

Fac/Perm/Co ID #	Date	DIN



*Carmen J.*

Fac/Perm/Co ID #	Date	Doc Recycled paper
01-02	3/31/09	DIN

**Medical Waste Systems®**  
BROWNING-FERRIS INDUSTRIES

SOUTHEAST REGION

July 22, 1991

Sherri C. Hoyt  
Environmental Engineer  
Solid Waste Section  
Department of Environmental, Health,  
and Natural Resources  
P.O. Box 27687  
Raleigh, North Carolina 27611-7687



SUBJECT: Revision of Operations Plan For BFI Medical Waste Systems  
(Southeast), Inc.

Dear Ms. Hoyt,

Attached are the aboved referenced revisions. This information was not available at the time of our initial application. Please insert the new pages in the appropriate sections of the application and operation plan sections.

We are waiting on the Air Permit which should be issued in the next 10 days. Upon receipt, we will submit it for your files. In addition, we are currently testing the initial ash sample for approval to dispose the ash in the Kernersville Landfill. Once accepted at the landfill, we will forward a letter and copy of the contact for your files.

If there is any further information, please feel free to call me direct. My number is (404) 640-2300. Your assistance and understanding is appreciated.

Sincerely,

Larry L. Holloway, CSP  
Vice President

# SERVICE AGREEMENT NON-HAZARDOUS WASTE DISPOSAL

# 190155

Waste Management and Recycling Center  
5000 ... Road  
K... NC 27234

The above-named disposal facility and corporation are referred to herein as "Facility" and "Contractor," respectively.

**CUSTOMER'S BILLING NAME**  
Browning-Ferris Industries (Southeast) Inc.

**CUSTOMER'S BILLING ADDRESS**  
P.O. Box 310

**CITY, STATE/PROVINCE, ZIP/POSTAL CODE**  
Haw River, NC 27258

**CUSTOMER CONTACT**  
Ed Haas, District Manager

**PHONE NUMBER**  
(919) 578-8900

**BANK REFERENCE**  
on file, BFI Greensboro

**BANK CONTACT**      **PHONE NUMBER**  
( )

Credit may be extended to Customer after appropriate credit information, in a form acceptable to Contractor, has been presented to and reviewed by Contractor. Contractor may, in its sole discretion, require a collateral deposit (in the form of cash, letter of credit or surety bond) acceptable to Contractor. It is the responsibility of the Customer to keep said collateral deposit current. Collateral deposits, where utilized, may be adjusted when there is an increase in disposal tonnage and/or rates. Collateral deficiencies must be corrected within 30 days of notice of required adjustment.

**This is a legally binding contract, and Contractor agrees to provide and Customer agrees to accept the waste disposal services subject to the terms and conditions specified in this contract.**

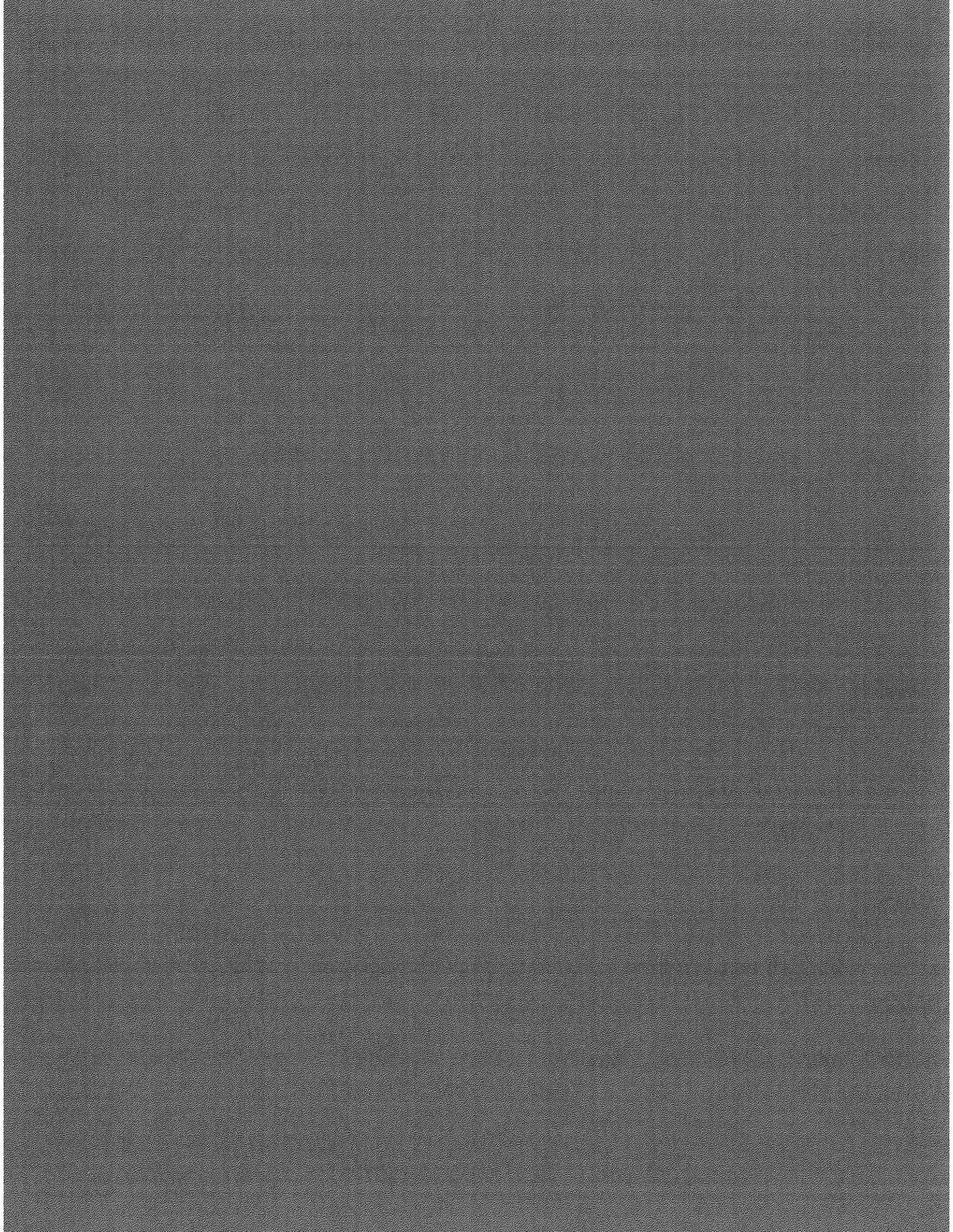
**ESTIMATED MONTHLY AMOUNT OF WASTE FOR LAND DISPOSAL:**  
2-3 Roll offs / week  
(include units e.g., cubic yards, pounds, kilograms)

**SPECIAL INSTRUCTIONS:**  
NO FREE LIQUIDS

**THE TERMS AND CONDITIONS ON REVERSE SIDE ARE PART OF THIS AGREEMENT**

**CUSTOMER**  
Ed Haas  
Authorized Signature  
District Manager  
Title

**CONTRACTOR**  
Keene Kunderberg  
Representative  
7-24-91  
Date





State of North Carolina  
 Department of Environment, Health, and Natural Resources  
 Division of Environmental Management  
 512 North Salisbury Street • Raleigh, North Carolina 27604

James G. Martin, Governor  
 William W. Cobey, Jr., Secretary

July 12, 1991

George T. Everett, Ph.D.  
 Director

Mr. Larry L. Holloway  
 Vice-President  
 BFI Medical Waste Systems  
 (Southeast), Inc.  
 Suite 8225  
 500 Northridge  
 Atlanta, Georgia 30350

Dear Mr. Holloway:

Subject: Air Permit No. **5896R4**  
 BFI Medical Waste Systems (Southeast), Inc.  
 Graham, North Carolina  
 Alamance County

In accordance with your completed application received March 18, 1991, we are forwarding herewith Permit No. **5896R4** to BFI Medical Waste Systems (Southeast), Inc., Graham, North Carolina for the construction and operation of air emission sources or air cleaning devices and appurtenances.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you may request modification of your air permit pursuant to General Statute 150B-22 through which the permit may be modified by the Director. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which modification is being sought. Unless such a request is made within thirty (30) days following the receipt of this permit, this permit shall become final and binding.

In the alternative, you have the right to request a formal adjudicatory hearing within thirty (30) days following receipt of this permit, identifying the specific issues to be contended. This hearing request must be in the form of a written petition, conforming to General Statute 150B-23 of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, Post Office Drawer 27447, Raleigh, North Carolina 27611-7447. Unless a request is made for either an informal modification procedure pursuant to G.S. 150B-22 or a formal adjudicatory hearing pursuant to G.S. 150B-23, this air permit shall be final and binding.

REGIONAL OFFICES

Asheville 704/251-6208	Fayetteville 919/486-1541	Mooresville 704/663-1699	Raleigh 919/733-2314	Washington 919/946-6481	Wilmington 919/395-8900	Winston-Salem 919/896-7007
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Mr. Larry L. Holloway  
Page 2  
July 12, 1991

As a reminder, all new construction of air pollution sources, air cleaning devices, or modifications to the sources contained in this permit must obtain as required a permit from this Division prior to construction. Failure to do so is a violation of General Statute 143-215.108 and may subject the permittee to civil or criminal penalties contained in General Statute 143-215.114.

This permit shall be effective from July 12, 1991, until July 1, 1996, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein.

Sincerely,

  
for George T. Everett

Enclosures

cc: Larry Coble

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION  
DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES  
DIVISION OF ENVIRONMENTAL MANAGEMENT

A I R P E R M I T N O. 5896R4

Issue Date: July 12, 1991

Effective Date: July 12, 1991

Expiration Date: July 1, 1996

Replaces Permit: 5896R3

To construct and operate air emission source(s) or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere. In accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations,

BFI Medical Waste Systems (Southeast Region), Inc.  
1168 Porter Avenue  
Graham, Alamance County, North Carolina

is hereby authorized to construct and operate air emission sources or air cleaning devices and appurtenances consisting of:

1. two impingement plate type wet scrubbers (132 gallons per minute of sodium hydroxide solution, ID Nos. A and B) with mist eliminators installed one each on two natural gas-fired, 1,911 pounds per hour maximum permitted charging capacity each, type 0 and 4 waste to include non-hazardous pharmaceutical waste, multiple chamber incinerators each with a 2.3 million Btu per hour heat input primary burner and a 5.3 million Btu per hour heat input secondary burner,

in accordance with the completed application (APP012639) received March 18, 1991, including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment, Health, & Natural Resources and are incorporated as part of this Permit.

This Permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, or MONITORING REQUIREMENTS:

**A. SPECIFIC CONDITIONS AND LIMITATIONS**

1. This Permit shall not supersede Air Permit No. 5896R3 issued to Thermal Reduction Systems, Incorporated of Porter Avenue, Graham, Alamance County, North Carolina until such time as ownership is legally transferred and the facility is acquired by BFI Medical Waste Systems (Southeast), Inc. Furthermore, this Permit is subject to revocation if the testing requirements and conditions of Air Permit No. 5896R3 are not met.

2. Any air emission sources or control devices authorized above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including 15A NCAC 2D .0505, .0516, .0521, .0522, and .0535.
3. Visible emissions from the emission source (Permitted Item No. 1) shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 or .0525 must comply with applicable visible emissions requirements contained therein.
4. NOTIFICATION REQUIREMENT - Within ten (10) days of the legal acquisition of Thermal Reductions, Incorporated facility by BFI Medical Waste Systems Incorporated, the Permittee shall provide written notice of the acquisition to the Regional Supervisor, Division of Environmental Management (DEM).
5. REPORTING REQUIREMENT - The Permittee shall submit the Guarantee of Closure Obligation to the Regional Supervisor, DEM within thirty (30) days of the acquisition date. The Guarantee of Closure Obligation shall be signed by a responsible representative of BFI.
6. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, or for sources applicable to 15A NCAC 2D .0524 or .0525, when particulate, visible, or odorous emissions exceed Environmental Management Regulations for more than four hours the Regional Supervisor, Division of Environmental Management, Winston-Salem Region, (919) 761-2351, shall be notified as promptly as possible but in no case later than 24 hours of becoming aware of the occurrence. Such notice shall specify the facility name and location, the nature and cause of the excess emissions, the time when first observed, the expected duration, and the estimated rate of emissions. This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.
7. Operation of the incinerators shall be in accordance with the following conditions and stipulations:
  - a. The Permittee shall not exceed a maximum charge weight of 1,911 pounds per hour to each incinerator. Records indicating the hourly (beginning on the hour) weight charged to the incinerators shall be maintained and available for inspection by the DEM,

- b. The Permittee shall not charge any waste into the incinerator until the proper operating temperature of 1,800 degrees Fahrenheit is attained in the secondary chamber,
  - c. Continuous temperature recorders shall be maintained for the primary and secondary chambers of each incinerator,
  - d. Pressure drop across the wet scrubbers shall be monitored and recorded hourly,
  - e. No waste shall be maintained on site greater than twelve (12) hours unless refrigerated. No refrigerated waste shall be maintained on site greater than twenty-one (21) days. Refrigerated waste shall be maintained at a temperature of forty-two (42) degrees Fahrenheit or lower.
  - f. The incinerators stack height shall be a minimum of 65 feet above ground level.
  - g. Incineration of wastes shall be limited to Type 0 and Type 4 wastes consisting of isolation wastes, cultures and stocks of etiologica agents, blood and blood products, pathological wastes, other wastes from surgery and autopsy, contaminated laboratory wastes, sharps, diagnosis unit wastes, animal carcasses and body parts, animal bedding and other wastes from animal rooms, discarded biologicals, contaminated food products, and contaminated equipment as generated by Acute Care Hospitals, Acute Psychiatric Hospitals, Skilled Nursing Facilities, Intermediate Care Facilities, Veterinary Clinics, Physician Clinics, Employee Clinics, Dialysis Clinics and Labs, Rehabilitation Clinics, Pharmaceutical Companies and Suppliers, and USDA Regulated Facilities.
8. The Permittee shall take all reasonable precautions with any operation, process, handling, transportation, or storage facilities to prevent fugitive volatile organic compounds and particulate emissions from becoming airborne.
  9. The issuance of this permit in no way absolves the permittee of liability for any potential civil penalties which may be assessed for violations of State law which occurred prior to the effective date of this permit.
  10. The Permittee must comply with any applicable Federal, State, or local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Solid Waste Management.

B. GENERAL CONDITIONS AND LIMITATIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS for RENEWAL shall be submitted to the:

Regional Supervisor  
North Carolina Division of Environmental Management  
Winston-Salem Regional Office  
Suite 100  
8025 North Point Boulevard  
Winston-Salem, North Carolina 27106

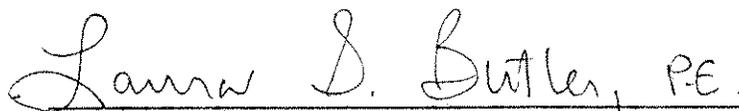
2. PERMIT RENEWAL REQUIREMENT - The Permittee at least ninety (90) days prior to the expiration of this Permit shall request its extension by letter. The letter should include the permit number, the appropriate renewal fee, description of any modifications, and should be sent to the Regional Supervisor, Division of Environmental Management.
3. ANNUAL FEE PAYMENT - The Permittee must pay the annual administering and compliance fee or submit a certification for exemption within 30 days after being billed by the Division. Failure to timely pay the fee or submit a certification for exemption in accordance with 15A NCAC 2H .0609(m) will cause the Division to initiate action to revoke the permit.
4. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.
5. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, Division of Environmental Management:
  - (a) changes in the information submitted in the application regarding facility emissions,
  - (b) changes that modify equipment or processes of existing permitted facilities, or
  - (c) changes in the quantity or quality of materials processed.

If appropriate, modifications to the permit may then be made by the Division of Environmental Management to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

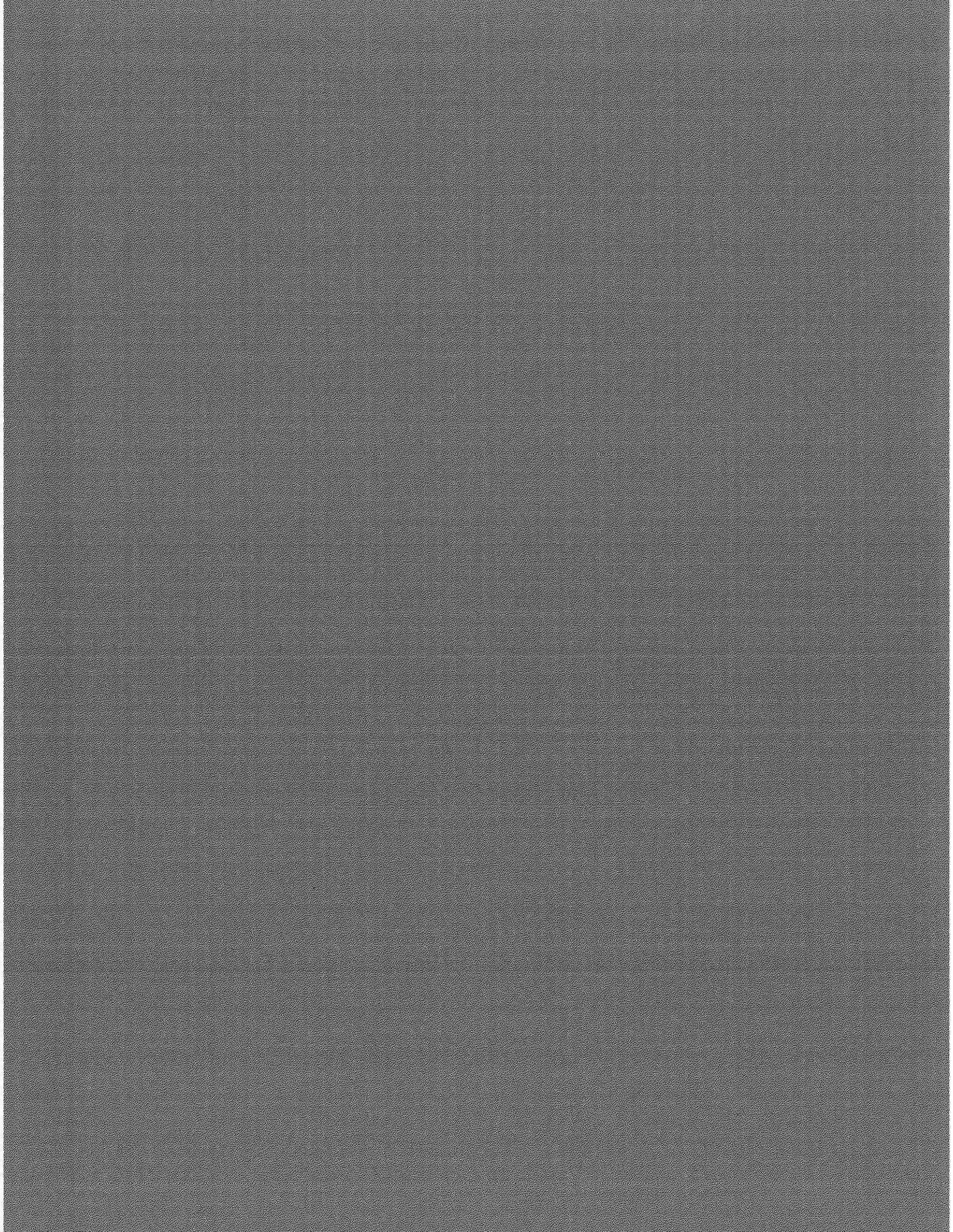
6. This Permit is subject to revocation or modification by this Division upon a determination that information contained in the application or presented in support thereof is incorrect, conditions under which this Permit was granted have changed, or violations of conditions contained in this Permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no air emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.
7. This Permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the Division of Environmental Management.
8. This Permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.
9. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, Division of Environmental Management at such intervals and in such form and detail as may be required by the Division. Information required in such reports may include, but is not limited to process weight rates, firing rates, hours of operation, and preventive maintenance schedules.
10. A violation of any term or condition of this Permit shall subject the Permittee to enforcement pursuant to North Carolina General Statute 143-215.114, including assessment of civil penalties.
11. Pursuant to G.S. 143-215.3 (a)(2), no person shall refuse entry or access to any authorized representative of the Division of Environmental Management who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

Permit issued this the 12th day of July, 1991.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION



George T. Everett, Director  
Division of Environmental Management  
By Authority of the Environmental Management Commission





**Medical Waste Systems**<sup>®</sup>  
BROWNING-FERRIS INDUSTRIES

SOUTHEAST REGION

July 9, 1991

Sherri C. Hoyt  
Environmental Engineer  
Solid Waste Section  
Department of Environmental, Health,  
and Natural Resources  
P.O. Box 27687  
Raleigh, North Carolina 27611-7687

SUBJECT: Revision 1 to Section 5 of Permit Application

Dear Ms. Hoyt,

Attached are the aboved referenced revisions. This information was requested in your letter of June 10, 1991. Our initial application submittal contained much of the information requested. The attached are additions to the initial submittal.

We are waiting on the Air Permit which should be issued in the next 10 days. Upon receipt, we will submit it for your files. In addition, we are currently testing the initial ash sample for approval to dispose the ash in the Kernersville Landfill. Once accepted at the landfill, we will forward a letter and copy of the contact for your files.

If there is any further information, please feel free to call me direct. My number is (404) 640-2300. Your assistance and understanding is appreciated.

Sincerely,

A handwritten signature in cursive script that reads 'Larry L. Holloway'.

Larry L. Holloway, CSP  
Vice President

Haw River District

December 13, 1991

Sherri C. Hoyt  
Environmental Engineer  
Solid Waste Section  
Department of Environmental, Health,  
and Natural Resources  
P.O. Box 27687  
Raleigh, North Carolina 27611-7687



Subject: Transfer of Ownership

Dear Ms. Hoyt,

On December 12, 1991 BFI Medical Waste Systems (Southeast) Inc. and Thermal Reduction Systems, Inc. finalized the acquisition of the medical waste disposal facility located at : 1168 Porter Avenue  
Haw River, North Carolina 27258

The facility will hereafter be named: BFI Medical Waste Systems (Southeast) Inc.  
Haw River District

If there is any further information needed please feel free to call me at (800) 234-4785. Your assistance is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward J. Haas".

Edward J. Haas  
District Manager

cc: Larry Holloway





*Cannon J.*

Fac/Perm/Co ID #	Date	Doc ID#
01-02	3/31/09	DIN

**BROWNING-FERRIS INDUSTRIES**

SOUTHEAST REGION

January 11, 1991

Mr. William Meyer  
Division of Solid Waste Management  
Solid Waste Section  
401 Oberlin Road  
Raleigh, N.C. 27605

Dear Mr. Meyer:

BFI Medical Waste Systems (Southeast), Inc. is in the final stage of acquiring Thermal Reduction Systems medical waste incinerator in Graham, NC. Enclosed is our solid waste permit application for your review and action.

Please note that this is an existing permitted operation. The final stack testing has not been conducted since the facility is presently under construction. We will not take ownership of the facility until it has successfully completed all required stack tests and we have been issued our permits.

Please forward all comments and questions to my attention. I can also be reached at (404) 640-2300.

Sincerely,

Larry L. Holloway, CSP  
Vice President  
BFI Medical Waste Systems (Southeast), Inc.

**APPROVED**  
SOLID & HAZARDOUS WASTE MGMT. BRANCH  
DATE APPROVED: 12/31/91

BFI MEDICAL WASTE SYSTEMS (SOUTHEAST), INC

SOLID WASTE PERMIT APPLICATION

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# Section 1

## 1. OVERVIEW

BFI Medical Waste Systems (Southeast), Inc. has entered into an agreement with Thermal Reduction Systems to acquire the incinerator operation located at 1168 Porter Avenue, Graham, North Carolina. The purpose of this application is to acquire the required Solid Waste Permit to allow us to take ownership and operate the facility.

BFI Medical Waste Systems has been in the medical, pharmaceutical and USDA regulated waste disposal business for nearly 20 years. Our experience and dedication in the proper collection, transportation and destruction of this waste has made BFI the leader in the field. We are currently taking over 500,000 pounds of medical waste from North Carolina to our processing facility in Atlanta, Ga. It is the desire of our customers and BFI to be able to process this waste in North Carolina, thus the nature of our agreement with TRS.

You will find that there are no changes in the equipment, process, or the building/site. There are minor differences in the operating procedures due to our computer systems, safety requirements, and material handling requirements. BFI selected this site over others because of the state of the art equipment and the philosophies of the owners. We feel this is an excellent facility capable of processing medical, pharmaceutical and USDA waste in an environmentally sound method.

A. Facility

(1) Solid Waste Permit      Pending  
Air Quality Permit      Pending

(2) Name

BFI Medical Waste Systems (Southeast), Inc.

(3) Type of Service

This location is engaged in the collection, transportation, and destruction of medical, pharmaceutical and USDA regulated waste via incineration.

(4) Mailing Address

P.O. Box 310  
Haw River, N.C. 27258

(5) Location

1168 Porter Avenue  
Haw River  
North Carolina  
27258

(6) Hours of Operation

24 hours per day  
7 days per week

(7) Telephone

(919) 578-8900 (Local)  
(800) 526-4864 (Emergency Number)

(8) SIC Code

4935 Refuse Systems  
Garbage Collection, Destruction, Processing  
Dead Animal Disposal  
Collection and Disposal of Ashes

B. Contact Person

- (1) Larry L Holloway  
Vice President  
BFI Medical Waste Systems (Southeast), Inc  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404)90640-2316
  
- (2) Ed Haas  
District Manager  
1168 Porter Avenue  
Haw River, N.C. 27259  
(919) 578-8900
  
- (3) J.W. Hill  
Operations Manager  
1168 Porter Avenue  
Haw River, N.C. 27259  
(919) 578-8900

C. Characteristics of Special Wastes Handled at the Facility

(1) Waste Code

No waste code is available for infectious waste in Title 40 Code of Federal Regulations.

(2) Type By Name

Infectious waste are defined as follows:

Those wastes that potentially contain pathogenic agents that, because of their concentration and quantity, may create a danger to the health of the persons exposed to the waste. The U.S. EPA recommends 13 types of waste be designated infectious wastes:

- \* isolation wastes
- \* cultures and stocks of etiologic agents
- \* blood and blood products
- \* pathological wastes
- \* other wastes from surgery and autopsy
- \* contaminated laboratory wastes
- \* sharps

- \* diagnosis unit wastes
- \* animal carcasses and body parts
- \* animal bedding and others wastes from animal rooms
- \* discarded biologicals
- \* contaminated food products
- \* contaminated equipment

There are no known compatibility problems associated with the transportation of this class of wastes.

D. Estimated Capacity

- (1) 2,780,276 pounds per month
- (2) 33,363,307 pounds per year

E. Waste treated at this facility is generated at:

Acute Care Hospitals  
Acute Psychiatric Hospitals  
Skilled Nursing Facilities  
Intermediate Care Facilities  
Veterinary Clinics  
Physician Clinics  
Employee Clinics  
Dialysis Clinics and Labs  
Rehabilitation Clinics  
Pharmaceutical Companies and Suppliers  
USDA Regulated Facilities

F. The purpose of the Company is to assist the above locations in environmentally sound management of their potential infectious wastes, spent or off spec pharmaceuticals and USDA regulated wastes such as international airport wastes and MARPOL wastes.

G. Methods for Identification of Wastes

- (1) Potentially infectious waste is identified by the generator through the use of red plastic bags. These bags are then placed in boxes or reusable containers marked with the international biological symbol and the words "infectious waste".
- (2) Each box is marked with a barcode which enables BFI to identify the generator and track the waste from the generator to incineration.

#### H. Waste Analysis Plan

- (1) The waste is not screened pre-treatment, other than for radioactivity. Generators are provided in service training and designate and package the waste prior to pick up. That waste designated as potentially infectious is treated as such.
- (2) Each collection vehicle is equipped with a portable geiger counter that the driver uses to scan the waste prior to pick up. In addition, a thin window radiological geiger counter is mounted at the processing facility scales to screen the boxes again prior to incineration.

# Section 2

INCINERATOR - continued

**F**

page 2 of 2

Describe any liquid or solid wastes generated and method of disposal:

Ashes to Landfill

13. Stack or Emission Point Data:			
Height Above Ground (ft.) 40 Ft.	Inside Area (sq. ft.) 12.56	Gas Temperature (Deg. F) 1800° F	Direction of Exit (up, down, or horizontal) Up
Volumetric Flow Rate (ACFM) 28,837 ACFM@1800° F	Velocity (ft./sec.) 37.3	Are sampling ports available? ( ) No (X) Yes	Is rain cap or other obstruction over stack? ( ) No (X) Yes, (specify) Spark Arrestor

14. Is a RCRA permit required by the N. C. Department of Human Resources? (X) No ( ) Yes  
If yes, has a RCRA permit application been submitted? \_\_\_\_\_ Date \_\_\_\_\_, 19\_\_\_\_\_

15. List ALL incinerated HAZARDOUS WASTE specified in the RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) (40 CFR 261) in the comments section below:

16. Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*\*\* TYPE OF WASTE BURNED CODE TABLE \*\*\*

CODE	Principal components, usual source, and typical moisture content
0	Highly combustible waste, paper, wood, cardboard cartons, (including up to 10% treated papers, plastic or rubber scraps); from commercial and industrial sources; 10% moisture.
1	Combustible waste, paper, cartons, rags, wood scraps, combustible flour sweepings; from domestic, commercial, and industrial sources; 25% moisture.
2	Rubbish and garbage; from residential sources; 50% moisture.
3	Predominantly animal and vegetable waste; from restaurants, hotels, markets, institutional, commercial and club sources; 70% moisture.
4	Carcasses, organs, solid organic wastes; from hospitals, laboratories, slaughterhouses, animal pounds, and similar sources; 85% moisture.
6	Gaseous and semi-liquid industrial process waste; variable moisture. Describe in detail under comments. Solid and semi-solid by-product waste, such as rubber, plastics, wood waste, etc., from industrial operations; variable moisture. Describe in detail under comments.

# INCINERATOR

# F

page 1 of 2

PLEASE TYPE OR PRINT. ATTACH TO THE GENERAL INFORMATION FORM "A". IF APPLICABLE, ATTACH AIR POLLUTION CONTROL DEVICE FORM "C".

1. Emission Source and ID NO. (FROM GENERAL INFORMATION FORM "A", ITEM 6):

Incinerator A, B

2. Incinerator Description:

Dual Chamber Controlled Air

Manufacturer

Joy Energy Systems, Inc.

Model Name

T-Series

Model Number

2500 TES

3. Permit Application is made for (CHECK ONE ONLY):

New Source    Existing Source    Modification - Last Permit No. \_\_\_\_\_

Commence Construction Date July 15, 1989   Operation Date December 1, 1989

4. Maximum Source Operation:

24 Hours/Day

7 Days/Week

50 Weeks/Year

5. Type of Waste Burned:  
(See codes on next page)

0, 4

Maximum Charging Rate (lb/hr)

Design

Actual

1911

1911

Tons/Year Burned

8000

Total Waste Generated (lb/day)

3,440 (ash)

6. Combustible 75%

Noncombustible 15%

Moisture 10%

Heat Value 8500 (BTU/lb)

7. Primary Chamber:

Volume 925 cu. ft.

Temperature 1450 °F

Secondary Chamber:

Volume 970 cu. ft.

Temperature 1800 °F

Secondary Chamber

Retention Time:

Seconds 2.28 @ 2000° F

2.02 @ 1800° F

Type of Feed

Manual

Automatic

Burner Data:

BURNER RATING (BTU/HR)

Primary

Secondary

2,300,000

5,300,000

AIR FLOW (CFM)

Overfire

Underfire

4340

1080

Excess Air (%)

141

9. Is there a preheat timer?    No    Yes, Preheating Time 90 Min.

10. Auxiliary Fuel Data:   Primary Fuel Type(s) Natural Gas

Secondary Fuel Type(s) \_\_\_\_\_

FUEL TYPE	FUEL USAGE			Max. % Sulfur	Max. % Ash	BTU Value
	Max. Design	Max. Actual	Annual			
Natural Gas	(SCF) 7600	(SCF) 7600	(SCF/yr) 6,000,000	Neg.	Neg.	(BTU/SCF) 1000
#2 Fuel Oil	(gal/hr)	(gal/hr)	(gal/yr)			(BTU/gal)
Other						

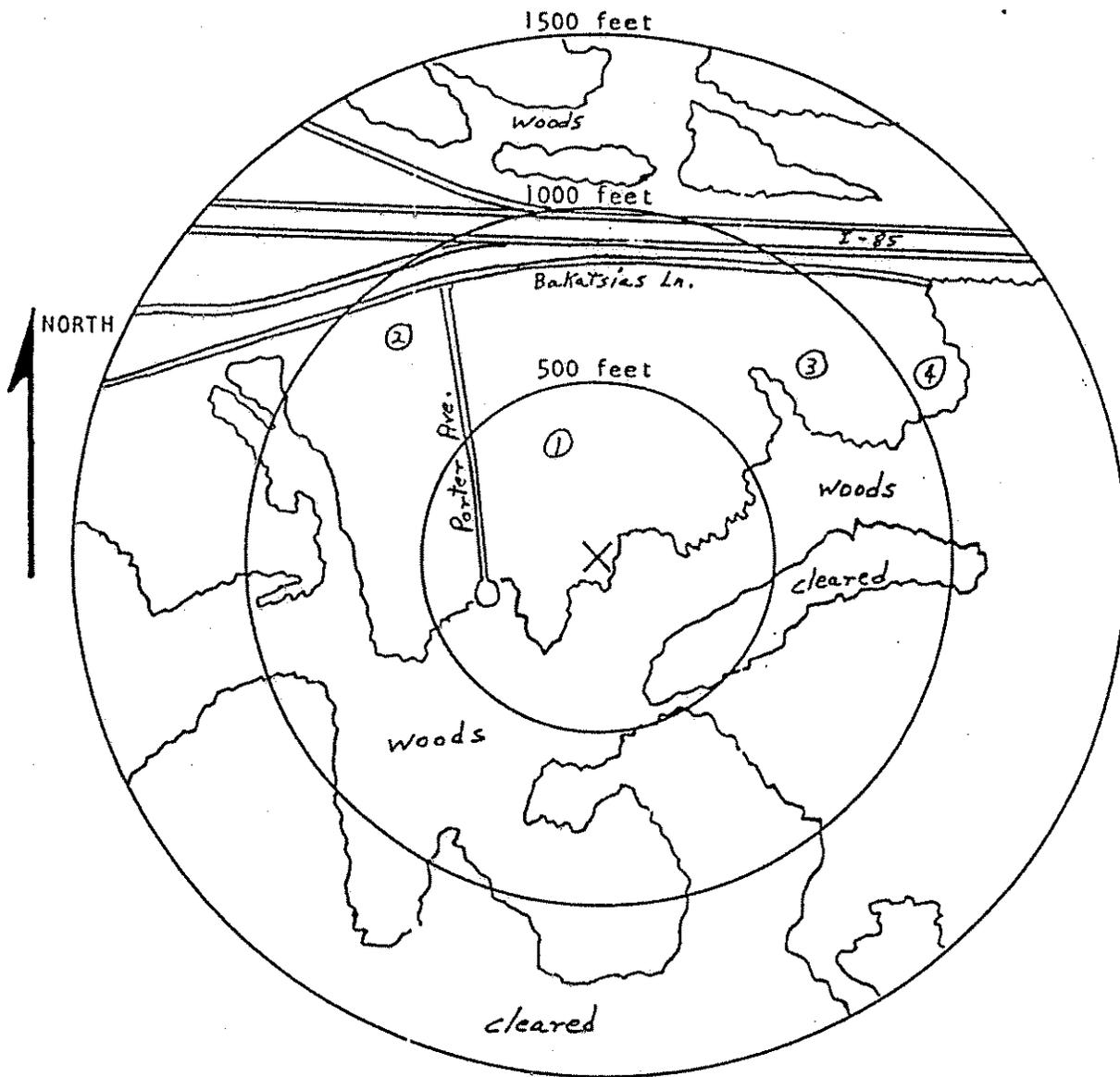
11. Air Contaminants Emitted:

	Maximum Actual Emissions		Emission Estimate Method*	Control Device**	Control Efficiency %
	Before Control (lbs/hr)	After Control (lbs/hr)			
Particulates	10.59	1.05	?	Scrubber	90
Sulfur Dioxide	1.49				
Nitrogen Dioxide	9.56				
Carbon Monoxide	Neg.				
Hydrocarbons (VOC)	Neg.				
Lead					
Other (HCl)	30	0.6	?	Scrubber	98
Other ( )					

\*REFER TO BACK OF GENERAL INFORMATION FORM "A" FOR EMISSION ESTIMATION CODE  
\*\*ATTACH APPROPRIATE AIR CONTROL DEVICE FORM "C"

AREA DIAGRAM

Show all surrounding buildings and roads within 1500 feet of the equipment covered by this application. Attach a site diagram identifying each emission source location(s), property boundaries and building (structure) dimensions (height, width, and length).



INSTRUCTIONS

1. Indicate location and type of building by the use of small numbered circles with the description below.
2. Show roads as lines representing the road edges. Indicate street names and highway numbers.
3. Show wooded or cleared area by approximate boundary lines and the words "woods", "cleared", "cornfield", etc.

CODE

DESCRIPTION

- |      |                             |
|------|-----------------------------|
| (1)  | Irradiation Service Company |
| (2)  | Manufacturing Company       |
| (3)  | Fabricating Company         |
| (4)  | Restaurant                  |
| (5)  |                             |
| (6)  |                             |
| (7)  |                             |
| (8)  |                             |
| (9)  |                             |
| (10) |                             |

Example:

- (1) Church
- (2) Residence

**SUPPLEMENTAL DATA FOR AIR CONTROL DEVICES — continued**

16.

**\*\*\* "SCRUBBER" \*\*\***

Type of Scrubber: <input type="checkbox"/> Venturi <input checked="" type="checkbox"/> Impingement Plate <input type="checkbox"/> Packed Tower <input type="checkbox"/> Gravity Tower <input type="checkbox"/> Mist Eliminator		<input type="checkbox"/> Orifice Type <input type="checkbox"/> Cyclonic <input type="checkbox"/> Condenser <input type="checkbox"/> Other _____		Efficiency (%) 90% Particulate 98% HCL	Volumetric Flow Rate (ACFM) 28,837	Position in Series # <u>1</u> of <u>1</u> Units
		Pressure Drop (in. H <sub>2</sub> O) 5.4	Inlet Temperature (Deg. F) 1800	Mist Eliminator Filter Area (sq. ft.) 33		
Gas Flow <input checked="" type="checkbox"/> Countercurrent <input type="checkbox"/> Concurrent	Liquid Scrubbing Medium and Additives (specify) 45% NaOH plus water		Total Liquid Injection (GPM) 132	Make Up Rate (GPM) 33		
Venturi Scrubber Data:	Inlet Area (sq. in.)	Throat Area (sq. in.)	Throat Velocity (ft./sec.)	<input type="checkbox"/> Fixed Throat <input type="checkbox"/> Variable Throat		
Packed or Plate Tower Data:	Surface Area (sq. ft.) 13.2	Packing Depth (ft.)	Type of Packing: <input type="checkbox"/> Rings <input type="checkbox"/> Saddles <input type="checkbox"/> Other _____	No. of Plates 2	Type of Plates Impingement	

17.

**\*\*\* "ELECTROSTATIC PRECIPITATOR" \*\*\***

Efficiency (%)	Volumetric Flow Rate (CFM)	Total Collection Plate Area (sq. ft.)	Pressure Drop (in H <sub>2</sub> O)	Inlet Temperature (Deg. F)	
Resistivity of Insulant (OHM-CM)	Gas Viscosity (poise)	Charging Field Strength (volts)	Collecting Field Strength (volts)		
<b>PRECIPITATOR TYPE</b> <input type="checkbox"/> Single Stage <input type="checkbox"/> Two Stage <input type="checkbox"/> Other _____			<b>CLEANING METHOD</b> <input type="checkbox"/> Plate Rapping <input type="checkbox"/> Plate Vibrating <input type="checkbox"/> Other _____		
<input type="checkbox"/> Low Voltage <input type="checkbox"/> High Voltage		<input type="checkbox"/> Hot Side <input type="checkbox"/> Cold Side		<input type="checkbox"/> Washing <input type="checkbox"/> None	
Corona Power (Watts/1000 cfm)	Electrical Usage (kw./hr.)	No. of Compartments	No. of Cells/Comp.	Position in Series # _____ of _____ Units	

18.

**\*\*\* "ADSORPTION" \*\*\***

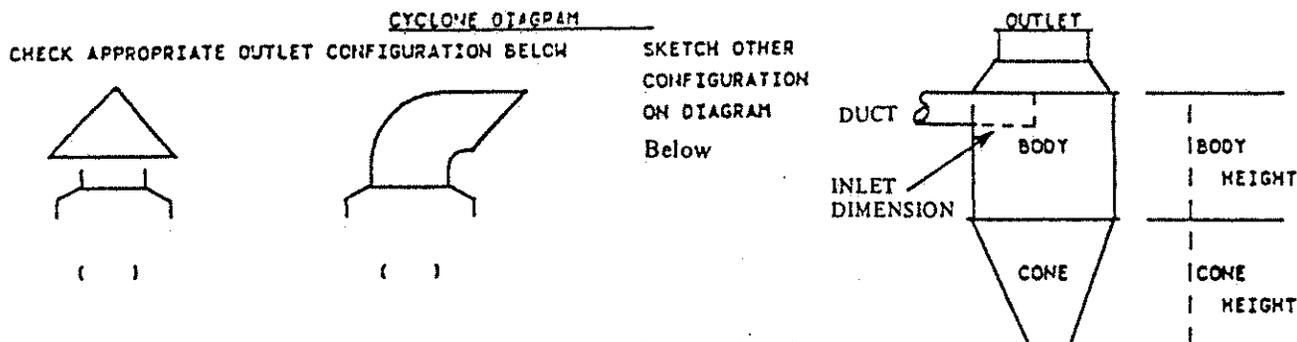
Type of Adsorption: <input type="checkbox"/> One-Pass Regenerative <input type="checkbox"/> One-Pass Nonregenerative			<input type="checkbox"/> Recirculating <input type="checkbox"/> Other _____		Efficiency (%)	Volumetric Flow Rate (ACFM)
Regenerative Method: <input type="checkbox"/> Discarded <input type="checkbox"/> Chemical <input type="checkbox"/> Other _____			<input type="checkbox"/> Thermal (dry heat) <input type="checkbox"/> Thermal (steam)		Adsorption Material: <input type="checkbox"/> Activated Carbon <input type="checkbox"/> Hydrous Silicated <input type="checkbox"/> Other _____	
Position in Series # _____ of _____ Units		Pressure Drop (in H <sub>2</sub> O)	Inlet Temperature (Deg. F)	No. of Compartments	How are emissions controlled during regeneration? _____	
Size of Adsorbent Bed (ft.) Length _____, Width _____, Height _____, Diameter _____						
Regenerative Schedule: Maximum Time for Desorption _____ Length of Time to Maximum Saturation _____						

**SUPPLEMENTAL DATA FOR AIR CONTROL DEVICES**

**\*\*\* "CYCLONE" (MECHANICAL SEPARATORS) \*\*\***

Efficiency (%)	Volumetric Flow Rate (ACFM)	Pressure Drop (in. H <sub>2</sub> O)	Baffles or Louvers (specify)	Position in Series # _____ of _____ Units	
Cyclone Dimensions (inches) Inlet                      Outlet		Cyclone Body Diameter (inches)	Cyclone Body Height (ft.)	Cyclone Cone Height (ft.)	
Wet Spray ( ) No ( ) Yes	No. of Nozzles	Liquid Used (specify)	Flow Rate (GPM)	Makeup Rate (GPM)	% Recirculated

A process flow diagram must be attached. If cyclone is routed to another cyclone or other equipment, show sketch of entire system.



13. **\*\*\* "MULTICYCLONE" \*\*\***

Efficiency (%)	Volumetric Flow Rate (ACFM)	No. of Cones	Pressure Drop (In. H <sub>2</sub> O)	Position in Series # _____ of _____ Units	
Louvers ( ) No ( ) Yes	Inlet Dimension of Individual Cyclone (inches)	Outlet Dimension of Individual Cyclone (inches)	Individual Cyclone Diameter (inches)	Inlet Temperature (Deg. F)	

14. **\*\*\* "FILTRATION" (BAGHOUSE) \*\*\***

Efficiency (%)	Volumetric Flow Rate (ACFM)	Filter Surface Area (sq. ft.)	Air-to-Filter Area Ratio (ft./min.)	Pressure Drop (in. H <sub>2</sub> O)
<b>TYPE OF FILTER</b> <input type="checkbox"/> Fabric Filter (BAGHOUSE) <input type="checkbox"/> Packed Bed <input type="checkbox"/> Mat Filter <input type="checkbox"/> Panel Filter <input type="checkbox"/> Other _____		<b>FILTER MATERIAL</b> <input type="checkbox"/> Fiberglass <input type="checkbox"/> Nylon <input type="checkbox"/> Nomex <input type="checkbox"/> Teflon <input type="checkbox"/> Wool <input type="checkbox"/> Dacron <input type="checkbox"/> Cotton <input type="checkbox"/> Orlon <input type="checkbox"/> Other _____		<b>BAG CLEANING</b> <input type="checkbox"/> Mechanical <input type="checkbox"/> Sonic <input type="checkbox"/> Reverse Flow <input type="checkbox"/> Air Pulse <input type="checkbox"/> Simple Bag <input type="checkbox"/> Ringed Bag Collapse                   Collapse <input type="checkbox"/> Other _____
No. of Compartments	Time Between Cleaning (mins./hr.)	Inlet Temperature (Deg. F)	Position in Series # _____ of _____ Units	

15. **\*\*\* "AFTERBURNER" (FUME INCINERATOR) \*\*\***

Type of Afterburner: <input type="checkbox"/> Direct Flame <input type="checkbox"/> Catalytic <input type="checkbox"/> Other _____	Efficiency (%)	Volumetric Flow Rate (CFM)	Position in Series # _____ of _____ Units
Num Burner Rating (on BTU/hr)	Combustion Chamber Temp. (Deg. F)	Retention Time (sec.)	Fuel Type _____ Usage _____

Combustion Chamber Dimensions (ft.): \_\_\_\_\_ Length \_\_\_\_\_ Diameter

**AIR POLLUTION CONTROL DEVICE**

PLEASE TYPE OR PRINT, ATTACH TO GENERAL INFORMATION FORM "A". SUPPLY DESIGN DATA, SPECIFICATIONS, AND AVAILABLE ENGINEERING DRAWINGS.

1. Air Control Device and ID No. (FROM GENERAL INFORMATION FORM "A", ITEM 6)  
Sly Impinjet Gas Scrubber A , B

2. If there are several devices in series, list each unit in series starting at the emission source.  
 (1) Scrubber (2) \_\_\_\_\_ (3) \_\_\_\_\_ TOTAL UNITS \_\_\_\_\_

3. Indicate Emission Source and ID No. that Control Device(s) is installed on:  
Joy Incinerator Model 2500 TES

4. Narrative Description of Control Device(s):  
Flue gases pas up through the openings in perforated plates. HCL gases and particulates are removed with NaOH solution. Gases exit through a fixed blade mist eliminator.

Manufacturer	Model Name	Model Number
<u>W. W. Sly Manufacturing</u>	<u>Sly IMPINJET gas Scrubber</u>	<u>265</u>

5. Estimated Cost of Control Device <u>\$ 376,000</u>	Period of Time Control Device is Estimated to be Adequate: <u>10</u> Years
--	---

6. Permit Application is made for (CHECK ONE ONLY):  
 New Source     Existing Source     Modification -- Last Permit No. \_\_\_\_\_  
 Commence Construction Date August, 19 90    Operation Date January, 19 91

7. Emission Parameters:	PART.	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	LEAD	OTHER	OTHER
Pollutant(s) Controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>HCL</u>	_____				
Emission Rate Before Control (lb/hr) =	<u>10.59</u>	_____	_____	_____	_____	_____	<u>30</u>	_____
Emission Rate After Control (lb/hr) =	<u>1.05</u>	_____	_____	_____	_____	_____	<u>0.6</u>	_____
Removal Efficiency Percent (%) =	<u>90</u>	_____	_____	_____	_____	_____	<u>98</u>	_____

Particle Size Distribution of Particulates Entering Control Device (% Micron):  
15-0-1    85-1-10    \_\_\_\_\_ 10-25    \_\_\_\_\_ 25-50    \_\_\_\_\_ 50-100    \_\_\_\_\_ Over 100

8. Gas Conditions at Control Device:	INLET	INTERMEDIATE LOCATIONS	OUTLET
Flow Rate (ACFM) =	<u>28,837 @ 14.66 psia</u>	_____	<u>14,765</u>
Temperature (Deg. F) =	<u>1,800</u>	_____	<u>171</u>
Velocity (ft./sec.) =	<u>70</u>	_____	<u>58.5</u>
Pressure Drop (in. H <sub>2</sub> O) =	<u>1.0</u>	_____	<u>5.1</u>
Moisture (%) =	<u>6.3</u>	_____	<u>Saturated</u>

9. Describe Ultimate Disposal of Collected Materials:  
Liquid discharge (10 gpm) cooled below 150°F and piped to holding tank before discharge into sanitary sewer.

10. Stack or Emission Point Data:			
Height Above Ground (ft.)	Inside Area (sq. ft.)	Direction of Exit (up, down, or horizontal)	Are there obstructions over the stack? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, (specify)
<u>65</u>	<u>6.28</u>	<u>up</u>	
Is scaffolding available for sources testing? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_

# APPLICATION INSTRUCTIONS

**THIS APPLICATION IS NOT COMPLETE UNLESS ALL REQUIRED INFORMATION IS SUBMITTED**

**PRINT OR TYPE ONLY. FOR ASSISTANCE, Call the Air Quality Section at (919) 733-3340 or the appropriate field office listed below:**

Asheville (704) 751-6208 59 Woodfin Place Asheville, NC 28802	Mooresville (704) 663-1699 919 North Main Street Mooresville, NC 28115	Washington (919) 946-6481 1424 Caroline Avenue Washington, NC 27889
Winston-Salem (919) 761-2351 8025 North Point Blvd., Suite 100 Winston-Salem, NC 27106	Fayetteville (919) 486-1541 Macbovie Building, Suite 714 Fayetteville, NC 28301	Raleigh (919) 733-2314 Post Office Box 27687 Raleigh, NC 27611
		Wilmington (919) 256-4161 7225 Wrightsville Avenue Wilmington, NC 28403

2. Submit TWO (2) copies of the application, engineering drawings, specifications, other supporting data and documents to your local field office or to:

**N.C. DIVISION OF ENVIRONMENTAL MANAGEMENT  
 AIR QUALITY SECTION  
 AIR PERMITS BRANCH  
 POST OFFICE BOX 27687  
 RALEIGH, NORTH CAROLINA 27611-7687**

3. ALL APPLICANTS MUST COMPLETE FORMS "A" AND "D". Submit ONLY those forms that apply.

IF APPLICATION IS MADE FOR:

COMPLETE THE FOLLOWING FORMS:

	"A"	"B"	"C"	"D"	"E"	"F"
General Process.....	X	X	X	X		
Boiler.....	X	X	X	X		
Incinerator.....	X		X	X		X
Woodworking Operations.....	X	X	X	X		
Painting, Finishing, Spray Booths, or Printing Operations....	X		X	X	X	
Air Pollution Control Device.....	X	X	X	X		
Concrete or Asphalt Batch Plant.....	X	X	X	X		

"A" GENERAL INFORMATION

"C" AIR POLLUTION CONTROL DEVICE

"E" HYDROCARBON EMISSION SOURCES

"B" GENERAL DATA FOR PROCESSES OR FUEL BURNING SOURCES

"D" AREA DIAGRAM

"F" INCINERATOR

The application MUST BE SIGNED on Form "A" item 9 by a RESPONSIBLE INDIVIDUAL of the Company.

5. Because the application is not ideally suited for every conceivable operation, applicants are encouraged to submit additional information when needed to complete the application and to provide adequate explanation of the operations.
6. Address compliance with applicable regulations under NEW SOURCE PERFORMANCE STANDARDS, NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS, and PREVENTION OF SIGNIFICANT-DETERIORATION in the comments section on Form "A".

\*\*\*\* CHECKLIST \*\*\*\*

DOES YOUR APPLICATION CONTAIN THE FOLLOWING?

- A. Signature by a Company Official.
- B. Pollutants and Emission Rates Before and After Control.
- C. Process Flow Diagram(s).
- D. Weight Rate of Materials Entering each Process.
- E. Completion of Form "E" if Solvents, Paints, Finishing Materials, or any Volatile Organic Compounds are Used.
- F. Description of Emission Source(s) and Air Control Device(s) (Make, Model No., Efficiency, Design Criteria, etc.)
- G. Completion of Forms "A" and "D".

\*\*\*TABLE OF EMISSION ESTIMATION METHOD CODES\*\*\*

CODE

- 0 Not applicable. Emissions are known to be zero.
- 1 Emissions based on source testing.
- 2 Emissions based on material balance using engineering expertise and knowledge of process.
- 3 Emissions calculated using emission factors from EPA publication No. AP-42 COMPILATION OF AIR POLLUTION EMISSION FACTORS.
- 4 Judgement.
- 5 Emissions calculated using a special emission factor differing from that in AP-42. Specify reference in comments below.
- 6 Other. Specify in comments below.

COMMENTS:

Environmental Management Commission

**AIR PERMIT APPLICATION\***

**GENERAL INFORMATION**

INSTRUCTIONS ON BACK

**A**  
page 1 of 1

\*To construct and operate Air Emission Sources and Control Devices in accordance with N. C. General Statutes Chapter 143, Article 21.

PLEASE TYPE OR PRINT. ATTACH APPROPRIATE EMISSION SOURCE AND CONTROL DEVICE FORMS FOR EACH SOURCE LISTED IN ITEM 6 BELOW.

1. Facility Name (Company, Establishment, Town, Etc.): BFI MEDICAL WASTE SYSTEMS (SOUTHEAST), INC				Date	FOR DEM USE ONLY DATE RECEIVED: _____  PERMIT NUMBER: _____ DATE ISSUED: _____
2. Site Location (St./Rd./Hwy.): Porter Avenue		City Graham	Zip Code 27253	County Alamance	
Latitude 36°08'	Longitude 79°30'	SIC Code 4953			
3. Mailing Address (P. O. Box/St./Rd./Hwy.): 500 Northridge Suite 825					
City Atlanta	State Georgia	Zip Code 30350	Phone with Area Code (404) 641-4444		
4. Applicant Technical Contact: Larry L Holloway				Title Vice-President	Phone with Area Code (404) 641-4444

5. Description of operation conducted at above facility:  
Solid Waste Incineration to include Medical Waste, Pharmaceutical waste, APHIS, and Marpol waste

List each EMISSION SOURCE and CONTROL DEVICE for which application is made. Assign an ID NUMBER to each emission source and control device which uniquely identifies that source. Attach appropriate emission source and control device forms for each.

EMISSION SOURCE	ID NO.	CONTROL DEVICE	ID NO.
Incinerator	A	Impingement plate Scrubber	A
Incinerator	B	Impingement plate Scrubber	B
This facility has two (2) Joy Incinerators with Sly scrubbers. All entries in the application are values for each incinerator with its associated scrubber. This is a facility that was previously permitted under permit # 5896R2.			

USE SEPARATE SHEET(S) IF NEEDED

7. Maximum facility operation: 24 Hours/Day 7 Days/Week 52 Weeks/Year

8. Name and address of engineering firm that prepared application or plans:  
Joy Energy Systems, Inc. 11900 Westhall Drive, Charlotte, N.C. 28217

9. Signature of responsible person or company official:  
 Signer's Name (TYPE OR PRINT) LARRY L HOLLOWAY Title VICE-PRESIDENT Date 1/11/91  
 Phone with Area Code (404) 641-4444

# Section 3

### 3. OPERATIONS AND CONTINGENCY PLAN

#### A. PLANT OPERATIONS

(1) The waste is received at this facility 24 hours per day, 7 days per week. The waste is either stored in refrigerated trailers or loaded into a 6000 cubic foot cooler until it is ready to be processed. When it is time to process the waste, it is removed from the cooler, a refrigerated trailer, or a refrigerated van (depending upon where it is stored). It is then staged at the conveyor. The boxes are loaded onto the conveyor where they move to the scales. Each box is weighed and scanned for billing and tracking purposes. In addition, weighing allows the operator to properly charge the incinerator

(2) When the unit is ready to load the operator presses the button on the control panel and the hopper lid opens. The boxes of waste are placed in the loader hopper 4 to 6 boxes per load, depending on weight. The operator steps to the control panel, clear of the hopper lid and begins the loading process. Pressing a button, he closes the hopper lid on the ram loader. The operator has controlled all these functions with complete visual contact of the area for safety.

The waste is now confined in the loader hopper away from all personnel. When the system is at the proper temperature for loading and the preset load interval time has elapsed, the hydraulic power system will power the loader through its automatic cycle. The refractory lined guillotine door will rise, opening the primary chamber to the loader. The ram will move forward pushing the waste into the chamber. The ram then retracts just clear of the guillotine door: as the door starts to close, a water spray turns on to quench any sparks which may have adhered to the ram face. The ram then returns to the rear position in preparation for the next load.

The primary chamber is designed with 3 levels. When the waste is pushed in by the ram it is exposed to the heat of the chamber and the volatile materials, primarily plastics and binders, start to vaporize. As the mass of the waste rises in temperature, other hydrocarbon materials start to pyrolyse in the oxygen lean atmosphere. Each succeeding load pushes the mass of burning waste through the primary chamber. As the load increases the waste is pushed from the initial hearth over a step down to the lower hearth. Low velocity air is forced through the burning bed of carbon and other waste residuals releasing heat and burning to inert ash. Control of all airflow in this chamber is critical to proper pyrolytic combustion.

The primary gases of partially burned smoke and hydrocarbons flow into the hot secondary chamber. A combination of tangential and radial air injection assures complete mixing and combustion. A pilot flame assure immediate ignition of the exhaust gases thus assuring full chamber utilization for retention time. Proper combustion air, turbulence temperature, and retention time result in a minimum emission.

The clear, hot exhaust gases leave the secondary chamber and pass out through the refractory lines stack to the wet acid scrubber system.

The hot flue gases pass through a quench section where the gas temperature is reduced. The gases then pass through a impingement plate scrubber to remove particulate matter and is discharged through a demisting tower and out the secondary stack.

The recirculated water is maintained at a PH of 8.0 to 8.5 for acid gas removal. Sodium Hydroxide is used as the naturalization agent.

Back in the primary chamber, the waste continues to feed and pyrolyse. On an automatic time basis the ash plow will extend out from under the hearth step moving the burned out ash towards the ash drop at the end of the chamber. As the ash drops down the ash chute, it enters the water filled quench tank. This water quenches the ash and seals the air out of the primary chamber. A ash dragon drags the ash up a dewatering ramp and drops it into the ash cart.

The resulting ash is extracted from the system daily and transported to an approved Landfill for co-disposal with municipal waste. Representative samples of the ash are analyzed on a monthly basis to track the make up of the ash and allow for analysis of customer waste for monitoring and waste stream analysis.

Other operations such as preventative maintenance, housekeeping, recordkeeping, etc. are described in later sections.

B. EQUIPMENT LIST

- (1) 2 Joy Energy System 2500 TES 1911 lb/hour Incinerators
- (2) 2 Sly Model 265 Wet Acid Scrubbers
- (3) Scale/Printer Computer System
- (4) Steam Cleaner
- (5) Related Office Equipment
- (6) Related Shop Maintenance Equipment
- (7) Four (4) 20yd Ash Containers
- (8) Two Ash bins
- (9) Forklift
- (10) Conveyor System
- (11) Washdown Spray Washer
- (12) Tubwash Unit (future)

C. SAFETY EQUIPMENT

- (1) Uniforms provided and laundered
- (2) Tyvek clothing for emergency response
- (3) Work Gloves
- (4) Fire Extinguishers and Hoses
- (5) Shower Facilities
- (6) First Aid Kits
- (7) Respirators
- (8) Hard Hats and Faceshields for unloading vehicles
- (9) Spill Response Kits
- (10) Hearing Protection as required.
- (11) Steel Toed/Shank Boots
- (12) Aprons

**D. SECURITY MEASURES**

- (1) The entire facility is surrounded by chain link fence with 3 strand barbed wire protection and warning signs. Entrances are electronic gates controlled from the offices.
- (2) Plant entrances are marked with warning signs.
- (3) External lighting of parking areas and loading dock.
- (4) All refrigerated vehicles and trailers are locked if loaded to prevent unauthorized access.
- (5) With rare exceptions, the facility is manned 24 hours per day.

E. INSPECTION AND MONITORING PROGRAM

- (1) Each trailer and all other equipment used to transport waste containers is inspected daily. All observed deficiencies are promptly corrected. In addition, the vehicles themselves undergo routine preventive maintenance and are maintained and inspected according to DOT regulations.
- (2) Housekeeping practices are monitored daily.
- (3) Visual inspections of the refrigeration equipment is performed daily. Working temperatures of less 45 degree Fahrenheit will be maintained. Waste will not be stored for longer than 14 days.
- (4) Contingency plans to properly contain, control, and collect spillage are in existence for the facility.
- (5) Inspection and monitoring procedures are performed as required by the manufacturers of the processing equipment.
- (6) Monthly inspection of the facility using a facility inspection checklist is conducted by the District Manager. Random inspections are conducted by upper management.

F. PREVENTIVE MAINTENANCE

- (1) All equipment is tested and maintained as necessary to assure its proper operations in case of an emergency. This includes the adjustment, repair or replacement of worn parts before the equipment or system fails.
- (2) All vehicles and trailers are decontaminated after each use and are fit for intended use before normal operations continue.
- (3) Records of inspections, testing and maintenance are maintained on site.

## G. HOUSEKEEPING PROCEDURES

- (1) Below are housekeeping practices to be followed by all personnel in the shop, office, and equipment storage areas.
  - (a) Neat and orderly storage of repair and replacement equipment, tools, cleaners, and lubricants.
  - (b) Prompt removal of small spillage using available absorbing compounds and cleaners.
  - (c) All trash should be picked up and properly disposed of as detected.
  - (d) Maintenance of dry, clean floors by use of brooms, squeegees, vacuum cleaners, and mops.
  - (e) Maintenance of proper spacing for pathways and walkways between containers, equipment and work areas.
  - (f) Maintenance of good housekeeping in the locker room, lunch room, and shop office.
- (2) Cleaning Supplies
  - (a) Containers with pre-mixed disinfectant solution
  - (b) Brush brooms
  - (c) Mops
  - (d) General cleaners with paper towels
  - (e) Floor cleaner, wax, and general disinfectants
- (3) Cleaning Techniques
  - (a) All surfaces shall be cleaned in the top to bottom fashion, a disinfectant solution of clorox diluted 50 to 1 shall be used to clean the operations area of the plant.
  - (b) Caution must be taken not to soak electrical equipment.

- (c) Conveyor should be disinfected daily using clorox solution.
- (d) Stairs and handrails shall be cleaned using a brush and disinfectant.
- (e) A soft cloth or towel shall be dampened with the disinfectant and the surfaces of all computer apparatuses shall be wiped, including the keyboard, screen, scanning wand, scale, computer and scale tables.
- (f) All doors, handles, and handrails on the vehicle shall be scrubbed with a brush and disinfectant and wiped down. Windows and other fixtures in the vehicle will be cleaned as needed.

H. EMPLOYEE TRAINING PROGRAM

- (1) BFI will train and/or instruct all personnel in the following areas:
  - (a) Operation of plant equipment
  - (b) General maintenance of all equipment
  - (c) Inspection and reporting procedures
  - (d) Knowledge of spill control practices
  - (e) Knowledge of materials transported
  - (f) Handling of all materials transported
  - (g) Health effects of all materials transported
  - (h) Basic respiratory training and fit testing
  - (i) Basic housekeeping procedures
  - (j) Contingency plan implementation
  - (k) Response to emergencies
  - (L) Hearing Conservation
  - (M) Hazard Communication/Right to Know
  - (N) Compliance with applicable laws and regulations as required.
- (2) BFI holds a safety meeting at least once a month or more frequently as needed for general employees, equipment operators, and drivers. The purpose for the meeting is to provide, updated information on new and changing safety procedures.
- (3) A refresher course will be given annually to all personnel to ensure that they will be able to respond effectively in an emergency. The refresher training will include a review of emergency procedures, equipment, phone numbers to be called, and proper response times.

I. EMERGENCY PROCEDURES - PLANT OPERATIONS

(1) Contingency Plan Description

- (a) The facility is equipped with fire extinguishers and fire hoses. The location of the units are pinpointed on the floor plan.
- (b) Due to the nature of our operations the most predictable emergencies lie in spills of liquids, and remote possibilities of fire.
- (c) The fire department and police department are familiar with the nature of our operations and are able to respond on short notice.
- (e) Due to the biological nature of the material, the potential for exposure via release of the waste suddenly or non-suddenly would not appear to pose a problem should that release be to the air or soil. Micro-organisms do not survive without medium in the environment. Aero-solization of infectious waste does not pose adverse threats.

(2) Response Procedures to Liquid Spills or Leaks

- (a) Upon discovery of a leaking box or a liquid spill, the employee is to take the following steps to minimize the incident:
  - \* Apply absorbent material to contain the liquid.
  - \* Isolate the leaking box, re-bag the box and process the box immediately for incineration.
  - \* Clean the absorbent material up with a shovel and broom. The material should be placed in a red bag and promptly incinerated.
  - \* Disinfect the area with clorox solution and sweep into the drain. Dry mop the area.

(3) Emergency Response to Solid Spills

(a) Upon discovery of a spill involving the solid contents of a box the employee should respond in the following manner to minimize the incident:

- \* Immediately repackage the material in a red bag. This can be placed in a new box and sealed. The old box should be processed for incineration immediately.
- \* The area should be disinfected with a clorox solution. The solution should be swept into the drain and the area dry mopped.

(4) Emergency Response to Fires

- (a) Upon discovery of a fire, no matter how small, the receptionist should be notified. An Emergency Response Coordinator will be notified and will respond to the area.
- (b) If the fire is small and easily contained and extinguished with a fire extinguisher or the fire hose, proceed to extinguish the fire. If the fire is out of control, notify the office to call the fire department and evacuate the facility.
- (c) In the event the fire is in the scrubber, open the stack cap and shut down the scrubber. It is always necessary to call the fire department for fires in the scrubber.
- (d) If the fire is a vehicle fire, notify the office so the fire department can be called.

(5) Arrangements with Emergency Authorities

- (a) Both the local police and fire departments will be briefed as to the nature of our operations. Arrangements will be made for a tour of the facility by both units as well as the local emergency response team.
- (b) The closest acute care facility to the plant is Alamance County Hospital. The hospital is on standby for emergency treatment in the event of contamination or occupational injury.

(6) Emergency Response Equipment

- (a) The emergency response equipment readily available on site includes:
  - \* Fire Extinguishers and Hoses
  - \* Disinfectant
  - \* Portable pumps (wet and dry vacuum type)
  - \* Spill Kits (located on every vehicle and extra supplies in the supply cage)
  - \* Absorbent Materials
  - \* Bags for rebagging contaminated material
  - \* Boxes for reboxing the waste
  - \* Personal Protective Equipment

(b) Other Equipment Readily Available

- \* Through arrangements with Holt Contractors there is a back hoe available on short notice for liquid containment to prevent the liquid from leaving the site.
- \* The abundance of rental companies in the immediate area makes it easy to obtain various pieces of equipment as deemed necessary in an emergency.

(7) Evacuation Plan

- (a) In the event of an evacuation, an announcement will be made over the intercom system and employees should immediately evacuate through the nearest unobstructed exit. Office personnel should follow posted evacuation routes. The muster point will be Main Exit Gate

(8) Emergency Coordinators

- (a) The nature of the operations enables a shift foreman, supervisor, or coordinator to be on location at all times. These individuals have access to a telephone and are in charge of the emergency situations.
- (b) The primary individuals responsible for the coordination and evaluation of an emergency situation are:

Ed Haas  
District Manager  
3813 Zeneth Place  
Durham, N.C. 27705  
Bus. (919) 578-8900  
Home (919) 477-1275

J. W. Hill  
Operations Manager  
122 York Street  
Cary, N.C. 27511  
Bus. (919) 578-8900  
Home (919) 467-3030

\* Larry L Holloway  
1411 Indian Lake Ct  
Marietta, Georgia 30062  
Bus. (404) 640-2300  
Home (404) 973-2351

(9) Responsibilities of the Emergency Coordinator

(a) One of the emergency coordinators will be available at all times, either at the facility or on call.

(b) Upon notification or discovery of an emergency condition the coordinator will evaluate the situation and notify the appropriate agencies to minimize the incident.

(c) In order to properly notify the Agencies, Regional Staff, and Corporate Staff, the coordinator should gather the following information (after the immediate hazard has been brought under control).

- \* Name and phone number of the coordinator
- \* Name and address of the facility
- \* Date and Time of the accident
- \* Type of accident
- \* Type and quantity of waste involved
- \* Extent of injuries if any
- \* Possible hazards to health and environment if any
- \* Possible hazards to health or environment outside the facility
- \* Agencies and names of individuals contacted.

(d) After the emergency condition has been controlled the coordinators are responsible for investigating the incident to assess the damages, determine cause, and what steps need to be taken to prevent a reoccurrence of the incident.

- (e) After the incident, the coordinators are required to file follow up reports to the Regional Staff, Corporate Staff and appropriate agencies as required by policy, permit or law.
- (f) Cleanup operations will commence as soon as possible to reduce the exposure to employees and properly dispose of all waste in as expedient a manner as possible. All waste must be properly packaged for shipment to another treatment facility.
- (g) After the cleanup is complete, the coordinator must notify the appropriate state agencies prior to starting operations.
- (h) Prior to resuming operations, all emergency equipment will be checked to ensure it is clean and ready for use.
- (i) After the investigations are complete and corrective action has been identified, the coordinators shall hold a meeting with the employees to train them on proper operating procedures to reduce the possibility of a reoccurring accident.

J. Decontamination Procedures

(1) Employees

- (a) Prior to taking breaks, employees shall remove and discard disposable items, and thoroughly wash their hands with soap.
- (b) Each employee is responsible for cleaning and disinfecting equipment used during the shift.
- (c) At the end of each work shift employees shall place worn clothing in containers provided.
- (d) Each employee is required to shower and change into street clothes at the end of each shift.
- (e) Employees are required to wear uniforms provided. Should the uniforms become soiled as a result of a leak or spill, the employee must change immediately. If the employee came in contact with the liquid, he must shower immediately.
- (f) Office personnel entering the plant must wear a lab coat and shoe coverings. Prior to entering the office, these must be removed and left outside in the designated area.
- (g) After returning from the shop, all employees who cross the red line must wash their hands immediately.

(2) Visitors

- (a) All visitors who enter the plant must wear lab coats and protective shoe coverings. Prior to entering the office the coats and shoe coverings must be removed and left outside.
- (b) After returning from the shop, all visitors who cross the red line must wash their hands immediately.

(3) Processing Area

- (a) Before each shift, it is the responsibility of the supervisor to see that the equipment for cleaning and disinfecting is available.
- (b) A sprayer shall be filled with the proper mixture of disinfecting solution and stored near the operator's station.
- (c) Absorbent material should be readily available.
- (d) The processing area should be kept clean during the shift.
- (e) At the end of each shift, the processing area should be cleaned as described in Section 9.
- (f) As the trailers and collection vehicles are unloaded, all paper and trash should be picked up and disposed of in the incinerator.

. Agencies To Be Notified

In the event of an emergency such as a fire, large spills, sudden release of contaminated materials, or explosion, the following shall be notified immediately:

Fire Department	911
Police Department	911
(electric)	(919) 229-9000
(Water)	(919) 228-8362
(Gas)	(919) 563-3521
* Regional Office	(404) 641-4444
* Corporate Office	(713) 870-8100
* Department of Natural Resources	(919) 896-7007
* National Emergency Response	1-800-424-8802

\* These locations will be notified only by the primary coordinator or with his permission.

# Section 4

# SOUTHERN CORPORATION



MANUFACTURERS' AGENTS

10 SOUTHERN PLACE  
CLOVER, SOUTH CAROLINA 29710  
803-831-1770  
FAX: 803-831-7178

Date: 4/19/89  
Quote No.: S-86401  
Page No.: 1

PROPOSAL  
PREPARED FOR  
THERMAL REDUCTION SYSTEMS, INC.  
CHAPEL HILL, NORTH CAROLINA

I. MATERIAL TO BE INCINERATED

- A. Heating Value: 8500 BTU/#
- B. Quantity: 1911 #/Hr. 22.9 Tons/Day
- C. Burning Time: 24 Hrs./Day 7 Days/wk.
- D. Heat Release: 16,243,500 BTU/Hr.

II. UTILITIES

- A. Auxiliary Fuel: Natural Gas
- B. Controls: FM
- C. Electrical: 460 Volts 3 Phase 50 Hertz
- D. Gas Pressure Required: 14" H<sub>2</sub>O Col.

III. EQUIPMENT

INCINERATOR MODEL: 2500TES

Date: 4/19/89

Quote No.: S-86401

Page No.: 2

PROPOSAL  
PREPARED FOR  
THERMAL REDUCTION SYSTEMS, INC.  
CHAPEL HILL, NORTH CAROLINA

	Lower <u>Primary Chamber</u>	Upper <u>Secondary Chamber</u>
A. Physical Properties:		
1. Chamber Volume, Ft. <sup>3</sup>	925	970
2. Refractory Type	Castable	Castable
(1) Thickness, In.	5	5
(2) Temp. Rating, °F	2800	2800
(3) Density, Lbs/Ft. <sup>3</sup>	128	128
3. Insulation Type	Mineral Wool Block	
(1) Thickness, In.	2	2
4. Retention Time, Sec.	N/A	2.28 @ 2000°F
5. Shell Thickness, In.	3/8	3/8
6. Charging Door, In.	30 x 50	N/A
7. Rear Access Door, In.	32 x 48	24 x 24
8. Viewports	4	2
B. Special Features:		
1. Energy Shrouds	No	No
2. Modulated Air Supply	Yes	Yes
3. Burner Operation	Auto/On-Off	Auto/Modulated
4. Ash Transfer Ram	Yes (2)	N/A
5. Steam Injection	No   Optional	N/A
6. Brick Lined Hearth	Yes	N/A
7. Temperature Recorder	Yes	Yes
8. Touch Screen		Yes
9. Telephone Modem		Yes

Date: 4/19/89

Quote No.: S-86401

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PROPOSAL  
PREPARED FOR  
THERMAL REDUCTION SYSTEMS, INC.  
CHAPEL HILL, NORTH CAROLINA

	Lower <u>Primary Chamber</u>	Upper <u>Secondary Chamber</u>
C. Burners:		
1. Number	1	1
2. BTU Rating	2.3 MM/Hr.	5.3 MM/Hr.
D. Temperature Controllers:		
1. Thermocouple Type	R	R
2. Temp. Range, °F	0-3000	0-3000
3. Solid State Programmable	Yes	Yes
E. Loader: <u>Yes</u>		
1. Model: <u>SR-62H</u>		
2. Hopper Dimensions (In.): <u>50</u> W <u>72</u> L <u>30</u> D		
3. Volume: <u>2.3</u> cu. yds. (or) <u>62</u> cu. ft.		
4. Flame Detection: <u>Yes</u>		
5. Automatic Water Spray: <u>Yes</u>		
6. Manual Override Controls: <u>Yes</u>		
F. Automatic Ash Removal Module: <u>Yes</u>		
1. Model: <u>ARW-AP</u>		
2. Type: <u>Wet</u>		
3. Internal Ash Transfer Ram: <u>Yes</u> Qty: <u>2</u>		
4. Ash Carts: <u>No</u>		

Date: 4/19/89  
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PROPOSAL  
PREPARED FOR  
THERMAL REDUCTION SYSTEMS, INC.  
CHAPEL HILL, NORTH CAROLINA

G. Stack: Yes

1. Dimensions: I.D. 48" O.D. 54" Height 40' overall
2. Spark Screen: Yes Material: Inconel 601
3. Test Ports: Yes Quantity: 2
4. Horizontal Breeching: 10'
5. Hot Damper: Optional

H. Underfire Air Port Cleaning Mechanism:

1. Hydraulically Activated
2. Modular Construction

IV. ENERGY RECOVERY: No

V. AIR POLLUTION CONTROL DEVICE: No

VI. INSTALLATION:

1. Includes rigging, erection, and assembly. (Does not include any foundations, utilities, gas meter or regulator, buildings, wiring, or water piping).
2. Start up and operator instruction and two manuals. Three days are included. Should start up take longer than three days due to delays beyond the control of Southern Corporation, owner will be invoiced at \$360/day, plus expenses.

THERMAL REDUCTION SYSTEMS, INC.  
INCINERATOR SPECIFICATIONS  
2500TES

I. Incinerator

A. General

1. Design

The incinerator shall be modular, dual chamber, controlled-air, natural gas-fired, designed for substoichiometric operation in the primary chamber and excess air operation in the secondary chamber; allowing for intimate mixing of the air with the hydrocarbon volatiles for efficient thermal oxidation at a rate to match the burning rate capacity of the unit.

The incinerator shall be complete with burners, blowers, stack, controls, and necessary appurtenances to facilitate terminal point connection of utilities.

2. Capacity

The incinerator shall have a burning capability of 1911 lbs./hr. when charged with Type 0 waste (8500 BTU/lb.) The incinerator must be designed for and capable of operating 24 hrs./day and 7 days/week at full-rated capacity. The daily capacity must be 45,864 lbs./day when charged with Type 0 waste. The minimum heat release capacity of the incinerator shall be 16,243,500 BTU/hr. The maximum volumetric heat release capacity shall be 10,000 BTU/ft.<sup>3</sup>/hr. based on the combined volume of both chambers.

3. Standards

To the extent they are referenced in the specifications, the standards of the following organizations are a part of these specifications.

(AMCA) Air Movement and Control Association  
(ASME) American Society of Mechanical Engineers  
(ASTM) American Society for Testing Materials  
(AWS) American Welding Society  
(FM) Factory Mutual  
(NFPA) National Fire Protection Association  
(NEMA) National Electrical Manufacturer's Assoc.  
(OSHA) Occupational Safety and Health Adm.  
(UBC) Uniform Building Code  
(UL) Underwriters Laboratory  
(JIC) Joint Industrial Council  
(NEC) National Electrical Code

4. Manufacturer's Responsibilities

The incinerator manufacturer shall design, fabricate, and ship the incineration system. The manufacturer's Field Service Technician shall supervise the unloading and erection of the system. The manufacturer's Field Service Technician shall start up the system, adjust all controls, cure the refractory and provide three (3) days of operator training. The manufacturer's Field Service Technician shall also be present, in a supervisory capacity during performance or compliance testing of the system. These duties are to be performed by a Field Service Technician directly employed by the manufacturer or certified by the manufacturer or by the duly authorized manufacturers agent or dealer.

B. Primary Chamber

1. Refractory

Primary chamber refractory shall be not less than 5" thick, castable, rated at 2800°F (minimum) with a density of not less than 128 lbs./ft.<sup>3</sup>.

2. Hearth

Primary chamber hearth area shall be minimum of 6" high-quality firebrick with an A.P.C.E. Cone 33-34. The hearth waste loading rate shall not exceed 20 lbs./ft.<sup>2</sup>/hr.

3. Refractory Anchors

Anchors shall be of Type 310 stainless steel, Y-type and spaced at no greater than 12" centers.

4. Insulation

Mineral wool block insulation of no less than 2" thickness and rated at 1900°F shall be installed between the refractory and steel shell in those areas where castable refractory is used. A minimum of 1" thickness, high-density board insulation shall be used in hearth area beneath all firebrick installation.

5. Charging Door

A guillotine charging door shall be constructed of steel with no less than 4" of 2800°F, 128#/ft.<sup>3</sup> density castable refractory, backed by 1" of 1900°F mineral wool block insulation. Guillotine door shall be hydraulically actuated and interlocked with the incinerator control circuit to prevent

door opening when the incinerator is in a "preheat" or "stop load" condition. Guillotine door shall further be interlocked with an adjustable timer and high-temperature overload relay to prevent overloading of the incinerator. Door opening shall be consistent with the mechanical charging device.

6. Access Door

An access door shall be incorporated into the rear of the primary chamber, refractory-lined, 32" x 48" opening, with clamps and gasketing to provide positive sealing. The primary chamber shall be equipped with two high-temperature viewports with blastgate.

7. Steel Shell

Construction of the shell shall be of not less than 3/8" steel plate per ASTM-A36 with structural members not less than 1/4" steel per ASTM-A36. The shell shall have an arched roof to maintain the structural integrity of the refractory.

8. Automatic Underfire Air Port Cleaning

The underfire air ports shall be automatically cleared of any blockage due to waste, ashes or slag by an automatic rodding device which shall be controlled by a programmable timer located in the main control panel. It shall not be necessary for the operator to manually clean underfire air ports during the operation of the incinerator.

9. Internal Ash Transfer Rams

There shall be at least two (2) internal ash transfer rams with "full stroke" capability, to

assure proper movement of waste and ashes through the primary chamber. Rams shall be full width of the hearth.

C. Secondary Chamber

1. Refractory

Secondary chamber refractory shall be not less than 5" thick, castable, rated at 2800°F (minimum) with a density of not less than 128 lbs./ft.<sup>3</sup>.

2. Refractory Anchors

Anchors shall be of Type 310 stainless steel, Y-type and spaced at no greater than 12" centers.

3. Insulation

Mineral wool block insulation of no less than 2" thickness and rated at 1900°F shall be installed between the refractory and steel shell.

4. Access Door

An access and inspection door shall be incorporated into the end of the secondary chamber refractory-lined, 24" x 24" opening, with clamps and gasketing to provide positive sealing. The secondary chamber shall be equipped with one high-temperature view-port with blastgate.

5. Steel Shell

Construction of the shell shall be of not less than 3/8" steel plate per ASTM-A36, with structural members not less than 1/4" steel per ASTM-A36. Shell heads shall not be less than 1/4", domed

configuration. The shell shall be cylindrical to maintain the structural integrity of the refractory.

6. Retention Time

The retention time of the secondary chamber shall be no less than 2.28 seconds at 2000°F when burning the specified waste at the rated capacity. The manufacturer shall submit calculations to verify compliance with the requirement. These calculations shall be submitted with manufacturer's proposal. The volume of breeching or stack shall not be included in these calculations.

Specific vol. of dry flue gas @ 2000°F=61.9 ft<sup>3</sup>/lb.

Specific vol. of water vapor @ 2000°F=99.7 ft<sup>3</sup>/lb.

D. Blowers

Operation

Air blowers shall be of the centrifugal type, providing independent air flow to each burner, primary air and secondary air. Burner air blowers will only operate when the burners are on. Primary air blower shall automatically shut off when the loading door is opened. Secondary air blower will operate continuously, except during preheat.

Primary air shall be fully modulated to provide air flow changes when temperature dictates a change in air flow. Specifically, primary air flow shall decrease when temperature in the primary chamber is

rising and increase when temperature is decreasing.

Secondary air supply shall be fully modulated to provide air flow changes when temperature dictates a change in air flow. Specifically, secondary air flow shall increase when temperature in the secondary chamber is rising and decrease when temperature is decreasing.

#### E. Burners

Burners shall be UL listed consisting of one burner with 2.3<sup>m</sup> BTU capacity in the primary chamber and one burner with 5<sup>m</sup>.3 BTU capacity in the secondary chamber minimum. Each burner shall be controlled by temperature to automatically shutdown when stable operating temperatures are attained in the respective chambers, and conversely, to start when low temperature set points are reached. Secondary burner shall be fully modulated. Primary burner shall be on-off operation with low-fire start. Burners shall be capable of preheating the secondary chamber to a temperature of 2000°F prior to charging waste.

#### F. Controls

All electrical components shall be UL listed with all burner safety systems capable of meeting FM insurance requirements. All electrical and wiring shall meet JIC and NEC requirements. Where control panels are protected from weather, NEMA 12 panels shall be used. Where control panels are exposed to weather, NEMA 3R panels

shall be used. Control voltage will be provided by a stepdown transformer supplied in the control panel.

The free standing control panel shall incorporate the following:

1. Operational Modes

Operational modes to include "purge", "preheat", "load", "stop load", "auto shutdown", "manual override", and "emergency stop".

2. Loading Safeties

Automatically lock closed the operation of the loading door and/or the ram feeder mechanism if the unit has not reached minimum incinerator temperature or has exceeded maximum incinerator temperature.

3. Draft Indicator

Indicate primary chamber draft with panel mounted draft gauge.

4. Temperature Recorder

Indicate and record both chamber temperatures on circular chart. Include one year supply fo charts. Accuracy + or - 1.0% of span.

Reproductibility 0.5% of span.

Span Step Response Time 10 seconds maximum; 9

seconds minimum (60 Hz).

Input Thermocouple (Type R)

Chart Circular, 10.34" diameter, 4" calibrated  
radius

Chart Speed 24 hours per revolution

5. Programmable Temperature Controllers

Microprocessor based and field configurable controllers for regulating temperature with an accuracy of + or - 0.2% of span, vacuum fluorescent display, Type R thermocouple input capability and current proportional control output to control process variable. Controller must have self-diagnostics capability and keyboard security.

6. Touchscreen operator interface

Mounting - flush panel mounting in NEMA 12 enclosure.

Display - 12-inch diagonal, high-contrast amber monochrome.

Character Sets - 95 displayable ASCII characters  
-161 graphic characters  
-Squares and rectangles

Video Attributes - Monochrome: Reverse, dim, normal, and highlight intensities for both foreground and background.

Communications-RS-232, 9600 BAUD, full handshaking

User Memory - 64 bytes battery-backed CMOS for screen storage.

Program/Edit - Self contained, stand-alone display/graphics editor using English-language commands.

Time-Date - Battery-backed clock and calendar for display and remote access by host.

Keyboard - 65 position, full ASCII sealed membrane keyboard.

7. Programmable logic controller

The CPU shall be a single-slot machine with eight diagnostic LEDs, two serial ports, a three position

key-switch (RUN, STOP, and OIU), plug-in program memory cartridges, and full battery-backup.

A comprehensive self-diagnostic routine shall detect CPU and I/O faults, and pinpoint their location.

#### Diagnostics

LEDs shall indicate CPU and I/O status and shall be color coded to inform the operator of critical and non-critical conditions.

- o PWR - power to the CPU
- o RUN - CPU is in the RUN mode
- o CPU - watchdog timer time-out
- o DIAG - internal fault detected by CPU
- o BATT - CPU or memory cartridge battery is low
- o MEM - memory error detected
- o I/O - I/O bus error detected
- o COMM - communication error detected

#### Memory Cartridges

- o EPROM - 4K words program/4K registers, min.

#### Two built-in ports

Two serial ports shall allow access to external devices or internal system status. One port shall be dedicated to the Operator Interface Unit; the second shall be an RS-232 interface.

### ASCII/BASIC Module

An ASCII/BASIC module with 32K of user logic on board shall be expandable to 56K by using the CPU memory cartridges. This module shall be programmable in BASIC. Two serial ports shall enable data communications with terminals, or other ASCII/BASIC devices.

### I/O Modules

All I/O modules shall perform continuous self-checking routines. Diagnostic LEDs on each module will indicate any abnormality in the module's operation as well as minor faults ranging from loose terminal block to blown output fuses.

### G. Stack

Stack sections are to be in 5' lengths lined with 3" of 50#/ft.<sup>3</sup> density insulating castable refractory, rated 2500°F. Steel shells shall be 11-gauge steel. Stack sections shall be complete with bolted connection flanges.

### H. Breeching

Ten (10) feet of horizontal breeching shall be furnished.

I. Paint

*Blue*  
All exposed steel shall be cleaned, primed and painted with high-grade heat resistant machinery enamel suitable for elevated temperature service.

J. Quality Control and Factory Inspection

The unit shall be completely assembled in the factory to insure matching of components prior to shipment and field erection. Prior to disassembly, the system shall be inspected, at the factory, by the owner.

All electrical circuitry shall be proven in factory.

All motors shall be run in the factory.

The hydraulic feed ram shall be bolted to the incinerator and the hydraulics proven before shipment.

Burner pilots shall be proven as well as all control valves.

K. Performance Testing

Performance testing shall be conducted under the supervision of the manufacturer's field service technician.

Particulate Emissions

A Method Five Particulate Emissions Test will be conducted by an independent laboratory acceptable to the owner and the manufacturer. The owner will

supply two (2) laborers to work under the supervision of the manufacturer's field service technician during the testing. The cost of the Method Five Test shall be borne by the owner. Should the incinerator fail the initial test, the manufacturer shall bear the cost of all necessary modifications, repairs, and subsequent tests until the incinerator passes.

The incinerator shall not emit solid particulate emissions in excess of 0.20 grains per dry standard cubic foot of flue gas corrected for 12% CO<sub>2</sub>, based on EPA Method Five testing protocol, excluding condensibles impinger catch and including CO<sub>2</sub> contribution from the combustion of auxiliary fuel, when burning the specified waste at the rated capacity and when operated according to the manufacturer's instructions.

2.8 CUBIC YARD  
HYDRAULIC RAM FEEDER  
SPECIFICATIONS  
SR-62H

I. Ram Feeder

The Ram Feeder shall be constructed with minimum 1/4 HRS plate. The Hopper shall have a volume of 2.8 cubic yards minimum. The Hatch charging opening shall be 50" wide x 72" long minimum. The incinerator charging opening shall be 50" wide x 36" high minimum. The Ram Feeder control shall include a push-button manual override control. The Ram Feeder fire protection system shall include an ultraviolet flame detector with automatic water spray function.

II. Hydraulic System

The Ram Feeder shall be complete with a self-contained hydraulic power pack which will motivate the Hydraulic Charging Ram, the Hatch Cover, the Guillotine Charging Door, the Internal Ash Transfer Ram and any other hydraulic ancillaries. All hydraulic cylinders shall be of heavy-duty, industrial grade construction manufactured to NFPA standards. Minimum rating shall be 3000 PSI. Cylinders shall be clevis mounted, with viton seals, solenoid operated directional control valves and flow control valves. Hydraulic unit shall be complete with J.I.C. L-shaped reservoir, level gauge, filler breather, inlet strainer, return line filter, pressure gauge and pressure relief valve. Hydraulic fluid shall be fire resistant, water/glycol formulation.

### III. Control

- A. The Ram Feeder Hatch Cover shall open upon the Ram completing its cycle and coming to rest. Closure of the Hatch Cover shall be by push-button which must be held to affect complete closure.
- B. Control Interlocks will prevent the operation of the Ram Feeder if the Hatch Cover is open, the Guillotine Charging Door is closed, or the Incineration Controls are not in a "Load" mode.
- C. The Ram Feeder cycle shall be:
  - 1. Hatch Cover closes.
  - 2. Incinerator is in "Load" mode.
  - 3. Charging Door opens.
  - 4. Ram moves forward through the open charging door to a penetration of the incinerator of approximately 30 inches.
  - 5. Ram moves backward to an intermediate position just clear of the Charging Door.
  - 6. Charging Door closes.
  - 7. Ram returns to normal rest position.
  - 8. Hatch Cover automatically opens to accept new waste load.
- D. An automatic water spray will actuate if the ultraviolet scanner detects any flame in the Ram Feeder.
- E. Should the Guillotine Charging Door fail to close due to waste material obstructing a full closure, the Ram will recycle and make another penetration of the Charging Door opening prior to the Hatch Cover opening.

## SCHEDULE A

### TYPE 0:

Trash, a mixture of highly combustible waste such as paper, cardboard, cartons, wood boxes, and combustible floor sweepings, from commercial and industrial activities. The mixtures contain up to 10% by weight of plastic bags, coated paper, laminated paper, treated corrugated cardboard, oily rags and plastic or rubber scraps.

This type of waste contains 10% moisture, 5% incombustible solids and has a heating value of 8500 BTU per pound as fired.

### TYPE 1:

Rubbish, a mixture of combustible waste such as paper, cardboard cartons, wood scrap, foliage and combustible floor sweepings, from domestic, commercial and industrial activities. The mixture contains up to 20% weight of restaurant or cafeteria waste, but contains little or no treated papers, plastic or rubber wastes.

This type of waste contains 25% moisture, 10% incombustible solids and has a heating value of 6500 BTU per pound as fired.

### TYPE 2:

Refuse, consisting of an approximately even mixture of rubbish and garbage by weight.

This type of waste is common to apartment and residential occupancy, consisting of up to 50% moisture, 7% incombustible solids, and has a heating value of 4300 BTU per pound as fired.

### TYPE 3:

Garbage, consisting of animal and vegetable waste from restaurants, cafeterias, hotels, hospitals, markets and like installations.

This type of waste contains up to 70% moisture, up to 5% incombustible solids, and has a heating value of 2500 BTU per pound as fired.

### TYPE 4:

Human and animal remains, consisting of carcasses, organs and solids, organic wastes from hospitals, laboratories, abattoirs, animal pounds, and similar sources, consisting of up to 85% moisture, 5% incombustible solids, and having a heating value of 1000 BTU per pound as fired.

T THERMAL  
COMBUSTION PARAMETERS

WEIGHT FRACTION CARBON	= .432
WEIGHT FRACTION HYDROGEN	= .058
WEIGHT FRACTION OXYGEN	= .36
WEIGHT FRACTION NITROGEN	= 0
WEIGHT FRACTION SULFUR	= 0
WEIGHT FRACTION CHLORINE	= 0
WEIGHT FRACTION NONCOMBUSTIBLES	= .05
WEIGHT FRACTION CONTAINED MOISTURE	= .1
EXCESS AIR FOR FOLLOWING CONDITIONS	= 115.5
COMPOSITE HEAT OF COMBUSTION, BTU/#	= 8500

-----  
THE FOLLOWING EFFLUENT CHARACTERISTICS  
APPLY TO THE ABOVE DEFINED WASTE:  
-----

MOLES CARBON DIOXIDE (CO2)	= 3.597003E-02
MOLES FORMED WATER (H2O)	= 2.876984E-02
MOLES FREE OXYGEN (O2)	= 4.516621E-02
MOLES FREE NITROGEN (N2)	= .3170201
MOLES SULFUR DIOXIDE (SO2)	= 0
MOLES HYDROCHLORIC ACID (HCL)	= 0
MOLES CONTAINED WATER (H2O)	= 5.550622E-03

TOTAL MOLES OF EFFLUENT	= .4324768
-------------------------	------------

POUNDS OF CARBON DIOXIDE (CO2)	= 1.583041
POUNDS OF FORMED WATER (H2O)	= .5183175
POUNDS OF FREE OXYGEN (O2)	= 1.445319
POUNDS OF FREE NITROGEN (N2)	= 8.881634
POUNDS OF SULFUR DIOXIDE (SO2)	= 0
POUNDS OF HYDROCHLORIC ACID (HCL)	= 0
POUNDS OF CONTAINED WATER (H2O)	= .1

POUNDS OF EFFLUENT PER POUND OF WASTE	= 12.52831
---------------------------------------	------------

VOLUME PERCENTAGE OF CARBON DIOXIDE (CO2)	= 8.317216
VOLUME PERCENTAGE OF CONTAINED WATER (H2O)	= 7.935794
VOLUME PERCENTAGE OF OXYGEN (O2)	= 10.44362
VOLUME PERCENTAGE OF NITROGEN (N2)	= 73.30338
VOLUME PERCENTAGE OF SULFUR DIOXIDE (SO2)	= 0
VOLUME PERCENTAGE OF HYDROCHLORIC ACID (HCL)	= 0

WEIGHT PERCENTAGE OF CARBON DIOXIDE (CO2)	= 12.63571
WEIGHT PERCENTAGE OF CONTAINED WATER (H2O)	= 4.935362
WEIGHT PERCENTAGE OF OXYGEN (O2)	= 11.53642
WEIGHT PERCENTAGE OF NITROGEN (N2)	= 70.89251
WEIGHT PERCENTAGE OF SULFUR DIOXIDE (SO2)	= 0
WEIGHT PERCENTAGE OF HYDROCHLORIC ACID (HCL)	= 0

T THERMAL

DRY AIR PER POUND OF WASTE	11.57725
DRY EFFLUENT PER POUND OF WASTE	11.90999
TOTAL CONTAINED WATER PER POUND OF WASTE	.1
TOTAL FORMED WATER PER POUND OF WASTE	.5183175
POUNDS (THEORETICAL) OF ASH PER POUND OF WASTE	.05
COMBUSTION TEMPERATURE, DEG. F. (THEORETICAL)	2000

WASTE BURNING RATE, LBS/HR	1911
LBS OF FLUE GAS/LB OF WASTE	12.52831
LBS OF DRY FLUE GAS/LB OF WASTE	11.90999
LBS OF WATER VAPOR/LB OF WASTE	.6183175
REFERENCE TEMPERATURE, DEGREES F.	2000
SECONDARY CHAMBER VOLUME, FT <sup>3</sup>	970
SPECIFIC VOLUME DRY FLUE GAS, FT <sup>3</sup> /LB	61.92992
SPECIFIC VOLUME WATER VAPOR, FT <sup>3</sup> /LB	99.74623
DRY FLUE GAS PRODUCED, LBS/SECOND	6.322222
WATER VAPOR PRODUCED, LBS/SECOND	.3282235
DRY FLUE GAS VOLUME, FT <sup>3</sup> /SECOND	391.5347
WATER VAPOR VOLUME, FT <sup>3</sup> /SECOND	32.73906
RETENTION TIME, SECONDS	2.28626

# Section 5

## 5. ASH DISPOSAL PROCEDURE

Operating at full capacity, this facility will generate approximately 24 tons of ash per week. Historical data has shown that this ash is non hazardous. We have been testing at other facilities using the EPA Toxicity Characteristic Leachate Procedure and will continue this required testing at the Haw River facility. Testing will be conducted as per 5.1 and 5.2 respectively.

The ash will be collected in 20 yard containers specially designed for sludges. The containers will have drain connections to allow for the drainage of water prior to transport and disposal. The ash, due to the wet nature, will not release fugitive dust into the work environment during operations or transport. Prior to transportation and disposal the ash will be subjected to a paint filter test to ensure that it is not too wet. Transportation of the ash will be allowed only after the drains are closed and the container is covered with a tarp.

As of this revision, we have submitted a sample of ash to a laboratory for extensive analysis required by the Waste Management landfill prior to acceptance for disposal. Once the results of this analysis is received, we are planning to dispose of the ash at the Kernersville site. Ash from the two commercial medical waste incinerators located in Mecklenburg County are being disposed of in landfills in North Carolina. The BES site is disposing of ash in the Kernersville site. Their operations are not significantly different from those we are proposing; therefore, we anticipate no problems finding a place to dispose of our ash. Once the final site is selected, we will notify the agency via letter.

All leachate water from the ash and washdown water from the floor will be collected and recirculated back into the quench tank. We anticipate the evaporation rate from the quench will exceed the amount of waste water generated.

## 5.1 ASH COLLECTION PROCEDURES

Ash will be collected according to the following procedures.

- a. One Kilogram (2.2 pounds) will be collected every eight hours.
- b. The sample will be placed in a container which will be labeled as with the date and time of the sample and the sample number. This number will be entered on the ash sample log.
- c. This sample will be collected in approved containers for the TCLP testing procedures. Once collected, these will be stored in the cooler.
- d. Weekly, the samples will be mixed into one container and a composite sample will be collected according to procedures described in 5.2.
- e. The weekly sample will be logged on the ash log indicating the sample numbers of the individual samples it represents.
- f. Once a month, the weekly samples are composited into a monthly sample to be submitted to the lab for the TCLP analysis.
- g. Once the analysis is received, it will be submitted to the Department as required by permit.
- h. The sample procedure will be monthly for the first 6 months, then quarterly for 1 year and then twice a year thereafter.
- i. Records of sampling will be maintained for a period of three years.

NOTE: We will test according to the above test monthly for the first 6 months and then extend the procedure to quarterly testing for the first year. After the first year, we will submit test results on a semi-annual basis or as required by Solid Waste Management Rules.

## 6.2 ASH SAMPLING PROCEDURES

The purpose of this procedure is to establish a uniform plan for the collection of ash samples. This procedure provides a method whereby composite samples are representative of the entire ash mass.

### MATERIALS REQUIRED

Spade/Core sampler  
Plastic container  
Sledgehammer  
Markers/Labels  
Scale  
Metal Shears  
3/8" mesh sieve

### SUBSAMPLES

a. Using a spade or core sampling device of not less than 2" diameter, take four samples of equal weight (e.g., one-half pound) from different locations in the ash bin.

b. Pass the material through a 3/8" mesh sieve (square mesh with 3/8" openings) screen into a clean, large sample container.

c. Crush the fractions which did not pass through the sieve. Collect the material in the sample container. Repeat this process until all material is uniformly sized to 3/8" or less. Brittle materials may be reduced crushing blows from a sledgehammer or by shearing to the required size. Care must be taken to include all possible portions of the subsamples.

d. Sample Containers must be labeled with date, time and initials of person taking the sample. Information must also be entered on the sample log.

e. Steps 1 through 3 must be repeated once every eight hours.

f. Once every 3 to 5 days the individual samples should be composited into a single composite sample. The method described above will be used to gather the sample. This sample will be labeled with the letters SC plus the date, time and initials of the person taking the sample. Information must also be entered on the log under those samples that make up the sub-composite sample.

e. Once a month the SC samples are to be composited into a final sample for lab analysis using the Toxicity Characteristic Lecheate Procedure test as specified by EPA. This sample is to be labeled with the initials FC plus the date, time and initials of the person taking the sample.

f. The results of the final sample are to be submitted to the Department of Environment, Health, and Natural Resources, Division of Solid Waste Management.

Revision 1 - 6-28-91

# Section 6

## 6. SCRUBBER OPERATIONS

Each incinerator will be equipped with its own scrubber and 65' scrubber stack. Emission gases will be diverted from the incinerator stack by a hot damper through refractory lined breeching into a quench chamber where it is cooled. From here it is directed into the bottom of the Sly scrubber tower. The scrubbing liquid (50% NaOH) is introduced at the top of the tower and flows down over two impingement plates. This promotes gas absorption by breaking up the gas phase into small bubbles. Sixty (60) gallons per minute of recirculated NaOH at free flow will be provided at the plate inlet. The pressure drop across the scrubber is 5.4" w.g. Gases will exit the scrubber at 14765 ACFM at 171 F saturated. A fixed blade inertial mist eliminator will reduce emissions of liquid droplets from the scrubber.

NaOH feedstock will be stored in a 8,250 gallon fiberglass tank installed inside the incinerator building. A concrete containment, adequate to hold at least 110% of the capacity of the tank will be provided. 5.2 gph of NaOH solution will be pumped into each scrubber tank to make up for the evaporative losses.

Scrubber blowdown of 600 gallons per hour of scrubber bleed will be discharged into the City of Graham Sanitary sewer. Blowdown liquid will first pass through a heat exchanger to reduce the temperature of the liquid discharge below 150 F.

Scrubber operations and preventative maintenance procedures will be followed as recommended by the manufacturers.

THE W. W. SLY MANUFACTURING CO.

P.O. Box 5939 • Cleveland, Ohio 44101 • (216) 238-2000



CAR-383 (R7)

July 3, 1990

Thermal Reduction Systems, Inc.  
P.O. Box 2070  
Chapel Hill, NC 27515

Attention: Mr. Larry Parker

Sly IMPINJET Gas Scrubber  
for Medical Waste Incinerator

Gentlemen:

We thank you for your continued interest in Sly's scrubbers and for the opportunity to submit this revision of our proposal.

We understand that the proposed Sly IMPINJET Gas Scrubber is to collect 0.25 grain/DSCF of particles, 0.124828% (wt.) HCl and 0.02853% (wt.) SO<sub>2</sub> from up to 34,025 ACFM at up to 2000°F from a Joy medical waste incinerator. The 32,118 lb./hr. of combustion gases consists of 11.25034% (wt.) CO<sub>2</sub>, 12.4681% (wt.) O<sub>2</sub>, 71.80815% (wt.) N<sub>2</sub> and 4.32005% (wt.) water vapor. We calculate that the outlet will be 14,765 ACFM saturated at 174°F and 14,168 lb./hr. will be evaporated. In the worst case, we calculate that 55.44 lb./hr. of 100% NaOH (8.7 gallons/hr. of 50% NaOH) will be consumed in neutralizing the 40.1 lb./hr. of HCl and 9.2 lb./hr. of SO<sub>2</sub>.

We quote as follows, all in accordance with the attached terms and conditions:

- 1 - No. 265 Sly IMPINJET Gas Scrubber, to clean up to 34,025 ACFM at 2000°F., with a pressure drop of 5.1" w.g., at an outlet of 14,765 ACFM at 174°F. saturated.

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July 3, 1990

2 stages will be provided, and the shell will be all welded 11 ga. stainless steel type 316L. The unit will be 6'6" diameter, 10'0" straight side height, with 30° top and bottom cones, giving an overall height of 13'3", as shown in enclosed Catalog No. 152.

Bolted access doors will be provided above and below each plate stage for inspection and access to plates and sprays. The inlet and outlet will have 3/16" stainless steel flanges.

Inlet to be rectangular to match possible future VENTURI scrubber.

- 1 - Fixed blade mist eliminator, with blades of 16 ga. type 316L stainless steel.
- 2 - Sets of type 316 stainless steel impingement baffle plates.

We consider the following instruments to be necessary for your application. Field installation is to be by others.

- 1 - Outlet gas temperature indicator meter with 4-digit temperature readout, integral alarm and outlet thermocouple, for continuous temperature monitoring and high temperature alarm warning.
- 3 - Liquid flowmeters for plate and spray water pipes and quencher, variable area orifice bypass type, of 316 SS with Pyrex glass tubes.
- 2 - Pressure gages, Bourdon type, phenolic case with stainless steel gage guards, assembled and filled, for spray water line and quencher.
- 1 - Differential pressure air gage, dial-type with tubing and fittings, for monitoring of scrubber pressure drop.
- 1 - Microprocessor pH analyzer/controller with digital pH meter, to monitor and control the addition of alkaline neutralizer solution to scrubber recirculation system. Analog output signals proportional to pH value are: isolated 4 - 20 mA or 0 - 20 mA. Dual programmable alarms are provided. Automatic temperature compensation allows solution temperature to be read from display. Self-diagnostics identify abnormal operating conditions. Enclosure is NEMA 4X and may be mounted on surface, panel or pipe.

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July 3, 1990

- 1 - pH insertion probe, low impedance, with temperature compensation and integral preamplifier with cable. For installation in scrubber drain pipe. Calibration solutions included.
- 1 - Set of internal spray nozzles of type 316 stainless steel, piping and fittings of type 316L stainless steel, with inlet and outlet water connections installed to receive plant service piping, will be provided. Recirculated alkaline solution requirements will be: Inlet to plates 70 GPM at free flow; inlet to sprays 62 GPM at 20 PSIG.
- 1 - Quencher and duct section for scrubber inlet, consisting of (1) vertical duct section, 26" x 26", of 14 ga. 316L stainless steel, and (1) 90° elbow, of 11 ga. Inconel 625, both with flanges. Elbow to be equipped with quencher sprays, requiring 33 GPM fresh water at 20 PSIG. Duct and elbow together to have same flange-to-flange dimensions as possible future No. 6 Sly VENTURI Scrubber.
- 1 - Set of stainless steel support brackets or pads.
- 1 - Set of 4 structural steel support legs, 6'0" high.

PRICE, F.O.B. MATHISTON, MISSISSIPPI -----\$49,150.00

Estimated Shipping Weight: 2,800 lbs.

\*\*\*\*\*

ALTERNATE

- 1 - No. 265 Sly IMPINJET Gas Scrubber, Quencher and Instruments identical to the above except made of 11 ga. stainless steel type 317L.

PRICE, F.O.B. MATHISTON, MISSISSIPPI -----\$53,240.00 ✓

\*\*\*\*\*

- 1 - New York Blower, Size 454, Series 20, General Industrial Fan with LS wheel, Arrangement 1, complete with flanged inlet and outlet, flush bolted access door, drain, evase and shaft and bearing guard.

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July 3, 1990

All airstream parts to be of stainless steel type 316.

Fan to deliver 14,765 CFM and an assumed 7.1" SP at 1015 RPM and 27.7 BHP at 174°F. saturated.

- 1 - Opposed blade outlet damper (316 SS) with pneumatic actuator.
- 1 - Unitary base with spring isolation.
- 1 - V-belt drive and OSHA GT guard.
- 1 - 40 HP, 1800 RPM, TEFC motor, Frame 324T, for 3-60-230/460 volts with slide base.

PRICE, F.O.B. POINT OF MANUFACTURE -----\$18,901.00 ✓

\* \* \* \* \*

- 1 - Chemical metering pump, American Lewa type FCD of 316 stainless steel with Viton diaphragm, discharge check valve, 3/8" NPTF connections and 1/4 HP, 3600 RPM TENV motor for 3-60-230 volts. Pump to deliver up to 18 GPM alkaline solution to recirculation system.

PRICE, F.O.B. BOSTON, MASSACHUSETTS -----\$ 1,435.00 ✓

\* \* \* \* \*

- 1 - Worthington Model D-1000, Size 3 x 3 x 4 horizontal end-suction centrifugal pump of 316 stainless steel with mechanical seal, baseplate, coupling, coupling guard and 5 HP, 3600 RPM, TEFC motor for 3-60-230/460 volts.

Pump to deliver 132 GPM at an assumed 75 feet total head.

PRICE, F.O.B. POINT OF MANUFACTURE -----\$ 2,400.00 ✓

\* \* \* \* \*

- 1 - Open top tank constructed of Polyethylene and reinforcing with a capacity of 1000 gallons, approximately 6' x 6' x 4'0" high, with overflow weir, internal strainer.

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Tank to be equipped with threaded fittings for pump suction, drain, overflow, additive and level control.

PRICE, F.O.B. SHIPPING POINT -----\$ 3,411.00 ✓

Estimated Shipping Weight: 400 lbs.

\*\*\*\*\*

Preassembled instrument piping manifolds for Quencher and IMPINJET scrubber plate and spray manifolds. Piping subassemblies will be preassembled in our shop. The piping system includes:

- 1 - Duplex Basket Strainer, 316 SS including manual valves on inlet and outlet for sprays.
- 1 - Pressure switch with discrete pilot light to monitor strainer back pressure.
- 5 - Manual Valves - 316 SS (one each for spray and plate lines, quencher, pump inlet and tank blowdown).

\*\*\*\*\*

System Instrumentation and Controls consisting of:

- 3 - Flowtec liquid flow switches of stainless steel on plate and spray lines with alarm capabilities and discrete pilot lights.
- 1 - Make up water control including manual valve and solenoid valve.
- 1 - Blowdown control for recirculation system including manual valve and solenoid valve.
- 1 - Emergency fresh make-up water control including solenoid valve, manual valve and 2 check valves.
- 2 - Spray water and quencher pressure switches with discrete pilot lights and alarm capability.
- 1 - Liquid level control include: Off-On Selector Switch, "Hi-Level", "Low Level" alarms and "Adding Water" switches and pilot lights.
- 1 - Rustrak Model 288 strip-chart recorder to provide permanent record of solution pH. For use with above analyzer.

\*\*\*\*\*

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July 3, 1990

1 - Local control enclosure (N.E.M.A. 4) and fused disconnect switch.

1 - 110 VAC control circuit transformer.

Additional discrete alarm pilot lights in the control panel include: "Low Spray Header Pressure", "Low Spray Header Flow", "Low Plate Water Flow", "Low Quencher Manifold Pressure", "Low Quencher Flow", and "High Scrubber Differential Pressure" along with a Photohelic Gage. All alarm signals are relay interfaced for local and remote interlocks. Alarm horn with alarm acknowledge capability included.

All scrubber mounted instrumentation devices will be installed and wired to control junction box.

All 110 VAC control functions are wired to control panel mounted terminal strips for field interface wiring between the panel and the scrubber control junction box. (Wiring between control panel and scrubber junction box by others.)

Instrumentation will include:

- (1) Liquid Level Sensor Assembly with three set points.
- (1) Spray Header Flow Switch.
- (1) Plate Water Flow Switch.
- (1) Quencher Water Flow Switch.
- (1) Spray Header Pressure Switch and Gage.
- (1) Quencher Water Pressure Switch and Gage.

Included and shipped loose for field assembly and wiring BY OTHERS are: Caustic Metering Pump.

Engineering Drawings and Manuals Included:

- (3) Electric Schematic with panel and door.
- (3) General Arrangement.  
Terminal Strip Legend and Bill of Material.
- (3) Piping and Instrumentation Drawing.
- (3) Single Line Piping Drawings with Bill of Material.
- (3) System Instruction Manual and Sequence of Operation, start up and checkout procedure, trouble shooting and spare part list.

PRICE, F.O.B. MATHISTON, MISSISSIPPI -----\$42,065.00 ✓

\* \* \* \* \*

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July 3, 1990

1 - ITT shell and tube heat exchanger of 316-L stainless steel to cool 10 GPM of 171°F water to below 150°F using 68 GPM of fresh water at 80°F.

PRICE, F.O.B. SHIPPING POINT -----\$ 1,070.00 ✓

\* \* \* \* \*

1 - Section of straight pipe above quencher, 26" dia. x 12' constructed of 14 ga. INCONEL 625 to raise inlet height to 20 feet above grade.

PRICE, F.O.B. SHIPPING POINT -----\$ 3,878.00

\* \* \* \* \*

ALTERNATE:

1 - Water-cooled expansion joint with inlet flange 45" x 45" for connection to refractory lined duct. Outlet of expansion joint will have connecting duct to quencher scrubber inlet. Inlet flange will be 20 feet above grade. Material of construction is INCONEL 625. Weir inlet to have castable refractory infield by others.

PRICE, F.O.B. SHIPPING POINT -----\$28,513.00

\* \* \* \* \*

VALIDITY:

The prices contained herein are valid for a period of 30 days, after which we reserve the right to review our quote.

TERMS:

TO BE ARRANGED. Prices are firm for acceptance in 30 days and shipment as noted below. Order is subject to attached "Terms and Conditions". Purchase order must be issued in the name of: W. W. Sly Manufacturing Company.

SHIPMENT:

12 to 14 weeks after receipt of approval drawings. Drawings for approval will be submitted 4 to 5 weeks after date of order acknowledgement and scheduling. NOTE: ABOVE SUBJECT TO VERIFICATION AT TIME OF ORDER.

\* \* \* \* \*

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July 3, 1990

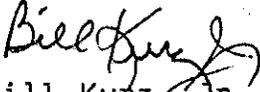
If you should have any questions regarding this quotation or any further requirements, please contact our office or our representative,

Whitlock Industrial Equipment  
516 Amanda Drive  
Matthews, NC 28105  
Office: (704) 846-4841

We look forward to putting Sly's proven equipment and over 116 years of experience to work for you and your customers in the near future.

Very truly yours,

THE W. W. SLY MANUFACTURING COMPANY

  
Bill Kurz, Jr.  
Vice President

BK/slp/9034M

Enclosures: Terms & Conditions

# TERMS AND CONDITIONS

**DESIGNATION OF PARTIES:** The term Company whenever used herein refers to The W. W. Sly Manufacturing Company, incorporated under the laws of the State of Ohio and having its principal office in the City of Cleveland, Ohio. The term Purchaser whenever used herein refers to the person, firm or corporation to whom the equipment herein specified is sold.

**AGREEMENTS AND REPRESENTATIONS:** The proposal hereto attached covers only such material, equipment and services as are specifically mentioned herein, and when executed as herein provided shall constitute the contract between the parties hereto.

No written or verbal agreements or representations heretofore made by any person for or on behalf of the Company or Purchaser shall affect or in any way vary or modify the terms or conditions hereof.

**GUARANTEE:** The equipment described in the attached proposal is guaranteed only against defective workmanship or material, for a period of one (1) year from date of shipment. In the event defects develop within said period under normal and proper use, the Company will furnish without charge, F.O.B. its plant, parts required to replace material found to have been defective. Under no circumstances will the Company be responsible for the cost of labor to install such parts, or, for loss of production occasioned by failure of such parts. Nothing in the above is to be construed as a guarantee of the service life or parts or equipment not found to be defective.

## DRAWINGS:

- (1) Certified construction drawings will be forwarded to customer for approval. One copy of drawings properly initialed, or all copies if changes are made, shall be returned to Company within ten days from date issued.
- (2) Said drawings not received by Company within ten days may necessitate removal of order from production schedule and thereby may affect date of shipment.
- (3) Should any changes be made after approved drawings have been entered for production, normal engineering charges will then be added to customer's order.
- (4) Foundation and erecting diagrams, repair part sheets and full operating instructions will be furnished by the Company when required.

**TIME OF SHIPMENT:** The shipment promise contained in the proposal shall date from receipt from the Purchaser of approved general arrangement drawings and the furnishing of all further information necessary to enable the Company to proceed with the manufacture of the specified equipment.

**DELAYS:** The Company shall not be responsible for losses or delays caused by strikes, accidents, delays in transportation or other causes beyond its control.

**ERECTION:** Except when erection is included in contract price, the Company will furnish at the option of the Purchaser a competent superintendent to supervise the erection of the equipment described herein. For this superintendent's services the charges will be:

- (a) - \$400.00 for each 8-hour week day; time and one-half for work in excess of 8 hours on such days and for Saturdays; double time for Sundays and Holidays; day travel time will be included.
- (b) Travel and living expenses: Fare from Cleveland or from last point of assignment to Purchaser's plant and from Purchaser's plant to Cleveland or next point of assignment, provided the points of assignment are nearer than Cleveland to Purchaser's plant; living expenses to include all meals, lodging and ordinary incidental expenses.

**FOUNDATIONS: ETC.:** Unless otherwise specified Purchaser shall install foundations including foundation bolts and furnish all tools and supplies required for the proper erection of the equipment herein specified, and assume all responsibility for the strength of building in which equipment is to be located.

**SHORTAGE AND CLAIMS:** The Purchaser shall within ten days report to and have verified by delivering carrier any shortage in or damage to shipment and make claim therefor to carrier. Any other claims shall be reported to the Company within 30 days after receipt of shipment; otherwise bills of lading and packing lists shall govern settlement.

**TERMS OF PAYMENT:** Invoices for equipment are payable net within 30 days from date; invoices for erection superintendence and labor net 10 days from date of invoice.

**TAXES:** Taxes imposed by Federal, State or other taxing authority upon the manufacture, sale or use of the articles covered by our quotation and/or our invoice (Excise, Sales and Use Taxes) shall be an extra charge to be paid by the purchaser.

**ACCEPTANCE:** The proposal attached hereto is for immediate acceptance and is subject to change or withdrawal without notice, and is not binding on the Company until accepted at the home office by a duly authorized officer or agent of the Company.

**THE W. W. SLY MANUFACTURING COMPANY**

P.O. BOX 5939

CLEVELAND, OHIO 44101

SLY IMPINJET SCRUBBER 7/10/90

EMISSION / COLLECTION PARAMETERS

	AIR PERMIT APPLICATION (5/24/89)	SLY PERMIT / SURGE CONDITIONS (6/8/90)
FLOW RATE INLET (ACFM)	28,837	34,825
TEMP INLET (DEG. F)	1,800	2,000
FLOW RATE OUTLET (ACFM)	12,931	14,765
TEMP OUTLET (DEG. F)	171	174
PRESSURE DROP (w. g.)	6.4	5.1
COMB. GAS / CO <sub>2</sub> (lbs/hr)	N.I.	3,613
COMB. GAS / O <sub>2</sub> (lbs/hr)	N.I.	4,005
COMB. GAS / N <sub>2</sub> (lbs/hr)	N.I.	23,063
COMB. GAS / WATER VAPOR (%)	6.3	4.3
COMB. GAS / SO <sub>2</sub> INLET (lbs/hr)	1.49	9.2
COMB. GAS / SO <sub>2</sub> OUTLET (lbs/hr)	N.I.	9.18
HCL INLET (lbs/hr)	30	40.1
HCL OUTLET (lbs/hr)	0.6 (98%)	?
PARTICULATES INLET (lbs/hr)	10.59	
PARTICULATES OUTLET (lbs/hr)	1.05 (90%)	

# Section 7

## 7. ZONING

The land on which this facility is located is in an industrial park on Porter Avenue, Graham, N.C. It is zoned I-1, Light Industrial District. Road access to this facility does not pass through any residentially zoned land. This facility is less than 1/4 mile from I-85. The following page and Appendix A will provide further information on the zoning.

# City of Graham

P.O. Drawer 357  
201 South Main Street  
Graham, North Carolina 27253  
(919) 228-8362

December 11, 1990

Mr. Larry L. Holloway  
Browning-Ferris Industries  
8607 Roberts Drive, Suite 100  
Atlanta, Georgia 30350

Dear Mr. Holloway,

The property located on Porter Ave., Alamance County Tax Map 13-14-31, is inside the Graham City Limits and is zoned I-1, Light Industrial. Thermal Reductions operation is a permitted use in the I-1 zone. This property is served with City water and sewer.

If we may be of further service, please feel free to contact us.

Sincerely,

  
Davy Mitchell  
Chief Building Inspector

DM/dd

# Appendix - A

# City of Graham

P.O. Drawer 357  
Graham, North Carolina 27253  
Telephone - (919) 228-8362

## Sec. 10-223. I-1 Light Industrial District.

(a) *Generally; permitted uses.* The I-1 Light Industrial District is established for those areas of the Graham planning area in which the principal use of land is for industries operated in a manner that will not be obnoxious to adjacent residential or business districts. This district is designed to prohibit the use of land for heavy industry, or for any other use which would substantially interfere with the development of industrial uses permitted in this district. Uses permitted in this district are indicated in section 10-289, Table of Permitted Uses.

(b) *Area, height, and yard requirements.* These requirements are indicated in section 10-288, Table of Area, Height and Yard Regulations.

(c) *Screening.* There shall be a buffer strip at least ten (10) feet wide planted with an opaque screen of evergreen shrubs or trees which at maturity will be between eight (8) and twelve (12) feet high along the side or rear property line of any use that abuts any property in any residential zone.

(d) *Off-street loading space.* Off-street loading and unloading space shall be provided as required in section 10-287 of this article.

(e) *Off-street parking space.* Off-street parking space shall be provided as required in section 10-286 of this article.

(f) *Performance standards.* Within the I-1 zone, all uses shall conform with all of the following performance standards:

- (1) *Dust, dirt, fly ash or other air pollutants.* There shall be no emission of dust, dirt, fly ash, gases, fumes, vapors or other air pollutants into the atmosphere that could cause damage to the public health, or to animals, or to vegetation, or to other forms of property.
- (2) *Electrical interference.* There shall be no electrical disturbances affecting the operation of any equipment other than that of the creator of such disturbances.
- (3) *Heat and glare.* There shall be no heat or glare perceptible to human senses at the property line of any use creating heat or glare.
- (4) *Landscaping.* All front yards and side yards shall be suitably landscaped.
- (5) *Enclosure.* All processing shall be within a building.
- (6) *Liquid or solid waste.* There shall be no discharge of any liquid or solid waste into any stream except as authorized by the State of North Carolina.
- (7) *Noise.* The sound-pressure level of sound radiated from an establishment, measured at the lot line, shall not exceed the values in any octave band of frequency that are specified in the table below. The sound-pressure level shall be measured with a sound

level meter and an associated octave band analyzer conforming to standards prescribed by the American Standards Association.

<i>Frequency Band (cycles per second)</i>	<i>Decibels</i>
20— 75	69
75— 150	57
150— 300	52
300— 600	46
600— 1200	42
1200— 2400	37
2400— 4800	33
4800—10,000	30

- (8) *Odor.* There shall be no objectionable odors perceptible to the human senses at or beyond the property line of any use that may create odors.
- (9) *Radioactivity.* There shall be no radioactive emission that would be dangerous to health.
- (10) *Smoke.* There shall be no emission into the atmosphere of smoke from any operation of a shade darker than No. one on the Ringelmann Smoke Chart as published by the United States Bureau of Mines, except that smoke of a shade not darker than No. three (3) on said chart may be emitted for not more than two (2) minutes in any thirty-minute period.
- (11) *Traffic.* There shall be no industrial vehicular traffic on any minor residential street.
- (12) *Vibration.* There shall be no vibration perceptible to human senses at the property line of any use that may create vibration.

(Code 1978, Ch. J, Art. II, § 36; Ord. of 9-1-81)

**Sec. 10-224. I-2 Heavy Industrial District.**

(a) *Generally; permitted uses.* The I-2 Heavy Industrial District is established to provide areas where the principal use of the land is for manufacturing and processing activities having special need of accessibility to major transportation facilities and utilities and other public services. It is the intent of this district to separate such activities from residential activities for their mutual benefit. Uses permitted in this district are indicated in section 10-289, Table of Permitted Uses.

(b) *Area, height, and yard requirements.* These requirements are indicated in section 10-288, Table of Area, Height, and Yard Regulations.

(c) *Screening.* There shall be a buffer strip at least ten (10) feet wide planted with an opaque screen of evergreen shrubs or trees which at maturity will be between eight (8) and twelve (12) feet high along the side or rear property line of any use that abuts any property in any residential zone.

# Appendix -B



Medical Waste Systems  
BY ORDER OF THE BOARD OF DIRECTORS

**SERVICE AGREEMENT**

S 0028961

ACCOUNT NO. \_\_\_\_\_

LOCATION CODE: \_\_\_\_\_

NEW ACCOUNT

REINSTATE CUSTOMER

OTHER CHANGE

NEW SERVICE LOCATION

CHANGE SERVICE LEVEL

**BILLING INFORMATION**

CUSTOMER NAME: \_\_\_\_\_

STREET NUMBER: \_\_\_\_\_

STREET NAME: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_

ZIP: \_\_\_\_\_ PHONE: ( ) - \_\_\_\_\_

CONTACT: \_\_\_\_\_

NUMBER OF INVOICES REQUIRED: 1

**DO NOT WRITE IN THIS SPACE**

**SERVICE LOCATION INFORMATION**

CUSTOMER NAME: \_\_\_\_\_

STREET NUMBER: \_\_\_\_\_

STREET NAME: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_

ZIP: \_\_\_\_\_ PHONE: ( ) - \_\_\_\_\_

CONTACT: \_\_\_\_\_

**DO NOT WRITE IN THIS SPACE**

**SERVICE DESCRIPTION**

Customer Tax Exemption Number (If Applicable): \_\_\_\_\_

Service Begins On:  / / Service Schedule: \_\_\_\_\_ Time(s) per day/week/month

Number of Containers: \_\_\_\_\_ Type of Container: \_\_\_\_\_

Rates: \_\_\_\_\_

Recommencement Rate: \_\_\_\_\_

Special Instructions: \_\_\_\_\_

Date of Agreement:  / /

**TERMS AND CONDITIONS**

BY SIGNING IN THE SPACE PROVIDED BELOW, THE CUSTOMER ACKNOWLEDGES HAVING READ AND THAT IT IS BOUND BY THE TERMS AND CONDITIONS ABOVE AND BELOW ON THIS PAGE AND CONTINUING ON THE REVERSE SIDE OF THIS PAGE.

"CONTRACTOR" \_\_\_\_\_ (CUSTOMER NAME) \_\_\_\_\_

BY (SIGNATURE) \_\_\_\_\_

(NAME OF OPERATING BROWNING-FERRIS INDUSTRIES SUBSIDIARY) \_\_\_\_\_ NAME (PLEASE TYPE OR PRINT): \_\_\_\_\_

BY/TITLE \_\_\_\_\_ TITLE (PLEASE TYPE OR PRINT): \_\_\_\_\_

**ARTICLE I - DISPOSAL SERVICES**

Customer shall provide to Contractor and Contractor shall collect and remove from Customer's premises, treat and/or dispose of all "Biomedical Waste" generated by Customer in accordance with the terms of this Agreement. The term "Biomedical Waste" as used herein shall include only those wastes as defined by the United States Environmental Protection Agency (USEPA) as infectious wastes and fluids for laboratory waste management. It shall not include any waste as defined by the USEPA as hazardous waste or any other wastes identified as infectious or similar wastes in any other applicable federal, state, county or municipal laws, regulations and guidelines, and no "Chemotherapy Waste" (as defined in applicable laws, regulations and guidelines). The term "Chemotherapy Waste" shall include only those wastes which have been contaminated by chemotherapy agents, provided that such items, including vials and syringes, shall be empty as defined in applicable federal, state, county or municipal laws, regulations and guidelines. The term "Biomedical Waste" specifically excludes laboratory and human tissue and its contents, reactive, radioactive, toxic and other hazardous wastes and substances as defined in any applicable federal, state, county or municipal laws, regulations and guidelines.

Customer is solely responsible for properly and securely packaging, labeling and storing Biomedical Waste. Customer shall store Biomedical Waste in containers supplied or approved by Contractor. Customer agrees that all containers supplied by Contractor and which carry Contractor's identification on the container, shall be collected and disposed of only by Contractor or its designated representatives. The storage of Biomedical Waste shall be restricted to areas on Customer's premises to which only authorized personnel shall have access.

Contractor reserves the right to decline to accept for collection, transportation, treatment and/or disposal any Biomedical Waste which, in Contractor's judgment, it cannot transport, treat or dispose of in a lawful manner or without a risk of harm to public health or the environment. Improperly packaged, leaking, overweight or damaged containers are subject to rejection or to off specification charges for repackaging and/or special handling. No containers will be packed up that are not in building.

**ARTICLE II - TITLE**

Title to Biomedical Waste collected from Customer shall be transferred to and vest in Contractor at the same time that the Biomedical Waste is fully loaded into Contractor's truck. Prior thereto, all title to the Biomedical Waste shall be in Customer. Title to any waste other than Biomedical Waste shall remain with Customer.

**ARTICLE III - SERVICES AND RATES**

Contractor will provide the collection, transportation, treatment and/or disposal services enumerated above at the rates set forth above plus all applicable taxes, assessments, and related charges. In determining the amounts for such services, Contractor will provide all necessary equipment to perform such services and all such equipment shall comply with all applicable federal, state, county and municipal laws, regulations, guidelines and orders. Contractor reserves the right to adjust the rates hereunder to fully cover the rate increases in fuel, insurance and truck disposal costs, and increases in costs resulting from changes in regulatory requirements or guidelines of the relevant federal, state, county or municipal laws, regulations, guidelines and orders. Any such adjustment shall be subject to Customer's approval upon thirty (30) days notice from Contractor prior to the effective date of the adjustment.

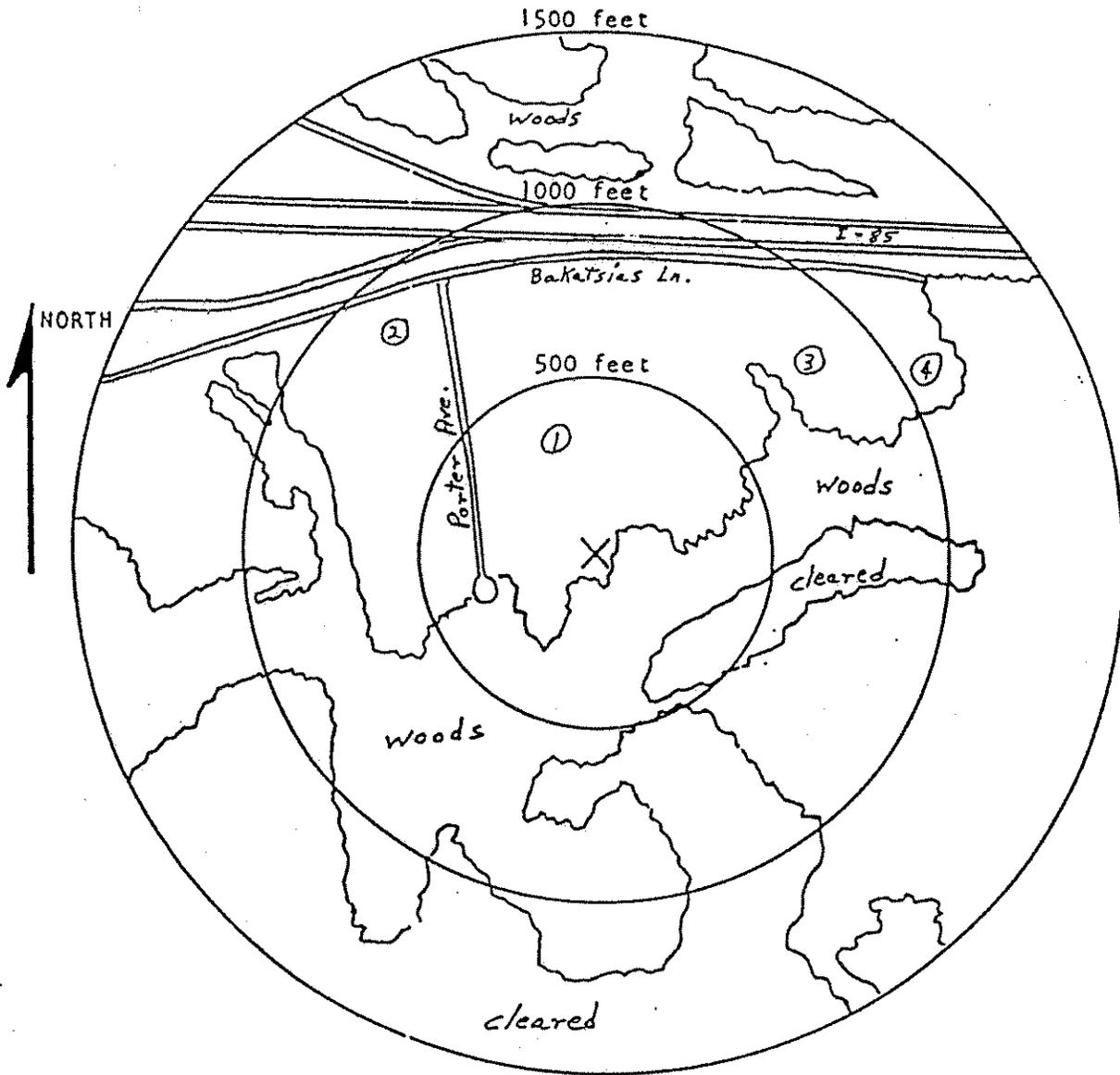
Changes in the rates, type, size and amount of equipment, and the frequency of service may be mutually agreed to orally or in writing by the parties without affecting the validity of this Agreement. Consistent with changes shall be evidenced by the practices and actions of the parties.

Contractor may provide any of the services herein through its affiliates.

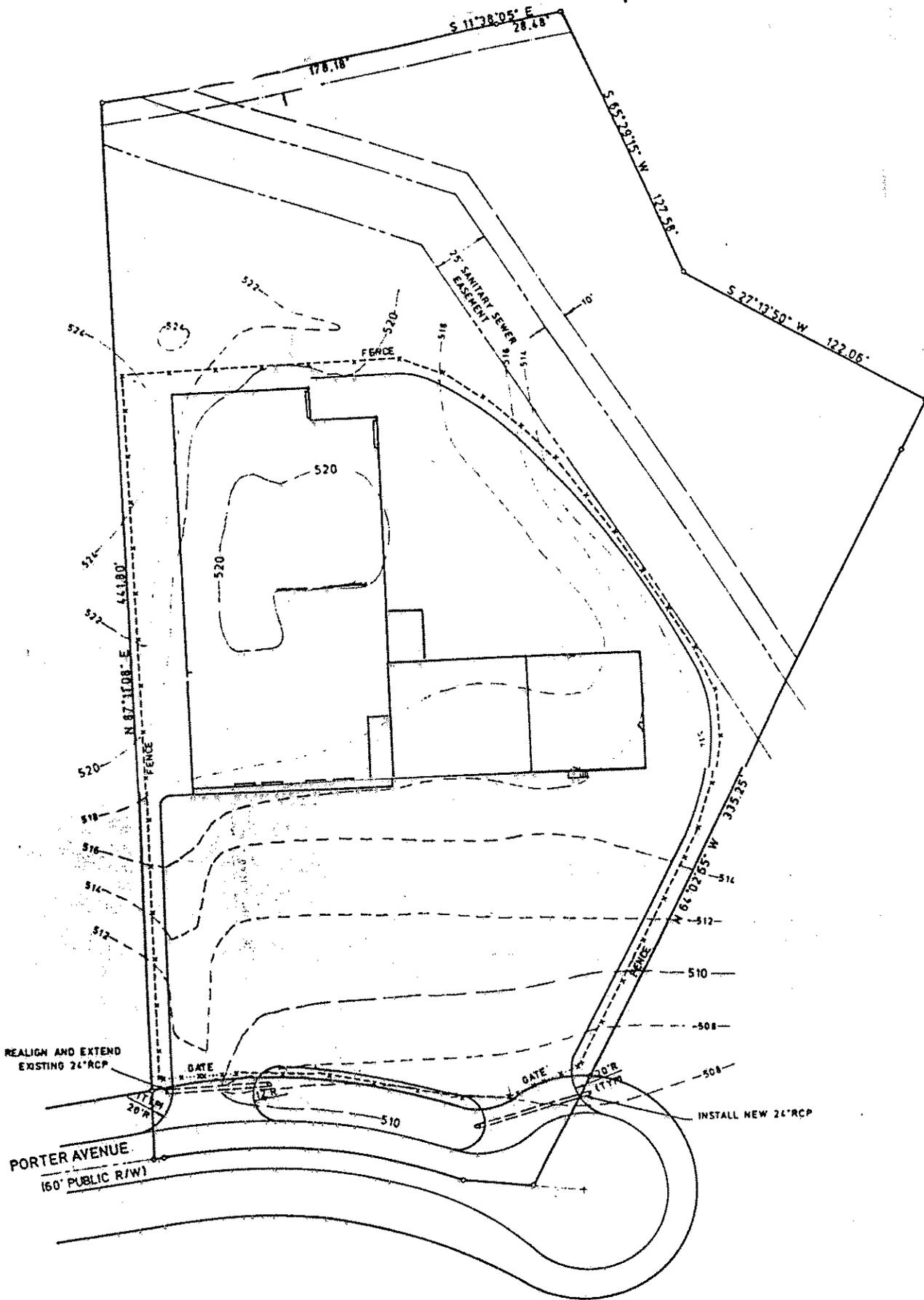
**THE TERMS AND CONDITIONS CONTINUE ON THE REVERSE SIDE OF THIS PAGE**

# Appendix - C

AREA DIAGRAM



CODE	DESCRIPTION
(1)	Irradiation Service Company
(2)	Manufacturing Company
(3)	Fabricating Company
(4)	Restaurant
(5)	
(6)	
(7)	
(8)	
(9)	
(10)	



# Appendix - D

# Appendix-E

# Holt Construction Company, Inc.



... GENERAL CONTRACTORS ...

P. O. BOX 118

Graham, N. C.  
27253

919/226-3718

May 2, 1989

City of Graham  
P.O. Drawer 357  
Graham, N.C. 27253

Attention: Mr. Davy Mitchell

Re: Thermal Reduction Holding Tank

Dear Sir:

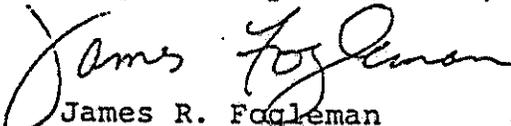
As determined by Mr. Martin Wilson from the Sanitary Sewer Use Survey completed for the above named project a holding tank must be added. This tank will be of sufficient capacity to ensure discharge water to the sewer to be less than 150°F.

In discussion with the owner he assured me that the capacity and therefore the temperature requirement would be designed into the system by the incinerator manufacturer with a confirmation letter from them at that time.

I understand that this assurance completes the requirements for the issue of a building permit.

Thank you for your assistance in these matters.

Respectfully submitted,

  
James R. Fogleman

JRF/sdm

cc Mr. Joe Green  
City of Graham

Mr. Larry Parker, President  
Thermal Reductions

CITY OF GRAHAM  
SANITARY SEWER USE SURVEY

SIC # 4953  
MAP # 511 page 672  
ACCT. # 104740  
Permit #

Company Name Thermal Reduction Systems, Inc.

Mailing Address P. O. Box 2070, Chapel Hill, NC 27515

Address of Premises (if different from mailing address) \_\_\_\_\_

Porter Ave., Graham, NC

Authorized Official Larry Parker Title President

Phone 919-942-5179

Technical Coordinator \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_

Operational Information

Brief description of manufacturing or service activity on premises:

Incineration of solid waste

Hours of Operation per Day 24 Days of Operation per Week 7

Average number of employees per shift: 10 1st 4 2nd  
4 3rd

Shift Times (start and finish): 8 am - 4pm 1st 4pm - 12pm 2nd 12pm - 8am 3rd

Check (✓) shifts normally worked each day:

	Mon	Tues	Wed	Thur	Fri	Sat	Sun
1st	✓	✓	✓	✓	✓	✓	✓
2nd	✓	✓	✓	✓	✓	✓	✓
3rd	✓	✓	✓	✓	✓	✓	✓

Raw Materials (Add additional sheet(s) if necessary)

<u>Description</u>	<u>Amounts Used per Year</u>
<u>Medical Waste</u>	<u>16,000 tons</u>

Catalysts, Intermediates (Add additional sheet(s) if necessary)

<u>Description</u>	<u>Amounts Used per Year</u>
<u>50% NaOH Solution</u>	<u>87,360 gallons</u>

CITY OF GRAHAM  
SANITARY SEWER USE SURVEY

Products and By Products (Add additional sheet(s), if necessary)

<u>Description</u>	<u>Amounts Produced per Year</u>
<u>Incinerator Ash</u>	<u>2400 tons</u>
_____	_____
_____	_____

Type of Process: incineration Continuous  Batch   
 Is there a scheduled shutdown? No When? \_\_\_\_\_  
 Is production seasonal? No If yes, explain, indicating months of peak operation. \_\_\_\_\_

Industrial Wastes:

What waste products are disposed to sanitary sewer? Domestic sewage and process water containing NaCl in approx. 10% solution

What waste products are disposed of by other means? Identify method of disposal. Incinerator ash to sanitary landfill

Is discharge to sanitary sewer: Intermittent  Steady   
 Quantity/Day 5,280 Est. or measured Est.

Are wastes pretreated? If so, which and how (add additional sheet if necessary)? No

Plant Sewer Connections to City of Graham Sanitary Sewer System (Attach Sketch)

	<u>Size</u>	<u>Material</u>	<u>Location in Plant</u>	<u>Connected To</u>
(1)	<u>4"</u>	<u>PVC</u>	<u>SW Corner</u>	<u>Existing sanitary sewer</u>
(2)	_____	_____	_____	_____
(3)	_____	_____	_____	_____

CITY OF GRAHAM  
SANITARY SEWER USE SURVEY

Water Use

Source(s) of water City of Graham

Water used for:

			Recirculated
Sanitary Purposes	<u>2,400</u>	gpd	
Air Conditioning	<u>None</u>	gpd	
Process water	<u>69,120</u>	gpd	<u>Yes</u>
Jacketed Cooling Water	<u>None</u>	gpd	
Other <u>Cleanup</u>	<u>250 gpd injected into incinerator</u>		

Water disposal other than sanitary sewer evaporation - 96 % of total

Is water consumed in product? Yes Amount/day 66,240

Have the waste streams been previously analyzed? If so, attach summary of analytical results No

Are radioactive isotopes used in your process? Specify:

No

Are any of the pollutants listed in Table I being used at this facility in manufacturing of the product or in a by-product which may be discharged into the sanitary sewer? If so, please indicate by a check mark on Table I. None

Do you have a wastewater discharge permit (NPDES permit) issued by the North Carolina Division of Environmental Management? No

The information contained in this questionnaire is familiar to me and to the best of my knowledge and belief, such information is true, complete, and accurate.

April 24, 1989 Larry Parker  
Date Signature of Official

President  
Title

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65 Priority Pollutants Referenced in 307(a) of the  
Clean Water Act of 1977

Acenaphthene	Endrin and metabolites
Acrolein	Ethylbenzene
Acrylonitrile	Fluoranthene
Aldrin/Dieldrin	Haloethers
Antimony and compounds	Halomethanes
Arsenic and compounds	Heptachlor and metabolites
Asbestos	Hexachlorobutadiene
Benzene	Hexachlorocyclopentadiene
Benzidine	Hexachlorocyclohexane
Beryllium and compounds	Isophorone
Cadmium and compounds	Lead and compounds
Carbon tetrachloride	Mercury and compounds
Chlordane	Naphthalene
Chlorinated benzenes	Nickel and compounds
Chlorinated ethanes	Nitrobenzene
Chlorinated alkyl ethers	Nitrophenols
Chlorinated naphthalene	Nitrosamines
Chlorinated phenols	Pentachlorophenol
Chloroform	Phenol
2-chlorophenol	Phthalate esters
Chromium and compounds	Polychlorinated biphenyls (PCB)
Copper and compounds	Polynuclear aromatic
Cyanides	hydrocarbons
DDT and metabolites	Selenium and compounds
Dichlorobenzenes	Silver and compounds
Dichlorobenzidine	2,3,7,8,-Tetrachlorodibenzo-
Dichloroethylene	p-dioxin (TCDD)
2, 4-dichlorophenol	Tetrachloroethylene
Dichloropropane &	Thallium and compounds
Dichloropropene	Toluene
2, 4-dimethylphenol	Toxaphene
Dinitrotoluene	Trichloroethylene
Diphenylhydrazine	Vinyl chloride
Endosulfan & metabolites	Zinc and compounds

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List any other corrosive, toxic, or potentially harmful pollutants known or anticipated to be present in the wastewater discharge.

# Appendix - F

BFI MEDICAL WASTE SYSTEMS (SOUTHEAST)

COMPLIANCE HISTORY

1. The applicant is BFI Medical Waste Systems (Southeast), Inc., a Delaware Corporation.

2. Applicant: BFI Medical Waste Systems (Southeast), Inc.  
8607 Roberts Drive, Suite 100  
Atlanta, Georgia 30350  
(404) 640-2300

Parent: BFI Medical Waste Systems, Inc.  
757 North Eldridge  
Houston, Texas 77079  
(713) 870-8100

Subsidiary: Bio-Medical Service Corp  
1924 Joy Lake Road  
Lake City, Georgia 30260  
(404) 362-9090

NOTE: Bio-Medical Service Corp is a wholly-owned subsidiary of BFI Medical Waste Systems (Southeast), Inc., which, in turn, is a wholly-owned Subsidiary of BFI Medical Waste Systems, Inc.

3. Officers and Directors:

1. Neil Clark, Jr - President  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 460-2300

2. Stephen J. Uthoff - Vice President  
757 North Eldridge  
Houston, Texas 77079  
(713) 870-8100

3. Ronald D. Jennings - Vice President  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 640-2300

4. Richard L. Wisniewsky - Vice President  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 640-2300
5. Donald J. Aronin - Vice President/Assistant Secretary  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 640-2300
6. Larry L. Holloway - Vice President  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 640-2316
7. Sandra D. Glatzau - Vice President/Assistant Secretary  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 640-2300
8. Henry L. Hirvela - Vice President / Treasurer  
757 North Eldridge  
Houston, Texas 77079  
(713) 870-8100
9. Gerald K. Burger - Assistant Secretary  
757 North Eldridge  
Houston, Texas 77079  
(713) 870-8100
10. Alfred T. Roach - Assistant Secretary  
8607 Roberts Drive  
Atlanta, Georgia 30350  
(404) 6409-2300

NOTE: The applicant is in the business of treating medical waste, USDA regulated waste, and pharmaceutical waste via incineration. Waste is collected by local collection companies and transported to the site via refrigerated trailers. It is then off loaded, scanned for radiation, and barcoded for tracking and billing purposes. The waste is then incinerated in one of two incinerators. The resulting ash is disposed of in landfills.

- 3.b. Permits, Licenses, etc are attached to this document.
- 3.c. Was a permit or license application ever denied? NO
4. Notice of Violations/Consent Orders: See attached page.

<u>BFL SUBSIDIARY</u>	<u>COURT OR AGENCY</u>	<u>NAME OF CASE ACTION OR ORDER</u>	<u>DATE &amp; CONDITIONS OF CONVICTION, ORDER, OR AGREEMENT</u>	<u>BRIEF FACTUAL DESCRIPTION OF MATTER</u>
Bio-Medical Service Corp. (Bio-Medical)	Environmental Protection Division Department of Natural Resources State of Georgia Department	(i) Notice of Violation (ii) Consent Order No.: EPD-AGC-438 (iii) Consent Order No.: EPD-AGC-471	(i) February 29, 1988 Notice of Violation (ii) July 8, 1988 Consent order (iii) December 9, 1988 Consent order	Alleged violations of Georgia Air Quality Act of 1978 due to emissions exceeding the allowable limit as set forth in Bio-Medical's initial permit. Bio-Medical corrected matter by installing scrubber on incinerator (as set forth in July 8, 1988 Order). On October 31, 1988 the scrubbing system was destroyed by fire making system inoperable. On November 11, 1988 the incinerator was placed in operation for testing without scrubber at reduced charging rates. Test results indicated that emissions of particulate matter and HCL could be held within allowable limits of Air Quality Permit while incinerator operating at reduced waste charging rates without scrubber. Bio-Medical paid to Department \$9,800 representing forty-nine operating days at \$200 per day from September 30, 1988 to October 31, 1988 as agreed in July 8, 1988 Order. Payment not considered penalty or acknowledgement of violations. Bio-Medical demonstrated compliance of its bio-medical waste incinerator and satisfied all conditions and terms of said December 9, 1988 Consent Order. Incinerator has returned to normal operations.
Bio-Medical Service Corp.	Environmental Protection Division Department of Natural Resources State of Georgia	Consent Order	May 10, 1990 Consent Order \$25,000 civil penalty	Consent order was issued as a result of alleged violation of O.C.G.A. 12-8-27(a) for construction of a solid waste handling facility prior to issue of the amended permit.



# Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

## PERMITTEE:

Bio-Medical Service Corp. of GA  
AKA BFI Central FL Biomedical  
Incinerator  
1924 Joy Lake Road  
Lake City, GA 30260

## PERMIT/CERTIFICATION

Permit No.: AO53-179818  
County: Polk  
Expiration Date: 07/20/95  
Project: Biological Waste  
Incinerator

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

For the operation of a Simonds Model No. AFTC controlled-air pyrolytic incinerator with an automatic feed mechanism and a modified blower designed at 8530 DSCFM used to incinerate a maximum of 3000 lbs./hour of Type O through 4 wastes. Emissions are controlled by an afterburner which maintains a minimum temperature of 1800°F. Natural gas or propane is used to fire the incinerator at a total maximum heat input rate of 9.0 MMBTU/hour.

Location: Chambers Road (off C.R. 555), Bartow

UTM: 17-413.9E      3081.3N      NEDS NO: 0190      Point ID: 01

Replaces Permit No.: AC53-160205

PERMITTEE:

Bio-Medical Service Corp. of GA

PERMIT NO: AO53-179818

PROJECT: Biological Waste  
Incinerator

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. The incinerator is allowed no visible emissions except that visible emissions up to 20% opacity are allowed up to three minutes in any one hour period as set forth in Rule 17-2.600(1)(a)1, F.A.C. The visible emissions test shall be conducted in accordance with DER Method 9 contained in Section 17-2.700, F.A.C.
3. No objectionable odors will be allowed as per Rule 17-2.600(1)(a)2., F.A.C.
4. The maximum total allowable burning rate of the incinerator is 3000 lbs./hour. The waste to be incinerated is typical hospital waste (Type 0-4) with a composition of 15% by weight Type 0, 70% by weight Type I, 10% by weight Type III, and 5% by weight Type IV wastes.
5. The incinerator shall be only fired with natural gas or propane at a total maximum heat input rate of 9.0 MMBTU/hour.
6. The operating hours of the incinerator shall not exceed 8760 hours/year.
7. The temperature of the secondary chamber shall be maintained at a minimum of 1800°F and shall be demonstrated by adequate instrumentation. Additionally, as stated in the construction permit application, the residence time of combustion gas in the secondary chamber shall be a minimum of 1.9 seconds.
8. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Rule 17-2.610(3), F.A.C. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling.
9. Test the incinerator for visible emissions at 12 month intervals from the date of April 11, 1990 and submit the test report to this office within 45 days of testing pursuant to Rules 17-2.700(2) and 17-2.700(7), F.A.C.

PERMITTEE:

Bio-Medical Service Corp. of GA

PERMIT NO: A053-179818

PROJECT: Biological Waste  
Incinerator

10. Testing of emissions must be accomplished within 10% of the maximum total allowable burning rate as specified in Specific Condition No. 4. Failure to submit the burning rate in terms of the type of each waste with its associated weight incinerated, temperature of the secondary chamber, or operation at conditions which do not reflect actual operating conditions may invalidate the test pursuant to Rule 17-4.070(3), F.A.C.

11. This office shall be notified in writing at least 15 days prior to compliance testing pursuant to Rule 17-2.700(2)(a)9., F.A.C.

12. Four applications to renew this operating permit shall be submitted to this office at least 60 days prior to the expiration date of this permit pursuant to Rule 17-4.090(1), F.A.C.

13. As of July 1, 1992, the incinerator will also be subject to the following requirements of Rules 17-2.600(1)(d) and 17-2.710(5), F.A.C.:

A. Facilities with a capacity greater than 2000 pounds per hour.

(1) Particulate matter emissions shall not exceed 0.020 grains per dry standard cubic foot of flue gas, corrected to 7% O<sub>2</sub>.

(2) Hydrochloric acid (HCl) emissions shall not exceed 50 parts per million by volume, dry basis, corrected to 7% O<sub>2</sub> on a three hour average basis; or shall be reduced by 90% by weight on an hourly average basis.

B. All facilities unless otherwise noted are subject to the following design, operating, monitoring and operator training requirements.

(1) The incinerator(s) shall be designed to provide for a residence time of at least 1.9\* seconds in the secondary (or last) combustion chamber only, at no less than 1800°F for the combustion gases. Primary chamber and stack shall not be utilized in calculating this residence time. \*As stated in the construction permit application.

PERMITTEE:

Bio-Medical Service Corp. of GA

PERMIT NO: A053-179818

PROJECT: Biological Waste  
Incinerator

- (2) Mechanically fed facilities shall incorporate an air lock system to prevent opening the incinerator to the room environment. The volume of the loading system shall be designed to prevent overcharging thereby assuring complete combustion of the waste.
- (3) Carbon monoxide (CO) emissions shall not exceed 100 parts per million by volume, dry basis, corrected to 7% O<sub>2</sub> on an hourly average basis.
- (4) Incineration or ignition of waste shall not begin until the secondary (or last) combustion chamber temperature requirement is attained. All air pollution control and continuous emission monitoring equipment shall be operational and functioning properly prior to the incineration or ignition of waste and until all the wastes are incinerated. During shutdowns, the secondary (or last) combustion chamber temperature requirement shall be maintained using auxillary burners until the wastes are completely combusted.
- (5) Radioactive waste may not be burned in an incinerator subject to this rule unless the incinerator has been issued the appropriate permit or the waste is of such quantity to be exempt in accordance with Department of Health and Rehabilitative Services (HRS) Rule 10D-91 or 10D-104.003, F.A.C.
- (6) Hazardous waste may not be burned in an incinerator subject to this rule unless the incinerator has been issued the appropriate permit or the waste is of such quantity to be exempt in accordance with Department Rule 17-30, F.A.C.
- (7) All biological waste incinerator operators shall be trained by the equipment manufacturer's representatives or another qualified organization as to proper operating practices and procedures. The content of the training program shall be submitted to the Department for approval. The applicant shall submit a copy of a certificate verifying the satisfactory completion of a Department approved training program prior to issuance or renewal of the operating permit. The owner shall not allow the incinerator to be operated unless it is operated by an operator who has satisfactorily completed the training program.

PERMITTEE:

Bio-Medical Service Corp. of GA

PERMIT NO: AO53-179818

PROJECT: Biological Waste  
Incinerator

C. In accordance with Rule 17-2.710(5), F.A.C., General Requirements - Biological Waste Incineration Facilities. Each owner or operator of a biological waste incineration facility shall install, operate, and maintain in accordance with the manufacturer's instructions continuous emission monitoring equipment.

- (1) The monitors shall record the following operating parameters.
  - a. Secondary (or last) combustion chamber exit temperature.
  - b. Oxygen (for facilities with a capacity greater than 500 pounds per hour).
- (2) Any owner or operator subject to the provisions of Rule 17-2.710(5), F.A.C., shall maintain a complete file of all measurements, including continuous emissions monitoring system, monitoring device, and performance testing measurements; all continuous emissions monitoring system performance evaluations; all continuous emissions monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required, recorded in a permanent legible form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

14. If the incinerator is intended to be operated after June 30, 1992 the following shall apply:

- A. The proposed training program referenced in Specific Condition No. 13.C.(7) shall be submitted to this office for approval by March 1, 1992 along with any of the following changes necessary to comply with the additional requirements stipulated in Specific Condition No. 13.
  - (1) Diagrams of design and/or process changes.
  - (2) Documentation of emission control equipment efficiency.
  - (3) Manufacturer's specifications of new monitors and other associated equipment.

PERMITTEE:

Bio-Medical Service Corp. of GA

PERMIT NO: A053-179818

PROJECT: Biological Waste  
Incinerator

- (4) Calculations demonstrating at least a 1 second residence time in the secondary (or last) combustion chamber.
- (5) Emission calculations supporting the incinerator will meet the additional emission limitations.
- (6) Any changes in the information submitted in the original application such as stack geometry.

B. Compliance with the requirements of Specific Condition No. 13 shall be demonstrated within 30 days of July 1, 1992 in accordance with the notification, sampling, and reporting requirements of Section 17-2.700, F.A.C. A certificate verifying each operator (1 for each operator) satisfactorily completed the Department approved training program shall be submitted with the test reports.

Issued this 20 day of July  
1990.

STATE OF FLORIDA DEPARTMENT OF  
ENVIRONMENTAL REGULATION



Richard D. Garrity, Ph.D.  
Deputy Assistant Secretary

ATTACHMENT - GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

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), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither 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 is not 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 this 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; 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.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are 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 and at reasonable times, access to the premises where the permitted activity is located or conducted to:

- (a) Have access to and copy any records that must be kept under conditions of the permit;
- (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

- (c) Sample or monitor 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 provide the Department with the following information:

- (a) A description of and cause of noncompliance; and
- (b) The period of noncompliance, including 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.

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 for 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 involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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 Rule 17-4.120 and 17-730.300, Florida Administrative Code, 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 or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- ( ) Determination of Best Available Control Technology (BACT)
- ( ) Determination of Prevention of Significant Deterioration (PSD)
- ( ) Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
- ( ) Compliance with New Source Performance Standards



State of Georgia  
Department of Natural Resources  
ENVIRONMENTAL PROTECTION DIVISION



AMENDMENT TO AIR QUALITY PERMIT

Amendment To  
Permit No.

4953-031-9595

Effective Date  
Of Amendment

JUL 01 '88

In accordance with Section 9 of Georgia's Air Quality Act of 1978 (Ga. Law 1978, page 275 et seq, as amended) and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No. 4953-031-9595 issued on May 22, 1987 to BIO-MEDICAL SERVICE CORPORATION P.O. Box 940, Fayetteville, Georgia 30214

for the following: Construction and operation of an Infectious Waste Incinerator

is hereby amended as follows:

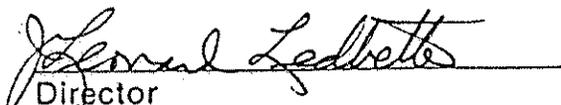
Change in mailing address to: 1924 Joy Lake Road, Lake City, Georgia 30260.  
Construction and operation of a scrubbing system. Existing conditions 1-15 and new conditions 16-18 apply.

Reason for Amendment:

Application no. 3296 dated April 29, 1988.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 1 page(s), which page(s) are a part of this Amendment.

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 4953-031-9595 and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

  
Director  
Environmental Protection Division

STATE OF GEORGIA  
DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION DIVISION

PERMIT NO. 4953-031-9595

PAGE 1 OF 3

General Requirements

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
2. The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The test results shall be submitted to the Division within 30 days of the completion of testing. Any tests shall be performed and conducted using methods and procedures which have been previously approved by the Division.
3. Construction shall be completed by no later than September 30, 1987; otherwise this Permit becomes null and void and is no longer in effect.

Allowable Emissions

4. The Permittee shall not discharge or cause the discharge into the atmosphere from this source any emissions which:
  - a. Contain particulate matter in excess of 0.20 pounds per 100 pounds of charge.
  - b. Exhibit visible emissions the opacity of which are equal to or greater than twenty (20) percent opacity except for one six-minute period per hour of not more than twenty-seven (27) percent.
5. The Permittee shall not discharge or cause the discharge into the atmosphere from this source any gases which contain hydrochloric acid in excess of twelve pounds per hour.

Performance Testing

6. Within 30 days after achieving the maximum production rate which the source will be operated, but no later than 60 days after the initial startup, the Permittee shall conduct particulate matter and hydrochloric acid performance tests on the incinerator. The results of the performance test(s) shall be submitted to the Division within 30 days of the completion of testing.

STATE OF GEORGIA  
DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION DIVISION

PERMIT NO. 4953-031-9595

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7. Performance tests shall be conducted and the data reduced in accordance with methods and procedures approved by the Division prior to such testing.
8. The Permittee shall provide the Division 14 days prior written notice of the date of any performance test(s) to afford the Division the opportunity to have an observer present.
9. The Permittee shall provide performance test ports which comply with criteria approved by the Division.

Monitoring Requirements

10. The Permittee shall preheat the primary chamber to 800°F prior to charging with waste.
11. The Permittee shall preheat the secondary chamber to 1500°F before charge and a minimum temperature of 1600°F shall then be maintained in the chamber while waste is being burned.
12. The Permittee shall install, calibrate, operate and maintain temperature indicators in the primary and secondary chambers. Temperatures shall be continuously monitored and recorded in a permanent form suitable and available for inspection by the Division. The records shall be retained for at least two years following the date of record.

Notification, Reporting and Recordkeeping

13. The Permittee shall furnish the Division written notification of the actual date of initial startup of this source within 15 days after such date.

For purposes of this Permit, "startup" shall mean the setting in operation of a source for any purpose.

14. The Permittee shall record the daily charging rates of solid waste and hours of operation of the incinerator. This information shall be recorded in a form suitable and available for inspection. These records shall be retained for at least two years following the date of entry.

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Special Conditions

15. At any time that the Division, based upon data on potentially toxic or adverse effects of the compounds emitted from this operation or the availability of improved technology to limit emissions of such compounds, determines that additional control of emissions from the facility may reasonably be needed to provide for the continued protection of public health, safety and welfare, the Division reserves the right to amend the provisions of this Permit without prior notice.

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Performance Testing

16. The Company shall conduct a performance test for particulate matter and HCL within 30 days after startup of the scrubber. The Company shall provide the Division 14 days prior written notice of the test date. The results of the performance test shall be submitted to the Division within 30 days of the completion of testing.

Monitoring Requirements

17. The Company shall install, calibrate, operate and maintain a pH monitoring system for scrubber water flow. A minimum pH of 8 shall be maintained. The pH shall be continuously monitored and recorded at least once every 8 hours in a permanent form suitable and available for inspection by the Division. The records shall be retained for at least two years following the date of record.

Notification, Reporting and Recordkeeping

18. The Permittee shall furnish the Division written notification of the actual date of initial startup of the scrubbing system within 15 days after such date. For purposes of this Permit, "startup" shall mean the setting in operation of a source for any purpose.

ENVIRONMENTAL PROTECTION DIVISION  
DEPARTMENT OF NATURAL RESOURCES  
STATE OF GEORGIA



PERMIT  
SOLID WASTE HANDLING

Permit No: 031-034C Date: May 22, 1987  
Permittee: Name: Bio Medical Service Corp.  
Address: 1924 Joy Lake Road  
Lake City, Georgia 30260

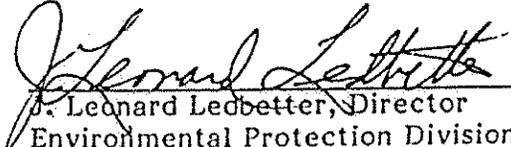
In accordance with the provisions of the Georgia Solid Waste Management Act, GA Laws, pp. 1002 et. seq, as amended, and the Rules promulgated pursuant thereto, this permit is issued for the following operation:

Bio Medical Service Corporation - Infectious Waste Collection Operation

This permit is conditioned upon the permittee complying with the attached conditions of operation, which are hereby made a part of this permit.

All statements and supporting data submitted to the Environmental Protection Division of the Department of Natural Resources have been evaluated, considered and relied upon in the issuance of this permit.

This permit is now in effect; however, under Georgia Law it is subject to appeal for thirty (30) days following issuance, and is subject to modification or revocation on evidence of noncompliance with any of the provisions of the Georgia Solid Waste Management Act, as amended, or any of the Rules promulgated pursuant thereto; or with any representation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

  
\_\_\_\_\_  
Leonard Leebetter, Director  
Environmental Protection Division  
Department of Natural Resources

Permit Number: 03i 34C

Issued To: Bio Medical Service Corp.

Conditions for Infectious Waste Collection Operation:

1. Vehicles or containers for the collection and transportation of infectious waste shall be enclosed, leakproof, durable and of easily cleanable construction.
2. Infectious waste collection and transportation vehicles shall be cleaned daily and shall be maintained in good repair.
3. Vehicles or containers used for the collection and transportation of infectious waste shall be loaded and moved in such a manner that the contents of containers will not fall, leak or spill therefrom.
4. The holder of this permit shall not cause, suffer, allow or permit the collection of hazardous or radioactive waste.
5. It is the responsibility of the holder of this permit to comply with all local rules, regulations and ordinances pertaining to the operation of an infectious waste collection system.
6. All wastewater from cleaning of vehicles must be handled in a manner that meets the Rules and Regulations of Water Quality Control (Chapter 391-3-6, Revised June, 1974).
7. The holder of this permit is authorized to transport infectious waste collections to any active, permitted infectious waste incinerator or permitted temporary storage facility.
8. All infectious waste collected and transported must be secured in a clearly identifiable and distinguishable container constructed of heavy duty fiberboard. Each fiberboard container must be double-lined with two heavy duty plastic bags. Containers must be marked with the universal biological hazard symbol and a label identifying the permittee with name, address and telephone number.
9. Each collection vehicle must be refrigerated and capable of maintaining a temperature of 40° F or less.
10. Leaking or damaged containers containing infectious waste shall not be accepted for transport.
11. The holder of this permit must maintain a contingency plan to provide for emergency situations. This plan must include, but not limited to, procedures to be used under the following conditions:
  - a. Spills of liquid infectious waste -- cleanup procedures, protection of personnel, and disposal of spill residue.
  - b. Rupture of containers (or other loss of containment)-- cleanup procedures, protection of personnel, and repackaging.
  - c. Equipment failure -- alternative arrangements for collection and/or storage during equipment failure.
12. This permit shall become null and void one year from the effective date if the permitted collection operation has not commenced within one year from the effective date.

ENVIRONMENTAL PROTECTION DIVISION  
DEPARTMENT OF NATURAL RESOURCES

STATE OF GEORGIA



PERMIT

SOLID WASTE HANDLING

Permit No: 031-035P(Inc) Date: September 8, 1987

Permittee: Name: Bio Medical Service Corp.

Address: 1924 Joy Lake Road

Lake City, Georgia 30260

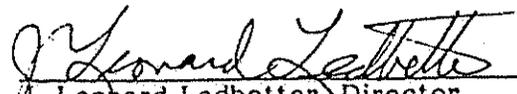
In accordance with the provisions of the Georgia Solid Waste Management Act, GA Laws, pp. 1002 et. seq, as amended, and the Rules promulgated pursuant thereto, this permit is issued for the following operation:

Bio Medical Service Corporation - Infectious Waste Incinerator; located at 1924 Joy Lake Road, Lake City, Georgia; Clayton County

This permit is conditioned upon the permittee complying with the attached conditions of operation, which are hereby made a part of this permit.

All statements and supporting data submitted to the Environmental Protection Division of the Department of Natural Resources have been evaluated, considered and relied upon in the issuance of this permit.

This permit is now in effect; however, under Georgia Law it is subject to appeal for thirty (30) days following issuance, and is subject to modification or revocation on evidence of noncompliance with any of the provisions of the Georgia Solid Waste Management Act, as amended, or any of the Rules promulgated pursuant thereto; or with any representation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

  
J. Leonard Ledbetter, Director  
Environmental Protection Division  
Department of Natural Resources

Permit No: 031-035P(Inc) (Amended)

Issued To: Bio-Medical Service Corporation

Conditions for Biomedical Waste Processing Operation:

General

1. This permit shall be null and void ten years after the date of this permit modification.
2. No radioactive waste, asbestos containing material, or regulated quantities of hazardous waste may be handled, processed, or incinerated.
3. Prior to startup, the permittee must submit to the Environmental Protection Division (EPD) an executed financial responsibility instrument for \$82,336.60, the current estimated cost of closure for the facility. This instrument must be adjusted annually, by January 1, to reflect the increase in closure costs due to inflation and other factors.
4. Packaged biomedical waste shall be conspicuously labeled with the universal biohazard symbol and the word "BIOHAZARD" such that it is readily visible from any lateral direction when the container is upright.
5. The storage and handling of biomedical waste must be in a manner that is consistent with the Design and Operational (D & O) Plan and minimizes exposure to the public.
6. The permittee shall screen all incoming waste to ensure that the material conforms to the description provided by the generator.
7. Special solid waste shall be screened to ensure that it does not contain radioactive waste, asbestos containing material, or regulated quantities of hazardous waste.
8. All special solid waste received shall be accompanied by a manifest. The permittee shall remit monthly to EPD for the Solid Waste Trust Fund the sum of ten dollars (\$10.00) per ton of special solid waste received.
9. Special solid waste manifests shall be retained at the facility a minimum of three years.
10. Process water, water collected within the waste management area, and wash down water shall be processed through the facility's incinerator or disposed of in a publicly owned treatment works (POTW) facility with the consent of the POTW owner/operator.
11. The permittee shall continuously implement effective measures to control disease vectors at the facility.
12. The volume of the waste stored at the facility property may not exceed seven times the daily capacity of the facility.
13. The facility shall provide fire control equipment placed as needed and additional equipment shall be made available for emergencies.

Permit No: 031-033P(Inc) (Amended)

Issued To: Bio-Medical Service Corporation

Conditions for Biomedical Waste Processing Operation:  
Page 2

14. The facility shall be under the direct supervision of a responsible individual qualified in biomedical waste processing at all times.
15. Access to the facility shall be limited to authorized entrances which shall be closed when the site is not in operation.
16. The permittee shall provide effective measures to control spills that may occur.
17. As a condition of this permit, the permittee must satisfactorily participate in EPD's Comprehensive Program for Special Solid Waste Permit Monitoring as more fully set out in the Special Solid Waste Monitoring Agreement ("Agreement") attached hereto and made a part of this permit condition by reference. Upon permit issuance and prior to receipt of special solid waste, the permittee shall pay to EPD \$75,600. Such amount shall be utilized by EPD to administer all responsibilities required of it pursuant to the Georgia Comprehensive Solid Waste Management Act ("Act") with respect to the handling of special solid waste by the permittee for the first year of operation, including costs incurred by the EPD for permit review and issuance. Approximately sixty (60) days prior to the anniversary date of the permit, the permittee will be notified in writing of the costs incurred to date by EPD during that anniversary year against the permittee's account balance and of the estimated annualized costs to be incurred by EPD for the remainder of that anniversary year. Not later than thirty (30) days prior to the anniversary date of the permit, permittee shall remit to EPD sufficient funds to increase its account balance to cover any estimated shortfall in the current anniversary year and to cover the estimated annual costs to be incurred by EPD for the next anniversary year in administering its responsibilities with respect to special solid waste being handled by permittee; such amount to be determined by EPD based upon previous annual costs incurred. Failure by permittee to remit such funds within the time period allowed herein or failure by permittee to comply with any of the other terms of the attached Agreement shall be considered a material breach by permittee of the Agreement and a violation of this permit condition. Upon the occurrence of such breach and violation, the Director shall modify or revoke this permit in accordance with the Act such that the handling of special solid waste by the permittee will no longer be authorized.
18. Signs shall be posted at the entrance to the facility indicating the nature of operations, including the days and hours of operation.
19. Access to the facility shall be limited to times when authorized personnel are on duty.
20. This facility shall comply with all applicable air quality regulations.
21. This permit shall become null and void if the permitted operation has not commenced within twelve months from the effective date of this permit.

Permit No: 031-033P(Inc) (Amended)

Issued To: Bio-Medical Service Corporation

Conditions for Biomedical Waste Processing Operation:

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22. The incinerator shall maintain a minimum temperature in the primary chamber sufficient to provide a residue essentially free of odors and unstable organic matter, and which is visibly unrecognizable except for metals. The incinerator shall be capable of maintaining a minimum temperature of 1800 degrees Fahrenheit in the secondary chamber with a minimum residence time of two seconds.
23. The capacity of the incinerator and facility shall be of adequate size to manage the projected incoming solid waste and residue volumes.
24. The residue and fly ash generated at this facility shall be disposed of as specified in the D & O Plan. Any regulated quantities of hazardous residue and ash shall be handled in accordance with the Hazardous Waste Management Rules and disposed of only at a permitted, secure hazardous waste treatment or disposal facility.
25. The residue and fly ash shall not contain any free liquids in accordance with the Paint Filter Test (EPA Test Method 9095).
26. All samples of residue and fly ash obtained for analysis shall be representative of the outgoing waste stream. Samples of this material shall be obtained in accordance with guidelines issued by the EPD.
27. Random samples of fly ash and residue must be analyzed before disposal, monthly for the first six months, and quarterly thereafter. The results, including interpretation, conclusions, and recommendations of these analyses shall be submitted to the EPD. Residue and fly ash shall be analyzed for all regulated constituents using the TCLP procedure.

#### Steam Sterilization (Autoclave)

28. Waste treated by steam under pressure (autoclave) shall be thoroughly heated to 250 degrees Fahrenheit and held at that temperature until decontamination of the entire load has been achieved.
29. No chemotherapy waste shall be treated by steam sterilization, and no pathological waste may be treated by steam sterilization unless the waste is shredded prior to landfill disposal.
30. Recording thermometers shall be used to monitor the temperature of the autoclave waste load. Routine calibration checks shall be made on these thermometers not less than monthly.
31. The pattern of loading in the autoclave unit(s) shall permit the thorough penetration of heat throughout the load. Waste shall not be compacted prior to steam sterilization.

Permit No: 031-033P(Inc) (Amended)

Issued To: Bio-Medical Service Corporation

Conditions for Biomedical Waste Processing Operation:

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32. Monitoring of the penetration of heat into the center of the load shall be routinely done by chemical and biological indicators, to ensure complete destruction of pathogens.
33. The placement of chemical and biological indicators in the waste load shall be in a manner and a location which ensures that the entire load met the temperatures necessary to destroy pathogens.
34. The capacity of the autoclave and shredder shall be of adequate size to manage the projected incoming solid waste.

# Appendix - G

APPENDIX G: EQUIPMENT LIST

- (1) 2 Joy Energy System 2500 TES 1911 lb/hour Incinerators
- (2) 2 Sly Model 265 Wet Acid Scrubbers
- (3) Scale/Printer Computer System
- (4) Steam Cleaner
- (5) Related Office Equipment
- (6) Related Shop Maintenance Equipment
- (7) Four (4) 20yd Ash Containers
- (8) Two Ash bins
- (9) Forklift
- (10) Conveyor System
- (11) Washdown Spray Washer
- (12) Tubwash Unit (future)

# Appendix - H

## H. STAFFING CHART

- (1) District Manager
- (2) Operations Manager
- (3) District Accountant
- (4) Receptionist
- (5) Secretary
- (6) 4 Shift Supervisors
- (7) 4 Operators
- (8) 4 Utility Men
- (9) 1 Mechanic
- (10) 1 Washrack Man