state permit to burn 350 tons of solid waste daily, although its capacity is 510 tons per day and has to run at capacity for optimum efficiency. Bay County has had to make up the 160-ton difference by burning wood chips.

Heinrich estimated it would cost \$15 a ton to truck Okaloosa County's solid waste about 50 miles to Bay County's plant.

Total costs would be \$40 a ton when combined with Bay County's out-of-county tipping fee of \$25 per ton.

The projected tipping fee at a proposed 1,500-acre landfill near Dorcas is about \$22 a ton.

Costs will probably make Bay County's proposal prohibitive, Heinrich said.

But Commissioner Don Ware, who has advocated an incineration system in Okaloosa County and has opposed plans by Waste Associates Co. to open a landfill near Dorcas, suggested that Heinrich investigate Bay County's offer.

Commissioner Joe Mosier agreed, if only to have a backup if opponents challenge the Dorcas landfill and delay its scheduled opening this summer.

The state Department of Environmental Regulation has ordered the closing of Okaloosa County's 160-acre Wright landfill by July 1. If the Dorcas site is not

ready to open by then, the county would have to seek an extension for the Wright landfill or use the 27-acre Baker landfill.

The Dorcas landfill's opponents, organized as Citizens for a Clean Environment, pleaded with commissioners again Tuesday to drop the landfill project.

"We're willing to do anything to stop this landfill," said Bonnie Billoni, who lives near the proposed site at U.S. 90 and County 393 east of Crestview. "I'm publicly asking you, pleading with you, to stop this landfill."

Opponent Donna Nixon said Waste Associates has plans to accept trash and garbage from outside Okaloosa County. She believes this will worsen the situation.

A recycling program would be worth any higher costs, Nixon said.

"Sure, it's expensive," she told the commissioners. "It might take your raise next year."

Dave -  
from John Z.

RESOLUTION NO. 1370

WHEREAS, the Board of County Commissioners of Bay County, Florida (the "Board") has adopted Ordinance No. 82-10, short titled the "Bay County Solid Waste Disposal User Fee Ordinance" as amended by Ordinance No. 83-6 that provides for the assessment of user charges by resolution of the Board to fund the solid waste disposal system and resource recovery system (the "System"), and

WHEREAS, the Legislature of the State of Florida passed Chapter 83-370 (the "Special Act"), as amended, requiring persons within Bay County to deliver to solid waste disposal locations designated by the Board all solid waste which is discarded, collected or brought within Bay County, and

WHEREAS, the Board does hereby require all persons to deliver solid waste which is discarded, collected or brought within Bay County to one of the following appropriate solid waste disposal locations: the Resource Recovery Facility (the "Facility"), the Steelfield Road Landfill (the "Landfill"), the Panama City Transfer Station ("P.C. Station"), the Panama City Beach Transfer Station ("P.C.B. Station"), and the Bayou George Greenbox Station ("B.G. Greenbox"), and

WHEREAS, the Board is authorized by Florida Law to implement reasonable rules and regulations concerning the operation of the System, and

WHEREAS, the Board entered into a Service Contract authorized by the Participation Agreement dated October 30, 1986, with Bay Resource Management, Inc., a wholly owned subsidiary of Westinghouse Electric Corporation, that provides for the processing and combustion of solid waste at the Resource Recovery Facility and for payment of a Service Fee, and

---

WHEREAS, the Service Contract obligates the Board to have delivered to the Resource Recovery Facility solid waste of a specified quality and quantity for processing and sets forth standards for the operation of such Resource Recovery Facility, and

WHEREAS, the Board has considered information concerning the expenses that are incurred in the operation of the Facility, the

Landfill, the P.C. Station, the P.C.B. Station, and the B.G. Greenbox, and the hauling costs incurred in such operations, and

WHEREAS, the Board does desire to fund the System from revenues derived from user charges as assessed herein, and

WHEREAS, the Board does hereby determine that the present user charges being levied are insufficient to fund the System and a new schedule of user charges should be adopted that will adequately fund the System, and

WHEREAS, there exists a public need to levy user charges at the Facility, the Landfill, P.C. Station, P.C.B. Station, and the B.G. Greenbox to fund the operation, maintenance and construction of the System.

NOW THEREFORE BE IT RESOLVED, by the Board of County Commissioners of Bay County, Florida that the following schedule of user charges shall be and do hereby become effective as of July 1, 1987:

A. ESTABLISHMENT OF PER TON USER CHARGES AT THE FACILITY, P.C. STATION, P.C.B. STATION, THE LANDFILL, AND B.G. GREENBOX.

1. Establishment of Per Ton User Charge At the Facility. The user charge for the deposit of solid waste at the Facility shall be Twenty-Two Dollars (\$22.00) per ton as determined by the weighing of vehicles at the Facility. The user charge will be prorated at 20 pound increments in accordance with the Twenty-Two Dollar (\$22.00) per ton standard for vehicles holding less than or more than one ton of solid waste. The minimum charge on any vehicle being weighed will be \$2.00.
2. Establishment of User Charges at the Landfill. The user charge for the deposit of solid waste at the Landfill shall be Twenty-Two Dollars (\$22.00) per ton as determined by the weighing of

vehicles at the Landfill. The user charge will be prorated at 20 pound increments in accordance with the Twenty-Two Dollars (\$22.00) per ton standard for vehicles holding less than or more than one ton of solid waste; however, the vehicles described in Section B(1) of this Resolution shall be charged the flat rate as indicated therein. The minimum charge on any vehicle being weighed will be \$2.00.



3. Establishment of User Charges At The P.C. Station. The user charge for the deposit of solid waste at the P.C. Station shall be Twenty-Five Dollars (\$25.00) per ton. The City of Panama City is the only customer at the P.C. Station, and the user charge reflects the cost of hauling the solid waste to the Facility and the Landfill and the cost of operating the P.C. Station. The solid waste from the P.C. Station will be weighed at the Facility and the Landfill, and the user charge will be prorated at 20 pound increments in accordance with the Twenty-Five Dollar (\$25.00) per ton standard for vehicles holding less than or more than one ton of solid waste. The minimum charge on any vehicle being weighed will be \$2.00.
4. Establishment of User Charges At The P.C.B. Station. The user charge for the deposit of solid waste at the P.C.B. Station shall be Twenty-Eight Dollars (\$28.00) per ton. The user charge reflects the cost of hauling the solid waste to the Facility and the Landfill and the cost of operating the P.C.B. Station. The solid waste will be weighed at the P.C.B. Station site and the user charge will be prorated at 20 pound increments in accordance with the Twenty-Eight Dollar (\$28.00) per ton standard for vehicles holding less than or more than one ton of solid waste; however, the vehicles described in Section B(1) of this Resolution shall be charged the flat rate as indicated therein. The minimum charge on any vehicle being weighed will be \$2.00.
5. Establishment of User Charges at B.G. Greenbox. The user charge for the deposit of solid waste at the B.G. Greenbox shall be the flat rate for cars and one-half ton trucks, station wagons and two-wheeled trailers as provided in Section B(1) of this Resolution.

B. ESTABLISHMENT OF FLAT RATE USER CHARGE SCHEDULES FOR THE FACILITY,  
THE LANDFILL, P.C.B. STATION, AND THE B.G. GREENBOX.

1. Flat Rate User Charge Schedule For the P.C.B. Station, B.G. Greenbox and the Landfill. The following rates and charges per vehicle for deposit of solid waste at the Landfill, P.C.B. Station, and the B.G. Greenbox shall be assessed regardless of the weight of the vehicles. The charges are determined by the vehicle capacity or load size and not the volume, quantity or

weight of waste in or on the vehicle. However, the Board reserves the right to require the vehicles listed in (1) and (2) below to weigh and be charged on the applicable per ton basis. The designation of "N/A" in the column under "P.C.B. Station/B.G. Greenbox Flat Rate Fee" shall mean that said vehicle shall not be accepted for dumping or unloading at the P.C.B. Station or the B.G. Greenbox. Flat rates are assessed herein to lower administrative costs of the Board and to accommodate vehicles in the flat rate categories with expeditious handling at the sites. The flat rates shall be as follows:

<u>VEHICLE</u>	<u>LANDFILL FLAT RATE FEE</u>	<u>P.C.B. STATION/ B.G. GREENBOX FLAT RATE FEE</u>
(1) Cars	\$ 2.00	\$ 2.00
(2) One-half ton trucks, station wagons and two-wheeled trailers	\$ 7.00	\$ 7.00
(3) Special wastes:		
(a) Mixed demolition material minimum charge per load (maximum determined by per ton user charge)	\$ 35.00	N/A
(b) Small dead animals (dogs, cats, fowls, etc.) shall be assessed a minimum charge per load.	\$ 7.00	N/A
(c) An individual bringing one small dead animal from his home or the highway will not be charged	N/A	N/A
(d) Large dead animals (cows, horses, hogs, etc.) shall be assessed a minimum charge per load (maximum determined by per ton user charge).	\$ 10.00	N/A

2. Establishment of User Charges If Scales Are Inoperative. The following rates and charges per vehicle for the deposit of solid waste at the Facility, the Landfill and at the P.C.B. Station shall be followed at all times when scales are inoperative or not installed at said sites. The charges are determined by the vehicle capacity or load size and not the volume or quantity of waste in or on the vehicle. The designation of "N/A" in the column under "P.C.B. Station" shall mean that said vehicle shall

not be accepted for dumping or unloading at the P.C.B. Station. The rates and charges to be utilized when scales are inoperative or not installed are as follows:

<u>VEHICLE</u>	<u>LANDELL/FACILITY</u>	<u>P.C.B. STATION</u>
(1) Three-quarter ton pickup trucks, over-sized two-wheeled trailers and over-sized one-half ton pickup trucks.	\$ 16.50	\$ 21.00
(2) Four-wheeled trailers	\$ 36.50	\$ 45.50
(3) Six-wheeled trailers	\$ 50.00	\$ 65.00
(4) Ten-Wheeled (tandem axle) trucks.	\$ 81.00	N/A
(5) Semi-trailers	\$ 176.00	N/A
(6) Compacted garbage or trash, by truck size according to manufacturer's specifications:		
(a) 16 yard truck	\$ 88.00	\$112.00
(b) 20 yard truck	\$110.00	\$140.00
(c) 24 yard truck	\$132.00	\$168.00
(d) 26 yard truck	\$143.00	\$182.00
(e) 30 yard truck	\$165.00	\$210.00
(f) 75 yard truck	\$412.50	N/A
(7) Roll off - open top containers		
(a) Twenty cubic yard or less	\$110.00	\$140.00
(b) Over twenty cubic	\$ 146.50	N/A

C. OPERATION OF SYSTEM. The County Manager shall have the authority to establish guidelines, rules and regulations in accordance with the Service Contract and for the operation of the System including hours of operation, method of collecting user charges, designation of solid waste disposal locations, and the acceptance or non-acceptance of burnable or nonburnable solid waste at the different waste disposal locations in the System.

D. EFFECTIVE DATE. This Resolution shall take effect as provided by law.

DONE AND ADOPTED this 19<sup>th</sup> day of May, 1987.

STATE OF FLORIDA

COUNTY OF BAY

I, Harold Bazzel, Clerk of the Circuit Court, and ex officio Clerk and Auditor of the Board of County Commissioners do hereby certify that the above and foregoing Resolution was duly adopted by

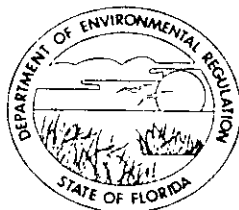
the Board of County Commissioners of Bay County in regular session on  
the 19<sup>th</sup> day of May, 1987.

Harold Bazel  
Clerk of the Circuit Court  
and ex officio Clerk and  
Auditor to the Bay County  
Board of County Commissioners

By: Jimmy Hoffmann  
Deputy Clerk

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ  
GOVERNOR  
DALE TWACHTMANN  
SECRETARY

April 19, 1988

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David S. Beachler  
Westinghouse RESD  
Cost Building  
2400 Ardmore Blvd.  
Pittsburgh, Pennsylvania 15221

Dear Mr. Beachler:

Re: Completeness Review of Application to Modify Bay  
County Resource Recovery Facility  
Permit No. AC 03-145061, PSD-FL-129

The Department has received your response letter dated March 17, 1988. After having reviewed the responses submitted, some additional information/clarification is needed as follows:

1. Documentation of the lime injection rate for the dry injection system is needed.
2. Provide a breakdown of the costs associated with the total of \$20.00 per ton to dispose of dry injection residues.

If you have any questions please call Barry Andrews at (904)488-1344, or write to me at the above address.

Sincerely,

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

CHF/BA/s

cc: E. Middleswart, NW District  
W. Aronson, EPA  
M. Flores, NPS  
A. Richter, P.E.



**SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.  
 Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1.  Show to whom delivered, date, and addressee's address.  Restricted Delivery  
 †(Extra charge)† †(Extra charge)†

3. Article Addressed to: Mr. David S. Beachler Westinghouse PESD Cost Building 2400 Ardmore Blvd. Pittsburgh, Penn. 15221	4. Article Number P 274 010 376 Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail Always obtain signature of addressee or agent and <b>DATE DELIVERED.</b>
5. Signature - Addressee X <i>Paul Johnson</i>	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature - Agent X	
7. Date of Delivery 4-22-88 KS	

PS Form 3811, Mar. 1987 \* U.S.G.P.O. 1987-179-268 DOMESTIC RETURN RECEIPT

P 274 010 376  
**RECEIPT FOR CERTIFIED MAIL**  
 NO INSURANCE COVERAGE PROVIDED  
 NOT FOR INTERNATIONAL MAIL  
 (See Reverse)

* U.S.G.P.O. 1985-480-794  PS Form 3800, June 1985	Recipient's Name David S. Beachler Westinghouse RESD Cost Building 2400 Ardmore Blvd. Pittsburgh, Penn. 15221	
	Postage	\$
	Certified Fee	
	Special Delivery Fee	
	Restricted Delivery Fee	
	Return Receipt showing to whom and Date Delivered	
	Return Receipt showing to whom, Date, and Address of Delivery	
	TOTAL Postage and Fees	\$
	Postmark or Date	
	Mailed: 04/19/88 Permit: AC 03-145061 Federal: PSD-FL-129	



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

MAILING ADDRESS:  
Post Office Box 25486  
Denver Federal Center  
Denver, Colorado 80225

STREET LOCATION:  
134 Union Blvd.  
Lakewood, Colorado 80228

IN REPLY REFER TO:

RW AIR QUALITY  
MAIL STOP 60130

Mr. Clair Fancy  
Bureau of Air Quality Management  
State of Florida  
Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Attention: Margaret V. Janes

Dear Mr. Fancy:

We have reviewed the information provided to us regarding the proposed permit modification for the Bay County Resource Recovery Facility. The facility is located in Panama City, Florida and is approximately 115 km west of St. Marks Wilderness Area, a Federal class I area administered by the U. S. Fish and Wildlife Service. We have reviewed the best available control technology (BACT), air quality modeling, and air quality related values analyses. We do not expect that the increase in sulfur dioxide emissions resulting from the proposed permit modification will adversely impact the air quality or air quality related values in St. Marks Wilderness Area. However, we provide the following comments on the BACT and air quality modeling analyses in the hope that it will assist the State in consistent analysis of impacts and application of BACT for this and future facilities.

The assumption that was made in ratioing the emission rates for the original 1984 permit and the proposed 1988 permit modification in order to arrive at revised pollutant concentrations is an appropriate technique only if it can be shown that there have been none new sources since 1984 that would contribute to an increase in the maximum concentrations (for all sources plus the proposed source) predicted for the 1984 permit. A careful examination of any new sources within 100 km of the Bay County source impact area should be done before the results of the ratioing technique are used to grant a modified permit.

We realize that when the facility was originally permitted in 1984, BACT for resource recovery facilities did not call for additional SO<sub>2</sub> add-on control equipment. However, when a permitted source proposes to modify and increase emissions, control technology requirements in effect at the time of the proposed modification should be met. This precedent has been set under the Federal New Source Performance Standards (NSPS). For example, if a facility

PM  
4.6.88  
Denver, Co

Jim Copy



RECEIVED  
APR 11 1988  
DER-BAQM



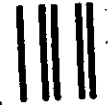
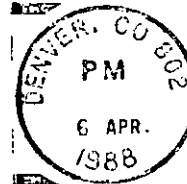
Faint, illegible text and markings at the top of the page, possibly bleed-through from the reverse side.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
POST OFFICE BOX 25486  
DENVER FEDERAL CENTER  
DENVER, COLORADO 80225

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

4-12-88

Handwritten markings: a large arrow pointing right, the letters 'FYI', and a circled number '4'.



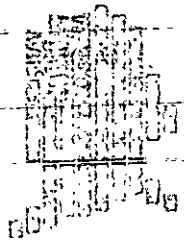
POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
THE INTERIOR  
INT-423

Mr. Clair Fancy  
Bureau of Air Quality Management  
State of Florida  
Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400



42

Handwritten text: 'MAILED' and 'APR 11 1988'.



Faint, illegible text and markings at the bottom of the page, possibly bleed-through from the reverse side.

commences construction before an NSPS is proposed, that facility is exempt from NSPS. However, if that facility is later modified, the facility becomes an affected facility and must meet the applicable NSPS requirements.

Bay County concludes that the high cost of scrubbers cannot be justified for removing a small amount of SO<sub>2</sub>. We agree that perhaps the additional costs would not be justified simply to remove SO<sub>2</sub>. However, in addition to reducing SO<sub>2</sub> emissions, scrubbers would reduce emissions of hydrogen chloride and other acid gases, heavy metals, dioxins, furans, and other toxic organic compounds. Because emissions of all of these pollutants would be reduced, the additional costs to install scrubbers are warranted. In addition, recent guidance from the Environmental Protection Agency (EPA) states that a BACT review should be an integrated analysis and consider the effects of reducing nonregulated pollutants, such as toxics, as well as the particular pollutant subject to Prevention of Significant Deterioration review. As you know, the EPA is also emphasizing a "top down" approach to BACT reviews. Under this approach, the most stringent control technology available is required unless it can be shown that this level of control is technically or economically infeasible for the source in question. Therefore, to be consistent with EPA guidance, and considering the fact that new resource recovery facilities are required to install SO<sub>2</sub> scrubbers, as a condition for the proposed permit modification Bay County should install scrubbers to reduce emissions of SO<sub>2</sub> and the other pollutants mentioned above.

If you have any questions regarding these comments please feel free to call Bud Rolofson at (303) 969-2072.

Sincerely,

*Ralph J. Kverno*

*for*

Nelson B. Kverno  
Assistant Regional Director  
Refuges and Wildlife, Region 6

cc:

Bruce P. Miller  
Chief, Air Programs Branch  
EPA Region IV

Copies: CHFIBT

*Pradeep Raval*

*Tom Rogie*

*Barry Andrews*

} 4-12-88, mjr

PM  
24 Mar 1988  
Pittsburgh, PA



file copy

Westinghouse  
Electric Corporation  
ENG/MG:DSB:88-051

Resource Energy Systems  
Division

Cost Building  
2400 Ardmore Boulevard  
Pittsburgh Pennsylvania 15221  
(412) 636 5800  
WIN 261 5800

RECEIVED

MAR 28 1988

DER - BAQM

March 23, 1988

Mr. Barry Andrews  
Florida DER  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

Dear Barry,

Enclosed is a copy of a recent article concerning the retrofit costs of scrubbers for waste-to-energy plants. This article appeared in the March, 1988 issue of Waste Age. We thought that you would be interested in this information.

Sincerely,

D. S. Beachler, Manager  
Environmental and Quality Engineering

Enclosure

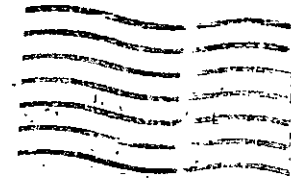
/kjd  
0751MM-EN01:21

Copied: CHF/BT  
Pradeep Raval  
Tom Rogers  
Barry Andrews } 3-28-88 (m)

Westinghouse  
Electric Corporation

Resource Energy Systems  
Division

Cost Building  
2400 Ardmore Boulevard  
Pittsburgh PA 15221



DEPARTMENT OF ENVIRONMENTAL RESOURCES  
STATE OF FLORIDA  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

Attention: Mr. Barry Andrews

AA



# HOW MUCH WILL PLANT RETROFITS COST?

*Local disposal costs may skyrocket if existing refuse-to-energy plants are required to add sophisticated emission controls.*

**S**ometime next year the EPA is scheduled to propose new Clean Air Act regulations for control of refuse-to-energy plant emissions. One result could be a stiff increase in disposal costs for some or all of the 200-odd locales which, by then, will have refuse incineration facilities in place or under construction.

Final regulations, to take effect in 1991, apparently will require new facilities to include sophisticated air pollution control (APC) systems, probably including acid gas scrubbers. As scrubbers have not normally been included in most recently-built U.S. plants, this could mean millions of dollars each in additional costs to new plants.

**Table One.**  
*Estimated APC Retrofit Costs At Three Florida Plants (all mass-burn plants, refitted with acid-gas scrubbers)*

	McKay Bay	Pinellas	Hillsborough
Plant size (tpd)	1,000	3,000	1,200
Type	Refractory	Waterwall	Waterwall
Construction Costs	\$16,306,000	\$15,000,000	\$18,000,000
Total Financing Costs	\$29,644,945	\$28,048,638	\$31,241,407
Lost Revenues and Extra Expenses	\$16,707,510	\$41,573,500	\$27,159,504
Total Retrofit Cost	\$62,656,455	\$84,622,138	\$76,400,911
Cost Per TPD of Design Capacity	\$62,658	\$28,207	\$63,666

Source: HDR Techserv, Inc.

Notes: HDR Techserv considered at least two different retrofit plans for each of the facilities studied. In most cases, total downtime for retrofitting of the facilities was estimated to be two years. "Total Financing Costs" amalgamates HDR estimates for bond discount/issuance, debt service reserve, surplus reserve and contingency, net interest during construction, bond issue, and annual debt service. "Lost Revenues and Extra Expenses" includes payments of operating fees, lost emergency revenues, landfilling costs.

EPA also will issue "guidelines" for existing facilities. By 1991, each state must tell the federal agency how it plans to bring existing plants into compliance with the guidelines. State actions could, it is believed, force existing facilities to add pollution control systems such as scrubbers. This will be costly as, generally speaking, adding a scrubber or other APC item to an existing plant costs much more than integrating such a system in plant design before construction starts.

EPA has proposed to control emissions from existing facilities under Section 111(d) of the Clean Air Act. This section requires EPA to issue guidelines to the states for existing sources, which they would use in developing specific emissions standards. APC requirements would then be determined on a case-by-case basis, taking into account not only health risks but the remaining useful life of the facility and costs of emission controls.

Depending on exactly what the states require after a case-by-case analysis, many plants operating today could be required to spend millions of dollars for retrofits. These costs would be passed on to their customers.

This possibility raises two key questions:

- Why are new regulations with this potential effect being proposed?
- Are the benefits produced by such retrofits (and additions to new plants) commensurate with the costs the public will have to pay to gain them?

## What the EPA has said

In the July 7, 1987, *Federal Register*, EPA said refuse-to-energy plants, which it calls "municipal waste com-

bustors" (MWCs), "may be reasonably anticipated to contribute to the endangerment of public health and welfare."

Specifically, EPA fears that emissions contribute to acid rain, increased cases of cancer, and other health problems. Unless Congressional action redirects EPA's current thinking, the 1991 regulations will probably require new facilities be equipped with APC systems incorporating both acid gas scrubbers and either fabric filter baghouses or electrostatic precipitators (ESPs). The guidelines for states to follow in regulating existing plants may be made final next year or in 1990.

A key question is: What will the states do in response? One answer could come from Florida, where stricter APC regulations are under consideration. Note that Florida is ahead of the pack by a step or two because it has more existing plants than any other state.

EPA's July 7 action was precipitated by the fact that, other than for particulates, there are no federal stack emission limits for MWC facilities. Some states have imposed emissions limits on various pollutants, but many have not.

### Retrofitting cost estimates vary

Just how much will it cost to retrofit existing plants with more sophisticated APC systems?

EPA estimates that it will cost 1.8 times the cost of a control system. That factor is supposed to cover all costs, including the system vendor's bill, construction, and additional ductwork in the plant. Using EPA's equation, the cost of retrofitting a 1,000-tpd waterwall mass-burn facility with acid gas scrubbers would be \$18.7 million (or \$18,700 per ton).

But an estimate for addition of acid-gas scrubbers to the existing 1,200-tpd waterwall mass-burn Hillsborough County, Fla., facility puts the total retrofit cost closer to \$76 million!

See Table One for estimates for APC retrofits at three Florida plants, from a study performed by HDR Techserv, Inc. (Tampa, Fla.).

HDR looked at costs at the Hillsborough, Tampa, and Pinellas County plants to estimate the financial effect of new regulations under consideration in Florida.

In its estimate, the consulting firm factored in construction costs and the price of the control system, as EPA says it does. HDR's estimate assumes retrofits take two years.

Plant shutdowns for retrofit purposes have a cost, which HDR includes in its estimate. In addition to the lost energy revenues, there is a high price tag on land-

filling refuse that the shut-down-for-retrofit facility would otherwise burn. HDR also computes debt service, bond issuance, and other costs into its equation.

What's interesting is that when a *Waste Age* staffer asked a U.S. EPA official for comment on the HDR estimates, the reaction was that the Florida figures might be more accurate than the federal agency's 1.8-times-system-cost factor:

"Our numbers were very preliminary," Michael Johnston, an EPA spokesperson, says. "Now that we've decided to regulate . . . we will look (more closely) at the economic effect on the facility and the community."

### Is it worth the extra cost?

Potential health and welfare impacts from refuse-to-energy plants that concern EPA span a broad range. These concerns include the "relatively low risks of cancer associated with several trace constituents, as well as the significantly higher, but much more uncertain, cancer risks posed by the predicted emissions of (dioxins and furans)."

EPA is additionally concerned about possible noncarcinogenic effects related to particulates, sulfur dioxide, carbon monoxide, and nitrogen oxide emissions, and the potential health implications of hydrochloric acid emissions.

The addition of scrubbers to a plant that already has ESPs or fabric filters in place can help control emissions of sulfur dioxide, hydrochloric acid, and hydrofluoric acid, among others, to levels well within the recommended range of acceptable health standards. But how much of a problem do refuse-to-energy plant emissions of these substances really present to the public?

Based on its Florida study results, HDR Techserv maintains that the threat to public health is relatively low. For one thing, the consulting firm's report says it is unclear how significant waste combustion emissions are in the formation of acid rain.

Moreover, many of the potentially harmful compounds released from refuse-to-energy facilities are emitted in very small quantities. HDR found that close to 70% of Florida's sulfur dioxide emissions were generated by utility companies, while more than 40% of total nitrogen oxide emissions came from cars, buses, trains, and trucks. Solid waste facilities were found to contribute less than 1% of Florida's sulfur dioxide and nitrogen oxide emissions!

Says Marc Rogoff, an HDR environmental scientist and former Hillsborough County official: "I'm not sure it's worth spending \$50 million or more to retrofit a



plant to reduce something that is negligible to begin with."

### Impact on disposal prices

According to HDR estimates, if the state of Florida required the three plants studied to add APC equipment, refuse disposal cost increases of from \$40 to \$80 per resident per year would result.

In other words, if Florida plants are forced to add acid gas scrubbers, citizens living in areas served by the plants could pay as much as \$6.67 per month just for the extra APC equipment! "That's a big chunk to be asking from the public," Rogoff opines. "They won't want to pay it."

Perhaps this very factor will cause states to pull back from requiring APC retrofits. Under the Clean Air Act, states will be able to consider costs and a plant's remaining useful life. EPA's Johnston concedes that "We do take cost in to account, but how much of a fac-

tor it is going to be, I can't say for sure right now."

### Congress may change scenarios

As matters now stand, what happens to existing plants will depend on what EPA places in its guidelines and how states respond. But there's more.

Members of Congress may take the decision away from the agency. In Senate and House hearings:

- The EPA's timetable for regulating refuse-to-energy plant emissions has been sharply criticized;
- Critics have also complained that the agency's plans for regulating specific pollutants are not broad enough (i.e., additional pollutants need to be covered); and
- Critics deem emission levels of listed pollutants that EPA will allow as "unacceptably high."

Federal legislation calling for tougher APC controls and faster regulation was under discussion in 1987 and may well be made into law this year if EPA's response does not satisfy its Congressional and other critics. ■

# DRASTICALLY REDUCE YOUR HAULING COSTS AND LANDFILL TIPPING FEES!

## FHE's New Tub Grinder Produces Chips From Bulky Wood Waste:

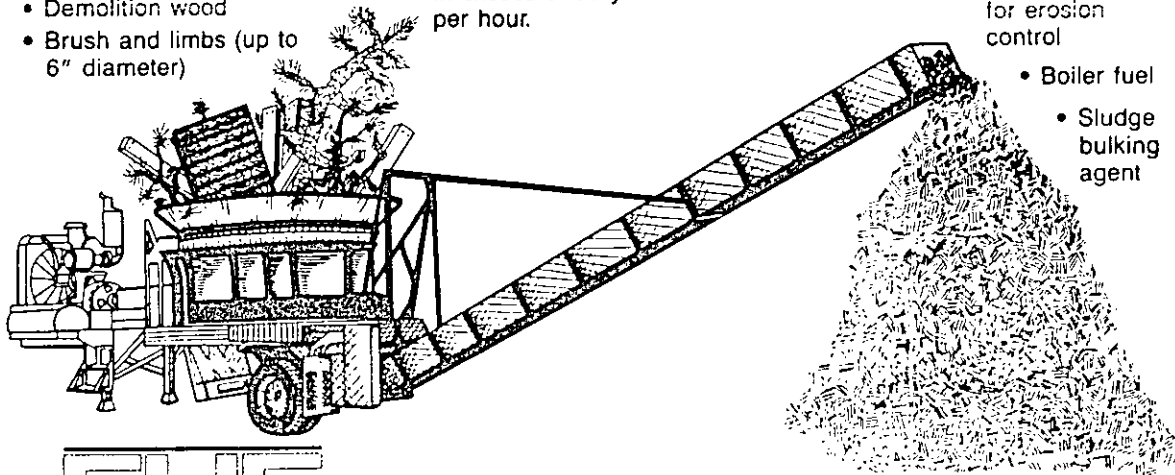
- Construction wood waste
- Pallets
- Demolition wood
- Brush and limbs (up to 6" diameter)

## Reduce Bulky Wood Waste Volume by up to 70%!

FHE's Tub Grinder with Caterpillar® power processes bulky wood waste at a rate in excess of 50 yards per hour.

## Markets For Recycled Bulky Wood Include:

- Garden mulch
- Ground cover
- Soil binder for erosion control
- Boiler fuel
- Sludge bulking agent



**FHE**  
**Fuel Harvesters**  
**Equipment**

Fuel Harvesters Equipment Inc.  
 12759 Loma Rica Drive Grass Valley, CA 95945 Tel: (916) 272-7664



PM  
3.22.88  
Atlanta, GA

File Copy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

MAR 21 1988

4APT-APB

Margaret V. Janes, Planner  
Bureau of Air Quality Management  
Florida Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Re: Bay County Resource Recovery Facility (PSD-FL-129)

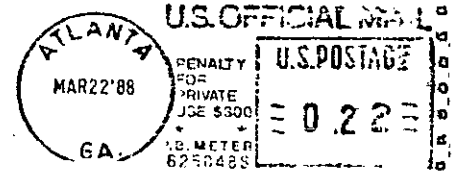
Dear Ms. Janes:

This is to acknowledge receipt of a copy of the permit application for the Bay County Resource Recovery Facility and to confirm the March 4, 1988, telephone conversation between Pradeep Raval of your staff and Gary Ng of my staff. We have reviewed the application for an increase in municipal waste throughput and have the following comments:

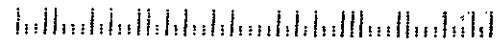
- 1) As was indicated in the phone conversation, we noticed that the applicant did not address the possible hazardous air pollutants (HAPs) (i.e., dioxin, HCl, H<sub>2</sub>SO<sub>4</sub>, etc.) from the combustion of the proposed additional municipal solid waste. As you know, EPA is now requiring all municipal waste combustors (MWCs) to take unregulated HAPs into consideration when evaluating BACT requirements for the regulated air pollutants (i.e., SO<sub>2</sub>, TSP, etc.). Please require the applicant to provide the necessary analysis on the associated HAPs.
- 2) Also mentioned was the BACT determination for SO<sub>2</sub>; we noticed that the application lacked an incremental cost analysis in dollars per ton of pollutant removed. Please request the applicant to provide the analysis. Also, in order to have a more complete incremental analysis, the applicant must take into consideration the amount of HAPs controlled in addition to the amount of SO<sub>2</sub> controlled in determining the incremental cost for each option. Then, in accordance with the December 1, 1987, Potter memorandum, we would also suggest that the applicant perform the analysis in a top-down manner.

UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION IV  
345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300  
AIR-4



Ms. Margaret V. Janes, Planner  
Bureau of Air Quality Management  
Florida Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400



Thank you for the opportunity to provide you with our comments. Please ask the applicant to address the above concerns before issuing your preliminary determination. If you have any additional comments or information, please contact me or Gary Ng of my staff at (404) 347-2864.

Sincerely yours,

*Bruce P. Miller*

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

Copied: Pradeep Baval  
Tom Rogus  
CHFIBT  
Barry Andrews } 3-28-88 ~~MD~~

Airbill # 331-9355-896

Judicial Express  
3-18-88  
Pittsburg, PA

File Copy



Westinghouse  
Electric Corporation

Resource Energy Systems  
Division

ENG/MG:DSB:88-049

Cost Building  
2400 Ardmore Boulevard  
Pittsburgh Pennsylvania 15221  
(412) 636 5800  
WIN 261 5800

March 17, 1988

RECEIVED

MAR 21 1988

DER-BAQM

Mr. Clair Fancy  
Florida Department of  
Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399

RE: Bay County Waste-to-Energy Facility  
Request for Permit Modification

Dear Clair,

Please find enclosed four copies of the additional information that you requested in your March 7, 1988 letter.

Thank you for your expeditious review of this application.

Should you have any questions regarding this matter, please don't hesitate to call.

Sincerely,

D. S. Beachler, Manager  
Environmental and Quality Engineering

Enclosures

cc: S. J. Brady  
J. J. Zebroski

/kjd  
0751MM-EN01:20

Copied: Pradeep Raval } 3-22-88 (mp)  
Barry Andrews }  
Tom Rogus }  
CHP/BT

3-22-88

CAF  
ST → PUT  
(4)

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOL

AIRBILL NUMBER  
3319355896

12  
:  
10

702 784  
DATE 3/18/88

AIRBILL NUMBER 3319355896

From (Your Name) David Beachler  
Your Phone Number (Very Important) (412) 636-5806

Company WESTINGHOUSE/RESOURCE ENERGY  
Department/Floor No.

Street Address 2400 ARDMORE BLVD COST HLDG

City PITTSBURGH PA ZIP Required For Correct Invoice 152121

To (Recipient's Name) Mr. Clair Fancy  
Recipient's Phone Number (Very Important) (904) 488-1344

Company Florida Dept. of Environmental Regulation - Twin Towers Office Bldg  
Department/Floor No.

Exact Street Address (Use of P.O. Boxes or P.O. Zip Codes Will Delay Delivery And Result In Extra Charge.) 2600 Blair Stone Road

City Tallahassee FL ZIP Street Address Zip Required 32399

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)  
BRN500

HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION:  
Street Address (See Service Guide or Call 800-238-5355)

PAYMENT  Cash  Bill Sender  Bill Recipient's FedEx Acct. No.  Bill 3rd Party FedEx Acct. No.  Bill Credit Card

City State

**SERVICES CHECK ONLY ONE BOX**  
1  **PRIORITY 1** Overnight Delivery - 8 AM  
2  **OVERNIGHT DELIVERY** Using Your Packaging  
3  **Courier-Pak Overnight Envelope** 12" x 15"  
4  **Overnight Box** 12" x 17" x 3"  
5  **Overnight Tube** 38" x 6" x 6"  
6  **STANDARD AIR** Delivery not later than second business day  
**SERVICE COMMITMENT**  
PRIORITY 1 - Delivery is scheduled early next business morning in most locations. It may take two or more business days if the destination is outside our primary service areas.  
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.  
5 Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.  
Release  
Signature: [Signature]

**DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED**  
1  **HOLD FOR PICK-UP** (See Section 14 in right)  
2  **DELIVER WEEKDAY**  
3  **DELIVER SATURDAY** (Extra charge)  
4  **DANGEROUS GOODS** (P-1 and Standard Air Packages only. Extra charge)  
5  **CONSTANT SURVEILLANCE SERVICE (CSS)** (Extra charge) (See Section 14)  
6  **DRY ICE**  
7  **OTHER SPECIAL SERVICE**  
8  **SATURDAY PICK-UP** (Extra charge)  
9   
10

**PACKAGES WEIGHT YOUR DECLARED VALUE OVER SIZE**  
LBS  
LBS  
LBS  
LBS  
Total Total Total  
Received At  
1  Regular Stop  
2  On-Call Stop  
3  Drop Box  
4  B.S.C.  
5  Station  
Federal Express Corp. Employee No. 56120  
Date/Time For Federal Express Use 3-18-88

**ZIP** Zip Code of Street Address Required  
Emp. No. Date  
 Cash Received  
 Return Shipment  
 Third Party  
 Chg. To Del.  
 Chg. To Hold  
Street Address  
City State Zip  
Received By  
X  
Date/Time Received FedEx Employee Number

Federal Express Use  
Base Charges  
Declared Value Charge  
Origin Agent Charge  
Total Charges  
PART #106001  
REVISION DATE 10/86  
PRINTED U.S.A. GBFE

RECIPIENT'S COPY

Pitt T  
Packag  
This is local's  
apparently right  
behind stop, left  
make do on over's  
3/30

**COMMENT:**

The emissions of the PSD regulated pollutants sulfuric acid mist and fluorides need to be addressed. In addition, all toxic air pollutants need to be addressed with respect to the proposed control technology. For municipal waste combustors, the toxic air pollutants are identified in the publications entitled: "Compiling Air Toxics Emission Inventories," EPA-450/4-86-010, and "Control Technologies for Hazardous Air Pollutants," EPA-625/6-86-014. In accordance with these publications, the pollutants cadmium, chromium, copper, manganese, nickel and polycyclic organic matter need to be addressed.

**RESPONSE:**

The increase in H<sub>2</sub>SO<sub>4</sub> and HF emissions resulting from the increased processing rate will be 4 tons/yr and 0.4 tons/yr respectively (see Table A below).

TABLE A

ESTIMATED ANNUAL H<sub>2</sub>SO<sub>4</sub> AND HF EMISSIONS USING 1987 DEVELOPED EMISSION FACTORS

Pollutant	Emission Factor (Wood Chips)	Emission Factor (MSW)	Annual Emissions (tons/year)		Difference tons/year
			Based on 350 TPD (MSW) 135 TPD Wood	Based on 510 TPD (MSW)	
H <sub>2</sub> SO <sub>4</sub>	0	0.14 lb/ton	9	13	4
HF	0	0.014 lb/ton	0.9	1.3	0.4

Because metals are present in solid waste, some metals will be emitted in the flue gas from the facility. The amount emitted is a function of the quantity of metal in the waste stream, the properties of the metal, the combustion characteristics of the facility, and the characteristics and performance of the air pollution control equipment.

A significant portion of most metals vaporizes during combustion. As the exhaust gases cool (during heat recovery, in the ducting, and in air pollution control devices), many of the metals condense. Usually the condensed metals

adsorb onto the surface of particles in the gas stream and are collected by the ESP. It should be noted that mercury and mercury compounds are an exception to this rule because they exist predominantly as a vapor at common stack exit temperatures.

The estimated control efficiency for trace heavy metals is given as a range in Table B because there is a limited data base available concerning the capture of heavy metals in ESP's on resource recovery facilities. The bottom end of the range, a particulate emission control efficiency of 98.5%, represents efficiencies that have been achieved by ESP's installed on many industrial processes. The top end of the range (99%) represents a particulate emission control efficiency based on meeting a guaranteed emission limit of 0.03 gr/dscf @ 7% O<sub>2</sub> with an assumed inlet of 3.0 gr/dscf. Individual control efficiencies for certain metals may be somewhat less than the 99% level. However, since the proposed facility will be designed to achieve a guaranteed outlet grain loading of 0.030 gr/dscf corrected to 12% CO<sub>2</sub>, the actual particulate emission control efficiency should be higher than 99% (assuming an inlet loading of 3.0 gr/dscf).

Table B lists the heavy metal emission factors from typical waste-to-energy plants. Factors used to predict uncontrolled emission (Column 1) are based on test data from the O'Connor combustor installed in Gallatin, Tennessee. Tests were conducted by Cooper Engineers from February 6-12, 1983. The proposed controlled emission factors (Column 2) are based on a system collection efficiency range of 98.5 to 99%.

The bottom end of the proposed emission factor range for total chromium is  $1.94 \times 10^{-4}$  lb/ton. This emission factor is estimated from reviewing a number of sources--various consultants' data bases including Roy F. Weston, Inc., a paper presented by Wurmbbrand and Atkins that lists the proposed emission factors for seven resource recovery projects in Connecticut, and the proposed emission factors in other states including projects in California. Hexavalent chromium (Cr<sup>+6</sup>) is estimated to be approximately 10% of the total chromium value. This estimate is based on tests from a utility boiler showing the contribution of Cr<sup>+6</sup> to be 1% of the total chromium and tests from a cement kiln showing the contribution to be as high as 10%.



**TABLE B**  
**EMISSION FACTORS FOR HEAVY METALS**

<u>Pollutant</u>	<u>Uncontrolled Emission<sup>(1)</sup> Factor (lb/ton MSW burned)</u>	<u>Typical<sup>(2)</sup> Emission Factor Range (lb/ton MSW burned)</u>
As	$3.18 \times 10^{-3}$	$4.77 \times 10^{-5} - 3.18 \times 10^{-5}$
Be	$4.8 \times 10^{-5}$	$7.20 \times 10^{-7} - 4.8 \times 10^{-7}$
Cd	$2.36 \times 10^{-2}$	$3.54 \times 10^{-4} - 2.36 \times 10^{-4}$
Cr	$7.86 \times 10^{-3}$	$1.18 \times 10^{-4} - 1.94 \times 10^{-4(4)}$
Cr <sup>+6</sup>	$7.86 \times 10^{-4}$	$1.18 \times 10^{-5} - 1.94 \times 10^{-5}$
Ni	$3.32 \times 10^{-4}$	$4.98 \times 10^{-6} - 3.32 \times 10^{-6}$
Cu	$3.37 \times 10^{-2}$	$5.05 \times 10^{-4} - 3.37 \times 10^{-4}$
Hg	$1.71 \times 10^{-3}$	$1.71 \times 10^{-3(3)}$
Mn	$6.04 \times 10^{-2}$	$9.06 \times 10^{-4} - 6.04 \times 10^{-4}$
Se	$1.44 \times 10^{-4}$	$2.16 \times 10^{-6} - 1.44 \times 10^{-6}$
Sn	$3.10 \times 10^{-2}$	$4.65 \times 10^{-4} - 3.10 \times 10^{-4}$
Vn	$1.36 \times 10^{-2}$	$2.04 \times 10^{-4} - 1.36 \times 10^{-4}$
Zn	$8.31 \times 10^{-1}$	$1.25 \times 10^{-2} - 8.31 \times 10^{-3}$
Pb	$2.74 \times 10^{-1}$	$4.11 \times 10^{-3} - 2.74 \times 10^{-3}$

(1) Uncontrolled metal emissions based on Gallatin test data.

(2) Control efficiency for heavy metals is estimated to range from 98.5% to 99%.

(3) Hg control estimated to be zero.

(4) Emission data for Cr in literature shows that the average controlled emissions are approximately  $1.94 \times 10^{-4}$  lb/ton and therefore the 99% control efficiency does not apply.

A number of polycyclic organic matter (POM) compounds are emitted in trace amounts from the facility; these include dioxins (PCDD), furans (PCDF), polynuclear aromatic hydrocarbons (PAH), and aldehydes (RCHO). A limited amount of testing has been conducted to measure PAH compounds and aldehydes. This test data is given in Tables 5-8 and 5-9, that were extracted from a report prepared for Westinghouse for the proposed Delaware County Resource Recovery Facility.

More testing to measure dioxins and furans has been conducted at resource recovery facilities. Testing has been done at a number of modern facilities that use automatic combustion controls to minimize formation of organic compounds (dioxins and furans) along with ESP's that collect organic compounds that have condensed on fly ash particles. This equipment is similar to that installed at the Bay County facility. Table 5-1 contains total PCDD emissions from a number of facilities throughout the world. The plants at Westchester, Tulsa, Pittsfield, Chicago N.W., Zurich, North Andover, and Sangus all use ESP's as the add-on air pollution control equipment

Table 5-9

Standardized Aldehydes Data and Calculated Emission Factors  
( $\mu\text{g}/\text{Nm}^3$  at 12 percent  $\text{CO}_2$ , dry)

Facility	Results for Tests					Average
	1	2	3	4	5	
Cattaraugus, New York <sup>a</sup>	684.8					684.8
Oneida, New York	419.9					419.9
Westchester, New York	959.4	421.8	546.8			642.7
<u>All facilities<sup>b</sup></u>						
Geometric Mean						569.6
Plus One Standard Deviation						743.21
Minus One Standard Deviation						436.6

<sup>a</sup>Modular unit.

<sup>b</sup>Mass burn (excess air and modular) facilities with data available.

Table 5-8

Standardized PAH Data and Calculated Emission Factors  
(ug/Nm<sup>3</sup> at 12 percent CO<sub>2</sub>, dry)

Facility	Results for Tests						Average
	1	2	3	4	5	6	
<u>Cattaraugus, New York</u>							
<sup>c</sup> B(a)P	1.03						<u>1.03</u>
Total Carcinogens							1.03
<u>Hogdalen, Sweden</u>							
PAH <sup>d</sup>	0.04						<u>0.04</u>
Total Carcinogens							0.04
<u>Prince Edward Island, Canada<sup>c</sup></u>							
B(a)A	0.227	0.246	0.060				0.18
DBA	0.020	0 <sup>b</sup>	0.006				0.01
Ind	0.054	0 <sup>b</sup>	0.008				0.03
B (k, j) F & B(a)P	0.127	0.451	0.122				<u>0.23</u>
Total Carcinogens							0.45
<u>Quebec City, Canada</u>							
PAH <sup>d</sup>	0.108	0.139	0.122	0.015	0.121	0.126	<u>0.11</u>
Total Carcinogens							0.11
<u>All Facilities<sup>e</sup></u>							
Total Carcinogens:							
Geometric Mean							0.21
Plus One Standard Deviation (Geometric)							0.33
Minus One Standard Deviation (Geometric)							<u>0.14</u>

<sup>a</sup>(Ba)P - benzo(a)pyrene

DBA - dibenzo (a,h) anthracene

B(a)A - benzo(a) anthracene

Ind - Indeno(1,2,3-cd)pyrene

B(k,j)F-benzo(k,j) fluoranthene

<sup>b</sup>Value was below detection limit. It was not included in calculation of average value.

<sup>c</sup>Modular unit.

<sup>d</sup>For the purpose of this analysis it is assumed to be entirely B(a)P.

<sup>e</sup>Mass burn (excess air and modular) facilities with data available, excluding facilities with abnormal operations during testing.

TABLE 5-1  
 WORLDWIDE PCDD EMISSIONS DATA BY FACILITY TYPE<sup>(a)</sup>  
 (Tetra thru Octa Homologues)  
 (ng/Nm<sup>3</sup> @12% CO<sub>2</sub>, dry)

Facility	Country	A	B	C	D	E
		All Data	Plants with Heat Recovery	Plants with Normal Conditions During Testing	Mass Burn Facilities	Mass Burn Excess Air Facilities >50 TPD
Montreal (Des Carrieres)	Canada	<1	<1	-----	-----	-----
Marion County	USA	1.3	1.3	1.3	1.3	1.3
Stockholm-Hogdalen	Sweden	6.5	6.5	6.5	6.5	6.5
Tulsa County	USA	22	22	22	22	22
Westchester RESCO	USA	24	24	24	24	24
Wurzburg	FRG	25	25	25	25	25
Pittsfield (Vicon)	USA	36	36	36	36	36
Chicago, N.W.	USA	47	47	47	47	47
Stapelhof (b)	FRG	65	65	65	65	65
Cattaraugus	USA	67	67	67	67	-----
Eksjo RDF	Sweden	75	75	75	-----	-----
Prince Edward Island (PEI)	Canada	107	107	107	107	-----
North Andover	USA	122	122	122	122	122
Oneida	USA	135	135	135	135	-----
Stellinger Moor (b)	FRG	140	140	140	140	140
Zurich	Switzerland	171	171	171	171	171
Saugus	USA	182	182	182	182	182
Borsfgrasse (b)	FRG	185	185	185	185	185
Albany RDF (Sheridan Ave)	USA	305	305	305	-----	-----
Valmadrera	Italy	314	-----	-----	-----	-----
Italy 1	Italy	516	-----	-----	-----	-----
Toronto	Canada	612	-----	-----	-----	-----
Italy 6	Italy	675	-----	-----	-----	-----
Italy 5	Italy	746	-----	-----	-----	-----
Niagara RDF (Occidental Chemical Co)	USA	853	853	853	-----	-----
Zaanstad	Netherlands	1294	-----	-----	-----	-----
Hamilton/Wentworth SWARU	Canada	3141	3141	-----	-----	-----
Philadelphia, N.W.	USA	3350	-----	-----	-----	-----
Italy 4	Italy	5003	-----	-----	-----	-----
Italy 3	Italy	8622	-----	-----	-----	-----
Hampton (Langley Field)	USA	11188	11188	-----	-----	-----
Italy 2	Italy	33047	-----	-----	-----	-----

<sup>a</sup>Based on data collected as of June 1, 1987.

<sup>b</sup>Includes tri thru octa homologues.

COMMENT:

A cost estimate for using a dry injection system to remove acid gases needs to be included. A review of other facilities indicates that the 500 TPD Katy Seghers refuse-to-energy facility in Clearfield, Utah utilizes the dry injection control technology in conjunction with an ESP to remove  $\text{SO}_2$  and HCl with 50 percent efficiency.

RESPONSE:

According to the Utah Department of Health's Bureau of Air Quality, the Katy Seghers facility has not been able to meet the 50% acid gas removal permit limitation. The facility has also not been able to meet the 0.025 gr/dscf particulate emission limitation. The dry injection system is experiencing severe plugging problems and is causing upsets in the operation of the facility.

Westinghouse has contacted a vendor that supplies dry injection systems used to control acid gas emissions. In dry injection systems where an ESP is used for controlling particulate matter and spent sorbent, the acid gas reaction must occur in a very short time period. In addition, the operating temperature of the ESP is generally greater than 430°F. Because the reaction time is short and the temperature for acid gas absorption is high, the predicted acid gas control levels are approximately 20% to 40% for HCl and 20% for  $\text{SO}_2$ . The vendor indicated that an injection rate of approximately 1000 lb per hour (500 lb/train) of hydrated lime would be needed to achieve 20%  $\text{SO}_2$  and 40% HCl removal.

The following tables illustrate the estimated capital costs, operating and maintenance costs, lost revenue and equivalent uniform annual cost (EUAC) for retrofitting a dry injection system. The lime use was estimated to be 1000 lb/hr at an annual cost of \$328,000. The amount of residue produced (unreacted reagent and reacted salts) is estimated to be 6000 tons per year. This reflects an increase in disposal cost of \$120,000.

**TABLE 1**  
**ADD-ON DRY INJECTION SYSTEM CAPITAL COST ESTIMATE**

Capital Cost:   \$ 800,000 - Spray Dryers  
                  \$ 475,000 - Drag Conveyors  
TOTAL:        \$1,275,000

Cost Breakdown Includes:   Engineering  
                                  Foundations and Supports  
                                  2 Rotary Screw Feeders  
                                  Mixing Vanes  
                                  2 Drag Conveyors  
                                  Lime Storage Silo  
                                  Shipping to the Site  
                                  Installation  
                                  Start-up Services

TABLE 2  
ANNUAL OPERATING AND MAINTENANCE COST

	<u>Each Train</u>	<u>Cost</u>	<u>Cost per Year For Both Trains</u>
Lime	500 lb/hr	\$75/ton	\$328,500
Power for Rotary Feeder	30 kw	\$0.05/kwh	\$ 26,280
Power for Delta P (fan cost)	Delta P=2.0 in H <sub>2</sub> O (see below) Gas Flow-55,000 acfm for each unit (@ 0.05/kwh)		\$ 17,400

$$\text{Fan Power} = Q \times \frac{0.7456}{6356 \times E} \times \text{Delta P} \times H$$

where: P = fan power (kwh)  
 Q = gas volume (acfm)  
 E = fan efficiency (assumed 0.65)  
 Delta P = pressure drop  
 H = annual operating rate (8760 hr/yr)

Water Cost	\$ - 0 -
Routine Maintenance 220 hr per injection system @ \$20/hr	\$ 8,800
Spare Parts	\$ 10,000
Increase Disposal Costs 6000 tpy Residue @ \$20/ton	<u>\$120,000</u>
<b>TOTAL:</b>	<b>\$510,980</b>



**TABLE 3**  
**LOST REVENUES BECAUSE OF PLANT SHUTDOWN**  
**DURING DRY INJECTION SYSTEM INSTALLATION**

Assume: 4 weeks shutdown per train

Lost Electrical Revenue:	\$ 403,200
By-Pass Waste Costs:	\$ <u>98,000</u>
(350 TPD x 28 days x \$10/ton)	
	\$ 501,200

**TABLE 4**  
**EQUIVALENT UNIFORM ANNUAL COST (EUAC) FOR**  
**ADDITION OF A DRY INJECTION SYSTEM**  
*(i=10%, N=20 yrs)*

Capital Cost:	\$1,275,000	(Table 1)
Lost Revenue:	\$ <u>501,200</u>	(Table 8)
Total Cost:	\$1,776,200	
 Operation & Maintenance:	 \$ 510,890	 (Table 2)
 EUAC = \$1,776,200 (A/P, 10%, 20) + \$510,980		
EUAC = \$ 719,684		

The additional annual SO<sub>2</sub> emissions that would be emitted when burning 510 TPD MSW instead of burning 350 TPD MSW would be a maximum of 90 tons. EPA or other State Agencies have not required any W-T-E facilities to retrofit their plants with acid gas control equipment. The high capital cost (\$1,275,000), lost revenue (\$501,000), annual operating cost (\$510,980) and high EUAC (\$719,684) for retrofitting a dry injection system cannot be justified for removing a small incremental amount of SO<sub>2</sub> (90 tons per year) and HCl (170 tons per year), that would be emitted if the facility were permitted at the original design capacity. In addition, the dry injection system with its low removal efficiency and its lack of known operational success when placed in front of an ESP should not be considered as BACT. Therefore, BACT for this facility should be the same as approved by the Florida DER in 1984, and no add-on acid gas control equipment should be required.

**COMMENT:**

Although the emissions data for HCl appears to be complete, please verify the accuracy of the emission limit expressed in both pounds per ton and tons per year.

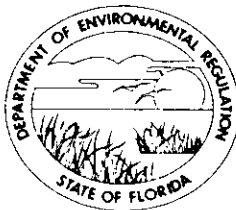
**RESPONSE:**

The emission factor for HCl should be corrected to 5.8 lb HCl/ton of MSW (instead of 0.58 lb/ton). The resulting annual HCl emissions would be 370 tons and 540 tons when processing 350 TPD and 510 TPD of MSW, respectively. This reflects a yearly increase in HCl emissions of 170 tons.

File Copy

STATE OF FLORIDA  
**DEPARTMENT OF ENVIRONMENTAL REGULATION**

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ  
GOVERNOR  
DALE TWACHTMANN  
SECRETARY

March 7, 1988

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David S. Beachler  
Westinghouse RESD  
Cost Building  
2400 Ardmore Blvd.  
Pittsburgh, Pennsylvania 15221

Dear Mr. Beachler:

Re: Completeness Review of Application to Modify Bay  
County Resource Recovery Facility  
Permit No. AC 03-145061, PSD-FL-129

The Department has received and reviewed your application package dated January 18, 1988. The application has been deemed incomplete. Please submit the following information to resume the completeness review:

1. The emissions of the PSD regulated pollutants sulfuric acid mist and fluorides need to be addressed. In addition, all toxic air pollutants need to be addressed with respect to the proposed control technology. For municipal waste combustors the toxic air pollutants are identified in the publications entitled, "Compiling Air Toxics Emission Inventories," EPA-450/4-86-010 and "Control Technologies for Hazardous Air Pollutants," EPA-625/6-86-014. In accordance with these publications, the pollutants cadmium, chromium, copper, manganese, nickel and polycyclic organic matter need to be addressed.
2. A cost estimate for using a dry injection system to remove acid gases needs to be included. A review of other facilities indicates that the 500 TPD Katy Seghers refuse-to-energy facility in Clearfield, Utah utilizes the dry injection control technology in conjunction with an ESP to remove SO<sub>2</sub> and HCl with 50 percent efficiency.
3. Although the emissions data for HCl appears to be complete, please verify the accuracy of the emission limit expressed in both pounds per ton and tons per year.

Mr. David S. Beachler  
Page Two  
March 7, 1988

If you have any questions please call Tom Rogers (modeling),  
Barry Andrews (BACT), or Pradeep Raval (permitting), at  
(904)488-1344, or write to me at the above address.

Sincerely,

*Barry D. Andrews*

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

CHF/BA/s

cc: E. Middleswart, NW District  
W. Aronson, EPA  
M. Flores, NPS  
A. Richter, P.E.

Reading File }  
Barry Andrews } 3/7/88 *BA*  
Pradeep Raval }  
Tom Rogers }

P 274 010 360

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL

(See Reverse)

PS Form 3800, June 1985

★ U.S.G.P.O. 1985-480-794

David S. Beachler	
Westinghouse RESD	
Cost Bldg.	
2400 Ardmore Blvd.	
Pittsburg, Pennsylvania 15221	
Postage	5
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	5
Postmark or Date	
Mailed: 03/07/88	
Permit: AC 03-145061	
Federal: PSD-FL-129	

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1.  Show to whom delivered, date, and addressee's address. 2.  Restricted Delivery.

3. Article Addressed to: 4. Article Number

Mr. David S. Beachler  
Westinghouse RESD  
Cost Building  
2400 Ardmore Blvd.  
Pittsburg, Pennsylvania 15221

P 274 010 360

Type of Service:

Registered  Insured  
 Certified  COD  
 Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

8. Addressee's Address (ONLY if requested and fee paid)

Signature - Addressee

Signature - Agent

X

7. Date of Delivery 3-11-88

PS Form 3811, Feb. 1986

DOMESTIC RETURN RECEIPT