Westinghouse
Electric Corporation

Resource Energy Systems
Division

EN2125NH

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

April 19, 1989

RECEIVED

APR 20 1989

DER - BAQM

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

Dear Mr. Fancy:

I am currently making plans to conduct certification tests of the carbon monoxide continuous emission monitors that are installed at the Bay Resource Management Center, located in Panama City, Florida. In advance of performing the certification tests, we would like to request an exemption for conducting the relative accuracy tests for the CO continuous emission monitors. According to 40 CFR Part 60, Appendix B, Performance Specification 4, Item 3.2, "...NDIR CEMS meeting the specifications of Method 10 are exempted from the RA tests, but not the CD test." A more detailed explanation is contained in the July 7, 1987 edition of 40 CFR Part 60.

The two CO analyzers installed at the Bay County Facility include: (1) a Land Model 9000 NDIR (non-dispersive infra-red photometer) CO monitor and (2) a Maihak UNOR 6N CO NDIR gas analyzer manufactured by Westinghouse Electric Corporation, Combustion Control Division. I have included copies of the product literature for both units and have highlighted the relevant specification information.

Additionally, we would like to request a single-point calibration-drift determination (see 40 CFR Part 60, Appendix B, Specification 2, Item 4.1), for the Land Model 9000 Monitor. The Land Monitor was designed with an automatic calibration cycle that continuously checks the calibration drift. The offset is linear over the range of the monitor, so that the offset measured at the zero point is equal to the offset measured at the span value. Attached is a general description of the operation of the monitor that was supplied by Land Combustion. If you have any questions about its operation, you can contact Mr. Ken Greaves or Mr. Dan Mennitti at Land Combustion at (215) 781-0810.

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL NUMBER 881954766 3

DATE 4-19-89

AIRBILL NUMBER 881954766 3

1 From (Your Name): Nancy Hirko

Your Phone Number (Very Important): 412 636-5890

Company: WESTINGHOUSE/RESOURCE ENERGY

Department/Floor No.:

Street Address: 2400 ARDMORE BLVD COST.BLDG

City: PITTSBURGH State: PA ZIP Required For Correct Invoicing: 15221

2 To (Recipient's Name): Clair Fancy

Recipient's Phone Number (Very Important):

Company: Florida Dept. of Environmental Regulations

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 (Twin Towers Bldg.)

City: Tallahassee State: FL ZIP Street Address Zip Required: 32399

3 YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.): HW0500

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

H HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS LOCATION: Street Address (See Service Guide or Call 800-238-5355) City State ZIP Zip Code of Street Address Required

4 SERVICES CHECK ONLY ONE BOX

1 ☐ PRIORITY 1 Overnight Delivery Using Your Packaging — 6 ☒ OVERNIGHT LETTER* Our Packaging

OVERNIGHT DELIVERY USING OUR PACKAGING

2 ☐ Courier-Pak Overnight Envelope* 12"x 15½"

3 ☐ Overnight Box 12½"x 17½"x 3" A ☐

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*Declared Value Limit $100

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5 ☐ 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.

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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) (Do Not Complete Section B or C)

6 ☐ DRY ICE ____ Lbs.

7 ☐ OTHER SPECIAL SERVICE

8 ☐

9 ☐ SATURDAY PICK-UP (Extra charge)

10 ☐

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	LBS		
	LBS		
	LBS		
	LBS		
Total	Total	Total	

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Federal Express Corp. Employee No.:

Date/Time For Federal Express Use: 4-19 1240

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

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Release Signature: Thomas D Hyer

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Declared Value Charge

Origin Agent Charge

Other

Total Charges

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PART #106001 FEC-S-751-1000 REVISION DATE 10/88 PRINTED U.S.A. GBFE

We will await your decision regarding the RA test exemption for the two CO monitors and the calibration drift question for the Land monitor before developing the CO CEM certification test program for the Bay Resource Management Center. We are planning to conduct the certification tests for the two oxygen continuous emission monitors starting the week of April 24, 1989. If you have any questions, I can be reached at (412) 636-5890.

Sincerely,

Nancy M. Hirko

Nancy M. Hirko
Environmental and Quality Engineering

cc: D.S. Beachler
M.R. Lindsey
D.J. McKeand
E. Middleswart, Florida DER Pensacola

copied: P. Raval
J. Pennington

DIVISION OF AIR RESOURCE MANAGEMENT

(For Internal Use Only)

ROUTING AND TRANSMITTAL SLIP

ACTION NO	
ACTION DUE DATE	

1. TO: (NAME, OFFICE, LOCATION)	
~~Clair~~	Initial / Date
2. Bill	Initial / Date
3. Barry	Initial / Date
4. Patty (file)	Initial / Date

REMARKS:

FYI –
Pradeep & Jim P.
copied

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward
	Initial & Return

4/26

~~Patty~~ – Clair

Jim/Syed will have to prepare a response for me on this. Please ask them to do it asap. Thanks

Jim said Syed will write response first thing next week when he returns. Patty 4-28

FROM: PA

DATE 4-20

PHONE

Westinghouse
Electric Corporation

Resource Energy Systems
Division

EN2125NH

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Pittsburgh Pennsylvania 15221
(412) 636 5800
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Syed's checking this out.

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

1. TO: (NAME, OFFICE, LOCATION) ~~Jim Pennington~~ JKP 5/2		Initial / Date
2. Clair Fancy		Initial / Date
3. PRADEEP RAVAL		Initial / Date
4.		Initial / Date

ACTION NO

ACTION DUE DATE

REMARKS:

According to the July 1, 1988 edition of 40 CFR Part 60, Appendix B, the CO continuous emission monitors are no longer exempted from RA tests for the initial certification of the monitor.

INFORMATION
- Review & Return
- Review & File
- Initial & Forward

DISPOSITION
- Review & Respond
- Prepare Response
- For My Signature
- For Your Signature
- Let's Discuss
- Set Up Meeting
- Investigate & Report
- Initial & Forward
- Distribute
- Concurrence
- For Processing
- Initial & Return

FROM: Syed Arif

DATE 5/2

PHONE

5/3 Pradeep — please draft brief response back to Lor.

Clair

Jill Weldon 5/3

Jim Pennington 4/27/89

SYED, PLEASE REVIEW AND LET PRADEEP KNOW. CHECK W/ EPA. Jim P.

We will await your decision regarding the RA test exemption for the two CO monitors and the calibration drift question for the Land monitor before developing the CO CEM certification test program for the Bay Resource Management Center. We are planning to conduct the certification tests for the two oxygen continuous emission monitors starting the week of April 24, 1989. If you have any questions, I can be reached at (412) 636-5890.

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Nancy M. Hirko

Nancy M. Hirko
Environmental and Quality Engineering

cc: D.S. Beachler
M.R. Lindsey
D.J. McKeand
E. Middleswart, Florida DER Pensacola

copied: P. Raval
J. Pennington ✓
P. Rhinemann 5/16

LAND
combustion

General Description of Operation
of the Land 9000 CO Analyzer

The calibration system is used to compensate for factors that can vary when the analyzer is operating on the ducting. A self-diagnostic system has been built into the analyzer to detect fault conditions. Two CO cells are cross-checked for leaks and the analog amplifiers between the detector and the microprocessor are checked for offsets. Any offsets found are automatically compensated after every spin of the wheel (frequency - 20Hz). Other elements affecting the Model 9000 calibration are:

i) The analyzer not being properly aligned.

ii) The alignment changing from time to time with vibration and thermal movements of the ducting.

iii) The path length across the ducting may be much longer or shorter than the path length on the test bench.

Land Combustion takes great care in the selection of optical components, especially the gas cell windows which are made from synthetic sapphire. Even so, these components have very slight optical imperfections. Over a path length of several meters such imperfections can cause the two CO and two N_2 detector signals to be affected due to each set of optics projecting a slightly different image onto the detector. Across-the-duct CO analyzers are quite sensitive to such imperfections.

The 9000 calibration system detects these optical variations and compensates for them. The wavelength of operation is changed from 4.7 to 4.0mm where CO has no absorption. The two CO cells achieve the same transparency as the two N_2 cells. The four detector outputs should now be the same. In practice there are slight differences which are measured by the microprocessor and stored. On returning to the measurement mode the four detector outputs are corrected in the ratios of these stored values.

This calibration procedure is shown in the following section.

THEORY:

(A) The non-linear output of the Model 9000 is given by:

$$(1) \quad NL = K1 \left[1 - K2 \left(\frac{\left(\frac{N_2}{CO}\right)_0 + \left(\frac{N_2}{CO}\right)_1}{2} \right) \right]_m$$

WHERE

NL = Non linear output.

N_2 = Detector output with N^2 cell in the sight path.

CO = Detector output with CO cell in the sight path.

K_1 = Span constant.

K_2 = Zero constant.

$\left(\frac{N^2}{CO}\right)_0$ = Detector output ratio obtained when channel zero N^2 cell and channel zero CO are in the sight path,

$\left(\frac{N_2}{CO}\right)_1$ = Detector output ratio obtained when channel one N^2 cell and channel one CO cell are in the sight path.

FOR SIMPLICITY WE WILL SUBSTITUTE:

$$(2) \quad \left(\frac{\left(\frac{N^2}{CO}\right)_0 + \left(\frac{N_2}{CO}\right)_1}{2} \right)_m = \left(CO^{N_2}\right)_m$$

WHERE:

$\left(\frac{N_2}{CO}\right)_m$ = Detector output ratio obtained when the filter (4.7mm) is in the path.

SUCH THAT EQUATION (1) BECOMES:

$$(3) \quad NL = K_1 \left[1 - K_2 \left(\frac{N_2}{CO} \right)_m \right]$$

(B) During calibration a different filter "C" (4.0mm) is located in the sight path of the detector and the cell output ratio to the detector s given by:

$$\left(\frac{\left(\frac{N_2}{CO}\right)_0 + \left(\frac{N_2}{CO}\right)_1}{2} \right)_c$$

FOR SIMPLICITY WE WILL SUBSTITUTE AS FOLLOWS:

$$\left(\frac{\left(\frac{N_2}{CO}\right)_0 + \left(\frac{N_2}{CO}\right)_1}{2} \right)_c = \left(\frac{N_2}{CO}\right)_c$$

In this wavelength (4.0mm) both cells should show the same absorption characteristics. Therefore, in the perfect situation the output ratio as seen by the detector should be given by:

(4) $$\left(\frac{N_2}{CO}\right)_c = 1$$

and the non-linear output should be:

(5) $$NL = K_1 \left[1 - K_2 = \frac{\left(\frac{N_2}{CO}\right)_m}{\left(\frac{N_2}{CO}\right)_c} \right]$$

Hence,

(6) $$K_2 = \frac{\left(\frac{CO}{N_2}\right)_m}{\left(\frac{CO}{N_2}\right)_c}$$

Due to the aforementioned potential zero errors the instrument will then update K_2 when a calibration takes place.

(C) The span constant K_1 is dependent on:

(1) The characteristics of the measurement filter m.

(2) The CO concentration in the CO cell.

(3) Electronic drifts.

Item (1) is a piece of sapphire with 1/2 and 1/4 inch wavelength coatings and by definition it is stable.

Item (2) - failure of a gas cell is automatically detected every 1/20 of a second.

Item (3) - analog circuits are automatically corrected for drift every 1/20 of a second.

Zero and span drifts in ppm can be displayed on the system data mode and a 0 to 5V output can be provided.

Specification

SYSTEM PERFORMANCE

Measuring Range:	Adjustable between 0 to 10,000 ppm metres
Path Length:	0.5 to 10m (1.6 to 32ft)
Flue Gas Temperature:	up to 370°C (700°F)
Accuracy:	± 4% of reading
Repeatability:	± 2% of reading
Response Time:	Adjustable between 2 and 250 secs.
Flue Gas Temperature Compensation:	Thermocouple, Type K Chromel/Alumel input into the receiver unit.

RECEIVER UNIT

Case Design:	IP65 (NEMA 4)
Mounting:	ASA 3" 150 lb flange (supplied)
Dimensions:	519 × 250 × 209mm (l × w × h) (20.4 × 9.8 × 8.2in) 'l' includes purge and flange
Weight:	
Receiver:	12 Kg (26.4 lb)
Purge and Flange:	5 Kg (11 lb)
Power Supply:	90-130/200-240V a.c. 50/60Hz 100W Tolerance +6—20V a.c. on any setting
Analogue Output:	Site selectable from any combination of: Zero: 0, 2 or 4 mA Full scale: 10 or 20 mA
Ambient Temperature:	−30 to +70°C (−22 to +158°F)
Display Panel:	Tactile membrane function keys, 20 character fluorescent screen

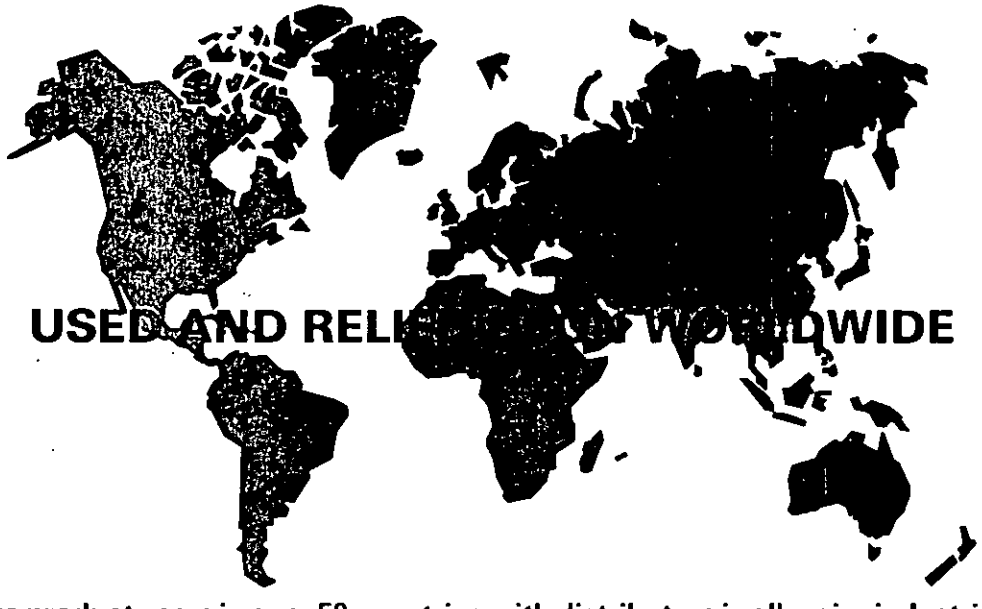
TRANSMITTER UNIT

Case Design:	IP65 (NEMA 4)
Mounting:	ASA 3" 150 lb flange (supplied)
Dimensions:	590 × 235 × 248mm (l × w × h) (23.2 × 9.25 × 9.75in) 'l' includes purge and flange
Weight:	
Transmitter:	16 Kg (35 lb)
Purge and Flange:	5 Kg (11 lb)
Power Supply:	90-130/200-240V a.c. 50/60Hz 80W Tolerance +6—20V a.c. on any setting
Ambient Temperature:	−30 to +70°C (−22 to +158°F)

CONTROL ROOM READOUT UNIT

Mounting:	19" × 3U for rack or panel mounting or free standing. Can interface with up to 8 CO Monitors.
Ambient Temperature:	−10 to 50°C (14 to 122°F)
Power:	100-135/200-265V a.c. 50/60Hz 50W
Two Analogue Outputs:	Each site selectable from any combination of: Zero: 0, 2 or 4 mA Full scale: 10 or 20 mA
Interface to Monitors:	Proprietary Current Loop optically isolated
User Signal Output Port (optional):	RS232 or RS422
Alarms:	High CO; Low CO; System fault. L.E.D. and volt free changeover relay contacts 5A at 28V d.c. or 240V a.c.
Display Panel:	Tactile membrane function keys. 20 character fluorescent screen.

LAND Combustion Instruments



USED AND RELIED ON WORLDWIDE

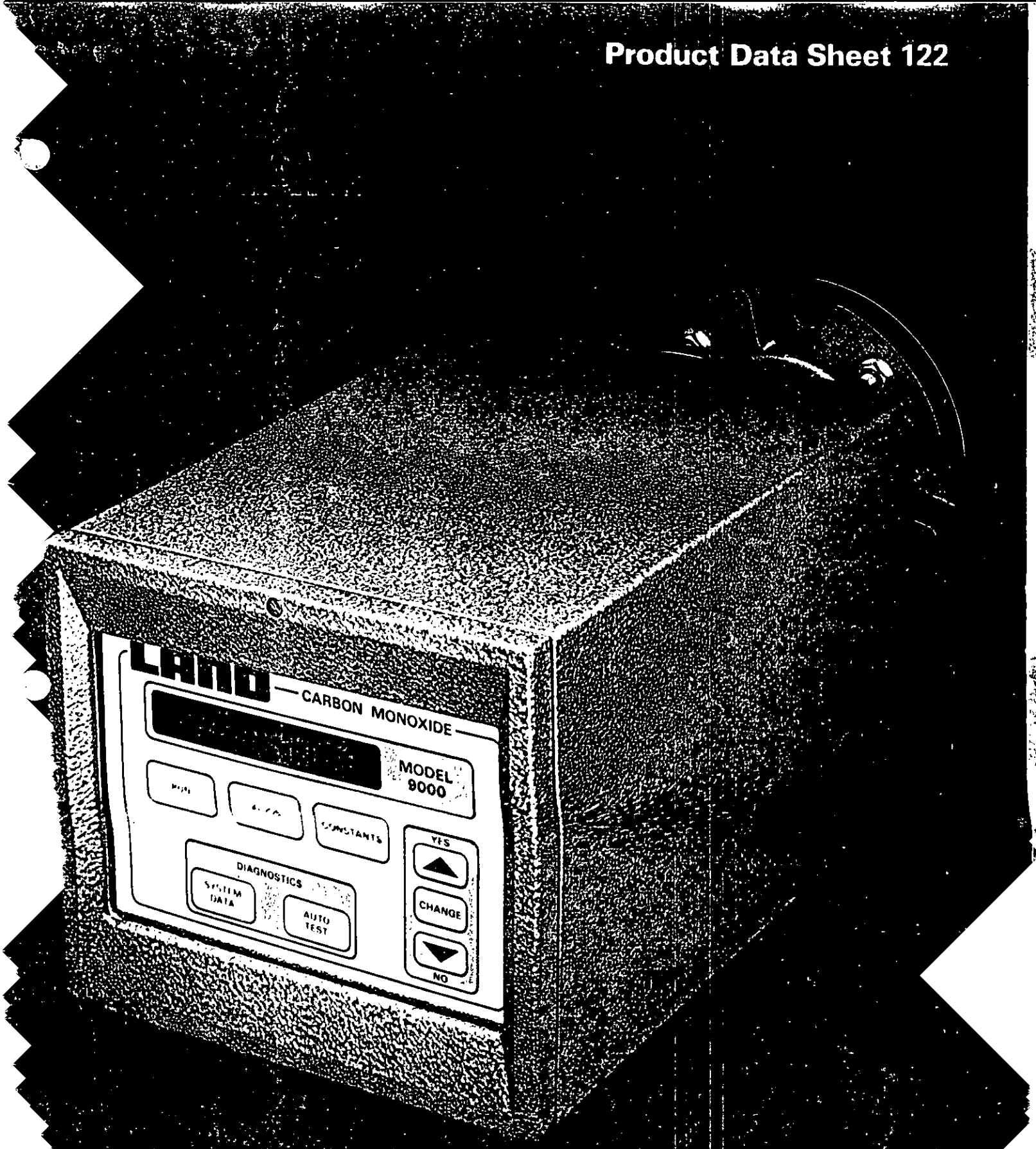
Land have product users in over 50 countries with distributors in all major industrial centres

Land Combustion Ltd.
Stubley Lane, Dronfield
Sheffield S18 6NQ
U.K.
Telephone: (0246) 417691
Telex: 547360
Facsimile: (0246) 410585

Land Combustion Inc.,
2525-B Pearl Buck Road
Bristol, PA 19007
U.S.A.
Telephone: (215) 781 0810
Telex: 4976004
Facsimile: (215) 781 0723

Continuous product development may make it necessary to change details without notice PDS122/186

Product Data Sheet 122



Advanced Microprocessor Based Cross Duct Flue Gas Analyzer

combustion

Land Combustion and CO Monitoring

Land Combustion is internationally acknowledged as a World Leader in combustion monitoring. A member of the Land Instruments International Group of Companies it was formed to specialise in the development and manufacture of instruments for this purpose. Our extensive experience and success in achieving improved operating efficiency and fuel savings on production plants has been gained in power generating utilities, chemical plants and oil refineries throughout the world.

LAND CO Monitors were introduced to enhance our complete range of Combustion Instrumentation including Oxygen Analysers, Acid Dewpoint Meters, Flame Stability Monitors etc. Developed in our own research laboratories Land was the first company to offer a reliable on-line, cross-duct CO Monitor. This has been so successful that we now have the experience of many hundreds of installations behind us.

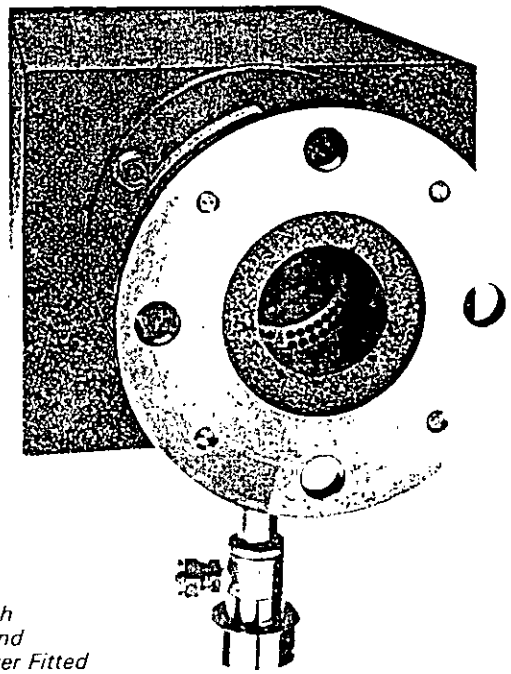
Land's reputation is held in such high regard in the combustion field that other major manufacturers have bought technology from us in order to manufacture their own instruments.

We are now proud to offer you the Model 9000 CO Monitor—the most technically advanced instrument in today's market.

Advanced Air Purge Design

Many CO Monitor Installations involve measurement of CO in dirty flue gases. If left unchecked this dirt will be deposited on the instrument's windows resulting in signal loss and high maintenance requirements. Badly designed purges create turbulent flow patterns with negative pressure areas which instead of improving the situation actually make it worse.

LAND has recognised this important problem and has designed an ADVANCED AIR PURGE which produces A LAMINAR FLOW OF PURGE AIR giving full positive pressure and no voids.



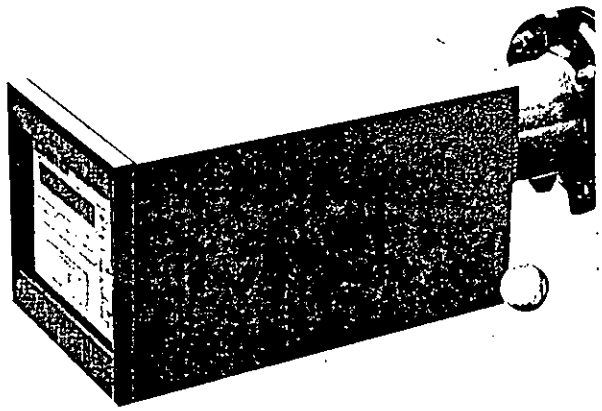
Unit with Purge and Air Mover Fitted

Accurate—Technically Advance

The Land Model 9000 CO Monitor is a microprocess based, cross duct, flue gas analyser. It operates on the principle of infrared absorption by CO in a selected waveband employing the gas cell correlation technique.

This professionally designed instrument comprises of a Transmitter Unit and Receiver Unit both of which are housed in rugged enclosures (IP65, NEMA 4). Fully weatherproof, the Units are easily installed, simple to operate and low in maintenance.

The Land Model 9000 CO Monitor is user friendly, displaying in simple language without the use of codes. Comprehensive diagnostics allow 27 parameters to be continuously checked without interruption of the readout. The instrument's self calibration facility can be automatically or manually initiated and parameters such as measuring range, signal output, path length, damping etc., are all on-site programmable at the simple touch of a button.



FEATURES
Model 9000 CO Monitor

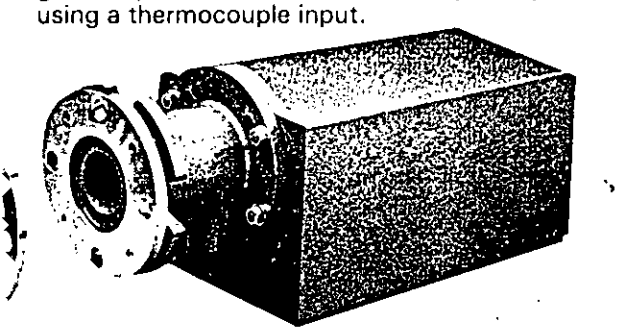
- **Highly Efficient Purges**
- **Automatic In-Situ Calibration**
- **Rugged—Weatherproof—Designed to Last**
- **Unaffected by Dirty Gases**
- **Continuous Self Diagnostics**
- **Long Life Infra-Red Source (5 years M.T.B.F.)**
- **All Parameters Field Selectable**
- **User Friendly—Simple Language—No Codes**
- **Automatic Flue Gas Temperature Compensation**
- **Low Power Consumption**

DEL 9000

—Economical—Easy to Operate

Highly efficient air purges which keep windows clean are designed so that purge air does not impinge on them. On negative pressure installations purge air can be self induced, whereas in positive pressure situations low consumption Air Movers (Air Flow Amplifiers) are used. Electrical fans may be specified where compressed air is unavailable.

The instrument can be mounted on ducts as wide as 10 metres (32 feet), alignment being easily achieved with intensity level signals and adjustments available on both sides of the duct. The use of large diameter lenses results in a very high signal to noise ratio producing an instrument which is unaffected by dust in the flue gas. Obscurations of up to 99% can be tolerated without affecting the instrument's performance. Changes in flue gas temperatures are automatically compensated for using a thermocouple input.



Non-Sampling Operation

A beam of chopped radiation generated by a high intensity, low power source in the Transmitter Unit is directed through internal reference cells, across the flue gases to the specially selected infra-red filter and high sensitivity detector in the Receiver Unit. The level of radiation received and the corresponding processed outputs are a measure of the CO present.

FEATURES

Control Room Readout Unit

- **Up to 8 Channels per Unit**
- **Remote Interrogation and Diagnostics**
- **Multiple Outputs with Variable Response Times**
- **Averaging from any Combination of Receivers**
- **High-Low CO and Fault Alarms**
- **Analogue and Digital Outputs Available**
- **Bus Connection for Multiple Installations**
- **Second Data Bus Available for Greater System Integrity**
- **Bright, Easy to Read Display**
- **Security Entry Code Required**

Control Room Readout Unit

The Model 9000 can be used either independently, with a recorder or with an intelligent microprocessor based Control Room Readout Unit (CRRU).

Using a display panel which duplicates the readout on the Receiver Unit the CRRU can be supplied to accept inputs from 1 to 8 remote Model 9000 CO Monitors. Further channels can be added, as more CO Monitors are installed. Selecting any single channel at the touch of a button allows readout and interrogation without interference with the Receiver Unit display. All programmable parameters can be set from the CRRU which means that after initial installation and alignment no further access to the receiver is required. Each individual channel incorporates programmable Hi-Lo CO alarm L.E.D.'s and Relays. An averaging feature between channels is also available which can be advantageous where a single control parameter is required from multiple CO monitor installations. The flexibility of the system allows each channel to provide **2 additional analogue outputs each with different response times.**

For economy of multiple installations CO Monitors can be connected to a CRRU using a single bus system, intercommunication being achieved by using a proprietary current loop. For high integrity installations a Dual Data Bus may be specified. Standard outputs available are current analogue or isolated digital signals for those who require RS 232 or 422 interface.

Ordering Details

Model 9000 CO Monitor

With range, output, power supply etc. being site selectable all you need to do is simply tell us how many instruments you require.

Control Room Readout Unit

To meet your individual requirements you should specify:

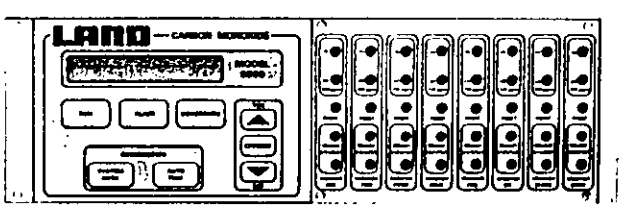
(a) The number of Channels required.

(b) If the Unit is for Rack or Panel Mounting or Free Standing (Box Mounted)

(c) If the Second Data Bus Facility is to be included.

(d) Whether an RS 232 or RS 422 Signal Output Port is required.

For further information or any advice you may require please contact LAND.



Control Room Readout Unit with 8 Channels

Westinghouse Electric Corporation
Process and Environmental
Monitoring Technology
Orrville, Ohio, U.S.A. 44667

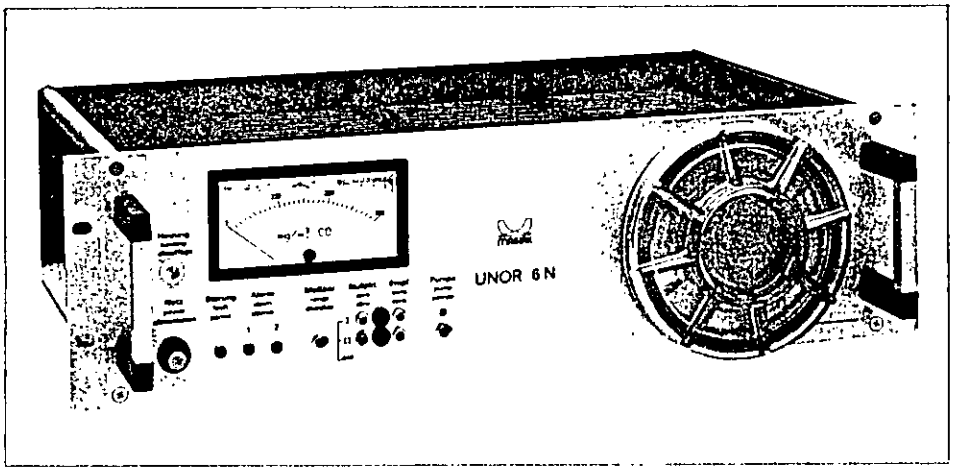
January, 1988
Supersedes Descriptive Bulletin 103-203
pages 1-6, dated December, 1985
Mailed to: E, D, C/103-000A

CO, CO_2, SO_2, NO, CH_4, NH_3
and Other Components

Gas Analyzer UNOR 6N

Automatic monitoring of gases in industry, measurement of stack gas concentration and control of chemical processes can be achieved only by highly accurate and fast analyzers, which give the concentration of certain components.

Proven in operating practice are analyzers for the photometrical determination of the integral radiation absorption at specific wavelengths. These so-called non-dispersive infrared absorption (NDIR) photometers are characterized by high measuring sensitivity and selectivity for detecting the concentration of one specified gas component.



Application

The UNOR 6N is a reliable measuring instrument for the determination of gas concentrations with its proven design principle, excellent measuring performance and continuous rapid indication.

The UNOR 6N with current or voltage signal can be used for analyzing or for the control of gas concentrations and mixtures.

Typical applications include:

— process gas control in chemical plants
— emission measurement on boiler stacks
— air pollution measurement and clean air control
— gas measurement for automotive exhaust
— monitoring of room atmosphere for tolerable limit values
— measurement and control of blast furnace and converter gases
— measurement and control of biological processes
— monitoring of green house and fruit storage atmosphere
— control of protective gas of kilns
— measurement of natural gas, sewer gas, refuse pile gases and sewage treatment plants
— monitoring of parking garages and road tunnels.

Features

- High measuring sensitivity
- Measuring ranges from 20 ppm to 100 vol. %
- High selectivity – lowest cross response and interference gas influence
- Excellent zero point stability
- High stability of sensitivity
- Minimum maintenance
- Ease of operation
- 19" rack mountable
- Plug-in circuit printboard
- Compact, fault-free CMOS electronics
- Easy adaptation to other measuring ranges

Options

- Two measuring ranges
- External range switching
- Digital display
- BCD-code data output
- Isolated output
- Linearization
- Adjustable alarm contacts
- Integral sample gas pump
- Barometric pressure compensation
- Wall-mounting case
- Corrosion-resistant analyzer version
- Water resistant, NEMA 4 Field Case (F-version)
- Twin case housing with isolated gas section

Process and
Environmental Monitoring Technology

Specifications UNOR 6N①

Principle of measurement:	non-dispersive infra-red photometer
Measured components:	CO, CO_2, CH_4, C_6H_{14}, SO_2, H_2O, NO, NO_2, NH_3 and more than other 60 infrared active gas components
Range switching*:	2 ranges, max. ration 1 : 10
Power supply:	110/127/220/240 V ± 10%, 50/60 Hz ± 0.5%, on request 24 VAC
Consumption:	max. 150 VA
Output signal (analog):	0, 2, 4 . . . 20 mA, DC current max. impedence load 500 Ohm; other mA, mV, V outputs on request, also isolated outputs on request
Output signal (digital)*:	BCD-Code 1248, 2 TTL-loads
Indication (analog):	analog meter, graduated in vol. ppm, vol. % or mg/m^3 or mA
Indication (digital)*:	3½ digit LED display with automatic floating decimal point
Measuring characteristics:	individual calibration curve provided for each range
Linearity*:	max. error ≤ 1% of full scale
Alarm contacts*:	2 independent alarm values, adjustable over full scale range SPST, max. contact rating 48 V – 0.5 A
Contact outputs*:	limit value, fault signal and measuring range by potential-free two-way contacts, max. contact ranging 48 V – 0.5 A
Sample gas flow:	.2 L/min. – 2.5 L/min.
Sample gas flow influence:	none, within specified allowable range
Max. sample inlet pressure:	≤3 PSIG
Sample gas pressure influence:	≤0.6%/.15 PSIG pressure difference
Allowable gas temperature:	+40 . . . +115°F (+5 . . . +45°C)
Allowable ambient temperature:	+32 . . . +105°F (0 . . . +40°C)
Ambient temperature influence:	≤1%/20°F within specified allowable range
Transport and storage temperature:	0°F to 160°F (–20 to +70°C)
Relative humidity:	≤75% annual mean value
Warm-up time:	≤30 min.
Electronic response time:	adjustable to 1.5/4.5 and 11 s 90% of full scale, field selectable 1.5, 4.5 or 11 seconds
Zero drift:	≤1% of full scale per **WEEK**
Span drift:	≤1% of full scale per **WEEK**
Minimum detectable limit:	≤0.2% of full scale
Repeatability:	≤0.5% of full scale
Weight/mounting:	19" rack mountable: 27 lbs. wall-mounting case*: available; 80 lbs. field case*: available 67 lbs. also available in pressurized enclosures
Instrument dimensions (h x w x d):	19"-unit: 5.2" x 17.5" x 10.8" (131 x 443 x 273 mm) wall-mounting case:* 14.2" x 22.7" x 17.6" (360 x 575 x 446 mm) see dimension drawings field case*: 19.69" x 19.69" x 8.26" (500 x 500 x 210 mm)
Materials in contact with sample:	Sample tubing: Viton B or Teflon* or stainless steel* Filter housing: Polypropylene or PVDF* Cuvette: Gold-plated brass or stainless steel* Filter: Fiberglass
Gas connections:	¼" compression fitting stainless steel
*Options	sample gas pump, fault monitor, 2 alarm contacts, 2 measuring ranges, linearization, LED digital display, barometric pressure compensation unit

① Subject to technical modifications.

SCALE = 0 to 500 ppm

Westinghouse Electric Corporation

Resource Energy Systems Division

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

EN2122NH-EN67

RECEIVED
APR 19 1989
DER - BAQM

April 18, 1989

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

Dear Mr. Fancy:

I am writing you regarding air permits No. AC03-145061, AC03-152196, and PSD-FL-129 for the Bay Resource Management Center located in Panama City, Florida.

Enclosed is the test protocol for the upcoming test program at the Bay County Facility. The tentative test schedule is shown in the attached table. Certification of the oxygen continuous emission monitors will occur following completion of the air emissions tests. Certification of the carbon monoxide continuous emission monitors is still being planned.

I will be at the test site from April 20, 1989 until the conclusion of the emissions compliance test program. I look forward to meeting you or your representative next week, assuming someone from the Florida DER will be on site observing the tests. If you have any questions, I can be reached in Pittsburgh at (412) 636-5890 and in Panama City at (904) 785-7933.

Sincerely,

Nancy M. Hirko

Nancy M. Hirko
Environmental and Quality Engineering

cc: D.S. Beachler
M.R. Lindsey
E. Middleswart, Florida DER, NW District Office

FEDERAL EXPRESS

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AIRBILL NUMBER 3819354124

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DATE 4-18-89

AIRBILL NUMBER 3819354124

From (Your Name) Nancy Hirko

Your Phone Number (Very Important) 412-636-5890

Company WESTINGHOUSE/RESOURCE ENERGY

Department/Floor No.

Street Address 2401 ARDMORE BLVD COST BLDG

City PITTSBURGH **State** PA **ZIP Required For Correct Invoicing** 15221

To (Recipient's Name) Mr. Clair Fancy

Recipient's Phone Number (Very Important)

Company FloridaDept. Environmental Regulation

Department/Floor No.

Exact Street Address (Use of P.O. Boxes or P.O. + Zip Codes Will Delay Delivery and Result in Extra Charge.) Twin Towers/2600 Blair Stone Road

City Tallahassee **State** FL **ZIP Street Address Zip Required** 32399

3 YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.) GRN500

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

4 SERVICES CHECK ONLY ONE BOX

1 ☐ **PRIORITY 1** Overnight Delivery Using Your Packaging — ☒ **OVERNIGHT LETTER*** (Our Packaging)

OVERNIGHT DELIVERY USING OUR PACKAGING

2 ☒ Courier-Pak Overnight Envelope* 9½" x 15½"

3 ☐ Overnight Box 12½"x 17½"x 3" A ☐

4 ☐ Overnight Tube 38"x 6"x 6"x 6" B ☐

*Declared Value Limit $100

5 ☐ **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.

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

1 ☐ **HOLD FOR PICK-UP** (Fill in Section H at right)

2 ☐ **DELIVER WEEKDAY**

3 ☐ **DELIVER SATURDAY** (Extra charge) ☒

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5 ☐ **CONSTANT SURVEILLANCE SERVICE (CSS)** (Extra charge) (Do Not Complete Section 5)

6 ☐ **DRY ICE** ____ Lbs.

7 ☐ **OTHER SPECIAL SERVICE** ____

8 ☐

9 ☐ **SATURDAY PICK-UP** (Extra charge)

10 ☐

	PACKAGES	WEIGHT	YOUR DECLARED VALUE	OVER SIZE
		LBS		
		LBS		
		LBS		
		LBS		
Total	Total	Total	INSURANCE CANCELLED	

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

Federal Express Corp. Employee No.

Date/Time For Federal Express Use

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.

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☐ 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

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Declared Value Charge

Origin Agent Charge

Other

Total Charges

RECIPIENT'S COPY

PART #106001
FEC-S-751-1000
REVISION DATE 10/88
PRINTED U.S.A. GBFE

Emissions Testing
Tentative Schedule
April 1989
Bay Resource Management Center

DATE	TESTS
April 24	Particulate, HCl - Units 1 and 2 Opacity - Units 1 and 2
April 25	HF - EPA RM 13B - Unit 1 HF - EPA RM 13B - Unit 2
April 26	SO2, NOx, CO, CO2, O2, VOC - Unit 1 Lead - EPA RM 12 - Unit 1 Lead - EPA RM 12 - Unit 2
April 27	SO2, NOx, CO, CO2, O2, VOC - Unit 2 Beryllium - EPA RM 104 - Unit 1 Beryllium - EPA RM 104 - Unit 2
April 28	Mercury - EPA RM 101A - Unit 1 Mercury - EPA RM 101A - Unit 2 Relative Accuracy - O2 CEM - Unit 1
April 29	Relative Accuracy - O2 CEM - Unit 2

DIVISION OF AIR RESOURCE MANAGEMENT

(For Internal Use Only)

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

		Initial	Date
1.	TO: (NAME, OFFICE, LOCATION) ~~[illegible]~~ BA		
2.	~~Jim Pennington/KAP~~ received 5/9/89		
3.	~~[illegible]~~		
4.			

REMARKS:

Please return original to Patty for file.

INFORMATION

- [ ] Review & Return
- [ ] Review & File
- [ ] Initial & Forward
- [ ]

DISPOSITION

- [ ] Review & Respond
- [ ] Prepare Response
- [ ] For My Signature
- [ ] For Your Signature
- [ ] Let's Discuss
- [ ] Set Up Meeting
- [ ] Investigate & Report
- [ ] Initial & Forward
- [ ] Distribute
- [ ] Concurrence
- [ ] For Processing
- [ ] Initial & Return

FROM:

DATE 4-20-89

PHONE

EMISSION COMPLIANCE TEST PROTOCOL

FOR THE BAY RESOURCE MANAGEMENT CENTER

BAY COUNTY, FLORIDA

SUBMITTED TO THE

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

April 18, 1989

Prepared By:

Westinghouse Electric Corporation

Resource Energy Systems Division (RESD)

Pittsburgh, PA 15221

1.0 INTRODUCTION

Stationary source emissions testing will be conducted at the Bay County Resource Management Center located in Panama City, Florida. The facility will be tested to determine compliance with the emission limits stated in the Facility Construction Permits (Nos. AC 03-145061, AC 03-152196, and PSD-FL-129) issued by the Florida Department of Environmental Regulation (DER). In addition, continuous emission monitoring systems (CEMS) for oxygen and carbon monoxide shall be certified according to performance specifications as shown in 40 CFR 60, Appendix B. The opacity monitors were certified by Spectrum Systems, Inc., Pensacola, Florida. The report was submitted to DER in January 1988.

This test protocol will address the procedures and test methods proposed for completing the emission compliance tests. The target date for conducting these tests is April 24-28, 1989.

2.0 FACILITY DESCRIPTION

The Bay County Resource Management Center uses two Westinghouse-O'Connor water-walled rotary combustors and boiler trains to mass burn 510 tons-per-day (TPD). Heat generated from the combustion of MSW produces steam to drive a turbine that generates approximately 11.5 MW of electricity. Each water-walled combustor is designed to burn 255 tons of municipal solid waste (MSW) with a higher heating value of 4500 Btu/lb per day or a mixture of MSW and wood waste. The process flow diagram and material/energy balance are shown in Figures 1 and 2.

The plant consists of two combustor/boiler units, a turbine generator, a truck scale, a tipping floor, front end loaders, two conveyor systems to charge MSW and/or wood waste into the combustor, electrostatic precipitators, ash handling system, a stack, a control room, and all required ancillary equipment. The facility also has administration offfices, change rooms, parking areas, roadways, and security fencing.

The heat released from the combustion process is recovered through the rotary combustor walls, boiler water walls and tubes, primary and secondary superheater, the air preheater, and the economizer. Hot gases, produced during the combustion process, flow from the combustor barrel through the boiler's radiant, superheater, and convection sections. To maximize energy recovery and expedite combustion of high-moisture waste, the combustion gases exiting the convection section pass thru a heat exchanger that preheats the incoming combustion air to approximately 450 F.

The flue gases from the air heater enter the electrostatic precipitator (ESP) to remove particulate matter before exiting the sack. The ESPs are arranged into three mechanical fields, each with its own electrical field

and ash removal hopper. The ESPs are designed to meet the Florida DER permit conditions for particulate matter, 0.03 gr/dscf at 12 % CO2. Table 1 contains specific design details and the design operating conditions for the ESP. The flue gas is drawn from the ESP by an induced draft fan before being discharged to the atmosphere through a separate flue in the common stack. The stack is made of precast concrete with two 4-ft., 6-in. diameter flues that are constructed of 4-in. thick acid resistant bricks. The stack is 125 feet tall and has air emissions monitoring ports located 60 feet from the stack base, as shown in Figure 3.

3.0 PERMIT LIMITS

The facility permit limits for both MSW and wood waste are shown in Table 2. The complete facility permit is contained in the Appendix. The permit limits in Table 2 are based on each combustor burning 10.67 tons per hour of MSW having a higher heating value (HHV) of 4500 Btu/lb. This corresponds to 255 tons of MSW per day per combustor. The permit limits shown are based on hourly averages except for visible emissions which are based on data averaged over 6 minute intervals. If enough MSW is not available for combustion, up to 160 TPD of wood waste may be charged into the combustor. Total heat input for each combustor is shall not exceed the design limit of 95.6 million Btu per hour. Testing will be conducted at the charging rate of 10.67 tons per hour in order to verify compliance with the regulations for both combustor/boiler trains.

4.0 SAMPLING AND ANALYTICAL PROCEDURES

All sampling and analytical procedures will be performed according to established EPA test methods or other acceptable test methods as required by the Florida DER. Complete descriptions of all EPA reference methods are given in 40 Code of Federal Regulations Part 60, Appendix A (July, 1987 edition).

5.0 TEST PROGRAM

Specific Condition No. 4 states that tests must be conducted to measure particulate matter, SO2, NOx, CO, VOC, lead, fluorides, mercury, beryllium, and opacity. Table 3 lists the sampling methods and number of runs conducted for the pollutants that will be measured during the emission compliance test program (April 1989). Each unit will be tested for particulate matter (EPA RM 5), opacity (EPA RM 9), HCl (Modified RM 5), HF (EPA RM 13B), lead (EPA RM 12), mercury (EPA RM 101A), and beryllium (EPA RM 104). A series of three tests will be run for each pollutant studied. In addition, SO2 (EPA RM 6C), NOx (EPA RM 7E), CO (EPA RM 10), and NMHC/VOC (EPA RM 25 A) will be measured. A continuous emission monitor will be installed on each unit to collect at least eight hours of emission data for SO2, NOx, CO, and NMHC/VOC.

Sampling Points

The number of sampling points is calculated using EPA Reference Method (RM) 1. The flue diameter is 4-feet, 6-inches. The test platform is located approximately 56 feet from the base of the stack and the test ports are approximately 4 feet above the platform. The duct enters the stack at approximately 19 feet above the base. Therefore, the test ports are located approximately 9 duct diameters from the nearest disturbance. Figure 3 shows the sampling port locations.

Gas Velocity and Composition

Gas velocity will be measured using EPA RM 2 during the traverses across the stack. Flue gas composition will be measured using continuous emission monitors to determine flue gas composition (O2 and CO2), molecular weight, excess air and emission correction factors (EPA RM 3). Moisture content of the flue gas will be determined using EPA RM 4 for each of the specific runs.

6.0 FIRM SELECTED TO CONDUCT THE STACK TESTS

ETS, Inc. of Roanoke, Virginia, has been selected to conduct the stack testing at the Bay Resource Management Center. ETS has conducted similar tests at a number of resource recovery facilities, including the Dutchess County Resource Recovery Facility located in Poughkeepsie, New York. The Dutchess Facility is a 400 TPD plant using Westinghouse/O'Connor Technology. ETS will conduct the tests and complete the analyses at their laboratory in Roanoke, Virginia depending on the specific analysis required.

7.0 CONTINUOUS EMISSION MONITOR CERTIFICATION

Continuous emission monitors for oxygen shall be certified according to Performance Specification 3 in 40 CFR 60, Appendix B. Seven days of calibration drift data will be taken and relative accuracy testing for each monitor will then follow.

CO continuous emission monitors shall be certified according to Performance Specification 4 in 40 CFR 60, Appendix B. The monitors will be certified in May 1989.

8.0 TEST REPORT

The results of the emissions compliance test program will be compiled in a report along with plant operational data from the testing period. The report will also describe any plant operational upsets which may have occurred during the test period. The report will be submitted to the Florida DER's Northwest District Office within 45 days after completion of the test.

TABLE 1

ESP DESIGN INFORMATION FOR

BAY COUNTY RESOURCE MANAGEMENT CENTER

FIELDS:	3 (identical size)
DISCHARGE ELECTRODES:	Rigid Frame
PLATE DIMENSIONS:	24 ft. high x 9 ft. long
COLLECTION PLATE AREA:	19,710 ft^2
SPECIFIC COLLECTION AREA (SCA):	350 ft^2/1000 acfm
DESIGN GAS FLOW RATE:	56,000 acfm @ 400 ^oF
GAS VELOCITY THROUGH ESP AND GAS RETENTION TIME:	4 ft/sec; 9.7 sec.
TR SETS:	3 per ESP rated @ 23.5 KVA (55 kv, 300 mA)
CORONA DENSITY:	330 watt/1000 acfm; 0.94 watt/ft^2
PRESSURE DROP:	1 inch H_2O
DESIGN PRESSURE:	$\pm$ 15 inch H_2O

TABLE 2

BAY RESOURCE MANAGEMENT CENTER

EMISSION LIMITATIONS

Pollutant	MSW Emission Limitations Per Unit lb/hr	MSW Emission Limitations Facility lb/hr	Emission Factors Wood lb/ton	Emission Factors MSW lb/ton
PM, PM_{10}	6.8	13.5.	(0.03 gr/dscf)	
CO	92.8	185.6	20.0	3.58
NOx	26.9	53.9	2.8	2.41
SO_2	35.8	71.5	0.3	3.36
VOC	7.1	14.2	1.7	0.196
Lead	0.04	0.08	0	0.0039
Mercury	0.18	0.36	0	0.0017
Beryllium	$5x10^{-6}$	$1x10^{-5}$	0	$4.8x10^{-7}$
Hydrogen Chloride	61.7	123.3	0	5.8
Sulfuric Acid Mist	1.5	3.0	0	0.14
Fluoride	0.15	0.3	0	0.014

TABLE 3

SAMPLING AND ANALYTICAL METHODS

Pollutant	Sampling Method	Analysis Method	Number of Tests
Particulate Matter	EPA RM 5	EPA RM 5	3 on each train
Visible (opacity)	EPA RM 9		3 on each train - simultaneously with RM 5 runs
HCl	Modified RM 5 0.1 N NaOH in impingers	Ion Chromotography	3 on each train, part of RM 5 runs
Lead	EPA RM 12	Atomic Adsorption	3 on each train
Mercury	EPA RM 101A	Cold Vapor Atomic Adsorption	3 on each train
Beryllium	EPA RM 104	Atomic Adsorption	3 on each train
HF	EPA RM 13B	Specific Ion Electrode	3 on each train
SO2	EPA RM 6C	CEM Instrument	3 on each train
NOx	EPA RM 7E	CEM Instrument	3 on each train
CO	EPA RM 10	CEM Instrument	3 on each train
NMHC/VOC	EPA RM 25A	Flame Ionization Detector	3 on each train

Note: CO_2 and O_2 concentrations will be measured during CEM measurements.

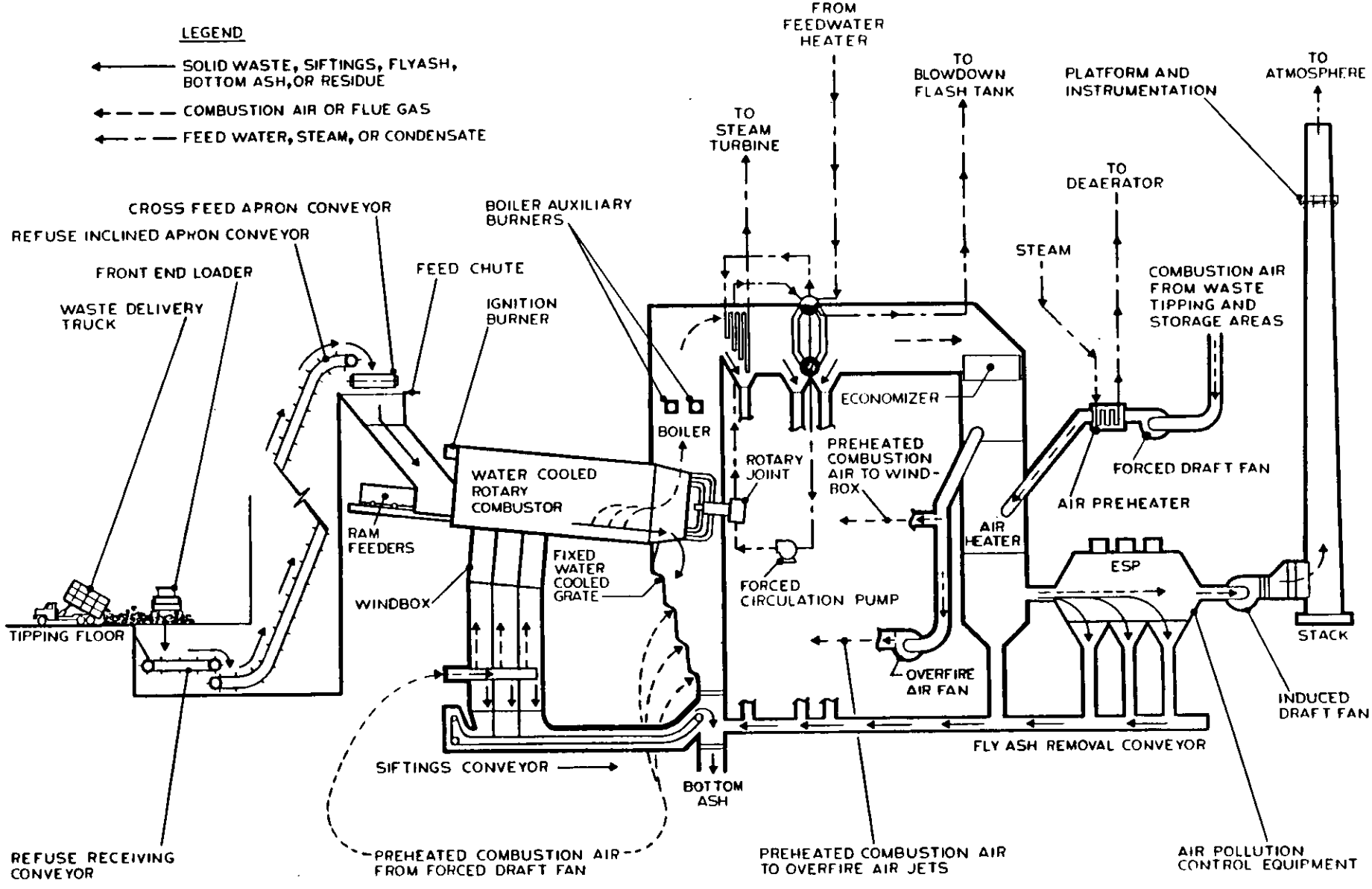


Figure 1. Simplified Process Flow Diagram, Gas Cycle for the Westinghouse-Bay Resource Management Center

FIGURE 2

BAY RESOURCE MANAGEMENT CENTER,

MASS AND ENERGY BALANCE

FLOW NUMBER	101	102	103	104	105	106	107
MEDIUM / FLOW FROM / FLOW TO	MSW / STORAGE / COMBUSTOR	COMBUSTION AIR / TIPPING FLOOR / FD FAN	COMBUST. AIR / AIR HEATER / DUCTING	COMBUST. AIR / DUCTING / OVERFIRE FAN	COMBUST. AIR / DUCTING / COMBUSTOR/GRATE	ASH / GRATE / ASH QUENCH	FLUE GAS / AIR HEATER / ESP
Composition	WT %: C 25.10; H 3.70; O 21.70; S 0.20; N 0.60; H_2O 27.00; INERT 21.70	WT % / VOL %: N_2 75.06 / 77.39; O_2 22.05 / 20.56; H_2O 1.20 / 2.05					WT % / VOL %: N_2 65.33 / 65.78; CO_2 16.17 / 10.32; H_2O 8.67 / 10.19; O_2 6.31 / 3.77; SO_2 0.07 / 0.03; 3.0 gr/dscf part (3); 150 ppmdv SO_2 (4); 500 ppmdv HCl (4)
MASS FLOW (LB/HR)	31,070	107,561	107,561	0	107,561	4128	124,738
VOLUME FLOW (ACFM)		24,004	41,362	0	41,362		46,400
(1) VOLUME FLOW (SCFM)		23,993	23,993	0	23,993		29,517
MOLAR FLOW (LB MOLES/HR)		3,734	3,734	0	3,734		4,441
TEMPERATURE (F)	70	70	450	450	450	750	400
(2) PRESSURE (IN H_2O G)		0	0	0	0		0
ENTHALPY (BTU/LB)	HHV 4500 BTU/LB						
REMARKS	2631 TPD	50 %XS AIR		0%	100%	CP=.2 BTU/LB - F	MW 28.1

FLOW NUMBER	108	109	110	111	112	113	114
MEDIUM / FLOW FROM / FLOW TO	FLUE GAS / ESP / ID FAN	FLUE GAS / STACK / AMBIENT	FLY ASH / ESP / CONVEYOR	RESIDUE / ASH QUENCH / LANDFILL	WATER / PIPING / ASH QUENCH	FUEL OIL / PIPING / BURNER	FUEL OIL / PIPING / BURNER
Composition	.03 gr/dscf part (3); 150 ppmdv SO_2 (4); 500 ppmdv HCl (4)			LB/HR: SOLIDS 4754; H_2O 2037		USED FOR START UP/ SHUT DOWN ONLY	USED FOR START UP/ SHUT DOWN ONLY
MASS FLOW (LB/HR)	124,738	149,460	626	6,792	2,037	0	0
VOLUME FLOW (ACFM)	52,919	90,217					
(1) VOLUME FLOW (SCFM)	29,517	57,034				0	0
MOLAR FLOW (LB MOLES/HR)	4,441	8,882					
TEMPERATURE (F)	390	375			70	70	70
(2) PRESSURE (IN H_2O G)	0	0					
ENTHALPY (BTU/LB)						+2 FUEL OIL HHV=[illegible] BTU/LB	
REMARKS				30% MOISTURE	4.1 GPM	+2 FUEL OIL HHV=138,000 BTU/GAL	

FLOW NUMBER	301	302	303
MEDIUM	FEEDWATER	STEAM (5)	BLOWDOWN
FLOW FROM	FEEDWATER HEATER	SUPERHEATER OUTLET	BOILER DRUM
FLOW TO	BOILER DRUM	MAIN STEAM HEADER	FLASH TANK
MASS FLOW (LB/HR)	80,729	80,040	800
VOLUME FLOW (GPM)	162.8		1.7
TEMPERATURE (F)	422.3	750	490.8
PRESSURE (PSIA)	770.1	640.7	619.7
ENTHALPY (BTU/LB)	399.6	1370.6	487.7
REMARKS	67.7% BOILER EFF.	86.76 X 10^6 BTU/HR ABSORBED (6)	1% BLOWDOWN

(1) STANDARD TEMPERATURE=68°F
STANDARD PRESSURE=1 ATMOSPHERE

(2) AMBIENT PRESSURE=760mm Hg

(3) AT 12% CO_2

(4) AT 12% CO_2

(5) PLANT 100% STEAM FLOW=136,096 LB/HR

(6) PLANT 100% THERMAL LOAD=133.52 X 10^6 BTU/HR ABSORBED

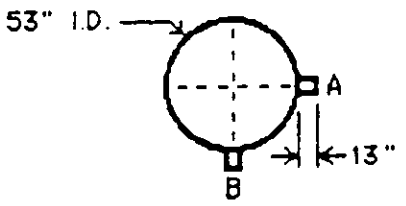
NOTE:
SEE SHEET 1 FOR FLOW DIAGRAM

REVISIONS | DESCRIPTION

Westinghouse Electric Corporation
Resource Energy Systems Division
Pittsburgh, Pennsylvania

1887E15

SHEET 2



SECTION L-L

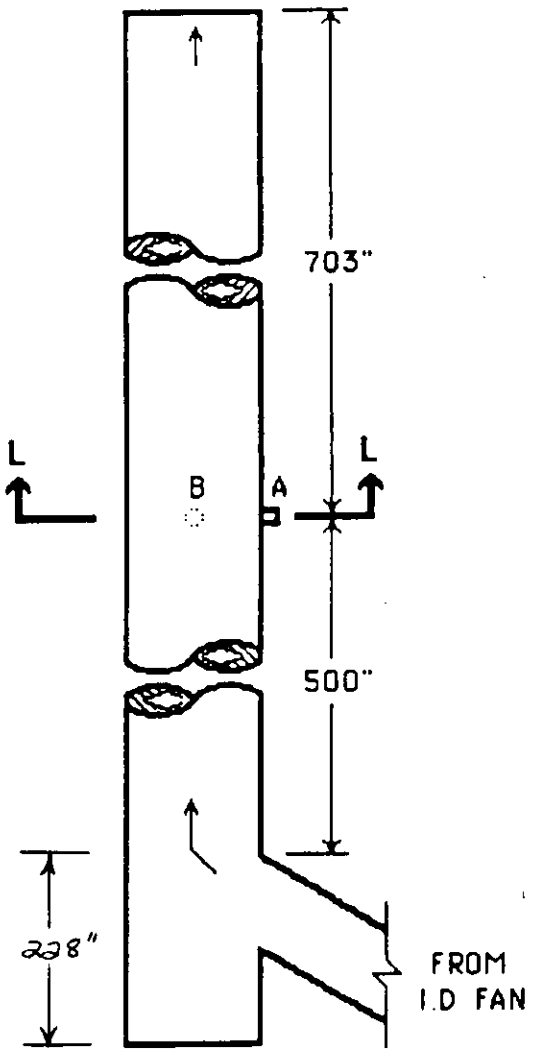


FIGURE 3 UNIT NO. 2 STACK TEST LOCATION.

APPENDIX

Bay Resource Management Center

Permit Numbers: AC 03-145061
AC 03-152196
PSD-FL-129

OCT 19 1988

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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

Mr. D. S. Beachler
Westinghouse RESD, Cost Building
2400 Ardmore Boulevard
Pittsburgh, Pennsylvania 15221

October 17, 1988

Enclosed are permits Nos. AC 03-145061, AC 03-152196 and PSD-FL-129 for Bay Resource Management Center to increase the municipal solid waste charging rate at the existing Bay County Waste-to-Energy Facility, in Bay County, Florida. These permits are issued pursuant to Section 403, Florida Statutes.

Any Party to these permits has the right to seek judicial review of these permits pursuant to Section 120.68, Florida Statutes, 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 Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; 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 days from the date these permits are filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copy furnished to:

E. Middleswart, NW District
T. Moody, NW District
W. Aronson, EPA
M. Flores, NPS
A. Richter, P.E.
J. Kolk, Audubon Society

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 10\18\88.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Judy Rogers
Clerk

10\18\88
Date

Final Determination

Bay Resource Management Center
Panama City, Bay County, Florida

Bay County Waste-to-Energy Facility

Permit Nos. AC 03-145061
AC 03-152196

PSD-FL-129

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

October 13, 1988

Final Determination

Bay Resource Management Center's application for a construction permit to increase the municipal solid waste (MSW) charging rate at the existing Bay County Waste-to-Energy Facility, Bay County, Florida, has been reviewed by the Bureau of Air Quality Management. Public Notice of the Department's Intent to Issue the permit was published in the News-Herald on August 10, 1988.

Comments in response to the Public Notice are addressed below, in the order they were received.

I. Comments received from Westinghouse (see Attachment 13) are addressed below:

1. In Specific Condition No. 3 of the proposed permit, the flue gas emissions listed are for the facility. The table will be amended to include emissions for each combustor.

2. The expiration date of the proposed permit will be extended until June 1, 1989, to provide time for equipment installation and testing.

3. The facility will be allowed to charge up to 160 TPD wood waste. However, the combustor in which the wood waste is burned will have to comply with the permitted emission limitations. If the facility is to be permitted to combust wood waste in excess of 160 TPD, the permit application will have to be amended to reflect the consequent increase in emissions of several pollutants.

4. DER will not accept wood waste as start-up fuel in place of fuel oil because of greater emissions during the period when the operating conditions are not normal and emissions tend to be higher than when operating at steady state.

5. The Department will accept prior test results so long as the tests are in accordance with the permit conditions and the operation rates are representative (within 10% of the maximum permitted capacity).

6. The visible emissions limit in Specific Condition No. 3 is 15% opacity for six minutes in any one hour.

7. In consideration of comments received and further review, DER will delete the requirement for the CO_2 monitor from Specific Condition No. 5. A concentration value will be added for CO.

8. The Department will accept heat input calculations based on steam and flue gas data with a mention of the amount of waste

burned. However, the permit restriction on the quantity of waste burned will not be replaced with a restriction on only heat input because the Bureau believes that the mass emissions from the units are directly related to the quantity of the waste burned.

9. DER is willing to review the request for increasing the permitted charging rate of the units if the permit application is amended to reflect the increase in both fuel and emissions. The request to allow operation up to 120% of the design capacity cannot be allowed because it exceeds the maximum parameters considered in the technical review.

II. Although comments from the Bay County Audubon Society (see Attachment 14) were received late, DER will consider them in the Final Determination. The comments are addressed below:

1. DER's BACT, which does not require acid gas scrubbers, is based on the cost of controlling the incremental increase in acid gas emissions resulting from the increase in MSW and the corresponding decrease in wood waste burned, and not on the overall acid gas emissions. The control costs thus determined are over three times the EPA cost guideline of $2000 per ton of pollutant. Therefore, DER does not consider the cost of scrubbers justifiable.

2. The fact that the time period needed to install scrubbers would be detrimental to attracting waste from surrounding counties was mentioned as a consequential issue, not as a significant factor in the BACT analysis.

3. The fact that alternate waste disposal arrangements would be required during a facility shutdown was mentioned as a consequential issue, not as a significant factor in the BACT analysis.

4. The Bureau's policy in reviewing air construction permit applications has been to evaluate projects based on applicable existing rules, regulations and guidelines. Where possible, applicants have been made aware of pending/proposed rules which may affect a given project at a later date. However, permitting or the postponement thereof, based on proposed rules is not the policy. If EPA promulgated rules that would require retrofit of acid gas controls on existing units of this size then Bay County would be required to do so.

5. The Department has directed significant resources towards the acid rain problem as well as the ozone problem. In accordance with the Clean Air Act, the Bureau has set up a project evaluation system which takes into consideration health, economics, environmental issues, etc. Only projects which meet the environmental regulatory requirements are allowed to be constructed.

III. Comments from the Central Air Permitting staff on several specific conditions (SC) are addressed below:

SC No. 1: This condition will be amended to reflect wording used in permits for similar projects.

SC No. 3: A reference to the 1987 version of the CFR, and a clarification of it's applicability, will be added to the reference to 40 CFR 60.

SC No. 4d: This condition will be amended to reflect that compliance testing should be conducted within 10% of the maximum capacity.

SC No. 4e: This condition will be amended to clarify which alternate compliance tests are acceptable.

SC No. 7: A specific reference to the Northwest District office will be added to this condition.

IV. Comments received from EPA on October 11, 1988 (see attachment 15), are addressed below:

1. EPA requests the inclusion of the basis for the emission limitations into the permit conditions. The emission factors which were used to establish the emission limitations will be added to SC No. 3.

2. PM_{10} emissions will be addressed in SC No. 3 as requested by EPA. DER conservatively assumed that PM_{10} is 100% PM_{10}.

3. The reference to 40 CFR 60 in SC No. 4 will be qualified by a mention of the year of publication. EPA's request to include compliance test runs, sampling times, and averaging times, will be added to future permits after further clarification from EPA.

4. EPA objects to the use of wood waste as start up fuel, as does DER (see I.4, Westinghouse comments).

5. If the MSW charging rate limitation is expressed as an average, EPA feels that a 3-hour averaging time should be specified.

The final action of the Department will be to issue the permit as proposed with the above mentioned amendments.

Fed. Exp. 6947055472
8-15-88
Panama City, FL

file copy

BAY COUNTY ENERGY SYSTEMS, INC.

7504 Hwy. 231 N.
Panama City, Florida 32404
(904) 785-7933

BCES/DER-88-80

August 15, 1988

RECEIVED
AUG 16 1988
DER-BAQM

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Enclosed, per conditions stated in the Bay Resource Management Center Intent to Issue, is Proof of Publication.

Please contact me if you require additional information.

Sincerely,

G. Gregg Pennington
Plant Manager

GGP/wlf

Enclosure

cc: D. S. Beachler
J. J. Ludwig

copied: Pradip Raval
Tom Rogers
Barry Andrews
Ed Middlesworth, NW Dist.
Richard Sublette, NW Dist. Branch
Wayne Aronson, EPA
Miguel de Lois, NPS

Florida Freedom Newspapers, Inc.

PUBLISHERS OF THE NEWS · HERALD

Panama City, Bay County, Florida

Published Daily

RECEIVED

AUG 1 1988

DER - BAQM

State of Florida

County of Bay

Before the undersigned authority appeared _____

KAYE NICHOLS , who on oath says that (s)he

is ADVERTISING DIRECTOR of the News-Herald, a daily

newspaper published at Panama City, in Bay County, Florida; that the attached copy

of advertisement, being a NOTICE OF INTENT

In the matter of DEP OF ENVIRONMETAL REG. PERMIT

BAY RESOURCE MANG. WASTE TO ENERGY FACILITY

In the BAY COUNTY COURTS

Court, was published in said newspaper in the issues of AUG 10

Affiant further says that the News-Herald is a direct successor of the Panama City News and that this publication, together with its direct predecessor, has been continuously published in said Bay County, Florida, each day (except that the predecessor, Panama City News, was not published on Sundays), and that this publication, together with its said predecessor, has been entered as a second class mail matter at the post office in Panama City in said Bay County, Florida, for a period of one year next preceding the first publication of the attached copy of the advertisement, all in accordance with the provisions of section 49.03, Florida Statutes; and affiant further says that (s)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.

Kaye Nichols

Sworn to and subscribed before me this 10th day of

AUG , A.D. 19

Rita Brucola

Notary Public, State of Florida at Large

My Commission Expires Notary Public, State of Florida My Commission Expires Aug. 1, 1989

Bonded Thru Troy Fain - Insurance, Inc.

4875

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
REGULATION
NOTICE OF INTENT

The Department of Environmental Regulation hereby gives notice of its intent to issue permits to Bay Resource Management Center for the Bay County Waste to Energy Facility located in Panama City, Bay County, Florida. The project involves increasing the charging rate of municipal solid waste from 350 tons per day (TPD) to 510 TPD (current design capacity). There will be increases in emissions of sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide, volatile organic, fluoride, lead, mercury, beryllium, and acid gases. The project is not expected to have significant impacts on the ambient air quality. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative determination (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17103 and 28S, Florida Administrative Code, and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a petition within this time period constitutes a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Rule 28S.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

The application 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 Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida
32399-2400

Dept. of Environmental Regulation
Northwest District Office
160 Governmental Center
Pensacola, Florida
32501-5794

Department of Environmental Regulation
Northwest District Branch Office
340 West 23rd Street, Suite E
Panama City, Florida 32405

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination.

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

PERMITTEE:
Bay Resource Mgmt. Center
c/o Westinghouse RESD
Cost Building
2400 Ardmore Blvd.
Pittsburg, PA 15221

Permit Numbers: AC 03-145061
03-152196
County: Bay
Expiration Date: June 1, 1989
Latitude/Longitude: 30° 15' 54"N
85° 30' 08"W
Project: Bay County Waste-Energy Facility, Units 1 & 2.

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the increase in municipal solid waste (MSW) facility charging rate from 350 TPD (tons per day) to 510 TPD at the Bay County Waste-to-Energy facility, Bay County, Florida.

Construction shall be in accordance with the attached permit application and additional information except as otherwise noted in the General and Specific Conditions.

The PSD Number for the permits is PSD-FL-129.

Attachments are as Follows:

1. Westinghouse application package received February 5, 1988.
2. DER's letter of incompleteness dated March 7, 1988.
3. Westinghouse response received March 21, 1988.
4. U.S. EPA's letter dated March 21, 1988.
5. Fish & Wildlife Service letter received April 11, 1988.
6. DER's letter requesting additional information dated April 19, 1988.
7. Westinghouse response received April 27, 1988.
8. DER's letter dated May 26, 1988.
9. Westinghouse letter received June 10, 1988.
10. Board of Commissioners, Bay County, letter received June 16, 1988.
11. Bay County Audubon Society letter received July 22, 1988.
12. DER letter dated August 2, 1988.
13. Westinghouse letter received August 12, 1988.
14. Bay County Audubon Society letter received September 20, 1988.
15. EPA letter received October 11, 1988.
16. Final Determination dated October 12, 1988.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

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 notify and provide the department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

(x) Determination of Best Available Control Technology (BACT)
(x) Determination of Prevention of Significant Deterioration (PSD)
(x) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Municipal Waste Combustor

a. The maximum charging rate of each municipal waste combustor (MWC) shall not exceed 255 tons of municipal solid waste (MSW) per day (a total of 510 TPD for the facility); 95.6 million Btu heat input per hour, assuming a heating value of 4,500 Btu per pound; and a steam production rate of 68,000 lbs/hr (design capacity).

b. The wood waste utilization rate shall not exceed 160 TPD for the facility. Wood waste shall be used when sufficient MSW is not available to maintain a steady heat rate.

SPECIFIC CONDITIONS:

c. The furnace mean temperature at the fully mixed zone of the combustor shall not be less than 1,800°F.

d. The normal operating range of the MWC shall be 80% to 100% of design rated capacity.

e. The MWC shall be fueled with municipal solid waste and wood waste only. Other wastes shall not be burned without specific prior written approval of DER.

f. Auxiliary fuel burners shall be fueled only with distillate fuel oil or natural gas. If the annual capacity factor for oil or gas is greater than 10%, as determined by 40 CFR 60.43b(d), the facility shall be subject to 40 CFR 60.44b, standards for nitrogen oxides.

g. Auxiliary fuel burners shall be used at start up during the introduction of MSW fuel until design furnace gas temperature is achieved.

h. The facility may operate continuously (8760 hrs/yr).

2. Each MWC shall be equipped with an electrostatic precipitator for particulate emission control.

3. Flue gas emissions from the facility shall not exceed the following:

	Emission Limitations		Emission Factors	
	Per Unit	Facility	Wood	MSW
Pollutant	lbs/hr	lbs/hr	lb/ton	lb/ton
PM, PM_{10}	6.8	13.5	(0.03 gr/dscf)	
CO	92.8	185.6	20.0	3.58
NOx	26.9	53.9	2.8	2.41
SO_2	35.8	71.5	0.3	3.36
VOC	7.1	14.2	1.7	0.196
Lead	0.04	0.08	0	0.0039
Mercury	0.18	0.36	0	0.0017
Beryllium	$5x10^{-6}$	$1x10^{-5}$	0	$4.8x10^{-7}$
Hydrogen Chloride	61.7	123.3	0	5.8
Sulfuric Acid Mist	1.5	3.0	0	0.14
Fluoride	0.15	0.3	0	0.014

Visible emissions shall not exceed 15% opacity (6 min. average).

PM_{10} emissions are conservatively assumed to be equal to 100% PM.

SPECIFIC CONDITIONS:

Compliance with the permit emission limits shall be determined by EPA reference method tests included in 40 CFR Parts 60 and 61 (1987 version) and listed in Condition No. 4 of this permit or by equivalent methods approved by Florida DER.

For the purpose of establishing specific increment consumption for TSP and SO_2 at the facility, an hourly emission rate shall be established for each pollutant at the time of performance testing.

The combustors are subject to 40 CFR [illegible] 60, Subpart E; and Subpart Db, when heat input per unit exceeds 100 MMBtu/hr; except that where requirements within the permit are more restrictive, the requirements of the permit shall apply.

4. Compliance Tests

a. Initial compliance tests for particulate matter, SO_2, nitrogen oxides, CO, VOC, lead, fluorides, mercury and beryllium shall be conducted in accordance with 40 CFR 60.8 (a), (b), (d), (e), and (f).

b. Annual compliance tests for particulate matter, sulfur dioxide, and nitrogen oxides shall be performed.

c. Initial and annual visible emissions compliance tests shall be determined in accordance with 40 CFR 60.11(b) and (e).

d. The compliance tests shall be conducted within 10% of the maximum capacity and firing rate of each permitted fuel.

e. The following test methods and procedures of 40 CFR Parts 60 and 61 or other DER approved methods with prior DER approval shall be used for compliance testing:

(1) Method 1 for selection of sample site and sample traverses.

(2) Method 2 for determining stack gas flow rate.

(3) Method 3 or 3A for gas analysis for calculation of percent O_2 and CO_2.

SPECIFIC CONDITIONS:

(4) Method 4 for determining stack gas moisture content to convert the flow rate from actual standard cubic feet to dry standard cubic feet.

(5) Method 5 or Method 17 for particulate matter.

(6) Method 9 for visible determination of the opacity of emissions as required in this permit in accordance with 40 CFR 60.11.

(7) Method 6, 6C, or 8 for SO_2.

(8) Method 7, 7A, 7B, 7C, 7D, or 7E for nitrogen oxides.

(9) Method 10 for CO.

(10) Method 12 for lead.

(11) Method 13B for fluorides.

(12) Method 25 or 25A for VOCs.

(13) Method 101A for mercury.

(14) Method 104 for beryllium.

5. Continuous Emission Monitoring

Continuous emission monitors for opacity, oxygen, and carbon monoxide shall be installed, calibrated, maintained and operated for each unit.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.

b. CEMS data shall be recorded during periods of startup, shutdown and malfunction but shall be excluded from emission averaging calculations for CO and opacity.

SPECIFIC CONDITIONS:

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. Opacity monitoring system data shall be reduced to 6-minute averages, based on 36 or more data points, and gaseous CEMS data shall be reduced to 1-hour averages, based on 4 or more data points, in accordance with 40 CFR 60.13(h).

f. CO emissions, corrected to 7% O_2, shall be recorded. A CO value of 400 ppmvd shall indicate good combustion (800 ppm corresponds to the emission limitation in Condition No. 3).

g. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 5 herein, which exceeds the applicable emission limit in Condition No. 3.

6. Operations Monitoring

a. Devices shall be installed to continuously monitor and record steam production, furnace exit gas temperature (FEGT) and flue gas temperature at the exit of the control equipment. An FEGT to combustion zone correlation shall be established to relate furnace temperature at the temperature monitor location to furnace temperature in the overfire air fully mixed zone.

b. The furnace heat load shall be maintained between 80% and 100% of the design rated capacity during normal operations. The lower limit may be extended provided compliance with the carbon monoxide emissions limit and the FEGT within this permit at the extended turndown rate are achieved.

7. Reporting

a. A minimum of fifteen (15) days prior notification of compliance test shall be given to DER's Northwest District office.

SPECIFIC CONDITIONS:

b. The results of compliance test shall be submitted to the Department's Northwest District office within 45 days after completion of the test.

c. The owner or operator shall submit excess emission reports for any calendar quarter during which there are excess emissions from the facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period. The report shall include the following:

(1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and completion of each period of excess emissions (60.7(c)(1)).

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the furnace boiler system. The nature and cause of any malfunction (if known) and the corrective action taken or preventive measured adopted (60.7(c)(2)).

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks, and the nature of the system repairs of adjustments (60.7(c)(3)).

(4) When no excess emissions have occured or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report (60.7(c)(4)).

(5) The owner or operator shall maintain a file of all measurements, including continuous monitoring systems performance evaluations; monitoring systems or monitoring device calibration; checks; adjustments and maintenance performed on these systems or devices; and all other information required by this permit recorded in a permanent form suitable for inspection (60.7(d)).

PERMITTEE: Bay Resource Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

8. The construction shall reasonably conform to the plans and schedule submitted in the application. If the permittee is unable to complete construction on schedule, the Department must be notified in writing a minimum of 60 days prior to the expiration of the construction permit and submit a new schedule and request for an extension of the construction permit, (Rule 17-2, F.A.C.).

To obtain a permit to operate, the permittee must demonstrate compliance with the conditions of the construction permit and submit a complete application for an operating permit, including the application fee, compliance test results, and Certificate of Completion to the Department's Northwest District office a minimum of 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date. Operation beyond the construction permit expiration date requires a valid permit to operate, (Rules 17-2 and 17-4, F.A.C.).

If the construction permit expires prior to the permittee requesting an extension or obtaining a permit to operate, then all activities at the project must cease and the permittee must apply for a new permit to construct which can take up to 90 days to process a complete application, (Rule 17-4, F.A.C.).

9. Any change in the method of operation, fuels, equipment or operating hours shall be submitted for approval to the Department's Northwest District office.

10. This permit shall supercede previous permits issued for the Bay County Waste-to-Energy Facility.

Issued this 14 day of Oct, 1988

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Dale Twachtmann

Dale Twachtmann, Secretary

Best Available Control Technology (BACT) Determination
Bay Resource Management Center
Bay County

The applicant has constructed a resource recovery facility (RRF) located near Panama City, Florida. The RRF is capable of burning up to 510 tons per day (TPD) of municipal solid waste (MSW).

When the application was submitted to construct the facility in 1984, it was proposed to supplement the available MSW with wood waste to operate at a level which was equivalent in heat input to burning 510 TPD of MSW. At that time, the applicant proposed burning 350 TPD of MSW and supplementing with 135 TPD of wood, since there were insufficient quantities of MSW available to operate at the 510 TPD capacity level. In accordance with this request, the applicant was restricted to burning only 350 TPD of MSW as a condition of the construction permit.

On February 5, 1988, the applicant requested that the construction permit be modified to increase the permitted level of 350 TPD of MSW to a level of 510 TPD. This increase in the MSW operating level will allow the facility to operate as a regional resource recovery facility for Bay County and the surrounding counties.

In accordance with the increase in MSW operating capacity, the resulting air emissions from the facility will also increase. The applicant has indicated the increases in emissions resulting from the modification as shown in Table 1.

Rule 17-2.500(2)(f)3 of the Florida Administrative Code (F.A.C.) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in FAC Rule 17-2, Table 500-2, Regulated Air Pollutants. The facility is located in an area classified as attainment for all air pollutants, in accordance with F.A.C. Rule 17-2.420.

BACT Determination Requested by the Applicant

A review of Table 1 indicates that sulfur dioxide (SO_2) is the only pollutant that is subject to BACT. The applicant's review indicates that BACT for the modification should be the same as the BACT approved by the Florida DER in 1984 (i.e. no acid gas control requirement). Based on test results from Bay County and other facilities, the SO_2 emission rate proposed is equivalent to 3.36 pounds per ton of MSW charged.

Date of Receipt of a BACT Application

February 5, 1988

BACT Determiniation Procedure:

DER rules on a BACT determination require the Department to consider for each pollutant emitted, on a case by case basis, taking into account energy, environmental and economic impacts, and costs, and determine the maximum degree of reduction which is achievable through application of production processes and available methods, systems, and techniques. The applicable regulations also require the Department to consider:

(a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using a "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

Energy, Economic and Environmental Impacts Analysis

In a recent policy memorandum (June 26, 1987) entitled "Operational Guidance on Control Technology for New and Modified Municipal Waste Combustors", the EPA has identified acid gas scrubbers as an effective means of controlling sulfur dioxide emissions from these facilities. The use of this type of control in conjunction with a particulate control device is considered to provide the most stringent control available for resource recovery facilities and thereby represents the first step in the "top-down" BACT review process.

In determining whether or not the installation of an acid gas scrubber is justified as BACT for this facility, the economics of

providing this control must be evaluated. To assist agencies in performing this evaluation, guidelines have been established to justify the use of control equipment/strategies in terms of the amount of pollutants controlled per dollars invested. For controlling the emissions of sulfur dioxide the EPA has considered costs of up to $2,000 per ton as being reasonable when developing New Source Performance Standards (NSPS). This guideline is pertinent when making BACT determinations since BACT must be at least as stringent as NSPS.

When performing the cost benefit analysis, it is necessary to include all the polluants which are controlled by a particular control device/strategy. This requirement was stressed in another recent EPA memorandum (September 1987) entitled "Implementation of North County Resource Recovery PSD Remand" which strongly affirms that the permitting authority should take the toxic effects of unregulated pollutants into account in making BACT decisions for regulated pollutants.

The applicant has indicated that a dry scrubber system for the facility would cost $1,337,986 annually, based on 8,760 hours per year operation. The breakdown of the costs to install a dry scrubbing system at the facility are shown as follows:

Capital Costs

I. Spray Dryers

Lime Slurry Feed and Preparation	450,000
Dryers	750,000
Erection	500,000
Ductwork	150,000
Heat Insulation	300,000
Controls	100,000
Piping	50,000
Access	125,000
Wiring	200,000
Field Supervision	60,000
Start-up and Shakedown	200,000
SUB-TOTAL:	$2,885,000

II. ESP Relocation and Stack Construction

Dismantle and Remove Existing Stack	200,000
Construct New Stack (including foundations)	510,000
Construct New ESP Foundations	70,000
Dismantle ESP's	150,000
Re-erect ESP's	350,000
Add an Additional Field to Each ESP	400,000
SUB-TOTAL	$1,690,000

III. Miscellaneous Equipment

Replace Pneumatic Conveyors with Drag Conveyors	450,000
Replace Induced Draft Fans	88,000
SUB-TOTAL	$ 538,000

IV. Direct Costs Related to 6-Month Plant Shutdown

Transportation of By-Pass Waste (510 TPD) (180 days) ($2/ton)	183,600
Landfill Depletion (383 TPD) (180 days) ($20/ton)	1,378,800
Boiler Shutdown Servicing	250,000
Lost Electrical Revenue	2,056,230
SUB-TOTAL	3,868,630
TOTAL CAPITAL COSTS:	$8,972,030

Operating and Maintenance Costs

Lime Consumption	75,555
Additional Power	56,718
Water	5,440
Maintenance	35,200
Spare Parts	78,280
Increase Disposal Costs	32,580
TOTAL OPERATING COSTS:	$283,773

Annualized Costs
(I=10%, N=20 years)

Capital Cost = $8,972,030
O&M = $283,773
Annualized Cost = $8,972,030 (A/P, 10%, 20) + $283,773
Annualized Cost = $1,337,986

Assuming that the dry scrubber controls 70% SO_2 and 90% of the other acid gases, an analysis of the cost required to control tonnage of pollutants removed can be completed. The reduction of both the regulated and non-regulated pollutants when using the dry scrubber on an incremental and overall basis are estimated to be as follows:

Pollutant	Reduction (TPY) Incremental	Overall
Sulfur Dioxide	63.0	219.1
Fluorides	0.36	1.2
Sulfuric Acid Mist	2.8	11.7
Hydrogen Chloride	153	486.0
Total	219.2	718.0

Taking the annualized control cost of $1,337,986 into consideration with the total tonnages controlled, the cost per ton of emissions controlled by the dry scrubber would be approximately $6,104 and $1863 for the incremental and overall pollutants, respectively.

BACT Determination By DER

Dispersion modeling indicates that the maximum predicted impacts from the facility with the level of emissions proposed by the applicant will be well below the Ambient Air Quality Standards, for all of the averaging periods. In addition, the proposed control is judged to limit the emissions of unregulated pollutants to a level which is deemed to be acceptable. As is the case, the impacts associated with this modification as proposed are not preceived to be a threat to air quality.

Potentially Sensitive Concerns

Although, the Bay County Waste-to-Energy facility was designed to process a total of 510 TPD of MSW, it was restricted to burn only 350 TPD of MSW since this corresponded to the guaranteed amount of MSW that was available in Bay County at that time. Now that there is sufficient MSW to operate at the design capacity, the applicant has asserted that the permit should be granted without imposing more stringent emission control since there have been no physical changes made to the plant to increase its capacity. In addition to this concern, there are other impacts which would be brought about if additional control equipment were to be installed at the facility.

As previously indicated the installation of additional control equipment would necessitate a six month plant shutdown. This would require the MSW waste stream to be disposed in landfills which are limited in number and nearing capacity. In addition the time period needed to install additional equipment would prolong the opportunity for surrounding counties with inadequate landfills to utilize the facility.

Finally, it should be noted that the EPA is in the process of developing a policy with regard to the control equipment requirements for existing municipal waste combustors. Based on this activity, the applicant has stated that no additional control requirements should be imposed on the facility unless such control is consistent with EPA's final policy.

BACT Determination By DER

Based on the information presented in the preceding analysis, the Department has determined that BACT for the Bay County RRF is equivalent to that proposed by the applicant (i.e., no acid gas control).

From an economics standpoint, the cost of controlling the incremental increase of acid gases due to the requested MSW throughput increase is well above the $2,000 guideline. Although cost of controlling the overall acid gas emissions does fall slightly below the $2,000 guideline, the cost does not appear justified in view of the MSW disposal impacts that would be brought about by temporarily closing down the facility in order to install the additional control equipment.

In accordance with this determination, the emission limit for sulfur dioxide will be established at the proposed level of 3.36 pounds per ton of MSW charged.

Recommended by:

C. H. Fancy, P.E.
Deputy Bureau Chief, BAQM

October 13 1988
Date

Approved by:

Dale Twachtmann, Secretary

14 Oct. 1988
Date

TABLE 1

Pollutant	Annual Emissions (Tons/Year) Based on 350 TPD MSW 135 TPD Wood	Maximum Annual Emissions (tons/yr) Based on 510 TPD MSW or 350 TPD MSW & 160 TPD Wood)	Difference (Tons/Year)	PSD Significant Emissions Rate (Tons/Year)
Particulate Matter	50	59	9	25
Carbon Monoxide	722	813	91	100
Nitrogen Oxides	223	236	13	40
Sulfur Dioxide	223	313	90	40
VOC	54	62	8	40
Lead	0.25	0.36	0.11	0.6
Mercury	0.11	0.16	0.05	0.1
Beryllium	0.000031	0.000045	0.0000136	0.004
Fluorides	0.9	1.30	0.40	3
Sulfuric Acid Mist	9.0	13	4	7
Hydrogen Chloride	370	540	170	-

FEB 27 1989

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

February 22, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. D. S. Beachler
Westinghouse RESD, Cost Bldg.
2400 Ardmore Blvd.
Pittsburgh, Pennsylvania 15221

Dear Mr. Beachler:

Re: Extension of Expiration Date, Bay County Waste-to-Energy Facility, Permit Numbers: AC 03-145061, AC 03-152196 (PSD-FL-129)

The Department has received and reviewed your request, for an extension of the expiration date of the above referenced permits, dated February 9, 1989.

The Department is in agreement with your request and so the following shall be changed and added to the permits:

Expiration Date Change:

From: June 1, 1989
To: September 1, 1989

Attachment to be Added:

17. Westinghouse letter dated February 9, 1989.

This letter must be attached to your construction permits, AC 03-145061, AC 03-152196 (PSD-FL-129), and shall become a part of the permits.

Sincerely,

Dale Twachtmann
Secretary

DT/ks

cc: E. Middleswart
G. Pennington

FEB 1 3 1989

DER - BAQM

Westinghouse Electric Corporation
Resource Energy Systems Division

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

EN1894DB

February 9, 1989

Mr. Clair Fancy
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Clair:

I am writing you regarding the construction permits AC03-145061 and AC03-152196 and PSD Permit PSD-FL-129 for the Bay County Waste-to-Energy Facility. We would like to update your agency as to the current plans to complete the installation of additional heat transfer equipment and continuous emission monitor at the plant.

The economizers are scheduled for installation on Unit 1 during February 20-14, and on Unit 2 during February 27-March 3. The CO monitor should be installed on Unit 1 by Mid-March 1989. A CO monitor is already installed on Unit 2.

We will calibrate and certify the continuous emission monitors and then conduct emission compliance tests as required by the construction permit. We anticipate that the testing can be conducted in late March or early April.

Because delivery and installation of economizers and CEM equipment is slightly behind schedule, we would like to request an extension to the existing permit expiration date of 3 months (September 1 from June 1). This extension will provide the plant adequate time to complete equipment installation and emission testing. We will send you and the Northwest District Office a copy of the test protocol shortly.

If you need any additional information, please call me at (412) 636-5806.

Sincerely,

David S Beachler

D. S. Beachler, Manager
Environmental & Quality Engineering

/tlb
EN1893DB-EN61

cc: G. G. Pennington
Ed Middleswart

Fed. Express
#331954 7442
4-10-89
Pittsburgh, PA

file

Westinghouse Electric Corporation
Resource Energy Systems Division
EN2084NH

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

April 10, 1989

RECEIVED
APR 11 1989
DER - BAQM

Mr. Pradeep Raval
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Dear Pradeep:

Enclosed are the two simplified process flow diagrams for the Bay Resource Management Center that you have requested. Figure 1 displays the original boiler design without an economizer installed and Figure 2 displays the current design with the economizer installed in the boiler upstream of the air heater. The economizers were installed in both combustor/boiler trains in order to reduce the flue gas exit temperature from approximately 550 - 575F to the original design values of 400 - 450F.

I would also like to clarify a question you had pertaining to the firing of sewage sludge at the Bay County Facility during the March 1988 Research Test Program. I have included a copy of a letter dated May 19, 1987 from Mr. Norman Richards of the Northwest District of the Florida DER to Mr. David Beachler of Westinghouse. In the letter, permission was granted to fire sewage sludge during two tests of 36 hours each in duration at the Bay Resource Management Center. One test was actually conducted during a ten hour test period on March 16-17, 1988. At no other time has sewage sludge been burned at the Bay Resource Management Center.

You also raised several questions concerning the high MSW feed rates during the March 1988 test program at the Bay Resource Management Center, especially for Set Point Number 5. In this test mode, wetted MSW (HHV equal to or less than 3600 BTU/lb) was used as feed material. A total of three tests were conducted at this Set Point. Each test lasted approximately two to three hours. The MSW feed rates for these tests averaged 18.3 tons per hour during a seven hour period on March 19, 1988. This rate does translate to 440 tons of MSW fired per day, however, the plant returned to normal MSW firing rates (10.6 tons per hour) following completion of the seven hour test period.

Clay,
Please read
before you call
PR

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QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL NUMBER 3319547442

DATE 4-19-89

From (Your Name) N. Hirko

Your Phone Number (Very important) (412) 636-5890

Company WESTINGHOUSE RESOURCE ENERGY

Department/Floor No.

Street Address 2400 ARDMORE BLVD CUST BLDG

City PITTSBURGH State PA ZIP Required For Correct Invoicing 15221

To (Recipient's Name) PRADEEP RAVAL Blair Fancy

Recipient's Phone Number (Very Important) (904) 488-1344

Company Florida Dept. of Environmental Regulation

Department/Floor No.

Street Address (Delivery And Result in Extra Charge.) Twin Towers Office Building 2600 Blair Stone Road

City Tallahassee State FL ZIP Street Address Zip Required 32399

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8 ☐

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	LBS		
	LBS		
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PA

Also as noted, the MSW feed rate for Set Point No. 5 was calculated based on the conveyor load cell readings during the test. Because of the high moisture loading of the MSW, it was difficult to accurately estimate MSW charging weights. Also, the lower heating value of the wetted MSW meant that additional MSW had to be fired to maintain plant operating conditions.

Although several of the tests during the March 1988 test program were conducted at what can be called "worst case" scenarios, the emissions data indicate that permit levels can be met. Also, it would not be uncommon to encounter these so-called "worst case" scenarios in the normal daily operation of the plant, since MSW properties are highly variable.

Please take this additional information into consideration when reviewing the March 1988 test program that was conducted at the Bay County Facility. If you have any further questions, please do not hesitate to call me at (412) 636-5890. I hope to hear from you by April 14, 1989 in order for us to establish the final test plan for the upcoming April 24-28 test program.

Sincerely,

Nancy M. Hirko

Nancy M. Hirko
Senior Engineer
Environmental & Quality Engineering

cc: D. S. Beachler
M. R. Lindsey, Bay Resource Management Center
E. Middleswart, Florida DER, NW District Office

copied: P. Raval
B. Andrews
J. Pennington
A. Aronson, EPA
CHF/BT

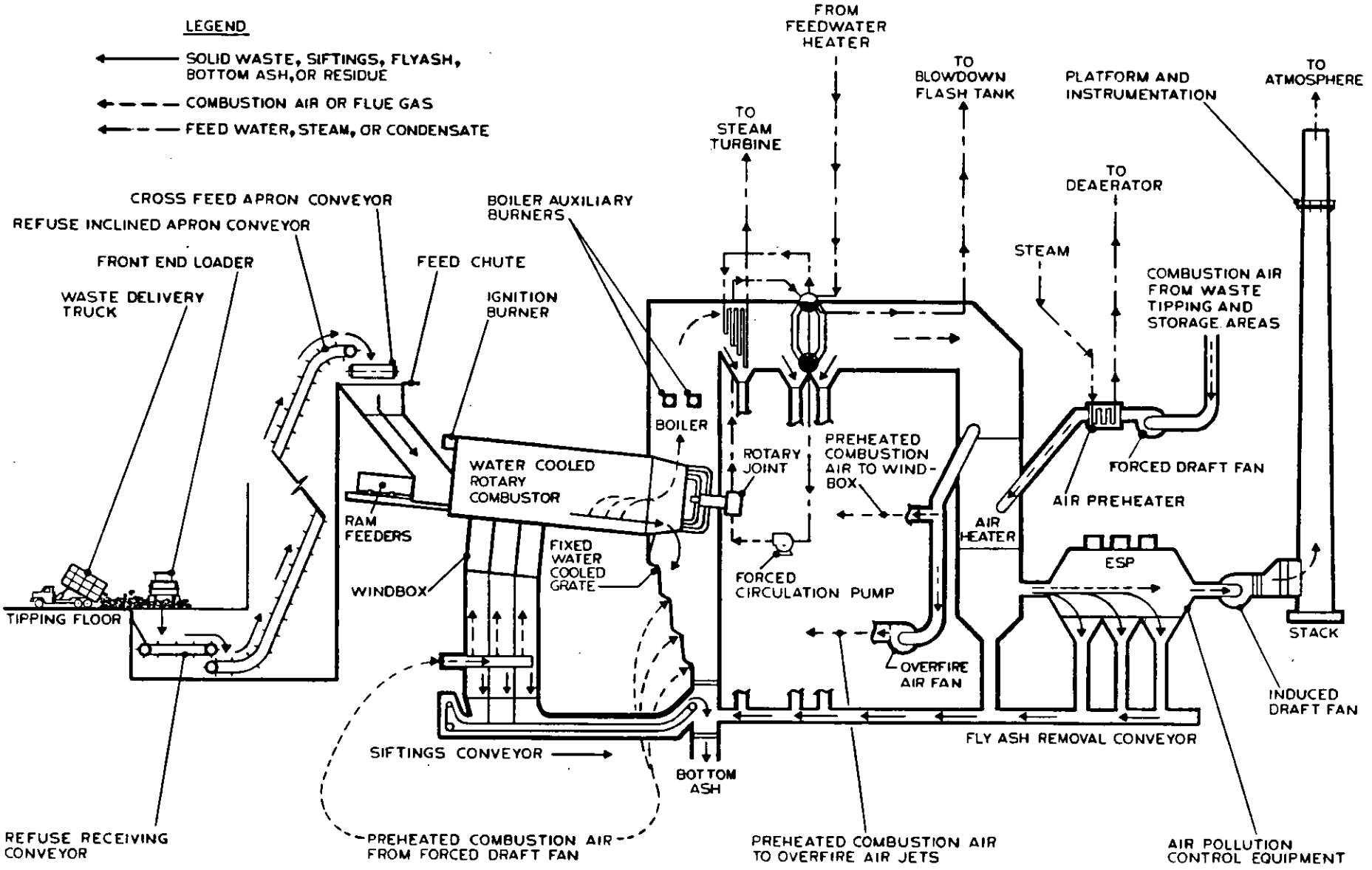

Figure 1

Simplified Process Flow Diagram - Gas Cycle, Without Economizer, Bay Resource Management Center

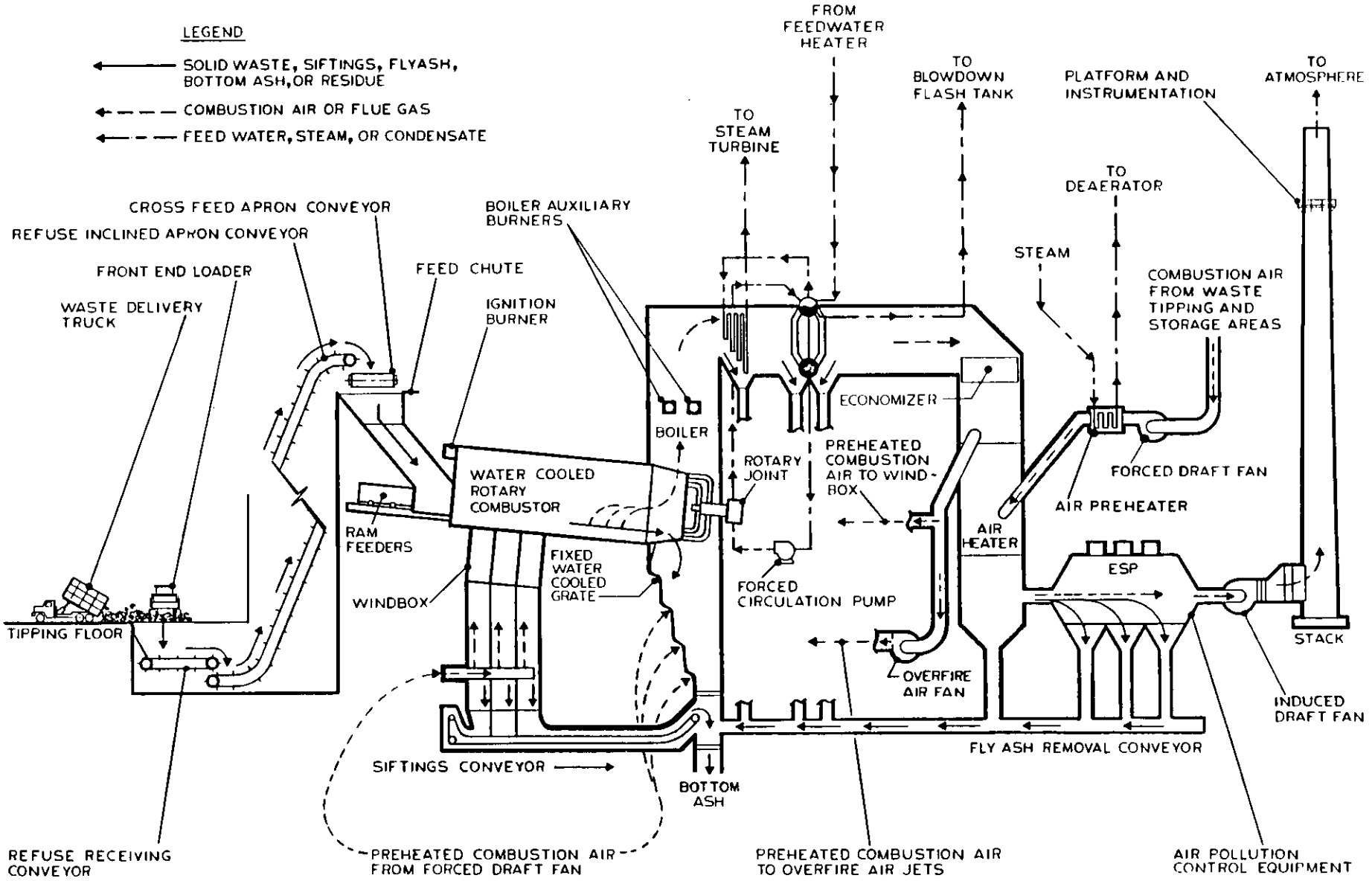

Figure 2

Simplified Process Flow Diagram - Gas Cycle, With Economizer Installed, Bay Resource Management Center

B20RG

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

NORTHWEST DISTRICT
160 GOVERNMENTAL CENTER
PENSACOLA, FLORIDA 32501-5794

May 19, 1987

MAY 22 1987

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY
ROBERT V. KRIEGEL
DISTRICT MANAGER

Mr. D. S. Beachler, Manager
Environmental and Quality Engineering
Resource Energy Systems Division
Westinghouse Electric Corporation
2400 Admore Boulevard
Pittsburgh, Pennsylvania 15221

Dear Mr. Beachler:

This letter is in response to your requests of May 8, 1987. This letter allows operation during a 10-day test period in the manner you requested.

This letter does not amend condition 2 of the construction permits AC03-84703 and -84704, which specifically excludes the use of sewage sludge to fire the incinerator. The test firings with sewage sludge are limited to 2 tests of 36 hours each. Any future incineration of sewage sludge would require amendment of the construction permits after application to and review by Central Air Permitting Section (CAPS) of the Bureau of Air Quality Management, Department of Environmental Regulation, Tallahassee.

Sincerely,

Norman Richards

Norman Richards, Ph.D.
Assistant District Manager

NR/jpl

Dad Ex 331935 010
3-31-89
Pittsburgh, PA

file copy

Westinghouse Electric Corporation **Resource Energy Systems Division**

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

EN2039DB

March 31, 1989

Pradip has test report. Will return to file.

Clair Fancy
Florida DER
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399

Dear Clair:

I am writing you regarding air permits No. AC03-145061, AC03-152196, and PSD-FL-129 for the Bay Resource Management Center.

Enclosed is a test report that summarizes results from testing that was conducted at the Bay Facility on March 8-19, 1989. Testing was conducted on Unit 2 at various MSW feed rates to measure thermal performance of the combustor/boiler system and the corresponding emission rates. For the data supplied in the enclosed test report, the MSW feed rate was approximately 255 tons/day or above (ranged from 260 to 370 tpd). The data submitted includes hourly averages for 5 separate days for SO_2, NOx, CO and O_2 emissions that were measured using continuous emission monitors. Data for non-methane hydrocarbons (VOCs), fluorides, and H_2SO_4 mist are also included.

We would like to request that this data be used to fulfill the compliance testing requirements to measure SO_2, NOx, CO, VOCs and fluorides. We propose to measure particulate matter concentration, lead, mercury, and beryllium during a test program to be held in late April 1989. We propose that particulate matter be measured from both units (3 runs, each EPA method 5). Lead, mercury, and beryllium will be measured according to EPA methods 12, 101A, and 104 respectively, 3 runs for each method on one unit only. The proposed test protocol is enclosed for your review and approval. We will notify you (and the NW District Office) two weeks prior to conducting the compliance tests.

Nancy Hirko of Westinghouse RESD will be in charge of this test program. If you have any questions regarding the enclosed test report or proposed test protocol, please call me at (412) 636-5806 or Nancy Hirko at (412) 636-5890.

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APR 3 1989
DER - BAQM

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DATE 3-31-89

AIRBILL NUMBER 3319354010

1 From (Your Name) Dave Beachler

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

Company WESTINGHOUSE/RESOURCE ENERGY

Department/Floor No.

Street Address 2400 ARDMORE BLVD COST BLDG

City PITTSBURGH State PA ZIP Required For Correct Invoicing 15221

2 To (Recipient's Name) Mr. Clair Fancy

Recipient's Phone Number (Very Important) ( )

Company Florida Dept. of Environmental Regulation

Department/Floor No.

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We look forward to hearing from you shortly regarding the acceptability of the March 1988 test results as compliance testing data.

Sincerely,

D. S. Beachler, Manager

/tlb
EN2039DB-EN61
Enclosure

cc: N. M. Hirko
M. R. Lindsey
E. Middleswart, Florida DER, NW District Office

copied: P. Raval
B. Andrews
J. Pennington
H. Aronson, EPA
CHF/BT

Introduction

Tests were conducted on Unit 2 combustor/boiler system at the Bay Resource Management Center on March 8-19, 1988. The tests were performed in support of the Westinghouse Resource Energy Systems Division (RESD) research effort. The purpose of the tests were to document the thermal and environmental performance of the Unit 2 system while burning MSW at the design rated conditions, higher gross heat input rates, lower gross heat input rates and while burning a mixture of MSW and sewage sludge (approximately 10%). This test report contains emission data that was collected during set-point conditions that typically represent design operating conditions while burning MSW alone. Emission data are presented for SO_2, NOx, CO, fluorides, H_2SO_4, SO_3, HCl, and non-methane hydrocarbons (or VOCs) all corrected to 7% O_2. Thermal performance was measured using the ASME hybrid boiler-as-a-calorimeter test method. All stack sampling and continuous emission monitoring measurements were made by Entropy, Inc. of Raleigh, North Carolina.

not allowed

Test Conditions

Table 1 shows the set-point conditions for the tests conducted while burning 100% MSW. MSW feed rates were varied to obtain set-point conditions that changed based on mass feed rates and varying heat input to the combustor/boiler system.

The MSW feed was weighed by the plant's truck scale and stored in numbered piles on the tipping floor. Each pile weighed approximately 100 tons. In order to keep track of the piles during the test, a map showing the location and the weight of the piles was sketched on the control room's blackboard. The time spent in feeding an entire reference MSW pile together with the feed conveyor's load cell readings were recorded to calculate the average MSW feed rate during each set point. The average set point MSW feed rates appear in Table 1.

PM
3-13-89
Pittsburgh, PA

file copy

Westinghouse Electric Corporation **Resource Energy Systems Division**

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

EN1982DB

March 10, 1989

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

Dear Clair:

I'm writing you to update you on the status of the installation of the additional heat transfer surface at the Bay Resource Management Center. The facility is in the process of installing economizer tube banks in both combustor/boiler trains. The original boiler design did not have economizers because these tube sections were thought not to be necessary in order to reduce the flue gas temperature (leaving the boiler) to the design level of 400°F. However, after 1-1/2 years of operation and considerable tube-surface fouling, the boiler exit temperatures in both units were in the 550 to 575°F range. In order to reduce the flue gas exit temperature back to the original design values (400 to 450°F), Westinghouse engineers decided to install economizers. The installation and final operational adjustments should be completed by late March or early April.

The facility is also installing a continuous emission monitor for measuring carbon monoxide on Unit 1. Unit 2 currently has an insitu monitor, manufactured by Land, that is working satisfactory. The monitor for Unit 1 will be an extractive system manufactured by Maihak and supplied by Westinghouse Combustion Control Division. We expect that the installation of the CO monitor for Unit 1 should be completed by early April. We plan to conduct the necessary emission testing as required by the construction permit sometime in early April. Ms. Nancy Hirko, Westinghouse Senior Environmental Engineer, will be organizing and coordinating this test program.

Westinghouse
Electric Corporation

Resource Energy Systems
Division

Cost Building
2400 Ardmore Boulevard
Pittsburgh PA 15221

PITTSBURGH, PA
PM
13 MAR
1989

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

If you have any questions, please call me at (412) 636-5806, or Nancy Hirko at (412) 636-5890.

Sincerely,

D. S. Beachler, Manager
Environmental and Quality Engineering

/tlb

cc: N. M. Hirko
M. R. Lindsey
J. J. Ludwig
E. Middleswart, Florida DER Pensacola

copied: P. Raval
B. Andrews
J. Rogers
A. Aronson, EPA
C. Shaver, NPS
CHF/13T

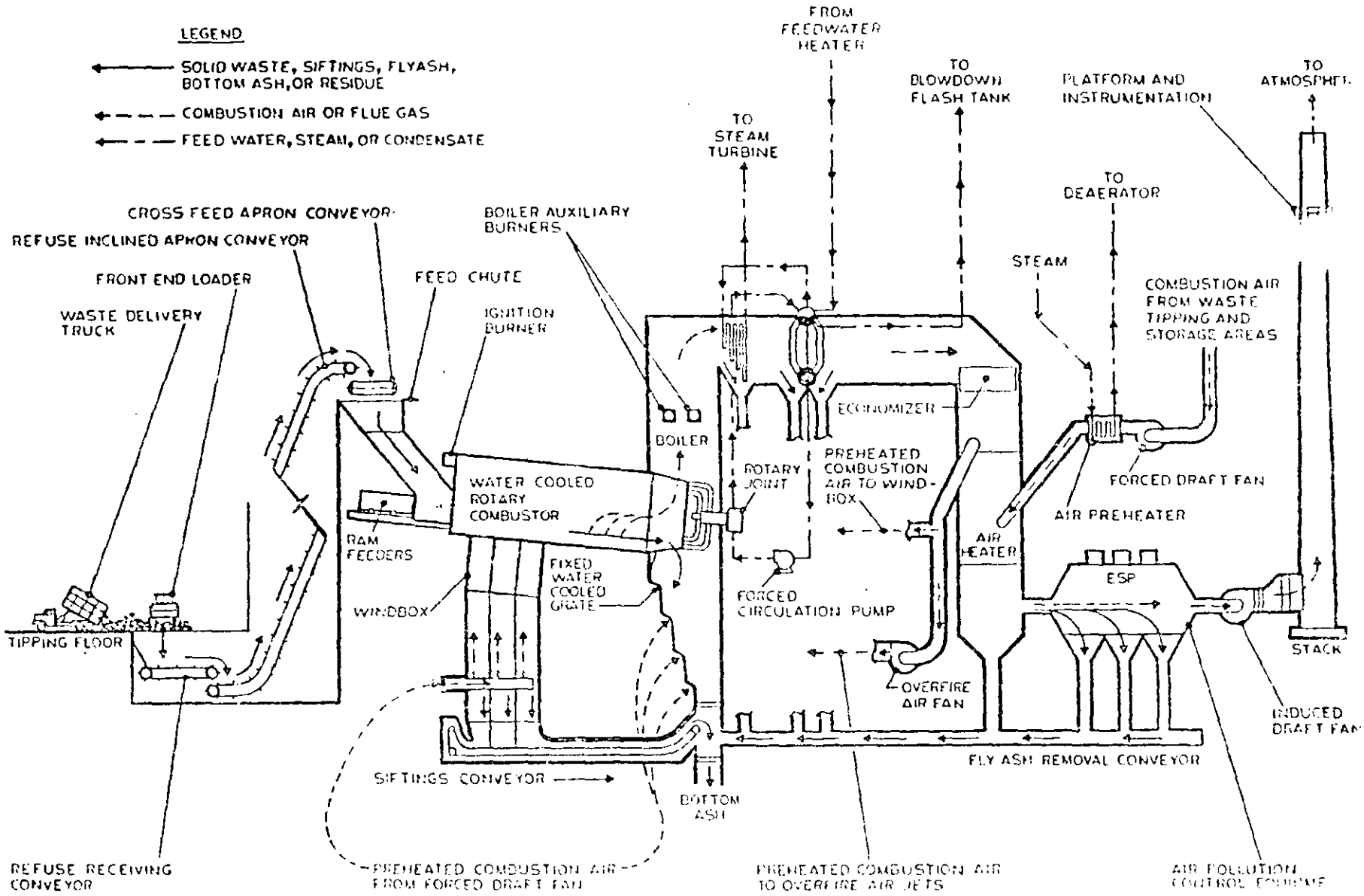

Figure 2

Simplified Process Flow Diagram - Gas Cycle, With Economizer Installed, Bay Resource Management Center

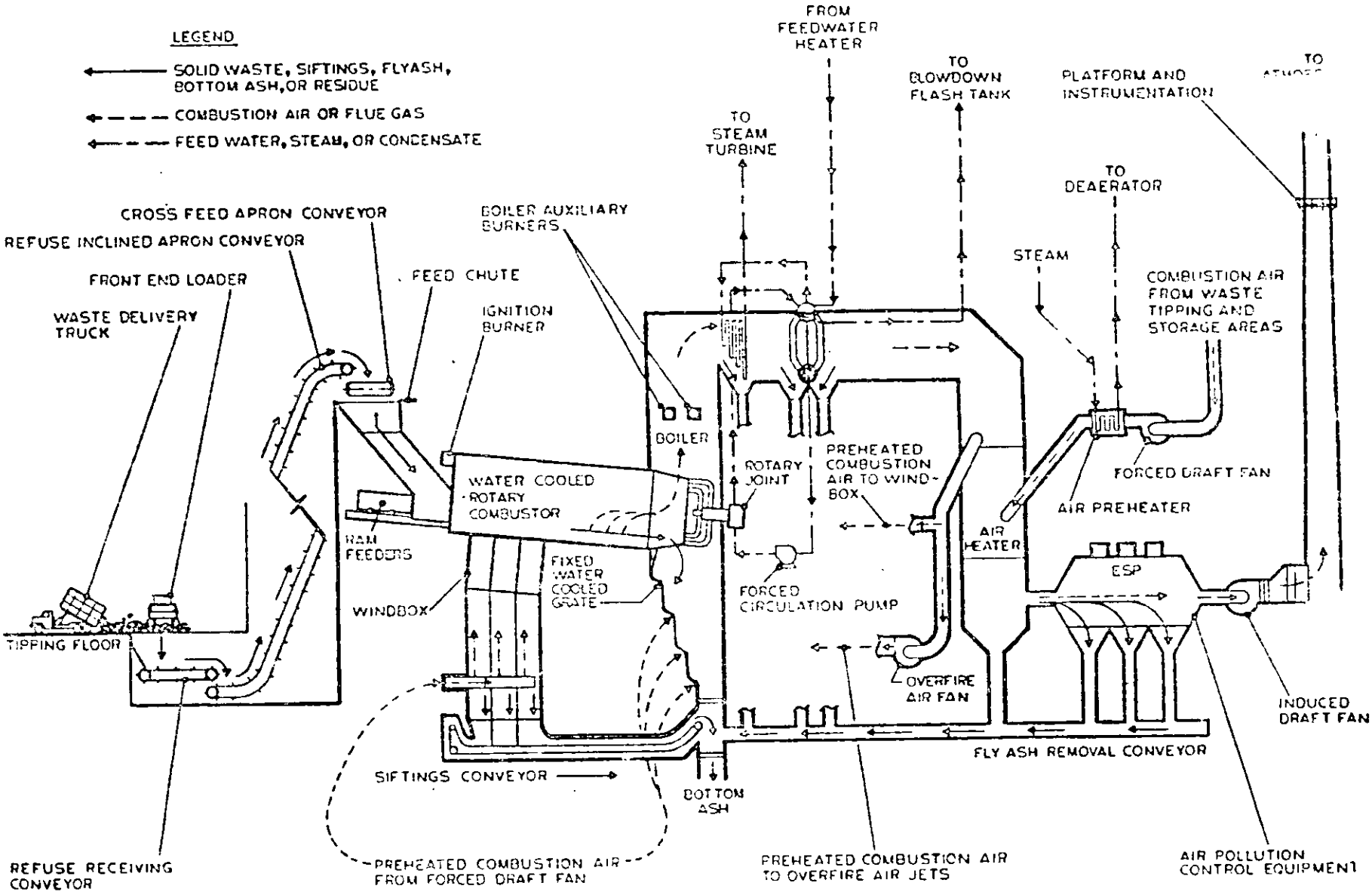

Figure 1

Simplified Process Flow Diagram - Gas Cycle, Without Economizer, Bay Resource Management Center

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

February 22, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. D. S. Beachler
Westinghouse RESD, Cost Bldg.
2400 Ardmore Blvd.
Pittsburgh, Pennsylvania 15221

Dear Mr. Beachler:

Re: Extension of Expiration Date, Bay County Waste-to-Energy Facility, Permit Numbers: AC 03-145061, AC 03-152196 (PSD-FL-129)

The Department has received and reviewed your request, for an extension of the expiration date of the above referenced permits, dated February 9, 1989.

The Department is in agreement with your request and so the following shall be changed and added to the permits:

Expiration Date Change:

From: June 1, 1989
To: September 1, 1989

Attachment to be Added:

17. Westinghouse letter dated February 9, 1989.

This letter must be attached to your construction permits, AC 03-145061, AC 03-152196 (PSD-FL-129), and shall become a part of the permits.

Sincerely,

Dale Twachtmann
Secretary

DT/ks

cc: E. Middleswart
G. Pennington

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To: _____ Location: _____
To: _____ Location: _____
To: _____ Location: _____
From: _____ Date: _____

Interoffice Memorandum

RECEIVED
FEB 20 1989
Office of the Secretary

TO: Dale Twachtmann

FROM: Steve Smallwood

SUBJ: Approval of Expiration Date Extension of Construction Permit Nos. AC 03-145061 and AC 03-152196 (PSD-FL-129), Bay County Waste-to-Energy Facility

DATE: February 17, 1989.

Attached for your approval and signature is an expiration date extension prepared by Central Air Permitting for the above mentioned company.

I recommend your approval and signature.

SS/aqm/pr

attachments

Please call Patty Adams when signed 4-1344

TO: Jake Tuscina [illegible]

FROM: Steve Smallwood

RE: Approval of Expiration Date Extension of Construction Permit Nos. AC [illegible] and [illegible] ([illegible]), [illegible] County Waste-to-Energy Facility

DATE: February 1[illegible], 19[illegible]

Attached for your approval and signature is an expiration date extension prepared by Central Air Permitting for the above referenced company.

I recommend your approval and signature.

[illegible]

Attachment

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. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. D. S. Beachler
Westinghouse RESD, Cost Bldg.
2400 Ardmore Blvd.
Pittsburg, Pennsylvania 15221

4. Article Number

P 274 007 597

Type of Service:

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address

X

6. Signature — Agent

X Donna Shaw

7. Date of Delivery

2-27-89

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

PS Form **3811**, Mar. 1988 * U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 274 007 597

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

* U.S.G.P.O. 1985-480-794

Sent to
Mr. D. S. Beachler, Westinghouse RESD

Street and No
2400 Ardmore Blvd.

P O State and ZIP Code
Pittsburgh, PA 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: 2-22-89
Permit: AC 03-145061
AC 03-152196

PS Form 3800, June 1985

RECEIVED
FEB 13 1989
DER - BAQM

Westinghouse Electric Corporation
Resource Energy Systems Division

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

EN1894DB

February 9, 1989

Mr. Clair Fancy
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Clair:

I am writing you regarding the construction permits AC03-145061 and AC03-152196 and PSD Permit PSD-FL-129 for the Bay County Waste-to-Energy Facility. We would like to update your agency as to the current plans to complete the installation of additional heat transfer equipment and continuous emission monitor at the plant.

The economizers are scheduled for installation on Unit 1 during February 20-14, and on Unit 2 during February 27-March 3. The CO monitor should be installed on Unit 1 by Mid-March 1989. A CO monitor is already installed on Unit 2.

We will calibrate and certify the continuous emission monitors and then conduct emission compliance tests as required by the construction permit. We anticipate that the testing can be conducted in late March or early April.

Because delivery and installation of economizers and CEM equipment is slightly behind schedule, we would like to request an extension to the existing permit expiration date of 3 months (September 1 from June 1). This extension will provide the plant adequate time to complete equipment installation and emission testing. We will send you and the Northwest District Office a copy of the test protocol shortly.

If you need any additional information, please call me at (412) 636-5806.

Sincerely,

David S Beachler

D. S. Beachler, Manager
Environmental & Quality Engineering

/tlb
EN1893DB-EN61

cc: G. G. Pennington
Ed Middleswart

copied: P. Raval
H. Aronson

Westinghouse Electric Corporation

Resource Energy Systems Division

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

EN1836DB

RECEIVED
JAN 23 1989
DER - BAQM

January 16, 1989

Mr. Tom Moody
Florida DER
Northwest District
160 Government Center
Pensacola, FL 32501

~~Dam~~ DA
~~Prokop~~ R
2/2
File

Dear Tom:

We are writing to confirm the telephone conversation with Mr. Steve Holcomb of your office regarding the Bay County Resource Management Center. We basically talked about two subjects: 1) the current plans to meet the permit conditions for the recent construction permits AC-03-145061, AC-03-152196, and PSD-FL-129 issued in October 1988, and 2) the solid waste operating permit SO-03-140759 that was issued January 15, 1988.

In order to meet the special conditions required by the construction (air) permits, the Bay County Resource Management Center has purchased emission monitors to measure carbon monoxide. The equipment is scheduled for shipment and installation late February 1989. In addition, the facility will install additional boiler tube surfaces - economizers on each combustion/boiler train. These economizers will allow the facility to extract more heat from the flue gas before exiting the ESPs and stack. Thus, the boiler will operate more efficiently. In addition, because the flue gas temperatures and gas flow rates will be lower, the ESPs should operate more effluently, even though the facility passed emission compliance tests in June 1987.

After this equipment is installed and the monitors certified, the required stack testing will be conducted to determine compliance with the permit limits. We will inform your office periodically over the next few weeks on the progress of this equipment installation and the subsequent testing programs.

With regard to the solid waste operating permit, we think that there was an oversight in issuing the permit to allow the facility to process (burn) only 350 TPD. The original solid waste construction permit SC-03-091036, issued March 11, 1985, permitted the facility to burn 510 TPD of MSW (see specific condition No. 16). Westinghouse prepared the Certificate of Construction Completion and sent this form to your office on October 16, 1987. This form indicated that the facility was designed to burn 510 TPD of MSW.

Westinghouse
Electric Corporation

Resource Energy Systems
Division

Cost Building
2400 Ardmore Boulevard
Pittsburgh PA 15221

PITTSBURGH, PA 152
-PM
17 JAN
1989

JAN 17 '8

NATIONAL
CHILDREN'S
DENTAL HEALTH WEEK

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

Because the original construction permit SC-03-140759 specified the facility design of 510 TPD MSW and the ensuing Certificate of Construction Completion was filed to reflect this processing rate, we request that DER re-issue a new Solid Waste Operating Permit. Please inform us if you need another completed application form, and/or application fees to obtain this permit.

Gregg Pennington is preparing an explanation of the amount of waste that was burned at the facility during 1988, and will send you a report early the week of January 16-20, 1989.

If you have any questions, please call me at (412) 636-5806.

Sincerely,

David S Beachler

D. S. Beachler, Manager
Environmental and Quality Engineering

/tlb
EN1836DB-EN61

cc: G. G. Pennington, Bay County Resource Management Center
N. J. Zimmerman, Bay County Attorney
J. J. Zebroski, RESD
N. M. Hirko, RESD
Clair Fancy, Florida DER