

Final Determination

Florida Steel Corporation

Mill Modification

Duval County

Construction Permit

Application Number:

AC 16-41114

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

July 13, 1981

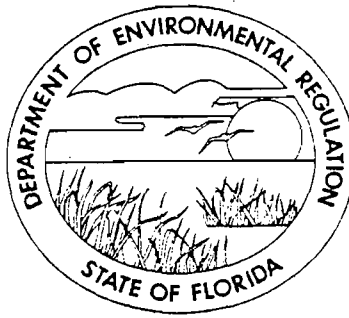
Florida Steel Corporation

Mill Modification

The construction permit has been reviewed by the Department. Public Notice of the Department's Intent to Issue was published in the Florida-Times Union on June 6, 1981. The preliminary determination and technical evaluation were available for public inspection at the Duval County's Bio-Environmental Services (BES), the DER's St. Johns River Subdistrict and Bureau of Air Quality Management.

The only comment(s) came from BES requesting that the exact descriptions/wordings of NSPS be used. Therefore, the opacity limits, under electric arc furnaces, will be from the shop roof, during charging and tapping, and not the furnace cupola. Opacity limits are also placed on the control devices by NSPS in 40 CFR 60, Subpart AA. No other comments or input were received and there were no modifications made.

It is recommended that the construction permit be issued as drafted along with the NSPS descriptions/wording changes to the BACT, Section III.A. - Emission Limitations in the Technical Evaluation and Preliminary Determination, and Specific Condition No. 7.



STATE OF FLORIDA  
DEPARTMENT OF  
ENVIRONMENTAL REGULATION

CONSTRUCTION  
PERMIT

NO. AC 16-41114

FLORIDA STEEL CORPORATION  
P. O. Box 518  
BALDWIN, FLORIDA 32234

DATE OF ISSUANCE

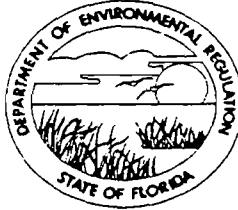
July 20, 1981

DATE OF EXPIRATION

APRIL 21, 1982

Victoria J. Tschinkel  
VICTORIA J. TSCHINKEL  
SECRETARY

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM  
GOVERNOR

JACOB D. VARN  
SECRETARY

STATE OF FLORIDA

## DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Florida Steel Corporation  
P. O. Box 518  
Baldwin, Florida 32234

PERMIT/CERTIFICATION  
NO. AC 16-41114

COUNTY: Duval

PROJECT: Construction/  
Modification of the  
electric arc furnace  
(EAF), the EAF building,  
and the control systems.

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction/modifications of the electric arc furnace (EAF), the EAF building, and the control systems located at the existing steel mill on Yellow Water Road (SR 217) in Baldwin, Duval County, Florida. The UTM coordinates are 405.7 km. East and 3350.2 km. North.

Construction/modifications shall be in accordance with the permit application and plans, documents, and drawings except as otherwise noted on page 3&4 - "Specific Conditions".

Attachments are as follows:

1. Application to Modify Air Pollution Sources, DER Form 17-1.122(16)
2. Florida Steel Corporation's letter of April 21, 1981, (Responses to Technical discrepancies).

PERMIT NO.: AC 16-41114  
APPLICANT: Florida Steel Corporation

**GENERAL CONDITIONS:**

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions", and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.
3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.
4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.
6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.
7. In the case of an operation permit, 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.
8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.
9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.
10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.
11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.
12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation 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.
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)

PERMIT NO.: AC 16-41114  
APPLICANT: Florida Steel Corporation

SPECIFIC CONDITIONS:

1. Maximum operation time will be 328 production days per year at 20.65 production hours per day.
2. Maximum process input rate will be 145,262 pounds per hour (lbs./hr.) and 483,705 tons per year (TPY). Maximum product weight will be 65 billet tons per hour (bTPH) and 440,172 bTPY.
3. Maximum allowable particulate emissions will be 8.00 lbs/hr.
4. Maximum allowable carbon monoxide emissions will be 58.5 lbs./hr.
5. Maximum allowable sulfur dioxide emissions will be 20.0 lbs./hr.
6. Maximum allowable nitrogen oxide emissions will be 1.1 lbs/hr.
7. Visible emissions shall not exceed: a) 3% from the baghouse, b) 20% from the shop roof during charging, and c) 40% from the shop roof during tapping.
8. Particulate emissions of the source shall be continuously monitored in accordance with the provisions of Paragraph 60.273 and 60.274 of 40 CFR 60, Subpart AA-Standards of Performance for Steel Plants: Electric Arc Furnaces. The applicant shall also comply with all other applicable requirements of 40 CFR 60, Subpart AA. Quarterly reports of excess emissions from this facility will be submitted to Duval County's Bio-Environmental Services.
9. Particulate emissions of the source shall be tested in accordance with the provisions of Paragraph 60.275 of 40 CFR 60, Subpart AA-Standards of Performance for Steel Plants: Electric Arc Furnaces. Annual test data from this facility will be submitted to Duval County's Bio-Environmental Services.
10. Construction/modification shall reasonably conform to the plans submitted in the application.
11. The applicant shall report any delays in construction and completion of these modifications to the Duval County's Bio-Environmental Services.
12. Before this construction/modification permit expires, the baghouse and roof monitors will be tested for visible emissions and stack tests will be run for particulate. Test procedures will be EPA reference methods 1, 2, 3, 5, and 9 as published in 40 CFR 60, Appendix A, dated July 1, 1978, or by any other state-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart AA. The Department and Bio-Environmental Services will be notified 30 days in advance of the compliance test. The test will

PERMIT NO.: AC 16-41114  
APPLICANT: Florida Steel Corporation

be conducted at permitted production capacity.

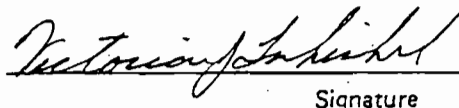
13. The applicant will demonstrate compliance with the conditions of this construction/modification permit and submit a complete application for an operating permit to Duval County's Bio-Environmental Services prior to 90 days before the expiration date of this permit. The applicant may continue to operate in compliance with all terms of this construction/modification permit until its expiration or until issuance of an operating permit.
14. Upon obtaining an operating permit, the applicant will be required to submit periodic test reports on the actual operation and emissions of the facility.
15. Stack sampling facilities will include the eyebolt and angle described in Chapter 17-2.23, F.A.C.

Expiration Date: April 21, 1982

Issued this 20 day of July, 1981

           Pages Attached.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

  
Signature

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301-8241



July 29, 1983

BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

Mr. R. B. Hutchens  
Plant Manager  
Florida Steel Corporation  
Post Office Box 518  
Baldwin, Florida 32234

Dear Mr. Hutchens:

The bureau is in receipt of your request for a modification of your construction permit, No. AC 16-41114. This request is acceptable and the conditions are changed and added as follows:

Specific Conditions:

"No. 5":

From: Maximum allowable sulfur dioxide emissions when firing No. 4 New Fuel Oil, reclaimed lubricating oil, and crude sulfate of turpentine shall not exceed 20.0 lbs/hr, 15.21 lbs/hr, and 7.35 lbs/hr, respectively.

To: Maximum allowable sulfur dioxide emissions when firing No. 4 New Fuel oil shall not exceed 20.0 lbs/hr.

"No. 15":

From: Maximum sulfur content of the No. 4 New Fuel Oil, the reclaimed lubricating oil, and the crude sulfate of turpentine shall not exceed 0.7%, 0.52%, and 0.24% by weight, respectively.

To: Maximum sulfur content of the No. 4 New Fuel Oil shall not exceed 0.7% by weight.

"No. 17":

From: The applicant shall control the odors from the crude sulfate of turpentine when handling, storing, and using.



R. B. Hutchens  
July 29, 1983  
Page Two

The applicant proposes:

- 1) Pave, curb, and fill with sand the area for the storage tank and service area,
- 2) Vent the storage tank to an activated charcoal-filled drum, and
- 3) No emissions during the transfer from the storage tank to the EAF.


To: Maximum natural gas consumption and heat input shall not exceed 25,846 cubic feet per hour and  $26.9 \times 10^6$  Btu per hour, respectively.

Attachments to be included are as follows:

10. Robert S. Sholtes' letter dated March 16, 1983.
11. C. H. Fancy's letter dated March 30, 1983.
12. John B. Koogler's letter dated May 19, 1983.

This letter and attachments must be attached to your permit, No. AC 16-41114, and shall become a part of that permit.

Sincerely,

  
Victoria J. Tschinkel  
Secretary

VJT/RBM/bjm



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1213 N.W. 8th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 101-82-09

March 16, 1983

DER

MAR 21 1983

BAQMD

MADE

Mr. Bruce Mitchell  
Bureau of Air Quality Management  
Florida Department of  
Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Dear Mr. Mitchell:

The Florida Steel Corporation, Baldwin mill wishes to initiate modifications to their state and federal permits to reflect a change in fuel utilization. The permits of interest are listed below.

1. AC16-47926 (A016-47926) - Reheat Furnace
2. AC16-41114 (A016-55485) - Arc Furnace
3. PSD FL 074

In these various permits and PSD studies alternate fuels were included, specifically reclaimed lubricating oil and crude sulphate turpentine. The company has now determined that they no longer wish to propose the use of these two alternate fuels and would like to have reference thereto purged from the permits.

As an additional change, the company has found it economically attractive to modify both the reheat furnace and the electric arc furnace for utilization of natural gas in place of the fuels oils mentioned and studied in this permitting process. The company would like to retain the option of using the specified fuel oils, however, would like to advise the Florida Department of Environmental Regulation that insofar as possible natural gas will be used on these units in the foreseeable future.

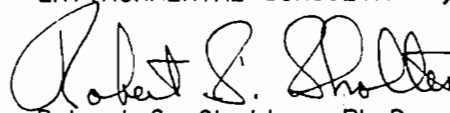
Mr. Bruce Mitchell  
Florida Department of  
Environmental Regulation

March 16, 1983  
Page two

If you need further clarification or more information, please  
advise.

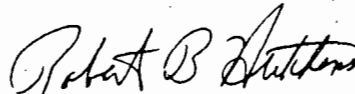
Sincerely,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS, INC.



Robert S. Sholtes, Ph.D., P.E.

FLORIDA STEEL CORPORATION,  
BALDWIN MILL



Robert Hutchens

RSS:ldh

cc: Mr. Jerry W. Woosley



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1213 N.W. 6th Street

Gainesville, Florida 32601

(904) 377-5822

SKEC 101-79-08

May 19, 1983

Mr. Bruce Mitchell  
Bureau of Air Quality Management  
Florida Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

Subject: Florida Steel Corporation  
Baldwin, Florida  
AC16-47926-Reheat Furnace  
AC16-41114-Electric Arc Furnace  
PSD FL-074

DER

MAY 20 1983

BAQM

Dear Bruce:

In response to our telephone conversation of May 18, 1983, I am providing the following fuel consumption information for the Florida Steel Corporation's Baldwin Mill. The information provided herein relates to the proposed consumption of natural gas in the electric arc furnace and the billet reheat furnace as addressed in Dr. Sholtes' letter to you dated March 16, 1983.

The electric arc furnace was permitted (by the subject permits) for a heat input rate by supplemental fuel of 26.9 million BTU per hour. The quantity of natural gas required to produce this heat input, at a heating value of 1042 BTU per cubic foot of natural gas, is 0.026 million cubic feet of gas per hour. Based on an annual operating time of 6,770 hours, the annual consumption of natural gas in the electric arc furnace will be 174.8 million cubic feet per year, maximum.

The billet reheat furnace was permitted (by the subject permits) for a heat input of 185 million BTU per hour. The quantity of natural gas required to produce this heat is 0.178 million cubic feet per hour. Based on an annual operating time of 4,891 hours, the annual natural gas consumption for the billet reheat furnace will be 868.4 million cubic feet per year, maximum.

In both the electric arc furnace and the billet reheat furnace, Florida Steel still wishes to have the option to burn new No. 4 fuel oil as presently permitted. This oil will be used as a stand-by fuel only. Natural gas will be the primary fuel in both sources.

Air pollutant emission rates, as affected by the type of fuel burned, were calculated for both the electric arc furnace and the billet reheat furnace assuming natural gas to be the fuel. The emission factors used were published in Supplement 13 of AP-42. It should be noted that a nitrogen oxide emission factor of 140 pounds per million cubic feet of gas was used since the billet reheat furnace is better represented by the operation of an industrial boiler than by the operation of a utility boiler. Nitrogen oxides emissions from the electric arc furnace were calculated by the same method that was used in the original permit application for the electric arc furnace.

The calculated air pollutant emission rates for the billet reheat furnace, assuming the furnace to be fired 100 percent of the time by natural gas, are:

<u>Source</u>	<u>Hourly Emission Rate</u> <u>(Lbs Per Hour)</u>	<u>Annual Emission Rate</u> <u>(Tons Per Year)</u>
Particulate Matter	0.9	2.2
Sulfur Dioxide	0.1	0.3
Nitrogen Oxide	24.9	60.8
Carbon Monoxide	7.1	17.4
V.O.C.	0.2	0.6

The pollutant emission rates calculated for the electric arc furnace, again, assuming that natural gas to be fired 100 percent of the time are:

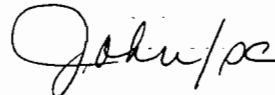
<u>Pollutant</u>	<u>Hourly Emission Rate</u> <u>(Lbs Per Hour)</u>	<u>Annual Emission Rate</u> <u>(Tons Per Year)</u>
Sulfur Dioxide	0.1	0.1
Nitrogen Oxide	0.3	1.2

With the electric arc furnace the emission rate of particulate matter, carbon monoxide, volatile organic compounds will not be influenced significantly by the type of fuel burned. All of the emission rates reported in the above tables are less than emission rates that would be expected if No. 4 fuel oil, as addressed in the original permit applications, was burned 100 percent of the time.

If there are any further questions regarding this matter, please do not hesitate to contact me.

Very truly yours,

SHOLTES & KOOGLER,  
ENVIRONMENTAL CONSULTANTS, INC.



John B. Koogler, Ph.D., P.E.

JBK:sc

cc: Mr. Robert B. Hutchens  
Mr. Louis Mustain

DEPARTMENT OF HEALTH, WELFARE  
& BIO-ENVIRONMENTAL SERVICES  
Bio-Environmental Services Division  
Air and Water Pollution Control



October 4, 1982

Mr. Bruce Mitchell  
Central Air Permitting Section  
Bureau of Air Quality Management  
2600 Blairstone Road  
Tallahassee, Florida 32301

DER  
OCT 11 1982  
BAQM

Re: Florida Steel- EAF

Dear Mr. Mitchell:

Enclosed is Dr. Robert Sholtes' letter outlining the maximum design flow of the particulate collection system at the subject source. Using the data presented, a maximum particulate emission limit of 13.1 pounds per hour was established, i.e.:

$$147,000 \text{ dscf/min} \times 2(\text{fans}) \times 60 \text{ min/hour} \times .0052 \text{ gr/dscf} \times \frac{1}{7000} \text{ lbs/gr} = 13.1 \text{ lbs/hr.}$$

Should you have any questions concerning this matter, please advise.

Very truly yours,

Jerry E. Woosley  
Assistant Engineer

JEW/vj  
Enclosure

cc: Dr. Robert Sholtes - without enclosure  
cc: Mr. Bob Hutchens - with enclosure  
cc: Mr. Doug Dutton - DER





SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 8th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 101-75-04

September 21, 1982

Mr. Jerry E. Woosley  
Bio-Environmental Services Division  
515 West 6th Street  
Jacksonville, Florida 32206

Subject: Florida Steel Corporation  
Operating Permit



Dear Mr. Woosley:

Pursuant to our telephone conversations and your letter of September 13, 1982 I am forwarding data with respect to flow rates which can be used in the manner desired by your office. The attached fan performance curve is for the fans (there are two individual fans) as modified for the expanded baghouse and current mode of operation. The air reflected in these curves is based upon, I believe, dry and standard conditions. Superimposed on this curve is the system design pressure drop which as you will observe intersects the static pressure line of the blower at a volume flow rate of approximately 135,000 cubic feet per minute.

As we have discussed, this flow rate is a design value and the actual flow rate is subject to changes as the condition of the bags and perhaps other criteria change with time. I would suggest that a reasonable approach towards your objective would be to arbitrarily take a flow rate which would exist at a static pressure displacement of approximately 20 percent from the design value. I do not personally believe that the pressure drop experienced in the field will vary more than 20 percent from the design value. The design pressure drop, as you will see is 12 inches of water.

My suggested 20 percent excursion would therefore occur at a value of 9.6 inches of water using that excursion which would result in higher flow. The predicted system flow rate at a 20 percent reduced pressure drop is found to be 147,000 cubic feet per minute. This flow through each of the two fans might then be used, in my opinion, to establish a maximum weight emission rate per hour.

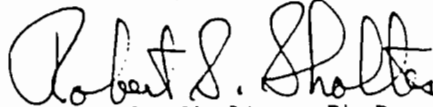


I would reemphasize to you that I am apprehensive about having this type of limitation as part of the Florida Steel permit. Chapter 17-2 of the Florida Statutes adopts the Federal NSPS regulation as being the State of Florida Regulation governing the electric arc furnaces. This regulation does not have any limitation with respect to total pounds per hour emissions. I therefore do not see that the State of Florida has statutory authority to impose such a restriction in the permit. We are of course obliged to meet all of those provisions specifically mentioned in the NSPS regulation and have and propose to continue to meet those provisions.

If you need further information with respect to this or other aspects of this permit, please let me know.

Sincerely,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS, INC.

A handwritten signature in dark ink, appearing to read "Robert S. Sholtes". The signature is fluid and cursive, with the first name "Robert" and last name "Sholtes" clearly distinguishable.

Robert S. Sholtes, Ph.D., P.E.

RSS:ldh  
Enclosures

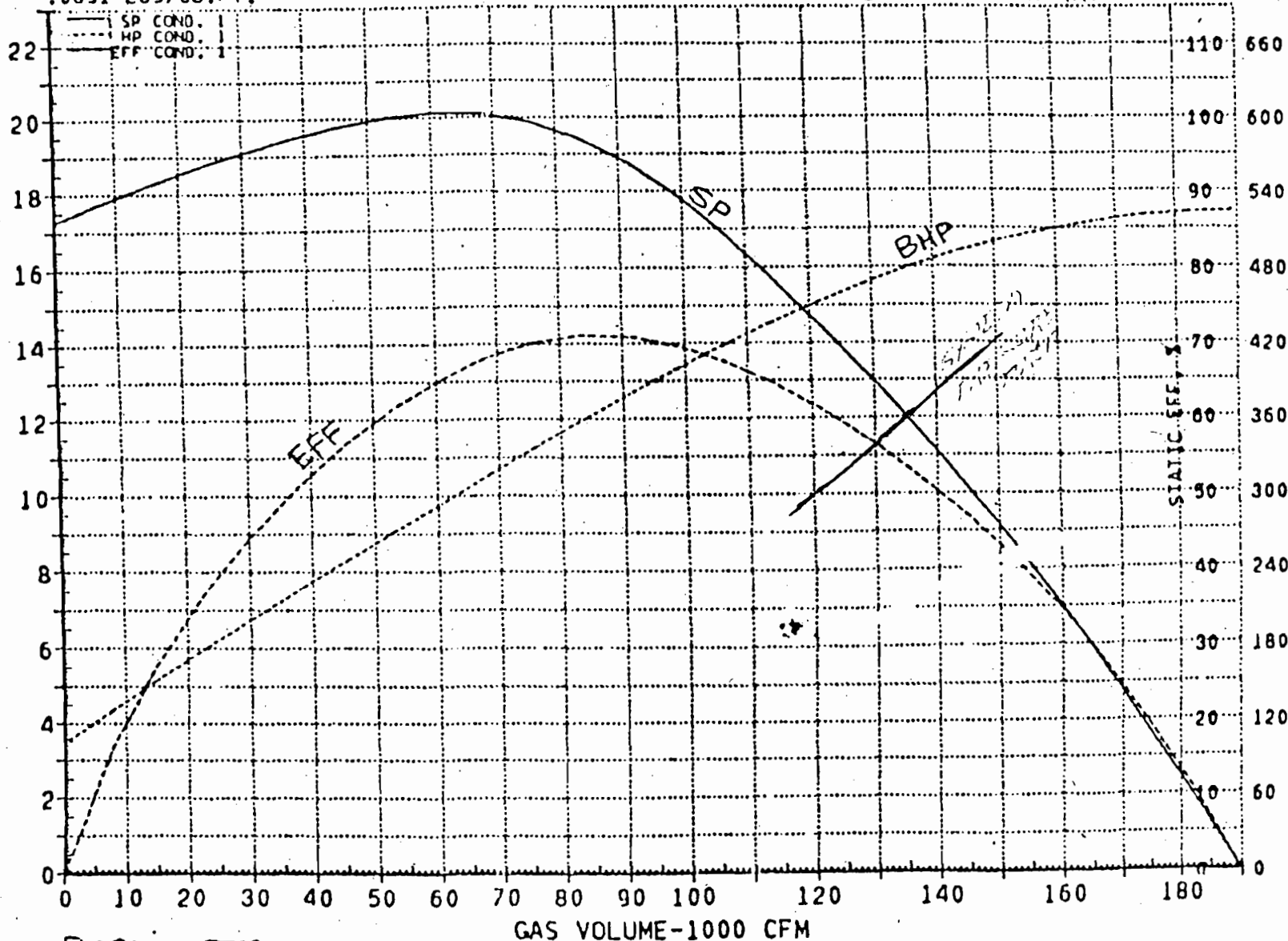
TIP-OUT / MR. MUSTAIN

78.75 IN. DIA. 97.62 %WIDTH 3200 351 EVASE OUTLET

COND. 1 880. RPM

.0651 LBS/CU.FT.

★ S.P. POINTS / MR. MUSTAIN  
BASED ON GIVEN T.P.



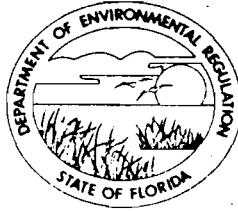
FAN PERFORMANCE CURVE

CUSTOMER: BEST AVAILABLE COPY  
USER: SERVICE:

Page \_\_\_\_\_ of \_\_\_\_\_  
Date \_\_\_\_\_  
Ref. \_\_\_\_\_

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM  
GOVERNOR  
VICTORIA J. TSCHINKEL  
SECRETARY

August 4, 1982

Mr. R. B. Hutchens  
Plant Manager  
c/o Florida Steel Corporation  
P. O. Box 518  
Baldwin, Florida 32234

Dear Mr. Hutchens:

The Department is in receipt of your request for a modification of your construction permit, No. AC 16-41114. This request is acceptable and the conditions are changed and added as follows:

Specific Conditions:

- No. 3: Maximum allowable particulate emissions will be 0.0052 gr/dscf, not to exceed 8.0 lbs/hr.
- No. 5: Maximum allowable sulfur dioxide emissions when firing No. 4 New Fuel Oil, reclaimed lubricating oil, and crude sulfate of turpentine shall not exceed 20.0 lbs/hr, 15.21 lbs/hr, and 7.35 lbs/hr, respectively.
- No. 12: Before this construction/modification permit expires, the baghouse and roof monitors will be tested for visible emissions and stack tests will be run for particulate and SO<sub>2</sub>. Test procedures will be EPA reference methods 1, 2, 3, 5, 6, and 9 as published in 40 CFR 60, Appendix A, dated July 1, 1978, or by any other state-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart AA. The Department and Bio-Environmental Services will be notified 30 days in advance of the compliance test. The test will be conducted at permitted production capacity.

R. B. Hutchens  
August 4, 1982  
Page Two

An EPA compliance test procedure for particulate was transmitted on April 22, 1976, to Florida Steel Corporation as an approved option. This procedure is not a substitute for Method No. 9. (The method will become an attachment and a part of the permanent record).

- No. 15: Maximum sulfur content of the No. 4 New Fuel Oil, the reclaimed lubricating oil, and the crude sulfate of turpentine shall not exceed 0.7%, 0.52%, and 0.24% by weight, respectively.
- No. 16: Separate storage facilities shall be required for each type of fuel.
- No. 17: The applicant shall control the odors from the crude sulfate of turpentine when handling, storing, and using.  
The applicant proposes:
- 1) Pave, curb, and fill with sand the area for the storage tank and service area,
  - 2) Vent the storage tank to an activated charcoal-filled drum, and
  - 3) No emissions during the transfer from the storage tank to the EAF.
- No. 18: Odors stemming from the handling, storage, and use of the fuels shall require immediate and appropriate abatement measures. The applicant shall notify Bio-Environmental Services of any action initiated by this condition.

Attachments to be included are as follows:

3. Revised BACT dated July 21, 1981.
4. Dr. Sholtes' letter dated July 28, 1981.
5. DER's response to Dr. Sholtes' letter of July 28, 1981, dated August 7, 1981.
6. Dr. Koogler's letter dated April 30, 1982.
7. DER's response to Dr. Koogler's letter of April 30, 1982, dated May 21, 1982.

R. B. Hutchens  
August 4, 1982  
Page Three

8. BES's letter dated June 2, 1982.

9. Dr. Koogler's letter dated July 27, 1982.

This letter and attachments must be attached to your permit, No. AC 16-41114, and shall become a part of that permit.

Sincerely,

*Terry Cole* for  
Victoria J. Tschinkel  
Secretary

VJT/bmm

cc: John Koogler  
Jerry Woosley  
John Ketteringham  
Martha Harrell Hall

### Attachment 3

State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

## INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: District, Subdistrict and Local Program Engineers  
FROM: Ed Palagyi, <sup>EP</sup>BACT Coordinator  
DATE: July 21, 1981  
SUBJ: Amended BACT for Florida Steel Corporation

The attached revised BACT determination for subject applicant replaces the determination signed by the Secretary on May 20, 1981 and mailed out on May 21, 1981. Please discard the determination of May 20.

The change was semantic in nature, the term "Furnace Cupola" was changed to "shop-roof". This now corresponds with the NSPS definition (§60.271(M), Subpart AA).

EP:caa

# Best Available Control Technology (BACT) Determination

## Florida Steel Corporation

### Duval County, Florida

Florida Steel Corporation plans to modify its existing scrap steel reclamation facility located in Baldwin, Florida. Fuel oil burners will be added to the electric arc furnace to increase throughput from 35 to 71 tons per hour. The existing baghouse will be modified to handle the increase of particulate emissions. An afterburner will be used to control carbon monoxide emissions. The source will operate 7872 hours per year.

#### BACT Determination Requested by the Applicant:

<u>Pollutant</u>	<u>Emission Limit</u>
Particulate	8.0 lb/hr
SO <sub>2</sub>	20.0 lb/hr
NO <sub>x</sub>	1.1 lb/hr
CO	58.5 lb/hr

#### Date of Receipt of a Complete BACT Application:

April 22, 1981

#### Date of Publication in the Florida Administrative Weekly:

April 10, 1981

#### Review Group Members:

Comments were obtained from the New Source Review Section and the Air Quality Modeling Section.

#### BACT Determined by DER:

<u>Pollutant</u>	<u>Emission Limit</u>
Particulate	0.0052 grains/DSCF (8.0 lb/hr)
<u>Visible Emissions</u>	<u>Opacity</u>
Baghouse Effluent	Not to exceed 3%
Shop Roof - Charging Cycle	Not to exceed 20%
Shop Roof - Tapping Cycle	Not to exceed 40%
SO <sub>2</sub>	20 lb/hr (68 tons/year)
CO	58.5 lb/hr (198 tons/year)
NO <sub>x</sub>	1.1 lb/hr (4 tons/year)



Victoria Tschinkel  
Page Two


Justification of DER Determination:

The emission limits are equal to New Source Performance Standards (NSPS) Subpart AA. There have been no significant technology improvements to justify more stringent emission limits.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Recommended by:

  
HX Steve Smallwood, Chief, BAQM

Date:

July 21, 1981

Approved:

  
Victoria J. Tschinkel, Secretary

Date:

July 21, 1981

SS:dav

#### Attachment 4

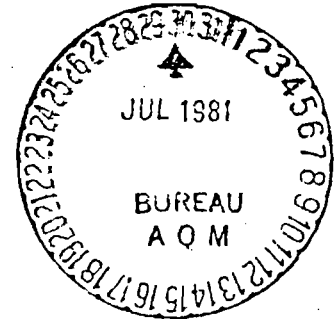


SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

*Bill  
Let's discuss  
clear*

SKEC 101-81-04

July 28, 1981



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

Re: Permit AC16-41114

Dear Mr. Fancy:

As consultants for the Florida Steel Corporation we are in receipt of a copy of the referenced permit and wish to bring up the following issues relative to the provisions of the same.

Provision No. 3 quotes a maximum allowable particulate emission of 8.0 pounds per hour. This figure is presumably a total emission based on the estimated flow rate through the system and the loading allowed under NSPS of 0.0052 grains per standard cubic foot. Throughout the permit it is evident that the Department wishes to track the NSPS performance for steel plants as quoted in 40 CFR 60, Subpart AA. In fact, this regulation is currently adopted by the State of Florida in Chapter 17-2.21. It is submitted that permit condition No. 3 is in conflict with this section. It is quite possible that the estimate of total air flow through the system is low for some reason, in which case the company could be in compliance with Chapter 17-2 but in violation of provision No. 3. It is requested that provision No. 3 be revised to read, "Maximum allowable particulate emissions will be 0.0052 gr/scf".

Provision No. 12 of the permit makes reference to sampling by EPA reference Methods 1, 2, 3, 5 and 9 or by another State approved method. In the past this facility, which is virtually the same configuration as will exist for this permit, has been sampled by a special procedure delineated by EPA in April, 1976. Annual emissions tests have been carried out under this procedure with the approval of the Jacksonville Bio-Environmental Services Division and presumably, FDER. It is presumed and hereby stated that these previously designated special procedures will be used in compliance with Provision 12. A copy of this special procedure is appended for your information.

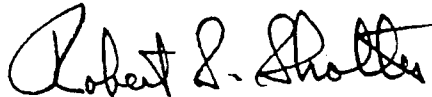
Provision 15 of the permit calls for stack sampling facilities to include an eye-bolt and angle described in Chapter 17-2.23. The physical configuration of these multiple outlets make compliance with this requirement almost impossible. The combination of physical configuration and adoption of special sampling methods as outlined above, we feel makes Provision 15 unnecessary and therefore should be removed.

The other permit provisions appear to be quite acceptable in terms of their reasonableness and the ability of the company to comply. As you probably know, this installation was the first electric arc furnace constructed under NSPS and already has the equipment required for continuous monitoring and other aspects of that regulation.

If you have any questions relative to this matter, please let me know.

Sincerely,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS



Robert S. Sholtes, Ph.D., P.E.

RSS:sc

cc: Mr. Robert Hutchens  
Mr. Robert S. Pace

OK BES  
8/7/81  
Steve P.



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## REGION IV

1421 PEACHTREE ST., N. E.  
ATLANTA, GEORGIA 30309

April 22, 1976

Robert S. Sholtes, Ph.D., P.E.  
Sholtes & Koogler  
Environmental Consultants  
Southern Environmental Associates  
1511 N.W. 6th Street  
Gainesville, Florida 32601

Dear Dr. Sholtes:

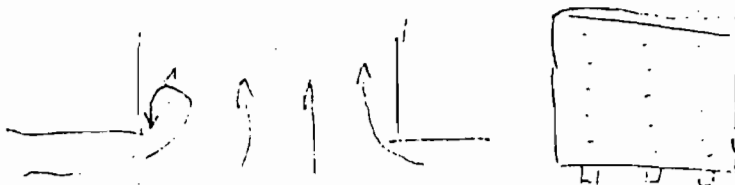
This is in answer to your letter of December 15, 1975, regarding compliance test procedures for the Florida Steel Corporation's new electric-arc furnace steel mill in Baldwin, Florida.

The situation has been reviewed and the following two options are available to you:

1. Test per the recommended alternate procedure. This will require special sampling precautions as stated below.
2. Add stack extension or duct to one common stack and test as required by Methods 1, 2, and 5.

If you opt to use the alternate procedure, it would essentially follow EPA Methods 1, 2, and 5 with the following changes and additions:

1. For information purposes, the stack gas flow patterns shall be determined prior to testing.
2. Sampling will be conducted with the nozzle facing into the direction of flow as determined from the gas flow pattern.
3. Subisokinetic sampling will be performed utilizing 24 sample points as established in Method 1 (use of 48 sample points would not be feasible since this would require a 3-inch test port to be placed every 3.5 inches.)



## Attachment 5

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM  
GOVERNOR  
VICTORIA J. TSCHINKEL  
SECRETARY

August 7, 1981

Dr. Robert S. Sholtes  
Sholtes & Koogler  
1213 N.W. 6th Street  
Gainesville, Florida 32601

Dear Dr. Sholtes:

RE: Permit - AC 16-41114

In response to your comments of July 28, 1981, the following changes will be acknowledged:

1. Provision No. 3 will read: Maximum allowable particulate emissions will be 0.0052 gr/dscf, not to exceed 8.0 lb/hr.
2. The following will be added to Provision No. 12: An EPA compliance test procedure for particulate was transmitted on April 22, 1976, to Florida Steel Corporation as an approved option. This procedure is not a substitute for Method No. 9. (The method will become an attachment and a part of the permanent record).
3. Provision No. 15 will be deleted.

Thank you for your comments. If I can be of further assistance or there are more questions, please call me at (904) 488-1344.

Sincerely,

  
Clair Fancy, P.E.  
Deputy Bureau Chief

CF:BM:dav

Attachment: April 22, 1976 letter and procedure

cc: R.B. Hutchens, Plant Manager - Fla. Steel  
Steve Pace, BES  
Johnny Cole, SJRS

PERMIT NO.: AC 16-41114  
APPLICANT: Florida Steel Corporation

SPECIFIC CONDITIONS:

1. Maximum operation time will be 328 production days per year at 20.65 production hours per day.
2. Maximum process input rate will be 145,262 pounds per hour (lbs./hr.) and 483,705 tons per year (TPY). Maximum product weight will be 65 billet tons per hour (bTPH) and 440,172 bTPY.
3. Maximum allowable particulate emissions will be 0.0052 gr/dscf, not to exceed 8.0 lbs/hr.
4. Maximum allowable carbon monoxide emissions will be 58.5 lbs./hr.
5. Maximum allowable sulfur dioxide emissions will be 20.0 lbs./hr.
6. Maximum allowable nitrogen oxide emissions will be 1.1 lbs./hr.
7. Visible emissions shall not exceed: a) 3% from the baghouse, b) 20% from the shop roof during charging, and c) 40% from the shop roof during tapping.
8. Particulate emissions of the source shall be continuously monitored in accordance with the provisions of Paragraph 60.273 and 60.274 of 40 CFR 60, Subpart AA-Standards of Performance for Steel Plants: Electric Arc Furnaces. The applicant shall also comply with all other applicable requirements of 40 CFR, Subpart AA. Quarterly reports of excess emissions from this facility will be submitted to Duval County's Bio-Environmental Services.
9. Particulate emissions of the source shall be tested in accordance with the provisions of Paragraph 60.275 of 40 CFR 60, Subpart AA-Standards of Performance for Steel Plants: Electric Arc Furnaces. Annual test data from this facility will be submitted to Duval County's Bio-Environmental Services.
10. Construction/modification shall reasonably conform to the plans submitted in the application.
11. The applicant shall report any delays in construction and completion of these modifications to the Duval County's Bio-Environmental Services.
12. Before this construction/modification permit expires, the baghouse and roof monitors will be tested for visible emissions and stack tests will be run for particulate. Test procedures will be EPA reference methods 1, 2, 3, 5, and 9 as published in 40 CFR 60, Appendix A, dated July 1, 1978, or by any other state-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart AA. The Department and Bio-Environmental



PERMIT NO.: AC 16-41114  
APPLICANT: Florida Steel Corporation

SPECIFIC CONDITIONS:

1. Maximum operation time will be 328 production days per year at 20.65 production hours per day.
2. Maximum process input rate will be 145,262 pounds per hour (lbs./hr.) and 483,705 tons per year (TPY). Maximum product weight will be 65 billet tons per hour (BTPH) and 440,172 bTPY.
3. Maximum allowable particulate emissions will be 0.0052 gr/dscf, not to exceed 8.0 lbs/hr.
4. Maximum allowable carbon monoxide emissions will be 58.5 lbs./hr.
5. Maximum allowable sulfur dioxide emissions will be 20.0 lbs./hr.
6. Maximum allowable nitrogen oxide emissions will be 1.1 lbs./hr.
7. Visible emissions shall not exceed: a) 3% from the baghouse, b) 20% from the shop roof during charging, and c) 40% from the shop roof during tapping.
8. Particulate emissions of the source shall be continuously monitored in accordance with the provisions of Paragraph 60.273 and 60.274 of 40 CFR 60, Subpart AA-Standards of Performance for Steel Plants: Electric Arc Furnaces. The applicant shall also comply with all other applicable requirements of 40 CFR, Subpart AA. Quarterly reports of excess emissions from this facility will be submitted to Duval County's Bio-Environmental Services.
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10. Construction/modification shall reasonably conform to the plans submitted in the application.
11. The applicant shall report any delays in construction and completion of these modifications to the Duval County's Bio-Environmental Services.
12. Before this construction/modification permit expires, the baghouse and roof monitors will be tested for visible emissions and stack tests will be run for particulate. Test procedures will be EPA reference methods 1, 2, 3, 5, and 9 as published in 40 CFR 60, Appendix A, dated July 1, 1978, or by any other state-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart AA. The Department and Bio-Environmental

## Attachment 6



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1213 N.W. 6th Street

Gainesville, Florida 32601

(904) 377-5822

April 30, 1982

*Patricia Bruce*  
Mr. Clair Fancy  
Florida Department of Environmental  
Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32301

Subject: Florida Steel Corporation  
Baldwin, Florida  
AC16-41114

Dear Mr. Fancy:

On July 20, 1981, the subject Air Pollution Source Construction Permit was issued to the Florida Steel Corporation for the modification of an electric arc furnace and the associated air pollution control equipment at the Florida Steel Baldwin Mill located in Baldwin, Duval County, Florida. The modification included upgrading the electric arc furnace to increase the capacity from 32 tons per hour to 65 tons per hour of billet steel. This was accomplished by adding four oxygen-fuel burners in the walls of the existing furnace. In addition to the furnace modifications, the fabric filter serving the electric arc furnace building was upgraded and steps were taken to reduce fugitive particulate emissions and carbon monoxide emissions. These modifications have been completed and the emission measurements required by the construction permit have recently been made. These measurements show that the modified furnace is operating within the emission limits established by the construction permit.

In the construction permit application it was stated that the oxygen-fuel burners in the electric arc furnace would be fired with No. 4 oil with a 0.7 percent sulfur content. The maximum fuel use rate was stated to be 186 gallons per hour and the average fuel rate was stated to be 110 gallons per hour. In the permit issued by FDER, there is no specific condition addressing the fuel use rate or the type of fuel. There is the general statement however, that "construction/modifications shall be in accordance with the permit applications and plans . .".

Subsequent to the permitting activities, Florida Steel Corporation has discovered a reliable source of reclaimed lubricating oil and a source of crude sulfate of turpentine (a combustible material remaining after the distillation of pine tars). Both of these materials can be

used by Florida Steel to provide the auxillary heat added to the electric arc furnace through the oxygen-fuel burners. The purpose of this letter is to request the necessary permit modifications to allow the use of these two alternative fuels to provide part of the auxillary heating requirements for the electric arc furnace. At present, there is not an adequate supply of these alternative fuels available to supply all of the auxillary heat. The presently permitted No. 4 fuel oil will be used when the alternative fuels are not available.

Florida Steel is of the opinion that the combustion of these waste products in the electric arc furnace is an ideal way to both dispose of the materials and to recover the heating value of the materials thus conserving virgin fuels. Regarding the reclaimed lubricating oils, the steel scrap melted in the electric arc furnace by Florida Steel is derived primarily from junked automobiles. The combustion of the lubricating oils, while adding some metals, will therefore not result in the addition to the system of any contaminants which are not already present. In addition, emissions from the electric arc furnace are controlled with a fabric filter which reduce the particulate matter in the exhaust gas stream to less than 0.0052 grains per standard cubic foot. This control device will also be effective for removing the metal oxide contaminants that result from the combustion of the reclaimed lubricating oil at approximately the same 95.8 percent efficiency that was estimated for the fabric filter performance.

Regarding the crude sulfate of turpentine, the gas stream exhausted from the fourth hole vent on the furnace is at a temperature of 3200°F. This temperature is more than adequate to completely combust the organics present in this material and eliminate the possibility of nuisance odors resulting from the combustion of this material.

The one contaminant in fuel oil that was addressed in the permit application was sulfur. The fuel that is permitted for use has a 0.7 percent sulfur content. The reclaimed lubricating fuel oil proposed by Florida Steel has a typical sulfur content of 0.5 percent and the crude sulfate of turpentine has a typical sulfur content of 0.24 percent. Both of these sulfur contents are significantly lower than the sulfur content of the permitted fuel.

In Attachment 1 the maximum fuel use rates are calculated for the permitted fuel and the two proposed fuels. Based on these maximum permitted use fuel rates, the potential air pollutant emission rates are calculated for the various contaminants that are found in the proposed fuels. Then, based on the efficiency of the fabric filter, the actual air pollutant emission rates are calculated for the various contaminants found in the proposed fuels and these emission rates are compared with emission rates existing under presently permitted conditions.

To summarize the emission data presented in Attachment 1, the maximum sulfur dioxide emission rate from the electric arc furnace under permitted conditions is 20.0 pounds per hour. With the use of reclaimed lubricating oil the maximum sulfur dioxide emission rate will be 15.3 pounds per hour and with the use of crude sulfate of turpentine the sulfur dioxide emission rate will be 7.3 pounds per hour. The emission rate of various particulate air pollutants that will result from the combustion of the reclaimed lubricating oil will range from 0.06 pounds per hour for lead to less than 0.001 pounds per hour for vanadium, nickel and chromium. These emission rate increases range from less than one percent to approximately 23 percent of the current existing emission rates.

Attachment 2 contains an analysis of a typical reclaimed lubricating oil and an analysis of the crude sulfate of turpentine.

Another matter which needs to be addressed if the alternative fuels are to be used is the storage and feed of these fuels. Presently the Florida Steel Corporation used the No. 4 fuel oil with the 0.7 percent sulfur content for providing the auxillary heat to the electric arc furnace and also for firing the billet reheat furnace. If the use of the reclaimed lubricating oil and crude sulfate of turpentine is approved, the Florida Steel Corporation will install separate storage tanks and feed lines for these fuels. These systems will be set-up in such a way to insure that the No. 4 fuel oil is not contaminated and to assure that there is no way possible for these alternative fuels to be used in the billet reheat furnace.

In summary, the Florida Steel Corporation is of the opinion that the use of the reclaimed lubricating oil and crude sulfate of turpentine in the oxygen-fuel burners of the electric arc furnace is an ideal way to dispose of these materials while reclaiming the heating value of the fuels. This practice will not only dispose of a contaminated waste but will also conserve virgin fuels. The combustion of the two alternative fuels in the electric arc furnace adds no contaminants that are not already present in the furnace and, in fact, will reduce the amount of sulfur input to the system. This, in turn, will reduce the sulfur dioxide emissions from the system. Furthermore, the fabric filter used for controlling the particulate matter emissions from the electric arc furnace will be effective for controlling the heavy metal oxides formed during the combustion of the reclaimed lubricating oils. The degree of control expected of the fabric filter is 95 to 96 percent. The high temperatures experienced in the furnace and the gases exhausted from the air furnace (3200° + F) will be sufficient to completely combust the crude sulfate of turpentine thus eliminating the possibility of the emission of odorous compounds.

As discussed with Mr. Bill Thomas of your staff, the Florida Steel Corporation would appreciate your review of these materials and the incorporation of the provisions authorizing the use of these alternative fuels in the operating permit for the electric arc furnace. It is our understanding that this permit is presently being prepared by your staff.

If there are any questions regarding information contained herein or if we can provide additional information to facilitate your review of these materials, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS

  
John B. Koogler, Ph.D., P.E.

JBK:ls  
Attachments

cc: Mr. Jack Hilburn  
Mr. Lou Mustain  
Mr. Bob Hutchens

## ATTACHMENT 1

Maximum Fuel Oil Use:

Permitted

186 gal/hour of #4 fuel with 0.7% sulfur and a heating value of 148,000 BTU/gal

$$\begin{aligned}\text{Heat Input} &= 186 \times 148,000 \\ &= 27.5 \times 10^6 \text{ BTU/hr}\end{aligned}$$

Proposed

- 1) Reclaimed Lubricating Oil @ 140,000 BTU/gal and 7.5 lb/gal

$$\begin{aligned}\text{Fuel use rate} &= 27.5 \times 10^6 / 140,000 & 196 \div 65 = 3.0 \text{ gals/bT} \\ &= 196 \text{ gal/hr} \\ &= 1475 \text{ lb/hr}\end{aligned}$$

- 2) Crude Sulfate of Turpentine @ 136,000 BTU/gal and 7.6 lb/gal

$$\begin{aligned}\text{Fuel use rate} &= 27.5 \times 10^6 / 136,000 & 202 \div 65 = 3.1 \text{ gals/bT} \\ &= 202 \text{ gal/hr} \\ &= 1527 \text{ lb/hr}\end{aligned}$$

$$3 \text{ gals/bT} \times 65 \text{ bT} \times 7.5 \times 0.0052 \times 2 = 15.21 \text{ lbs/hr}$$

$$\times 20.65 \times 328 \div 2000 = 51.51 \text{ TPY}$$

$$3.1 \text{ " } \times 7.6 \times 0.0024 \times \text{ " } = 7.35 \text{ lbs/hr}$$

$$= 24.89 \text{ TPY}$$



Potential Air Pollutant Emissions - Proposed Fuels

## 1) Reclaimed Lubricating Oil

Contaminant	Conc In Oil (1)	Potential Emission Rate (lb/hr)(2)
Sulfur	0.52%	15.340 as SO <sub>2</sub>
Vanadium	5 ppm	0.007
Lead	900 ppm	1.328
Iron	200 ppm	0.295
Zinc	800 ppm	1.180
Nickel	4 ppm	0.006
Chromium	3 ppm	0.004
Calcium	300 ppm	0.443
Copper	150 ppm	0.221
Magnesium	50 ppm	0.074
Potassium	60 ppm	0.089
Sodium	440 ppm	0.649

(1) Concentration on weight basis

(2) Example calculation:

$$\begin{aligned}\text{Vanadium} &= (1475 \text{ lb/hr}/10^6) \times 5 \text{ ppm} \\ &= 0.007 \text{ lb/hr}\end{aligned}$$

## 2) Crude Sulfate of Turpentine

Contaminant	Conc. In Oil	Potential Emission Rate (lb/hr)
Sulfur	0.24%	7.33 as SO <sub>2</sub>

Actual Air Pollutant EmissionsParticulate Matter

Efficiency of bag-house, as assumed for PSD permitting, is 95.8% for particulate matter.

Contaminant	Particulate Matter Emission Rate	
	Reclaimed Lube Oil (lb/hr)	Permitted Conditions (1) (lb/hr)
Vanadium	<0.001	--
Lead	0.056	0.316
Iron	0.012	3.451
Zinc	0.050	0.405
Nickel	<0.001	0.002
Chromium	<0.001	0.004
Calcium	0.019	0.118
Copper	0.009	0.040
Magnesium	0.003	0.151
Potassium	0.004	--
Sodium	0.027	--

(1) Calculated on the basis of an 8.0 lb/hr emission rate of total particulate matter and the following analysis of bag-house dust:

Silicon	-	2.20%
Iron	-	43.11%
Calcium	-	1.48%
Magnesium	-	1.89%
Manganese	-	2.72%
Copper	-	0.50%
Chromium	-	0.05%
Nickel	-	0.02%
Zinc	-	5.06%
Lead	-	3.94%

Analysis based on 6/31/80 sample from Florida Steel, Baldwin, FL

Sulfur Dioxide

Assume no sulfur dioxide removal in bag-house

Permitted -  $186 \text{ gal/hr} \times 7.68 \text{ lb/gal} \times (0.007 \times 2) = 20.0 \text{ lb/hr}$

Reclaimed Lube Oil -  $1475 \text{ lb/hr} \times 0.0052 \text{ lb S/lb Oil} \times 2 = 15.3 \text{ lb/hr}$

Crude Sulfate of Turpentine -  $1527 \text{ lb/hr} \times 0.0024 \text{ lb S/lb Oil} \times 2 = 7.3 \text{ lb/hr}$

BEST AVAILABLE COPY

ATTACHMENT 2



BEST AVAILABLE COPY

ISO-CHEM MARKETING, INC.

March 19-82

Mr. Louis Mustain  
Florida Steel Corporation  
P.O. Box 23328  
Tampa, Florida 33623

RE: Alternate Fuel Samples

Dear Lou:

Enclosed are two (2) samples of Recycled Fuels for your evaluation. One, marked "Used Crankcase Oil" corresponds to the analysis we sent with our letter, dated 2-26-82. The other, labeled "Waste Hydrocarbon Fuel" is a derivative of Crude Sulphate of Turpentine fractionation. It is a C<sub>10</sub> Hydrocarbon, with the following characteristics:

Specific Gravity	0.9076
BTU/gal.	135,968
Flash Point	114°F
API (60°F)	24.4
Viscosity (100°F)	46.4 SSU
Sulphur	0.24%
Ash	0.061%

This product is available on a continuous basis at a rate of about 25,000 gallons per month. The current price is \$0.40/gallon, FOB Jacksonville. You may want to consider a blend of these two products.

Please advise us upon completion of your analysis, so that we may setup a plant trial. We appreciate the opportunity to present our products to Florida Steel.

Very truly yours,

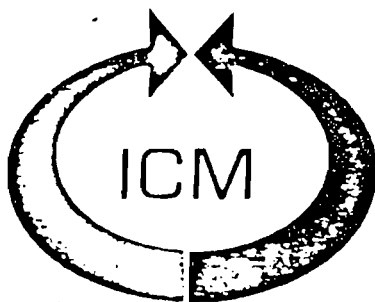
*Anthony L. Tripi*  
ANTHONY L. TRIPI  
President

Enclosure

ALT:sg

"Serving you today, for the Conservation of Tomorrow"

PO Box 1268 - Orange Park FL 32073 - (904) 264-0070



ISO-CHEM MARKETING, INC.

## RECLAIMED LUBE OIL

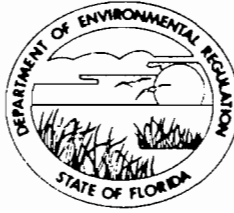
Typical Analysis  
 (Not Guaranteed)

Specific Gravity 60/60 °F -----	7.5 lbs./gal
Heat of Combustion -----	140 M BTU/gal.
Water -----	6% max.
Sulfur -----	0.52%
Ash -----	0.5%
Vanadium -----	5 ppm
Lead -----	900 ppm
Iron -----	200 ppm
Zinc -----	800 ppm
Nickel -----	4 ppm
Chromium -----	3 ppm
Calcium -----	300 ppm
Copper -----	150 ppm
Magnesium -----	50 ppm
Potassium -----	60 ppm
Sodium -----	440 ppm

Attachment 7

STATE OF FLORIDA  
**DEPARTMENT OF ENVIRONMENTAL REGULATION**

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

May 21, 1982

Dr. John Koogler, P.E.  
Sholtes & Koogler, Environmental Consultants  
1213 NW 6th Street  
Gainesville, Florida 32601

Dear Dr. Koogler:

The Department has received your request for Florida Steel Corporation's Baldwin mill to amend the State Construction and Federal PSD permits to permit the existing electric arc furnace (EAF) to fire exclusively No. 4 New Fuel Oil, reclaimed lubricating oil, and crude sulfate of turpentine, with maximum content of 0.7%, 0.52%, and 0.24% sulfur by weight, respectively. Also, it was indicated that a separate storage tank per fuel type would be installed.

A copy of the request was sent to Bio-Environmental Services (BES) of Jacksonville and DER's St. Johns River Subdistrict Office.

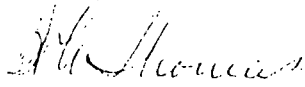
Because of the odors released by the crude sulfate of turpentine (CST), it is requested that a control strategy for odor control be addressed concerning:

- 1) Emissions when loading the storage tank from railcars,
- 2) Any storage tank venting, and
- 3) Emissions when delivering the fuel to the EAF.

Dr. John Koogler, P.E.  
Page Two  
May 21, 1982

If there are any questions, please write to me at the  
above address or call Bruce Mitchell at (904) 488-1344.

Sincerely,



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

CHF/RBM/bjm

cc: Jerry Woosley, BES  
John Ketteringham, SFRSD  
Bob Hutchens, Florida Steel Corporation



Attachment 8

DEPARTMENT OF HEALTH, WELFARE  
& BIO-ENVIRONMENTAL SERVICES  
Bio-Environmental Services Division  
Air and Water Pollution Control

June 2, 1982

Rec'd  
6/14/82  
WPC/PA



Mr. Bob Hutchens  
Florida Steel Corporation  
Jacksonville Steel Mill Division  
Highway 217 Yellow Water Road  
P. O. Box 518  
Baldwin, Florida 32234

Re: Electric Arc Furnace Application No. 55484

Dear Mr. Hutchens:

Your application for a permit to construct/operate an air pollution source is being held in abeyance pending receipt of the following information:

- \_\_\_\_\_ 1. Check for \$20.00 made payable to the Florida Department of Environmental Regulation.
- \_\_\_\_\_ 2. An 8½" x 11" plot plan for industry showing the location of manufacturing processes and airborne emissions related to flow diagram.
- \_\_\_\_\_ 3. An 8½" x 11" plot plan of industry showing exact location of industry and related surrounding area.
- \_\_\_\_\_ 4. Results of a test of the visible emissions.
- \_\_\_\_\_ 5. Results of Stack tests of the emissions.
- X \_\_\_\_\_ 6. Others Revised Construction Permit concerning the use of  
crude sulphate turpentine and reclaimed lubricating  
oil as fuel in the EAF.

Your application cannot be processed until the above mentioned information is forwarded to this office. Therefore, please submit the information to this office by July 15, 1982. If you have any questions concerning this matter, please contact this office.

Very truly yours,

Jerry E. Woosley  
Assistant Engineer

JEW /kdw


cc: Dr. John Koogler  
cc: Bruce Mitchell (DER)



Attachment 9



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

  
SKEC 101-82-09

July 27, 1982

Mr. Clair H. Fancy  
Deputy Bureau Chief  
Bureau of Air Quality Management  
Florida Department of  
Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32301

Subject: Florida Steel Corporation  
Duval County  
Electric Arc Furnace Operating Permit

Dear Mr. Fancy:

I have discussed with representatives of Florida Steel Corporation, the concerns you raised regarding potential nuisance odors resulting from the requested use of crude sulfate of turpentine as an alternative auxiliary fuel in the modified electric arc furnace located at the Florida Steel Baldwin mill. The concerns addressed in your correspondence, and by Mr. Jerry Woosley of the Duval County Bio-Environmental Services Division, are: (1) odors resulting from the transfer of the crude sulfate of turpentine from delivery trucks to the storage tank; (2) odors released from the storage tank due to tank venting; and (3) odors released during the delivery of the crude sulfate of turpentine to the electric arc furnace.

The Florida Steel Corporation will take the following steps to minimize the release of odorous compounds during the handling of the crude sulfate of turpentine:

1. Transfer from delivery vehicle to storage tanks - Crude sulfate of turpentine will be delivered to the Florida Steel Baldwin mill by tank truck. A discharge hose from the tank truck will be connected directly to a receiving line which will deliver the crude sulfate of turpentine to a storage tank which will be used exclusively for this fuel. The transfer area is paved, curbed and filled with sand. Minor spills of crude sulfate of turpentine resulting when the discharge hose from the truck is disconnected from the receiving line, will be contained within this area. If odors resulting from spilled crude sulfate of turpentine become a problem in this area, the sand will be excavated and appropriately disposed of and fresh sand will be placed in the receiving area.

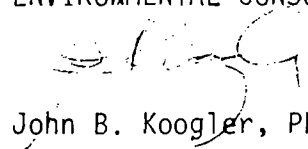
2. Storage tank venting - The storage tank vent from the tank storing the crude sulfate of turpentine will be fitted with an activated charcoal filter that will absorb odorous compounds vented from the storage tank. Typically the activated charcoal filter will consist of a drum of activated carbon with the vent line from the storage tank entering at the bottom and the discharge being located at the top. This filter will be replaced when the absorption capacity is depleted.
3. The delivery of the crude sulfate of turpentine to the electric arc furnace will be through a completely closed system. There will be no potential for leaks in the system and, hence, no potential for the release of odorous compounds.

In addition to the steps outlined above for the control of odorous compounds during the handling of the crude sulfate of turpentine, the Florida Steel Corporation will take the necessary precautions to ensure that the crude sulfate of turpentine and the reclaimed lubricating oil (which is also a requested alternative auxiliary fuel) will not contaminate one another and will not contaminate virgin fuel oil which is also used to provide auxiliary heat to the electric arc furnace and to fire the billet reheat furnace at the Baldwin mill.

If there are further questions regarding the precautions that Florida Steel will take regarding these matters, or if additional information is needed, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS, INC.



John B. Koogler, Ph.D., P.E.

JBK:sc

cc: Mr. Jerry Woosley  
Mr. John Ketteringham  
Mr. Robert B. Hutchens  
Mr. Lou Mustain  
Mr. Jack Hilburn



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1213 N.W. 6th Street

Gainesville, Florida 32601

(904) 377-5822

April 30, 1982

*Bill*  
*Bruce*  
Mr. Clair Fancy  
Florida Department of Environmental  
Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32301

Subject: Florida Steel Corporation  
Baldwin, Florida  
AC16-41114

Dear Mr. Fancy:

On July 20, 1981, the subject Air Pollution Source Construction Permit was issued to the Florida Steel Corporation for the modification of an electric arc furnace and the associated air pollution control equipment at the Florida Steel Baldwin Mill located in Baldwin, Duval County, Florida. The modification included upgrading the electric arc furnace to increase the capacity from 32 tons per hour to 65 tons per hour of billet steel. This was accomplished by adding four oxygen-fuel burners in the walls of the existing furnace. In addition to the furnace modifications, the fabric filter serving the electric arc furnace building was upgraded and steps were taken to reduce fugitive particulate emissions and carbon monoxide emissions. These modifications have been completed and the emission measurements required by the construction permit have recently been made. These measurements show that the modified furnace is operating within the emission limits established by the construction permit.

In the construction permit application it was stated that the oxygen-fuel burners in the electric arc furnace would be fired with No. 4 oil with a 0.7 percent sulfur content. The maximum fuel use rate was stated to be 186 gallons per hour and the average fuel rate was stated to be 110 gallons per hour. In the permit issued by FDER, there is no specific condition addressing the fuel use rate or the type of fuel. There is the general statement however, that "construction/modifications shall be in accordance with the permit applications and plans . . .".

Subsequent to the permitting activities, Florida Steel Corporation has discovered a reliable source of reclaimed lubricating oil and a source of crude sulfate of turpentine (a combustible material remaining after the distillation of pine tars). Both of these materials can be

used by Florida Steel to provide the auxillary heat added to the electric arc furnace through the oxygen-fuel burners. The purpose of this letter is to request the necessary permit modifications to allow the use of these two alternative fuels to provide part of the auxillary heating requirements for the electric arc furnace. At present, there is not an adequate supply of these alternative fuels available to supply all of the auxillary heat. The presently permitted No. 4 fuel oil will be used when the alternative fuels are not available.

Florida Steel is of the opinion that the combustion of these waste products in the electric arc furnace is an ideal way to both dispose of the materials and to recover the heating value of the materials thus conserving virgin fuels. Regarding the reclaimed lubricating oils, the steel scrap melted in the electric arc furnace by Florida Steel is derived primarily from junked automobiles. The combustion of the lubricating oils, while adding some metals, will therefore not result in the addition to the system of any contaminants which are not already present. In addition, emissions from the electric arc furnace are controlled with a fabric filter which reduce the particulate matter in the exhaust gas stream to less than 0.0052 grains per standard cubic foot. This control device will also be effective for removing the metal oxide contaminants that result from the combustion of the reclaimed lubricating oil at approximately the same 95.8 percent efficiency that was estimated for the fabric filter performance.

Regarding the crude sulfate of turpentine, the gas stream exhausted from the fourth hole vent on the furnace is at a temperature of 3200°F. This temperature is more than adequate to completely combust the organics present in this material and eliminate the possibility of nuisance odors resulting from the combustion of this material.

The one contaminant in fuel oil that was addressed in the permit application was sulfur. The fuel that is permitted for use has a 0.7 percent sulfur content. The reclaimed lubricating fuel oil proposed by Florida Steel has a typical sulfur content of 0.5 percent and the crude sulfate of turpentine has a typical sulfur content of 0.24 percent. Both of these sulfur contents are significantly lower than the sulfur content of the permitted fuel.

In Attachment 1 the maximum fuel use rates are calculated for the permitted fuel and the two proposed fuels. Based on these maximum permitted use fuel rates, the potential air pollutant emission rates are calculated for the various contaminants that are found in the proposed fuels. Then, based on the efficiency of the fabric filter, the actual air pollutant emission rates are calculated for the various contaminants found in the proposed fuels and these emission rates are compared with emission rates existing under presently permitted conditions.

To summarize the emission data presented in Attachment 1, the maximum sulfur dioxide emission rate from the electric arc furnace under permitted conditions is 20.0 pounds per hour. With the use of reclaimed lubricating oil the maximum sulfur dioxide emission rate will be 15.3 pounds per hour and with the use of crude sulfate of turpentine the sulfur dioxide emission rate will be 7.3 pounds per hour. The emission rate of various particulate air pollutants that will result from the combustion of the reclaimed lubricating oil will range from 0.06 pounds per hour for lead to less than 0.001 pounds per hour for vanadium, nickel and chromium. These emission rate increases range from less than one percent to approximately 23 percent of the current existing emission rates.

Attachment 2 contains an analysis of a typical reclaimed lubricating oil and an analysis of the crude sulfate of turpentine.

Another matter which needs to be addressed if the alternative fuels are to be used is the storage and feed of these fuels. Presently the Florida Steel Corporation used the No. 4 fuel oil with the 0.7 percent sulfur content for providing the auxillary heat to the electric arc furnace and also for firing the billet reheat furnace. If the use of the reclaimed lubricating oil and crude sulfate of turpentine is approved, the Florida Steel Corporation will install separate storage tanks and feed lines for these fuels. These systems will be set-up in such a way to insure that the No. 4 fuel oil is not contaminated and to assure that there is no way possible for these alternative fuels to be used in the billet reheat furnace.

In summary, the Florida Steel Corporation is of the opinion that the use of the reclaimed lubricating oil and crude sulfate of turpentine in the oxygen-fuel burners of the electric arc furnace is an ideal way to dispose of these materials while reclaiming the heating value of the fuels. This practice will not only dispose of a contaminated waste but will also conserve virgin fuels. The combustion of the two alternative fuels in the electric arc furnace adds no contaminants that are not already present in the furnace and, in fact, will reduce the amount of sulfur input to the system. This, in turn, will reduce the sulfur dioxide emissions from the system. Furthermore, the fabric filter used for controlling the particulate matter emissions from the electric arc furnace will be effective for controlling the heavy metal oxides formed during the combustion of the reclaimed lubricating oils. The degree of control expected of the fabric filter is 95 to 96 percent. The high temperatures experienced in the furnace and the gases exhausted from the air furnace (3200° + F) will be sufficient to completely combust the crude sulfate of turpentine thus eliminating the possibility of the emission of odorous compounds.

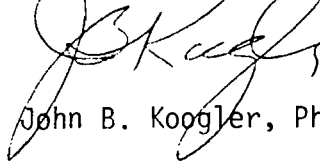


As discussed with Mr. Bill Thomas of your staff, the Florida Steel Corporation would appreciate your review of these materials and the incorporation of the provisions authorizing the use of these alternative fuels in the operating permit for the electric arc furnace. It is our understanding that this permit is presently being prepared by your staff.

If there are any questions regarding information contained herein or if we can provide additional information to facilitate your review of these materials, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS



John B. Koogler, Ph.D., P.E.

JBK:ls  
Attachments

cc: Mr. Jack Hilburn  
Mr. Lou Mustain  
Mr. Bob Hutchens

## ATTACHMENT 1

Maximum Fuel Oil Use:

Permitted

186 gal/hour of #4 fuel with 0.7% sulfur and a heating value of 148,000 BTU/gal

$$\begin{aligned}\text{Heat Input} &= 186 \times 148,000 \\ &= 27.5 \times 10^6 \text{ BTU/hr}\end{aligned}$$

Proposed

- 1) Reclaimed Lubricating Oil @ 140,000 BTU/gal  
and 7.5 lb/gal

$$\begin{aligned}\text{Fuel use rate} &= 27.5 \times 10^6 / 140,000 \\ &= 196 \text{ gal/hr} \\ &= 1475 \text{ lb/hr}\end{aligned}$$

- 2) Crude Sulfate of Turpentine @ 136,000 BTU/gal  
and 7.6 lb/gal

$$\begin{aligned}\text{Fuel use rate} &= 27.5 \times 10^6 / 136,000 \\ &= 202 \text{ gal/hr} \\ &= 1527 \text{ lb/hr}\end{aligned}$$

## Potential Air Pollutant Emissions - Proposed Fuels

### 1) Reclaimed Lubricating Oil

Contaminant	Conc In Oil (1)	Potential Emission Rate (lb/hr)(2)
Sulfur	0.52%	15.340 as SO <sub>2</sub>
Vanadium	5 ppm	0.007
Lead	900 ppm	1.328
Iron	200 ppm	0.295
Zinc	800 ppm	1.180
Nickel	4 ppm	0.006
Chromium	3 ppm	0.004
Calcium	300 ppm	0.443
Copper	150 ppm	0.221
Magnesium	50 ppm	0.074
Potassium	60 ppm	0.089
Sodium	440 ppm	0.649

(1) Concentration on weight basis

(2) Example calculation:

$$\begin{aligned}\text{Vanadium} &= (1475 \text{ lb/hr}/10^6) \times 5 \text{ ppm} \\ &= 0.007 \text{ lb/hr}\end{aligned}$$

### 2) Crude Sulfate of Turpentine

Contaminant	Conc. In Oil	Potential Emission Rate (lb/hr)
Sulfur	0.24%	7.33 as SO <sub>2</sub>

## Actual Air Pollutant Emissions

### Particulate Matter

Efficiency of bag-house, as assumed for PSD permitting, is 95.8% for particulate matter.

Contaminant	Particulate Matter Emission Rate	
	Reclaimed Lube Oil (lb/hr)	Permitted Conditions (1) (lb/hr)
Vanadium	<0.001	--
Lead	0.056	0.316
Iron	0.012	3.451
Zinc	0.050	0.405
Nickel	<0.001	0.002
Chromium	<0.001	0.004
Calcium	0.019	0.118
Copper	0.009	0.040
Magnesium	0.003	0.151
Potassium	0.004	--
Sodium	0.027	--

(1) Calculated on the basis of an 8.0 lb/hr emission rate of total particulate matter and the following analysis of bag-house dust:

Silicon	-	2.20%
Iron	-	43.11%
Calcium	-	1.48%
Magnesium	-	1.89%
Manganese	-	2.72%
Copper	-	0.50%
Chromium	-	0.05%
Nickel	-	0.02%
Zinc	-	5.06%
Lead	-	3.94%

Analysis based on 6/31/80 sample from Florida Steel, Baldwin, FL

### Sulfur Dioxide

Assume no sulfur dioxide removal in bag-house

Permitted -  $186 \text{ gal/hr} \times 7.68 \text{ lb/gal} \times (0.007 \times 2) = 20.0 \text{ lb/hr}$

Reclaimed Lube Oil -  $1475 \text{ lb/hr} \times 0.0052 \text{ lb S/lb Oil} \times 2 = 15.3 \text{ lb/hr}$

Crude Sulfate of Turpentine -  $1527 \text{ lb/hr} \times 0.0024 \text{ lb S/lb Oil} \times 2 = 7.3 \text{ lb/hr}$

## ATTACHMENT 2



ISO-CHEM MARKETING, INC.

March 19-82

Mr. Louis Mustain  
Florida Steel Corporation  
P.O. Box 23328  
Tampa, Florida 33623

RE: Alternate Fuel Samples

Dear Lou:

Enclosed are two (2) samples of Recycled Fuels for your evaluation. One, marked "Used Crankcase Oil" corresponds to the analysis we sent with our letter, dated 2-26-82. The other, labeled "Waste Hydrocarbon Fuel" is a derivative of Crude Sulphate of Turpentine fractionation. It is a C<sub>10</sub> Hydrocarbon, with the following characteristics:

Specific Gravity	0.9076
BTU/gal.	135,968
Flash Point	114°F
API (60°F)	24.4
Viscosity (100°F)	46.4 SSU
Sulphur	0.24%
Ash	0.061%

This product is available on a continuous basis at a rate of about 25,000 gallons per month. The current price is \$0.40/gallon, FOB Jacksonville. You may want to consider a blend of these two products.

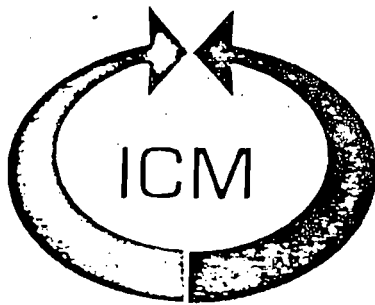
Please advise us upon completion of your analysis, so that we may setup a plant trial. We appreciate the opportunity to present our products to Florida Steel.

Very truly yours,

*Anthony L. Tripi*  
ANTHONY L. TRIPI  
President

Enclosure

ALT:sg



ISO-CHEM MARKETING, INC.

RECLAIMED LUBE OIL

Typical Analysis  
(Not Guaranteed)

Specific Gravity 60/60 °F -----	7.5 lbs./gal
Heat of Combustion -----	140 M BTU/gal.
Water -----	6% max.
Sulfur -----	0.52%
Ash -----	0.5%
Vanadium -----	5 ppm
Lead -----	900 ppm
Iron -----	200 ppm
Zinc -----	800 ppm
Nickel -----	4 ppm
Chromium -----	3 ppm
Calcium -----	300 ppm
Copper -----	150 ppm
Magnesium -----	50 ppm
Potassium -----	60 ppm
Sodium -----	440 ppm

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P.O. Box 1268 • Orange Park, FL 32073 • (904) 264-0070





SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 101-81-04

July 28, 1981

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

Re: Permit AC16-41114

Dear Mr. Fancy:

As consultants for the Florida Steel Corporation we are in receipt of a copy of the referenced permit and wish to bring up the following issues relative to the provisions of the same.

Provision No. 3 quotes a maximum allowable particulate emission of 8.0 pounds per hour. This figure is presumably a total emission based on the estimated flow rate through the system and the loading allowed under NSPS of 0.0052 grains per standard cubic foot. Throughout the permit it is evident that the Department wishes to track the NSPS performance for steel plants as quoted in 40 CFR 60, Subpart AA. In fact, this regulation is currently adopted by the State of Florida in Chapter 17-2.21. It is submitted that permit condition No. 3 is in conflict with this section. It is quite possible that the estimate of total air flow through the system is low for some reason, in which case the company could be in compliance with Chapter 17-2 but in violation of provision No. 3. It is requested that provision No. 3 be revised to read, "Maximum allowable particulate emissions will be 0.0052 gr/scf".

Provision No. 12 of the permit makes reference to sampling by EPA reference Methods 1, 2, 3, 5 and 9 or by another State approved method. In the past this facility, which is virtually the same configuration as will exist for this permit, has been sampled by a special procedure delineated by EPA in April, 1976. Annual emissions tests have been carried out under this procedure with the approval of the Jacksonville Bio-Environmental Services Division and presumably, FDER. It is presumed and hereby stated that these previously designated special procedures will be used in compliance with Provision 12. A copy of this special procedure is appended for your information.

Mr. Clair Fancy  
Department of Environmental Regulation

July 28, 1981  
Page two

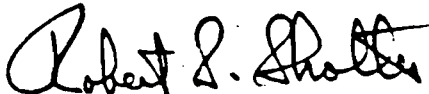
Provision 15 of the permit calls for stack sampling facilities to include an eye-bolt and angle described in Chapter 17-2.23. The physical configuration of these multiple outlets make compliance with this requirement almost impossible. The combination of physical configuration and adoption of special sampling methods as outlined above, we feel makes Provision 15 unnecessary and therefore should be removed.

The other permit provisions appear to be quite acceptable in terms of their reasonableness and the ability of the company to comply. As you probably know, this installation was the first electric arc furnace constructed under NSPS and already has the equipment required for continuous monitoring and other aspects of that regulation.

If you have any questions relative to this matter, please let me know.

Sincerely,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS



Robert S. Sholtes, Ph.D., P.E.

RSS:sc

cc: Mr. Robert Hutchens  
Mr. Robert S. Pace

## INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To	Locn.	
To	Locn.	
To	Locn.	
From	Date	
Reply Optional <input type="checkbox"/>	Reply Required <input type="checkbox"/>	Info Only <input type="checkbox"/>
Date Due	Date Due	

TO: District, Subdistrict and Local Program Engineers  
FROM: Ed Palagyi, <sup>EP</sup>BACT Coordinator  
DATE: July 21, 1981  
SUBJ: Amended BACT for Florida Steel Corporation

The attached revised BACT determination for subject applicant replaces the determination signed by the Secretary on May 20, 1981 and mailed out on May 21, 1981. Please discard the determination of May 20.

The change was semantic in nature, the term "Furnace Cupola" was changed to "shop-roof". This now corresponds with the NSPS definition (§60.271(M), Subpart AA).

EP:caa



Best Available Control Technology (BACT) Determination

Florida Steel Corporation

Duval County, Florida

Florida Steel Corporation plans to modify its existing scrap steel reclamation facility located in Baldwin, Florida. Fuel oil burners will be added to the electric arc furnace to increase throughput from 35 to 71 tons per hour. The existing baghouse will be modified to handle the increase of particulate emissions. An afterburner will be used to control carbon monoxide emissions. The source will operate 7872 hours per year.

BACT Determination Requested by the Applicant:

<u>Pollutant</u>	<u>Emission Limit</u>
Particulate	8.0 lb/hr
SO <sub>2</sub>	20.0 lb/hr
NO <sub>x</sub>	1.1 lb/hr
CO	58.5 lb/hr

Date of Receipt of a Complete BACT Application:

April 22, 1981

Date of Publication in the Florida Administrative Weekly:

April 10, 1981

Review Group Members:

Comments were obtained from the New Source Review Section and the Air Quality Modeling Section.

BACT Determined by DER:

<u>Pollutant</u>	<u>Emission Limit</u>
Particulate	0.0052 grains/DSCF (8.0 lb/hr)
<u>Visible Emissions</u>	<u>Opacity</u>
Baghouse Effluent	Not to exceed 3%
Shop Roof - Charging Cycle	Not to exceed 20%
Shop Roof - Tapping Cycle	Not to exceed 40%
SO <sub>2</sub>	20 lb/hr (68 tons/year)
CO	58.5 lb/hr (198 tons/year)
NO <sub>x</sub>	1.1 lb/hr (4 tons/year)

Victoria Tschinkel  
Page Two

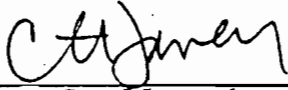
Justification of DER Determination:

The emission limits are equal to New Source Performance Standards (NSPS) Subpart AA. There have been no significant technology improvements to justify more stringent emission limits.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Recommended by:

  
HN Steve Smallwood, Chief, BAQM

Date:

July 21, 1981

Approved:

  
Victoria J. Tschinkel, Secretary

Date:

July 21, 1981

SS:dav



DIAGRAM II-A - MILL SITE LOCATIC  
SEC.35,-T-2S, R-23E, DUVAL CTY

Diagram II-B - SITE LAYOUT

DW WATER BODY

-30'

8.6 ACRE LAKE

4399.12'

SEWAGE TREATMENT  
PLANT AREA

FUTURE

FUTURE

FUTURE

FUTURE

FUTURE

TRAILER PARKING

WATER TOWER

SHIPPING OFFICE

ROLLING MILL

OFFICE

PILE STORAGE

SEWERS

WATER TOWER

ELECTRIC TOWER

BRICKWORK AREA

70' x 30'

SUB STATION

170' x 100'

SEAPORT COASTLINE R.R.

I

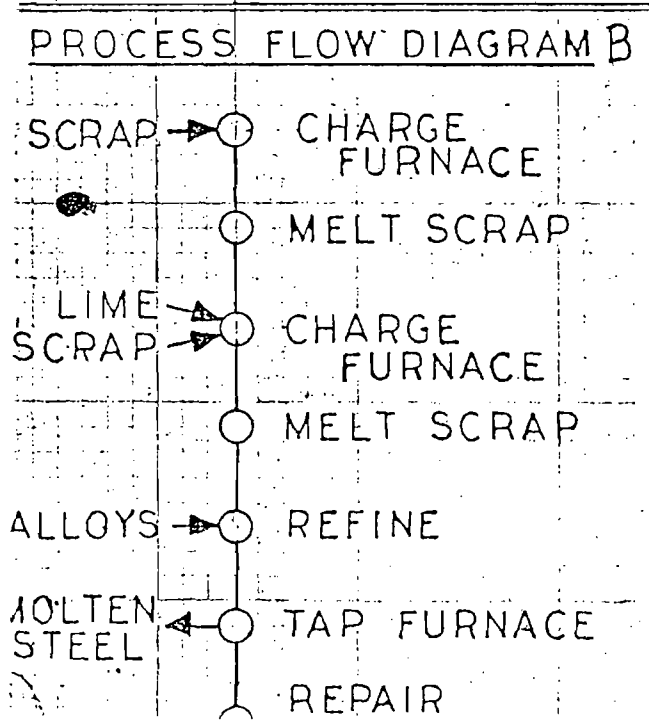
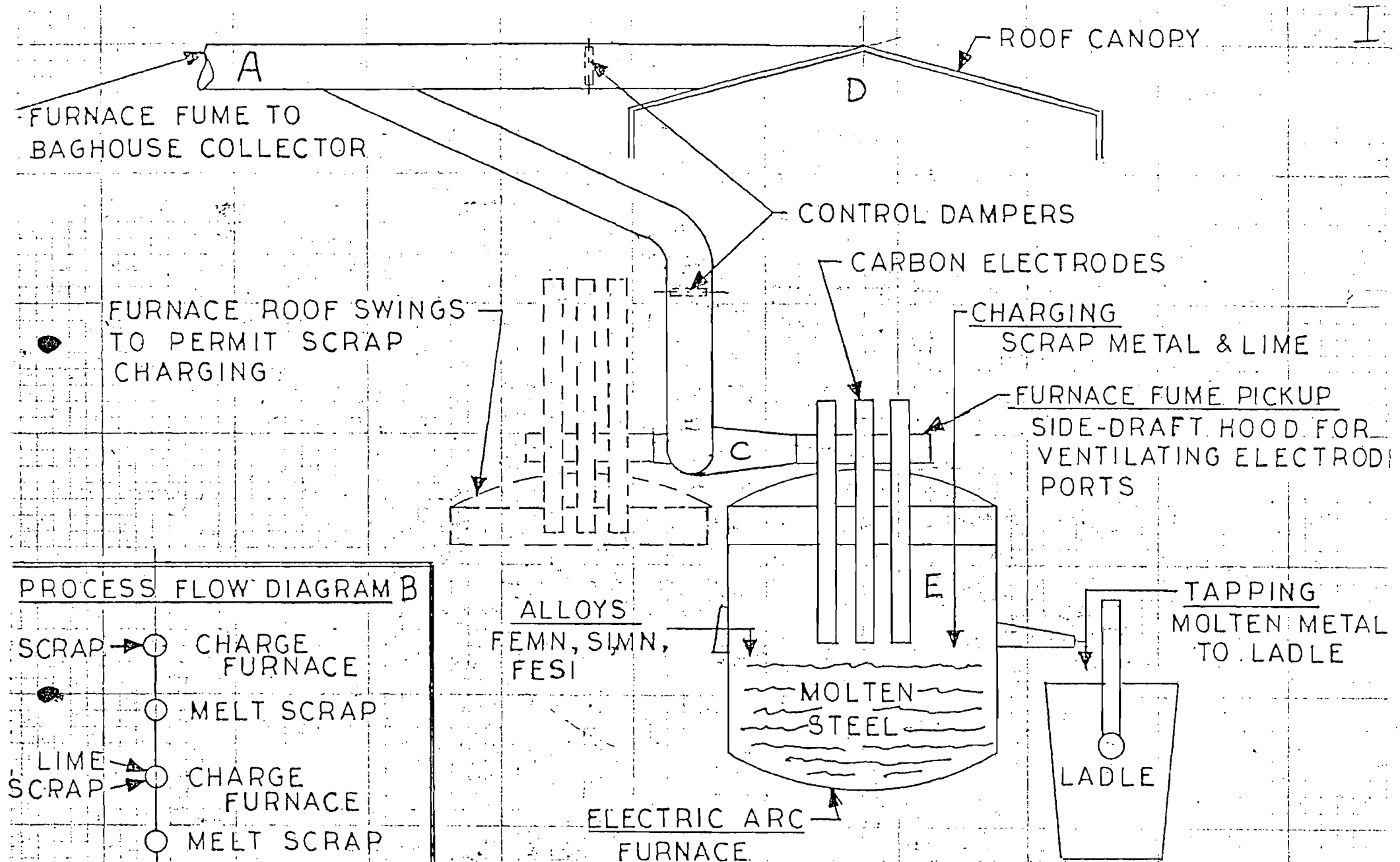
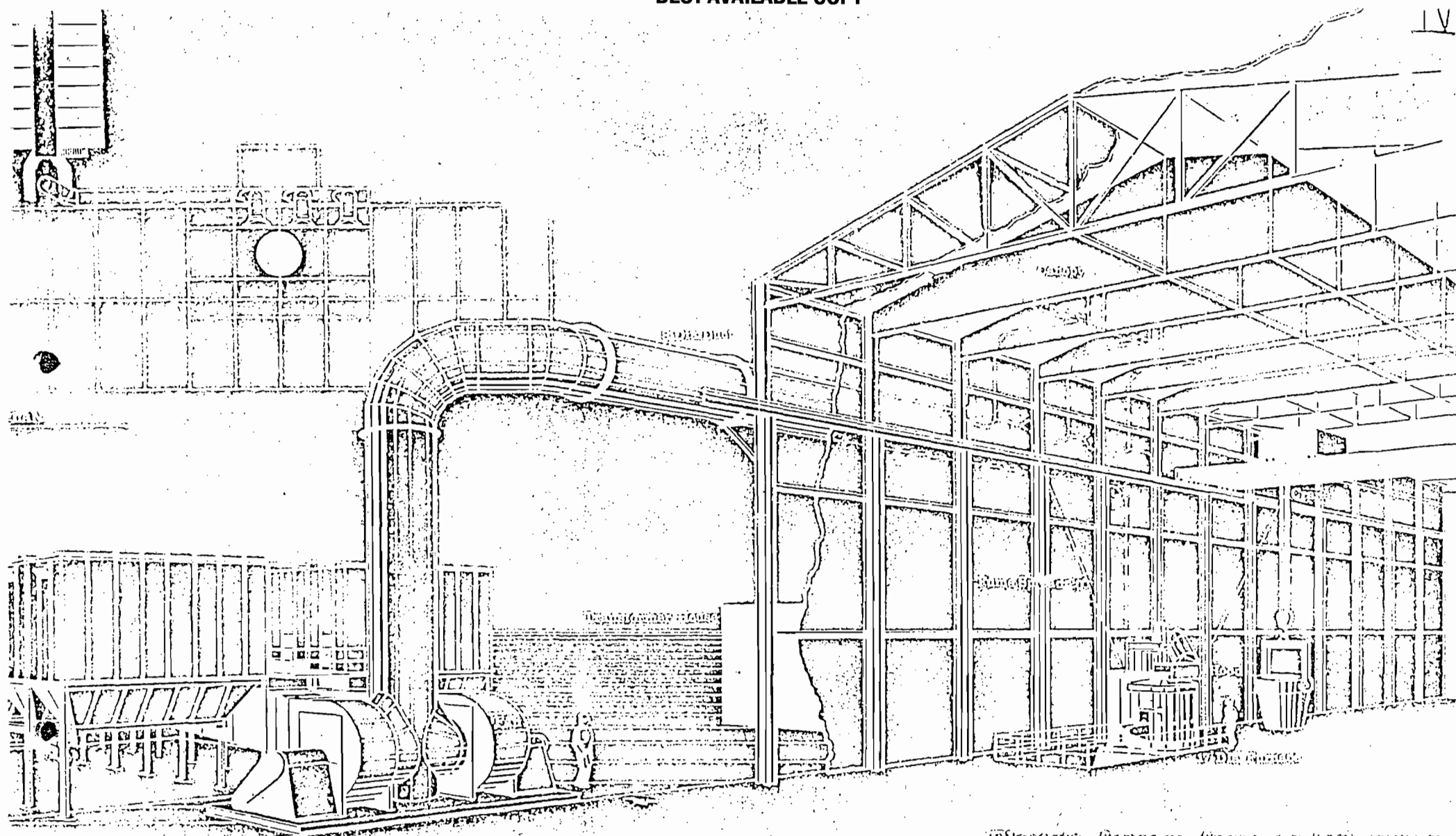


Diagram I - PROCESS FLOW

<b>FLORIDA STEEL CORPORATION</b> TAMPA, FLORIDA	<b>TITLE</b> STEELMAKING	
	DRAWN GEH	DATE 3/75
	CHECKED	
	APPROVED	





Electric Furnace Air Pollution Control System  
for FLORIDA STEEL CORPORATION

Diagram IV - AIR POLLUTION CONTROL  
SCHEMATIC

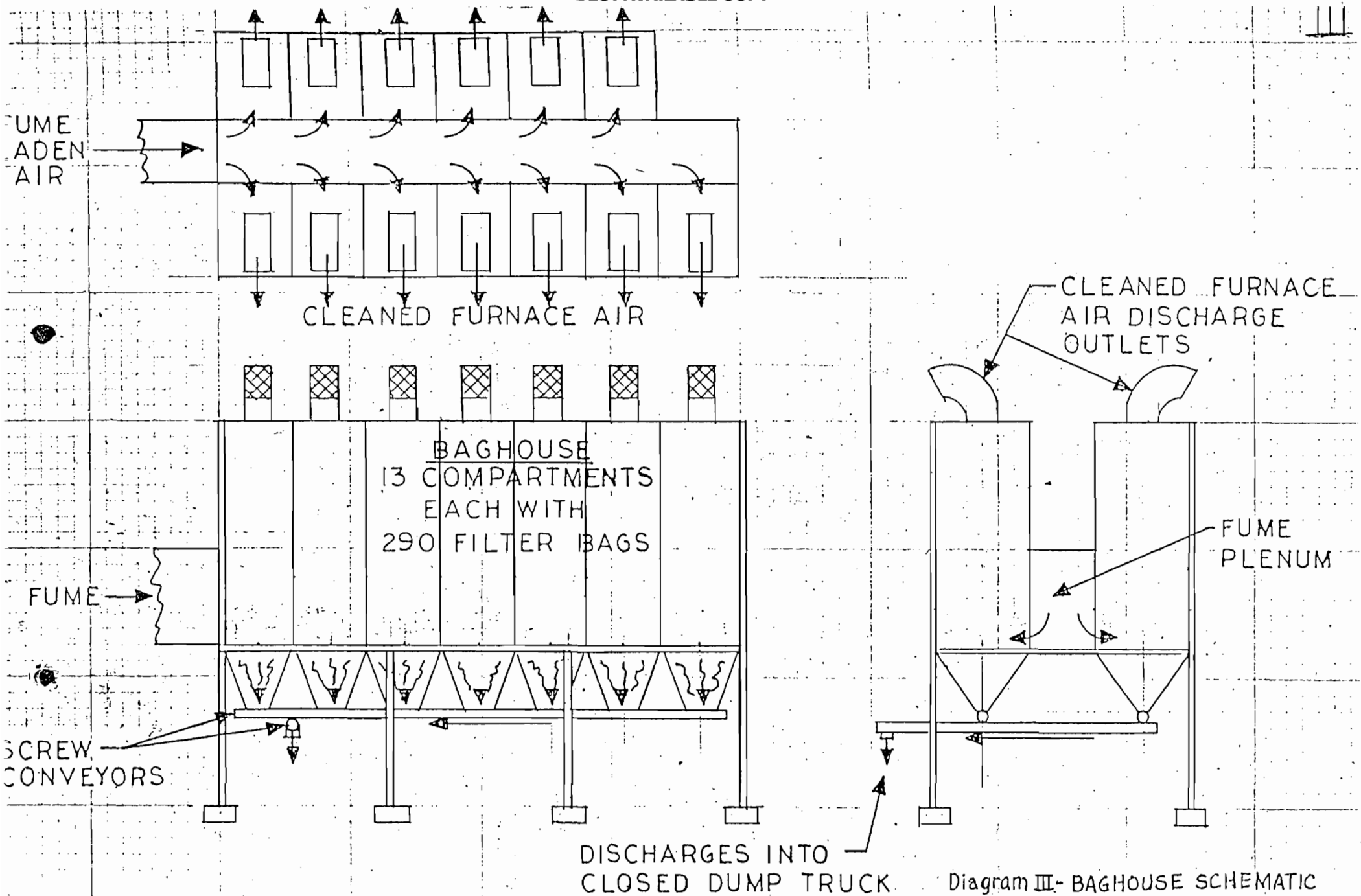


Diagram III- BAGHOUSE SCHEMATIC

FLORIDA STEEL  
CORPORATION

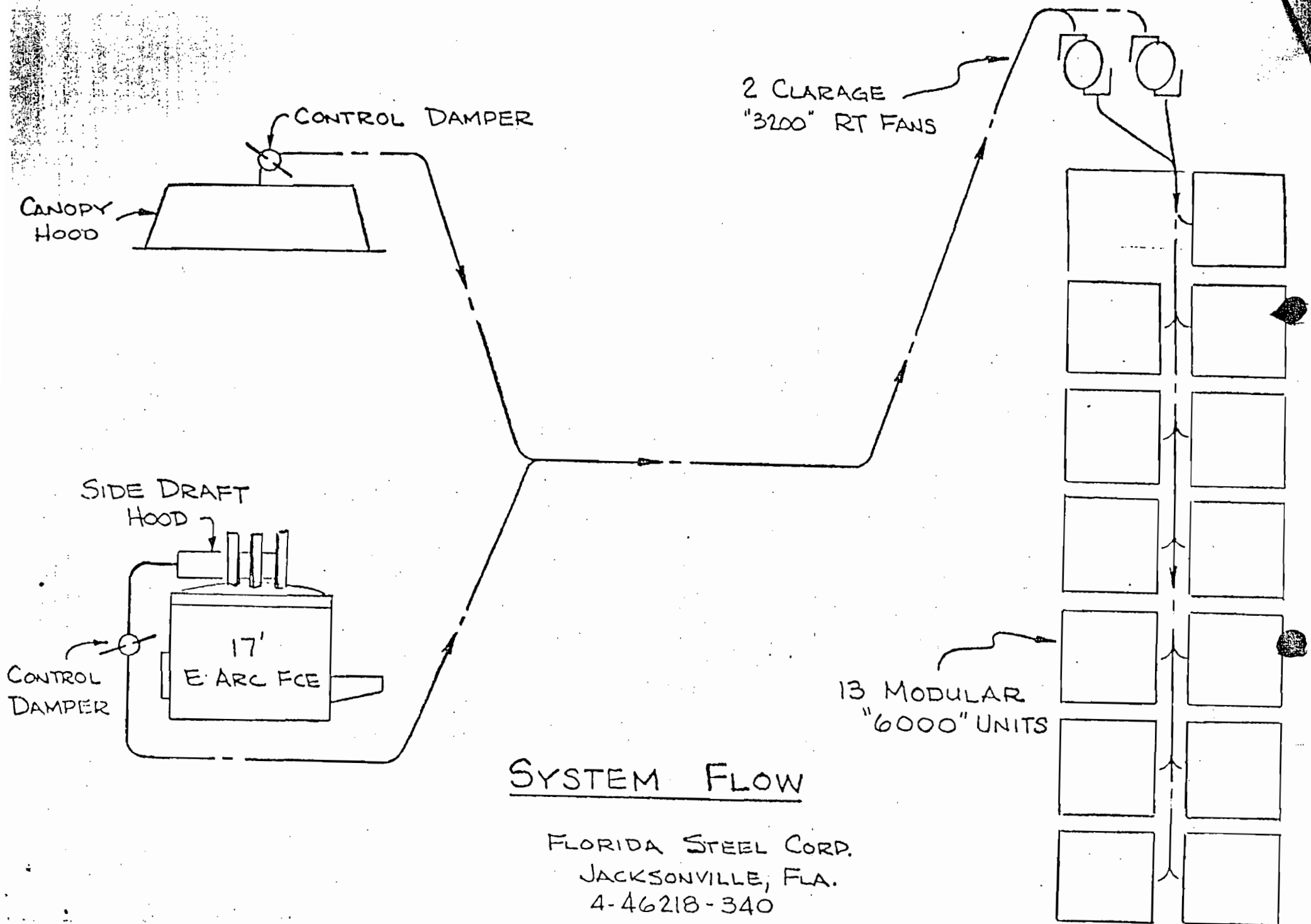
TAMPA, FLORIDA

TITLE AIR  
FILTRATION  
EQUIPMENT

DRAWN G E H DATE 3/75

CHECKED

APPROVED



DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices  
And/Or To Other Than The Addressee

To: _____	Locn.: _____
To: _____	Locn.: _____
To: _____	Locn.: _____
From: _____	Date: _____

TO: Files - Florida Steel Corporation, Baldwin, Florida

FROM: Bruce Mitchell *BM*

DATE: May 15, 1981

SUBJ: Electric Arc Furnace (EAF)

- A. In a revised application submitted by John Koogler of Sholtes & Koogler, dated April 21, 1981, #1 stated that production hours per day was 20.65. In #5 it was stated that the current permitted production rate was 268,800 billet tons per year. This is incorrect. The EAF is permitted at 32 billet tons or 64,000 billet pounds product weight per hour and 70,320 pounds per hour total process input rate. However, using the plants current permitted days and weeks per year, the calculated billet tons per year calculates to 231,280.

Calculations: 7 days/week x 50 weeks/year x 20.65 hrs/day  
x 32 billet tons/hr = 231,280 billet tons/year.

- B. In reference to "A" above, the value 268,800 is used in calculating all pollutant emissions, except short term maximum emissions, under present conditions in the PSD application.
- C. In Table 2-1, page 2-14, the net change (tons/year) for carbon monoxide should have a minus (-) and read -2221.1.

BM:dav

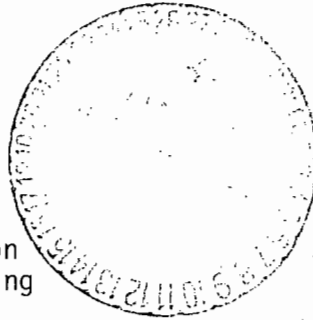


SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 101-79-10

April 24, 1981

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



Subject: Florida Steel Corporation  
Baldwin, Florida

Dear Mr. Bach:

In accordance with your telephone request of April 24, 1981, we are forwarding herewith four (4) executed copies of Page 1 of the modified construction permit application for the subject source.

If you require any additional information, please contact me.

Very truly yours,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS

John B. Koogler, Ph.D., P.E.

JBK:sc  
Enclosures

cc: Mr. Jack Hilburn  
Mr. Robert Hutchens

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

M E M O R A N D U M

TO: Mr. R.B. Hutchens, Florida Steel Corporation  
Mr. Walter W. Honour, Bio-Environmental Services  
Mr. John Ketteringham, St. Johns River Subdistrict

FROM: Steve Smallwood, Bureau of Air Quality Management

DATE: May 28, 1981

SUBJ: Florida Steel Corporation, Application for a Permit  
to Construct/Modify the Electric Arc Furnace (EAF),  
the EAF Building, and the Control Systems.

Attached is one copy of the application, Technical Evaluation and Preliminary Determination, BACT determination, and proposed permit to construct/modify the electric arc furnace (EAF), the EAF building, and the control systems to be located at the Baldwin Mill on Yellow Water Road (S.R. 217), south of I-10, and east of U.S. 301 in Duval County, Florida.

Please submit any comments which you wish to have considered concerning this action, in writing, to Mr. John Svec of the Bureau of Air Quality Management.

SS:dav

PUBLIC NOTICE

The Department intends to issue a permit to Florida Steel Corporation for the construction/modification of the electric arc furnace (EAF), the EAF building, and the control systems at their Baldwin Mill in Duval County on Yellow Water Road (S.R. 217), south of I-10, and east of U.S. 301. The permit will include conditions to assure compliance with Chapter 17-2 Florida Administrative Code (F.A.C.).

Any person wishing to file comments on this proposed action may do so by submitting such comments in writing to:

Mr. John Svec  
Bureau of Air Quality Management  
Florida Department of Environmental  
Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Any comments received within thirty days after publication of this notice will be considered and noted in the Department's final determination.

Any person whose substantial interest would be affected by the Department's intended action on these permits may request an administrative hearing by filing a petition as set forth in Section 28-5.15 F.A.C. within 14 days of the date of this notice with:

Ms. Mary Clark  
Office of General Counsel  
Florida Department of Environmental  
Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Technical Evaluation  
and  
Preliminary Determination

Florida Steel Corporation  
Duval County, Florida

Application Number:

AC 16-41114

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

May 28, 1981



## I. PROJECT DESCRIPTION

### A. Applicant

Florida Steel Corporation  
P. O. Box 518  
Baldwin, Florida 32234

### B. Project and Location

The applicant proposed to construct/modify the electric arc furnace (EAF), the EAF building, and the control systems. The EAF will have a maximum production rate of 65 billet tons per hour (bTPH).

The mill location is on Yellow Water Road (S.R. 217), south of I-10, and east of U.S. 301 in Baldwin, Florida. UTM coordinates are 405.7 km. East and 3350.2 km. North.

### C. Process and Controls

The facilities at the mill include an electric arc melting furnace, a lime storage silo, a billet reheating furnace and a rolling mill. The EAF is used for melting and refining the scrap steel. The lime is used as a flux during the melting operation. The steel produced in the EAF is cast into steel billets which are stockpiled. Prior to rolling into concrete reinforcing bars, the steel billets are reheated in the billet reheat furnace (BRF). Besides electric heating in the EAF, the modification will provide 4 burners that will be fired with No. 4 fuel oil with 0.7% Sulfur. The BRF will also be fired with No. 4 fuel oil with 0.7% Sulfur.

Emissions from the EAF and lime silo are vented through a baghouse, which will have a fourteenth compartment added as part of the construction/modification. Other control modifications proposed are:

1. Increasing the capacity of the fans exhausting particulate matter and carbon monoxide from the furnace area.

2. Modifying the air flow through the existing collection system so there will be a continuous flow of 135,000 ACFM through the roof canopy.

3. Replacing the existing side draft hood system on the electric arc furnace with a "fourth hole" system to more effectively remove particulate matter and carbon monoxide emissions from the furnace.

4. Installing air curtains where the electrodes penetrate the roof of the electric arc furnace to eliminate particulate matter and carbon monoxide emissions from this minor source.

5. Installing a controlled combustion system, monitored with an oxygen monitor, in the "fourth hole" vent system to reduce carbon monoxide emissions by at least 95 percent.

6. Adding additional sheeting on the sides of the electric arc furnace building to reduce wind draft in the building and hence, increase the collection efficiency of the roof canopy.

## II. RULE APPLICABILITY

The proposed project is subject to preconstruction/pre-modification review under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapter 17-2, Florida Administrative Code (F.A.C.).

The proposed project is located in the area of influence of Duval County's particulate nonattainment area. Since net potential emissions exceed 100 tons per year (TPY), the proposed modifications to the electric arc furnace (EAF) constitute a major modification. The maximum predicted impact within the nonattainment area is less than the significance level as set forth in Table I, subsection 17-2.17(2)(c), and is therefore subject to the New Source Review (NSR) exemption at 17-2.17(1)2.C. Consequently, the major modification is subject to a determination of Best Available Control Technology (BACT) pursuant to Subsection 17-2.04(6)(c), "Prevention of Significant Deterioration" (PSD), F.A.C.

The mill is also a major facility for the pollutants SO<sub>2</sub>, CO, and NO<sub>x</sub>, which makes them subject to a determination of BACT pursuant to subsection 17-2.04(6)(c), "PSD", F.A.C.

## III. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS

### A. Emission Limitations

The pollutants regulated are particulate, SO<sub>2</sub>, CO, and NO<sub>x</sub> in accordance with BACT limitations pursuant to Subsection 17-2.04(6)(c) "PSD", F.A.C.

Emission Limiting Standard

<u>Pollutant</u>	<u>Emission Level</u> (gr/dscf)	<u>Plant Allowable Emissions</u> (lb/hr)
Particulate	0.0052	8.00
SO <sub>2</sub>	BACT	20.0
CO	BACT	58.5
NO <sub>x</sub>	BACT	1.1
<u>Visible Emissions</u>	<u>Opacity</u>	
Baghouse Effluent	Not to exceed 3%	
Shop Roof - Charging Cycle	Not to exceed 20%	
Shop Roof - Tapping Cycle	Not to exceed 40%	

The permitted emissions are in compliance with all applicable requirements of Chapter 17-2, F.A.C., including the adopted NSPS requirements of 40 CFR 60, Subpart AA.

B. Air Quality Impacts

From a technical review of the application, it has been determined that the construction/modifications of the EAF, the EAF building, and the control systems will not have any impact on ambient air quality standards.

IV. CONCLUSIONS

The emission limits proposed by the applicant of 8.00 pounds per hour (lb/hr) for particulate has been determined to be acceptable and can be achieved at this facility. The visible emissions from the baghouse with a maximum of 3% opacity can be achieved with proper upkeep and maintenance. The visible emissions from the shop roof during charging and tapping, with maximums of 20% and 40% opacity respectively, can be achieved through good operational practices, crew efficiency, upkeep and proper maintenance of the control system.

There will be a major reduction in CO and NO<sub>x</sub> emissions by using techniques of efficient combustion, the use<sup>x</sup> of pure oxygen in firing fuel oil, and the use of the fourth-hole vent as an afterburner. A monitor for oxygen will also be placed downstream from the vent to assure a proper level is being maintained.

There will be no control for SO<sub>2</sub>. Economically, it would not be feasible to install a scrubber to remove the pollutant. The company is firing a low sulfur oil to keep the emissions at a low level and as the best available control technology.

Page Four

The permitted emissions from the facility, with its maximum production rate of 65 billet tons per hour of steel, will not cause or contribute to any violation of ambient air quality standards.

was  
May

The General and Specific Conditions listed in the proposed permits (attached) will assure compliance with all applicable requirements of Chapter 17-2, F.A.C.

Victoria Tschinkel  
May 15, 1981  
Page Two

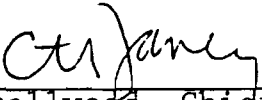
Justification of DER Determination:

The emission limits are equal to New Source Performance Standards (NSPS) Subpart AA. There have been no significant technology improvements to justify more stringent emission limits.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Florida 32301

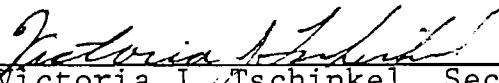
Recommended by:

  
for Steve Smallwood, Chief, BAQM

Date:

5/18/81

Approved:

  
Victoria J. Tschinkel, Secretary

Date:

May 20, 1981

SS:dav



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1213 N.W. 6th Street

Gainesville, Florida 32601

(904) 377-5822

SKEC 101-79-10

April 21, 1981

Mr. Steve Smallwood  
Bureau of Air Quality Management  
Florida Department of Environmental  
Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

Subject: Electric Arc Furnace  
Florida Steel Corporation  
Baldwin, Florida



Dear Mr. Smallwood:

This letter is in response to your letter of April 10, 1981 to Mr. R. B. Hutchens of the Florida Steel Corporation requesting clarification of several items contained in a construction permit application and a federal PSD application for the proposed expansion of an existing electric arc furnace. These items will be numbered and responded to using the same numeration that is contained in your letter of April 10.

1. The annual production figure of 440,172 billet tons per year is calculated using 328 operating days per year, 20.65 production hours per day and 65 billet tons per production hour. The number of production hours per day (20.65 hours) differs from the number of operating hours per day (24 hours) as a result of unscheduled delays and short periods of unscheduled down time.
2. The potential emissions for particulate matter, sulfur dioxide, carbon monoxide and nitrogen oxides were calculated using 440,172 billet tons per year which has been substantiated in Item 1, above. These potential emissions, therefore need not be changed to reflect changes in the annual production rate of the mill.
3. Potential and actual nitrogen oxides emission rates were modified to reflect an emission factor of 60 pounds of nitrogen oxides per 1,000 gallons of residual fuel oil burned. This modification results in an emission factor from AP-42, Table 1.3-1 which is consistent with the type of oil that will be burned by Florida Steel. The modified nitrogen oxides emission rate is still not significant and the conclusions reached in the construction permit application and the PSD application are not altered.

4. I have modified the fugitive particulate matter emission rate calculations to reflect a maximum uncontrolled emission rate of 0.12 pounds of particulate matter per ton of steel cast. As in Item 3 this insignificant change has no consequence on the construction permit application or the PSD application. For my reference on future projects I would appreciate it if you would send me a copy of your policy stating that the highest reported emission factor in a publication must be used to calculate the potential or actual emissions. In a working document, such as EPA-450/3-77-010 where a range of fugitive emissions is reported, I feel quite justified in using an average of the emission factors; particularly if you consider the reliability of all of the emission factors that enter into this range.
5. The construction permit application and the PSD application have been modified to reflect a current permitted production rate (AO-16-2695) from the electric arc furnace of 32 billet tons per hour and 268,800 billet tons per year. Consistent with this, Table 2-1 in the PSD application has been modified to reflect changes in the net increase (or decrease) pollutant emission rates resulting from the requested modification. The 43 billet ton per hour rate used in the applications as submitted is the current designed capacity of the electric arc furnace.
6. Emission rates used in the air quality review are the emission rates that will exist after the proposed modification. Baseline emissions from the mill were assumed to be zero since this is the first PSD approval requested by Florida Steel for the Baldwin mill. Because of this approach to the PSD review, the modifications made in responding to Items 1 through 5, above, have not resulted in air pollutant emission rate changes that will have a significant impact on the air quality review. Some inconsistencies in the calculation of particulate matter emission rates from the electric arc furnace and fugitive sources resulting from design changes made during preparation of the PSD and construction permit applications were discovered; however, and the particulate matter modeling has been redone. The revised model runs and the revised air quality review section of the PSD application are attached hereto.
7. The interpolation and extrapolation used in estimating the area of significant impact of sulfur dioxide and particulate matter emissions was linear interpolation or extrapolation.

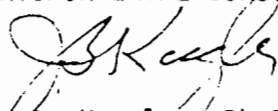
For your records on this project I would like to comment briefly on the fact that a PSD approval for the original mill was not attained when the mill was permitted in 1975. As indicated in the attached letter of December 12, 1979 from Mr. J. P. Hilburn of Florida Steel to Mr. Tommie A. Gibbs of EPA, Florida Steel was unaware of the Federal PSD regulations promulgated in December, 1974 when they applied for the State construction permits for the mill in April, 1975. The fact that Federal PSD Approval was not granted before the construction of the mill was discovered in 1979 during an EPA review of all construction permits issued by the State of Florida after December 5, 1974. This fact was brought to the attention of Florida Steel in a letter dated December 4, 1979 from Mr. Sanford Harvey, Director of Enforcement, EPA Region IV, Atlanta to Mr. J.P. Hilburn of Florida Steel. The attached letter, dated December 12, 1978, is the response to EPA from Mr. J. P. Hilburn acknowledging the fact that Florida Steel did not apply for PSD approval at the time the mill was constructed because they were unaware of the requirement and further, responding that a PSD application would be prepared by our firm.

The preparation of the PSD application by our firm was delayed in early 1980 because of our work load at that time. About mid-1980 Florida Steel discussed with us the possibility of expanding the Baldwin mill. With this possibility it was my suggestion that the PSD application for the original mill and the PSD application for the proposed expansion be combined. This is a course of action that was taken and a course of action that resulted in the March 10, 1981 submittal of the PSD application and State Air Pollution Source Construction Permit Application to your office.

If there are any further questions regarding this project please feel free to contact me.

Sincerely,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS

  
J. B. Koogler, Ph.D., P.E.

JBK:ls  
Attachments

cc: Mr. Jack Hilburn, Florida Steel Corporation  
Mr. Larry George, FDER, Tallahassee  
Mr. Tom Rogers, FDER, Tallahassee



December 12, 1979

Mr. Tommie A. Gibbs  
Chief, Air Facilities Branch  
Environmental Protection Agency  
Region IV  
345 Cortland St., N.E.  
Atlanta, Ga. 30308

RE: Florida Department of Environmental Regulation (DER)  
Permits AC16-2395 and AC16-2546

Dear Mr. Gibbs:

This responds to the December 4, 1979 (Ref: 4E:LB) letter of your Mr. Sanford W. Harvey, Jr., Director, Enforcement Division. This letter indicated that a PSD application had never been submitted relative to our Jacksonville steel mill. The construction and operating permits therefor are referenced above.

Florida Steel Corporation applied for construction permit on April 2, 1975, which permit was issued on June 3, 1975. At that time we were unaware of the prevention of significant deterioration regulations, 40 CFR 52.21 promulgated December 5, 1974.

We are now beginning the process of preparing a PSD application pursuant to Mr. Sanford W. Harvey's letter. We further understand -- as indicated in a conversation between Mr. John Koogler of the firm, Sholtes & Koogler, and yourself -- that 40 CFR 52.21 of December 5, 1974, is the governing regulations.

Yours very truly,

FLORIDA STEEL CORPORATION

John P. Hilburn  
Vice President, Environmental Control

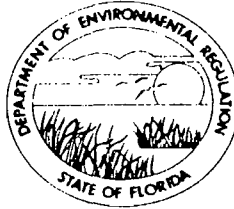
cc: Mr. John B. Koogler  
Mr. Ralph R. Boswell - MILL RGN  
Mr. R. E. Hutchens - JAX MILL

*Florida Steel  
file*

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

April 10, 1981

Mr. R. B. Hutchens  
Post Office Box 518  
Florida Steel Corporation  
Baldwin, Florida 32234

Dear Mr. Hutchens:

RE: Electric Arc Furnace (EAF)  
Florida Steel Corporation  
Baldwin Mill

The Department has received your application to upgrade and modify the EAF and control systems and found it to be incomplete. The following items need to be clarified before your application can be processed.

(1) The annual production figure of 440,172 billet tons per year (bTPY) is used in several calculations. Using the requested 65 billet tons per hour (bTPH) and the normal equipment operating times, the annual production figure calculates to 511,680 bTPY using the production days per year and 511,711 bTPY using the production weeks per year. Show how the annual production figure was calculated. (Section V: Supplemental Requirements: 2 & 3 - Potential and Actual Emissions).

(2) In reference to #1, the potential emissions for particulate,  $SO_2$ , CO and  $NO_x$  were calculated using the 440,172 bTPY annual production figure. The potential emissions must be consistent with the annual production figure to be used as a firm permit condition.

(3) In reference to #1 and #2, the emission factors for  $SO_2$  and  $NO_x$  were taken from AP-42, Table 1, 3-1. For  $SO_2$ , the emission factor under commercial residual oil was used, while the emission factor under commercial distillate oil was used for  $NO_x$ . State the type of commercial oil that is being used and calculate the potential emissions accordingly.

Mr. R. B. Hutchens  
Page Two  
April 10, 1981

(4) In reference to #1 and #2, the potential uncontrolled fugitive emissions were calculated using emission factors from EPA-450/3-77-010, Table 2-14, 3.0 pounds per billet ton (lb.PbT) for an EAF (carbon electrodes) and 0.075 lb.PbT for casting. For maximum potential uncontrolled emissions, the highest emission factor, 0.12 lb.PbT for casting, should have been used. Therefore, the potential uncontrolled fugitive emissions will have to be recalculated.

(5) The request to upgrade the mill's EAF from 43 BTPH to 65 bTPH is not consistent with the operating permit AO 16-2695, issued 6-23-77, having a production limitation of 32 bTPH. Therefore, the requested pollutants net increased emissions should be based on the original permitted through-put rate of 35.16, TPH, or 32 bTPH production rate.


(6) Any change in emission rates as a result of answering the above questions should be addressed in the air quality modeling.

(7) How was the interpolation and extrapolation done in estimating the distance of maximum impact for SO<sub>2</sub> and PM?

The question of whether to review the entire facility because of the failure to obtain a previous federal permit or to review only the modification alone is currently being studied. Any question the Department may have as a result of changes made in the applicability are deferred pending consultation with the EPA.

When the Department received the clarification on these requests, your application for the state modifications of the facility will be completely processed. If there are any questions, please contact Bruce Mitchell, or Tom Rogers, Central Air Permitting Section, at (904) 488-1344.

Sincerely,



Steve Smallwood, Chief  
Bureau of Air Quality Management

SS:caa

cc: John B. Koogler, P.E.



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 101-79-10

April 21, 1981



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SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS

  
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Mr. Tom Rogers, FDER, Tallahassee

December 12, 1979

Mr. Tommie A. Gibbs  
Chief, Air Facilities Branch  
Environmental Protection Agency  
Region IV  
345 Cortland St., N.E.  
Atlanta, Ga. 30308

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Permits AC16-2395 and AC16-2546

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Yours very truly,

FLORIDA STEEL CORPORATION

John P. Hilburn  
Vice President, Environmental Control

cc: Mr. John B. Koogler  
Mr. Ralph R. Boswell - MILL RGN  
Mr. R. E. Hutchens - JAX MILL



SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS  
1213 N.W. 6th Street Gainesville, Florida 32601 (804) 377-5822

SKEC 101-79-10

March 10, 1981

Mr. Bob Hutchens  
Florida Steel Corporation  
Post Office Box 518  
Baldwin, FL 32234

Subject: Electric Arc Furnace Expansion  
Florida Steel Corporation  
Baldwin Mill



Dear Bob:

Enclosed are six copies of the Permit Application to modify the electric arc furnace at your Baldwin mill and two copies of Volume I of a document supporting the permit application. Volume II of the document contains all of the computer print-outs for the air quality models; information which I did not feel you would need.

I spoke with Jack Hilburn regarding the signature of a Florida Steel official on the Permit Application. It was agreed that you would sign the application for Florida Steel. Jack is sending to you a letter authorizing you to sign the applications for Florida Steel. A copy of this letter will have to be attached to each copy of the application.

After signing the six copies, send four copies with a check in the amount of \$20.00 to Mr. Steve Smallwood, Florida Department of Environmental Regulation, Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, Florida, 32301; and send one copy of the Permit Application and one copy of the supporting document to Mr. Steve Pace, Bio-Environmental Services Division, 515 West 6th Street, Jacksonville, Florida 32206. The sixth copy of the application and the remaining copy of the support document are for your files.

By copy of this letter, I am transmitting two copies of Volumes I and II of the document entitled "Application for PSD Approval, Florida Steel Corporation, Baldwin, Florida", to the Florida Department of



Environmental Regulation in Tallahassee and am requesting that a review for State and Federal PSD approval be initiated immediately. The FDER Construction Permit Application which you are to sign will be required for the State PSD review and should therefore be forwarded to Tallahassee as soon as possible.

If any of the parties receiving these Permit Applications have any questions regarding the information contained therein, please contact me immediately at the address above.

Very truly yours,

SHOLTES & KOOGLER  
ENVIRONMENTAL CONSULTANTS



John B. Koogler, Ph.D., P.E.

JBK:sc  
Enclosures

cc: Mr. Steve Smallwood (w/o enc.)  
Mr. Larry George (w/enc.)  
Mr. Steve Pace (w/o enc.)  
Mr. Jack Hilburn (w/enc.)

AC 16-41114



March 10, 1981

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
APPLICATION TO ~~OPERATE~~/CONSTRUCT  
AIR POLLUTION SOURCES

SOURCE TYPE: Electric Arc Furnace ☐ New<sup>1</sup> ☒ Existing<sup>1</sup>APPLICATION TYPE: ☐ Construction ☐ Operation ☒ ModificationCOMPANY NAME: Florida Steel Corporation COUNTY: DuvalIdentify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Electric arc furnace building bag collectorSOURCE LOCATION: Street Yellow Water Rd. (SR 217) So. of I-10 City JacksonvilleUTM: East 405.7 km North 3350.2 kmLatitude ° ' "N Longitude ° ' "WAPPLICANT NAME AND TITLE: R. B. Hutchens, Plant ManagerAPPLICANT ADDRESS: Florida Steel Corporation, P.O. Box 518, Baldwin, FL 32234

## SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

## A. APPLICANT

I am the undersigned owner or authorized representative\* of Florida Steel Corporation

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

\*Attach letter of authorization

Signed: Robert B. Hutchens

R. B. Hutchens, Plant Manager

Name and Title (Please Type)

Date: 3/17/81 Telephone No. (904) 266-4261

## B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: John B. Koogler

John B. Koogler, P.E.

Name (Please Type)

SHOLTES &amp; KOOGLER ENVIRONMENTAL CONSULTANTS

Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601

Mailing Address (Please Type)

Date: 3/10/81 Telephone No. (904) 377-5822Florida Registration No. 12925<sup>1</sup>See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

## SECTION II: GENERAL PROJECT INFORMATION

- A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.  
An existing electric arc furnace is being upgraded to increase capacity from 43 tons/hour to 65 tons/hour of billet steel. This will be accomplished by adding four oxygen-fuel burners in the walls of the existing furnace. In addition to this the bag-collector serving the electric arc furnace building is being upgraded, steps are being taken to reduce fugitive particulate matter emissions by an additional 80% (95% overall) & a combustion system is being installed to reduce CO emissions by 95%.
- B. Schedule of project covered in this application (Construction Permit Application Only)  
Start of Construction July 1, 1981 Completion of Construction December, 1981
- C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)  
Add 6000 sq. ft. of fabric to bag collector, 4th hole vent system on EAF (including water cooled duct and heat exchanger), CO combustion system, air curtains around electrodes, Increase capacity of canopy system fans, add sheeting to sides of EAF building --  
Total Cost \$854,000.
- D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.  
Construction Permit AC 16-2395 6/3/75 - 12/1/76  
Operating Permit AO 16-2695 6/23/77 - 3/31/82
- E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? XXX Yes     No
- F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 46.86 ; if power plant, hrs/yr     ;  
if seasonal, describe: (328 production days per year.)  
20,646 production hours
- G. If this is a new source or major modification, answer the following questions. (Yes or No)
- |   |     |
|---|-----|
| 1. Is this source in a non-attainment area for a particular pollutant?  | NO  |
| a. If yes, has "offset" been applied?   | --  |
| b. If yes, has "Lowest Achievable Emission Rate" been applied?  | --  |
| c. If yes, list non-attainment pollutants.  |     |
| <hr/>   |     |
| 2. Does best available control technology (BACT) apply to this source? If yes, see Section VI.  | YES |
| 3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. | YES |
| 4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source?  | YES |
| 5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?                                       | NO  |
- Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

# SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

## A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Steel Scrap	Aluminum	0.6	142,845	E
	Inert	1.6		
	Plastic, etc.	3.5		
	Oil, grease	0.5		
Lime	None	---	2,405	E

## B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 145,262 *~ 145,249.4*
2. Product Weight (lbs/hr): 130,000 steel billets

## C. Airborne Contaminants Emitted:

Name of Contaminant	Emission <sup>1</sup>		Allowed Emission <sup>2</sup> Rate per Ch. 17-2, F.A.C.	Allowable <sup>3</sup> Emission lbs/hr	Potential Emission <sup>4</sup>		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Part. Matter	8.0	31.5	BACT	8.0	189.9	642.9	A
Carbon Monoxide	58.5	198.1	BACT	58.5	1170.0	3962.0	A
Sulfur Dioxide	20.0	67.7	BACT	20.0	20.0	67.7	A
Nitrogen Oxides	0.4	1.3	BACT	0.4	0.4	1.3	A

## D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles <sup>5</sup> Size Collected (in microns)	Basis for Efficiency (Sec. V, It <sup>5</sup> )
Fuller Co. Bag Collector	Part. Matter	95.8%	> 1 $\mu$ m	Design
CO Combustion System	CO	95%	N/A	Estimate

<sup>1</sup>See Section V, Item 2.

<sup>2</sup>Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. - 0.1 pounds per million BTU heat input)

<sup>3</sup>Calculated from operating rate and applicable standard

<sup>4</sup>Emission, if source operated without control (See Section V, Item 3)

<sup>5</sup>If Applicable

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
#4 Fuel w/0.7% sulfur	2.6	4.3	26.9

\*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: 0.7 Percent Ash: 0.03  
 Density: 7.8 lbs/gal Typical Percent Nitrogen: Nil  
 Heat Capacity: 18,794 BTU/lb 148,000 BTU/gal  
 Other Fuel Contaminants (which may cause air pollution): NONE

F. If applicable, indicate the percent of fuel used for space heating. Annual Average N/A Maximum \_\_\_\_\_

G. Indicate liquid or solid wastes generated and method of disposal.

Slag - crushed and used for road building

Dust - disposed of by contractor

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 50 ft. Stack Diameter: 14 at 2' x 3' ft.  
 Gas Flow Rate: 235,770 Avg. ACFM Gas Exit Temperature: 227 Avg. °F.  
 Water Vapor Content: One % Velocity: 46.8 Avg. FPS

#### SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste \_\_\_\_\_

Total Weight Incinerated (lbs/hr) \_\_\_\_\_ Design Capacity (lbs/hr) \_\_\_\_\_

Approximate Number of Hours of Operation per day \_\_\_\_\_ days/week \_\_\_\_\_

Manufacturer \_\_\_\_\_

Date Constructed \_\_\_\_\_ Model No. \_\_\_\_\_

	Volume (ft) <sup>3</sup>	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: \_\_\_\_\_ ft. Stack Diameter \_\_\_\_\_ Stack Temp. \_\_\_\_\_

Gas Flow Rate: \_\_\_\_\_ ACFM \_\_\_\_\_ DSCFM\* Velocity \_\_\_\_\_ FPS

\*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: ☐ Cyclone ☐ Wet Scrubber ☐ Afterburner ☐ Other (specify) \_\_\_\_\_

Brief description of operating characteristics of control devices: \_\_\_\_\_

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.): \_\_\_\_\_

## SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

# SECTION V SUPPLEMENTAL REQUIREMENTS

## 1. Process Weight - Process Input

Heat Capacity - 95 tons  
Heat Cycle - 87.7 minutes  
Ratio Billet Weight/Scrap Weight - 0.91  
Lime Feed - 37 lb/billet ton

### Input

$$\text{Scrap} = (95/0.91) \text{ tons} \times 1/87.7 \text{ min} \times 60 \text{ min/hr} \times 2000 \\ = 142,845 \text{ lbs/hr}$$

$$\text{Lime} = 95 \times 1/87.7 \times 60 \times 37 \text{ lbs/ton} \\ = 2405 \text{ lbs/hr}$$

### Production

$$145,249.4 \text{ lb/hr} \\ = 95 \text{ tons/heat} \times 1/87.7 \times 60 \times 2000 \\ = 130,000 \text{ lbs/hour billet steel.}$$

## 2&3. Potential and Actual Emissions

### Particulate Matter

(Table 2-14)

### Potential (AP-42)

Uncontrolled fugitive emissions from EAF and casting are 3.075 lbs/ton of billet steel and collection by roof canopy and 4th hole vent is 95%.

10.5 weeks  
2622 days

$$\text{Annual:} = 440,172 \text{ tons/year} \times 3.075 \times 1/2000 \times 0.95 \\ = 642.9 \text{ TPD} \\ 747.4 \text{ TPD} @ 3.075 \quad 758.32 \text{ TPD} \\ \text{Hourly:} = 65 \times 3.075 \times 0.95 \\ = 189.9 \text{ lbs/hour.}$$

### Actual

### Air Flow Calculations

<u>Period</u>	<u>Time</u>	<u>Bag Collector Air Flow</u>
Charge and Tap	17.4 min	270,000 Acfm @ 150°F
Melt and Refine	70.3 min	227,300 Acfm @ 250°F

Average Air Flow:

$$Q = \frac{270,000 \times 17.4 + 227,300 \times 70.3}{17.4 + 70.3} \\ = 235,770 \text{ Acfm}$$

Average Temperature

$$T = \frac{270,000 \times 17.4 \times 150 + 227,300 \times 70.3 \times 250}{270,000 \times 17.4 + 227,300 \times 70.3} \\ = 227^\circ\text{C}$$

SECTION V - Supplemental Requirements (continued)

Assume Moisture = 1%.

Flow STP, dry

$$\begin{aligned} Q_{STPD} &= 235,770 \times \frac{528}{687} \times (1 - 0.01) \\ &= 179,400 \text{ Scfm, dry} \end{aligned}$$

Emissions - Actual

$$\begin{aligned} \text{Hourly} &= 179,400 \times 0.0052 \times 1/7000 \times 60 \\ &= 8.00 \text{ lbs/hour} \\ &\quad \times 328 \text{ days/year} \times 24 \times 1/2000 \\ \text{Annual} &= 31.5 \text{ TPY} \end{aligned}$$

Sulfur Dioxide

Potential and Actual (AP-42)

Fuel - 2.8 gal/billet ton @ 0.7 % sulfur

$$\begin{aligned} \text{Annual} &= 2.8 \times 440,172 \text{ tons/year} \times 0.157 (0.7) \text{ lbs } SO_2/\text{gal} \times 1/2000 \\ &= 67.7 \text{ tons/year} \end{aligned}$$

$$\begin{aligned} \text{Hourly} &= 2.8 \times 65 \times 0.157(0.7) \\ &= 20.0 \text{ lbs/hour} \end{aligned}$$

Carbon Monoxide

Potential (AP-42)

$$\begin{aligned} \text{Annual} &= 18 \text{ lbs CO/ton} \times 440,172 \times 1/2000 \\ &= 2961.5 \text{ TPY} \\ &\quad 3961.5 \end{aligned}$$

$$\begin{aligned} \text{Hourly} &= 18 \times 65 \\ &= 1170.0 \text{ lbs/hr} \end{aligned}$$

Actual

Assume 95% Control

$$\begin{aligned} \text{Annual} &= 3961.5 \times (1 - 0.95) \\ &= 198.1 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{Hourly} &= 1170 \times (1-0.95) \\ &= 58.5 \text{ lbs/hr} \end{aligned}$$

Nitrogen Oxides

Potential and Actual (AP-42)

Fuel - #4 fuel oil with 0.7% sulfur at a rate of 2.8 gallons/ton steel.



## SECTION V - Supplemental Requirements (continued)

### Combustion Oxygen

$$\begin{array}{r} 3766 \text{ ft}^3/\text{min O}_2 \\ 1844 \text{ ft}^3/\text{min Air} \\ \hline 1488 \text{ ft}^3/\text{min N}_2 \\ 396 \text{ ft}^3/\text{min O}_2 \end{array}$$

$$\begin{aligned} \text{Total O}_2 &= 3766 + 396 \\ &= 4162 \text{ ft}^3/\text{min}. \end{aligned}$$

$$\frac{\text{O}_2 \text{ Air}}{\text{O}_2 \text{ Total}} = \frac{396}{4162} \times 100 = 9.5\%$$

Assume NO<sub>x</sub> generation is 9.5% of what would have been generated if all O<sub>2</sub> was supplied by air.

Emissions @ 22 lbs NO<sub>x</sub>/1000 gal.

$$\begin{aligned} \text{Annual} &= 2.8 \times 440,172 \times 0.022 \times 1/2000 \times 0.095 \\ &= 1.3 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{Hourly} &= 2.8 \times 65 \times 0.022 \times 0.095 \\ &= 0.4 \text{ lbs/hr} \end{aligned}$$

#### 4. Pollution Control System Specifications

##### Bag Collector

Air Flow	Max - 270,000 Acfm at 150°F Min - 227,300 Acfm at 250°F
Cloth Area	14 compartments at 6000 ft <sup>2</sup> each = 84,000 ft <sup>2</sup> cloth (dacron).
Air/Cloth Ratio	Max - 270,000/84,000 = 3.21 Min - 227,300/84,000 = 2.70

##### CO Combustion

1970 pounds per minute of furnace gas at 3200°F containing 19.5 pounds of carbon monoxide is mixed with up to 1415 pounds per minute of combustion air. In this system the carbon monoxide auto oxidizes to carbon dioxide with an estimated efficiency of 95%.

#### 5. Efficiency Calculation

$$\begin{aligned} \text{Particulate Matter} \quad E_p &= \left( 1 - \frac{8.0}{189.9} \right) \times 100 \\ &= 95.8\% \end{aligned}$$

SO<sub>2</sub> Assume E<sub>s</sub> = 0  
CO Estimate E<sub>c</sub> = 95%  
NO<sub>x</sub> Assume E<sub>n</sub> = 0

SECTION V - Supplementary Requirements (continued)

6. See Attachment 1.
7. See Attachment 2.
8. See Attachment 3.

9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

### SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

- A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?  
☒ Yes ☐ No

Contaminant	Rate or Concentration
Particulate Matter	0.0052 grains/SCF, dry

- B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) ☐ Yes ☒ No

Contaminant	Rate or Concentration

- C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate Matter	0.0052 grains/SCF, dry
CO	Combustion with ~95% efficiency
SO <sub>2</sub>	0.7% sulfur fuel oil

- D. Describe the existing control and treatment technology (if any).

- Control Device/System: Bag collector for particulate matter; nothing for CO
- Operating Principles: Impaction/filtration
- Efficiency: 93.4% for Part. Matter
- Capital Costs: \$890,000
- Useful Life: 20 years
- Operating Costs: \$ 52,000
- Energy: 2 x 176 H.P.
- Maintenance Cost: \$ 90,000
- Emissions:

Contaminant	Rate or Concentration
Particulate Matter	0.0052 grains/SCF, dry
CO	No control
SO <sub>2</sub>	No potential emissions

\*Explain method of determining D 3 above. Potential = 43 tons/hr x 3.075 lbs/ton x 0.75 collection  
 = 99.2 lbs/hr  
 Actual = 6.5 lbs/hr  
 Eff: =  $\frac{99.2 - 6.5}{99.2} \times 100 = 93.4\%$

10. Stack Parameters

a. Height:	50	ft.	b. Diameter:	13 at 2' x 3'	ft.
c. Flow Rate:	187,000	ACFM	d. Temperature:	121	°F
e. Velocity:	43.4	FPS			

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1. Particulate Matter

- a. Control Device: Bag Collector with increased fugitive dust collection (1)
- b. Operating Principles: Impaction/filtration
- c. Efficiency\*: 95.8% (See V,5)
- d. Capital Cost: \$800,000 -Cost to upgrade existing system
- e. Useful Life: 20 years
- f. Operating Cost: \$ 60,000
- g. Energy\*: 2 x 200 HP
- h. Maintenance Cost: \$110,000
- i. Availability of construction materials and process chemicals: Good
- j. Applicability to manufacturing processes: Good
- k. Ability to construct with control device, install in available space, and operate within proposed levels: Good

2. CO

- a. Control Device: Auto Combustion
- b. Operating Principles:
- c. Efficiency\*: 95% estimated
- d. Capital Cost: \$50,000
- e. Useful Life: 20 years
- f. Operating Cost: 5,000
- g. Energy\*\*: Nil
- h. Maintenance Costs: \$10,000
- i. Availability of construction materials and process chemicals: Good
- j. Applicability to manufacturing processes: Good
- k. Ability to construct with control device, install in available space, and operate within proposed levels: Good

\*Explain method of determining efficiency.

\*\*Energy to be reported in units of electrical power — KWH design rate.

3.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency\*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:

\*Explain method of determining efficiency above.

(1) See attached document for detailed description of particulate matter collection system in attached document.

- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

- a. Control Device
- b. Operating Principles:

- c. Efficiency\*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:

- j. Applicability to manufacturing processes:

- k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: See Sections VI, E, 1 and 2

- 1. Control Device:
- 2. Efficiency\*:
- 3. Capital Cost:
- 4. Life:
- 5. Operating Cost:
- 6. Energy:
- 7. Maintenance Cost:
- 8. Manufacturer:
- 9. Other locations where employed on similar processes:

a.

- (1) Company: Florida Steel Corporation
- (2) Mailing Address: P. O. Box 10657
- (3) City: Charlotte
- (4) State: North Carolina 28234
- (5) Environmental Manager: Mr. Keith Bacon
- (6) Telephone No.: (704) 596-0361

\*Explain method of determining efficiency above.

- (7) Emissions\*:

Contaminant	Rate or Concentration
Particulate Matter	< 0.0052 grains/SCF, dry
CO	~ 95% reduction

- (8) Process Rate\*: 280,000 billet tons per year.

b.

- (1) Company:
- (2) Mailing Address:
- (3) City:
- (4) State:

\*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions\*:

Contaminant	Rate or Concentration

(8) Process Rate\*:

10. Reason for selection and description of systems:

SEE ATTACHED PAGE 9a

\*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

The most important factor involved in controlling particulate matter emissions from an electric arc furnace is collecting the particulate matter both during the melting and refining periods and during the tap and charge periods. Once the particulate matter has been collected, New Source Performance Standards (NSPS) require that emissions from the control device not exceed 0.0052 grains per standard cubic foot dry. Normal practice in the industry has been to use the bag collector to achieve this degree of control. This is the control device that Florida Steel presently has at the Baldwin mill and the device that will be upgraded to serve the expanded mill.

Florida Steel has taken several steps to improve the capture efficiency of particulate matter generated during the production of steel billets. These steps include:

1. Replacing the existing side draft fume collection hood over the electric arc furnace with a 4th hole vent system.
2. Increasing the capacity of the fans exhausting particulate matter from the furnace area.
3. Modifying the air flow through the existing collection system (roof canopy and 4th hole vent) so there will be a continuous flow of 135,000 Acfm through the roof canopy.
4. Installing air curtains where the electrodes penetrate the roof of the electric arc furnace to eliminate particulate matter emissions from this minor source.
5. Adding additional sheeting on the sides of the electric arc furnace building to enclose the building except for doorways necessary for rail cars and a single doorway necessary for equipment ingress and egress.

These steps, it is estimated, will result in a collection efficiency of 95% of the particulate matter generated by the electric arc furnace. These steps are discussed in more detail in the document entitled "Application for PSD Approval" accompanying this application.

Florida Steel also proposes to install a control combustion system to oxidize approximately 95% of the carbon monoxide generated by the electric arc furnace. This system is an auto-oxidation system in the 4th hole vent system. This system is also described in detail in the document accompanying this application. In reviewing the effectiveness of this carbon monoxide control system, it should be recognized that there are no regulatory requirements for controlling carbon monoxide emissions.

1. \_\_\_\_\_ no sites \_\_\_\_\_ TSP \_\_\_\_\_ SO<sub>2</sub>\* \_\_\_\_\_ Wind spd/dir \_\_\_\_\_  
Period of monitoring \_\_\_\_\_ to \_\_\_\_\_  
          month     day     year                month     day     year                

**Attach all data or statistical summaries to this application.**

a) Was instrumentation EPA referenced or its equivalent? X Yes      No.

b) Was instrumentation calibrated in accordance with Department procedures? X Yes      No      Unknown

1. 5 Year(s) of data from 1 / 1 / 72 to 12 / 31 / 76  
 month day year month day year

2. Surface data obtained from (location) Jacksonville, Florida

3. Upper air (mixing height) data obtained from (location) Jacksonville, Florida

4. Stability wind rose (STAR) data obtained from (location)

1.	CRSTER, unmodified	Modified? If yes, attach description.
2.	PTMTPW, unmodified	Modified? If yes, attach description.
3.	PTMAX, unmodified	Modified? If yes, attach description.
4.		Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

Pollutant	Emission Rate
TSP	_____ grams/sec
SO <sup>2</sup>	_____ grams/sec

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

(See attached documents-Application for PSD Approval-Vol. I and Vol. II).

**F. Attach all other information supportive to the PSD review.**

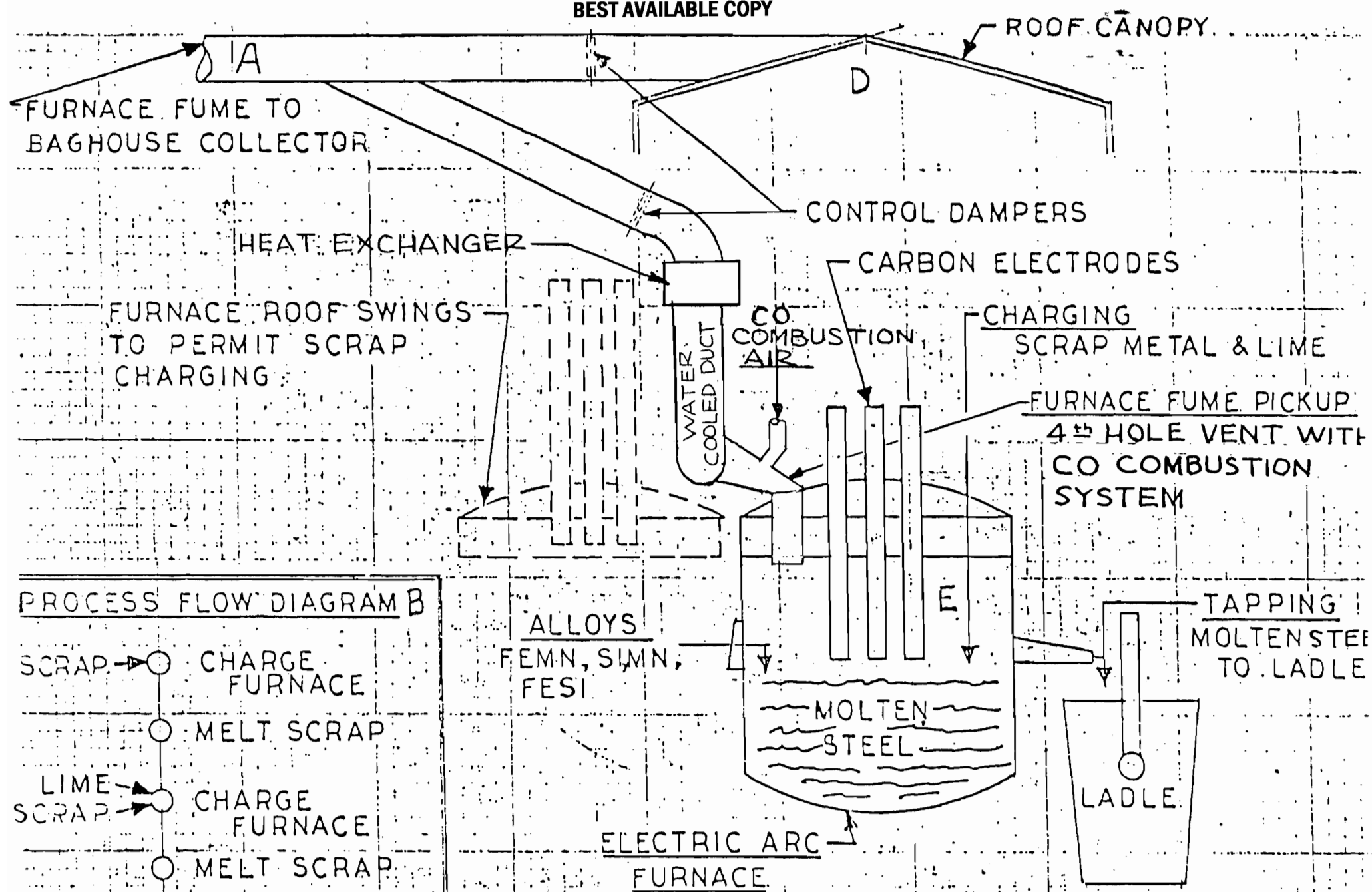
\*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

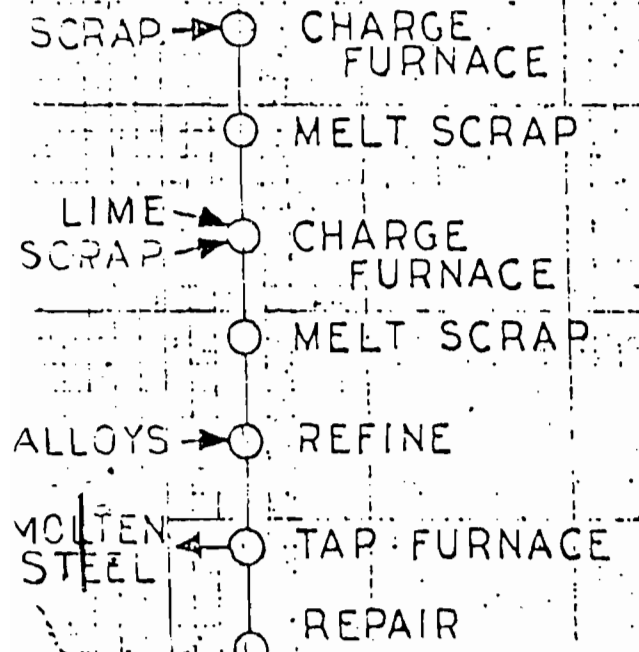
See attached document - Application for PSD Approval - Vol. I.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.





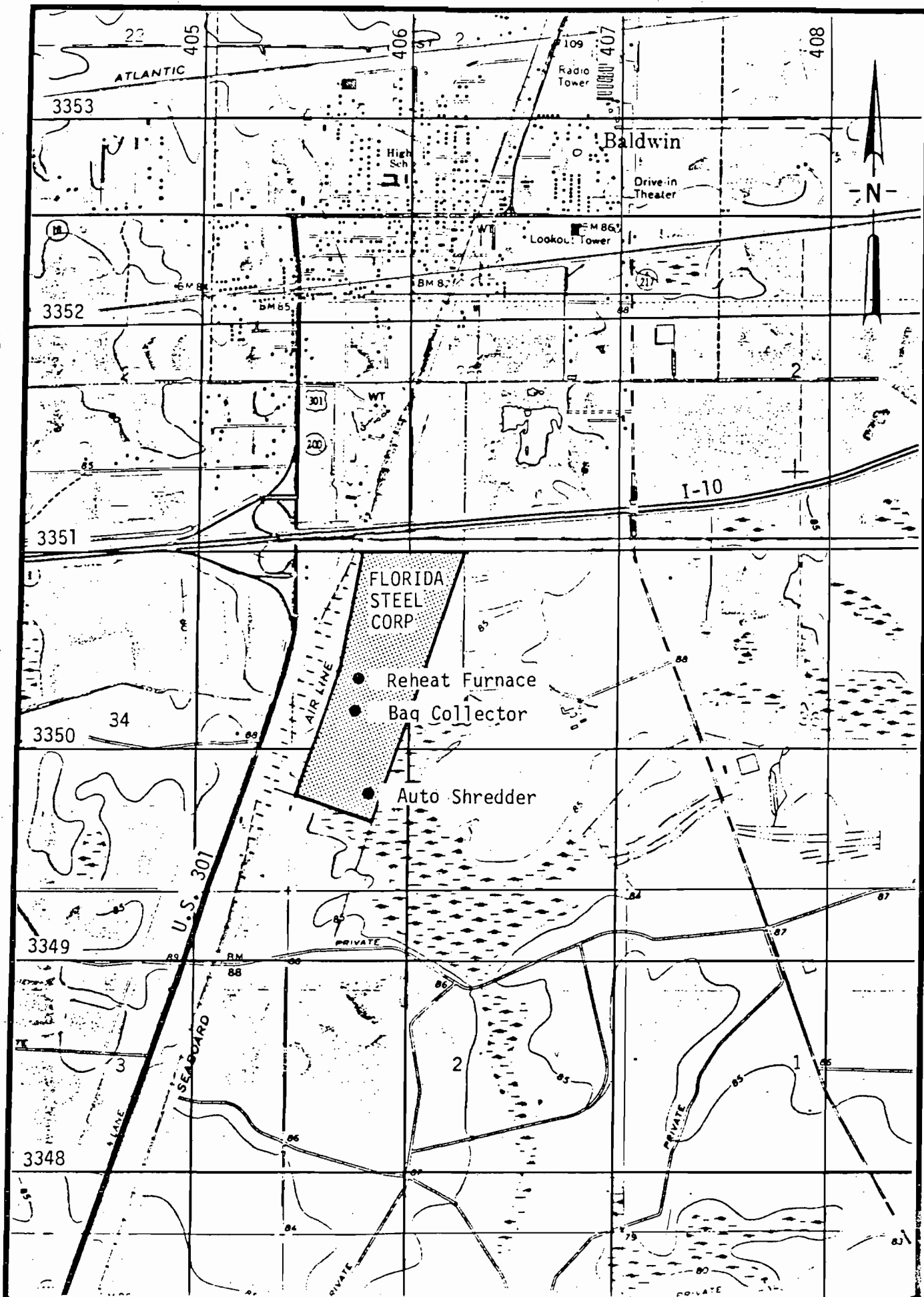
PROCESS FLOW DIAGRAM B



FLORIDA STEEL  
CORPORATION  
TAMPA, FLORIDA

TITLE  
STEELMAKING

DRAWN GEH DATE 3/75  
CHECKED



YELLOW WATER ROAD

8.6 ACRE LAKE

SEWAGE TREATMENT  
PLANT AREA

FUTURE

FUTURE

FUTURE

FUTURE

EMPLOYEE  
PARKING

FUTURE

TRAILER PARKING

WATER TOWER

THROUGH DRIVE

ROLLING MILL

OFFICE

BILLET STORAGE

WATER

ELECTRIC  
ARC FURNACE  
BUILDING

BAG COLLECTOR

REPEAT FURNACE

WATER

WATER

WATER

WATER

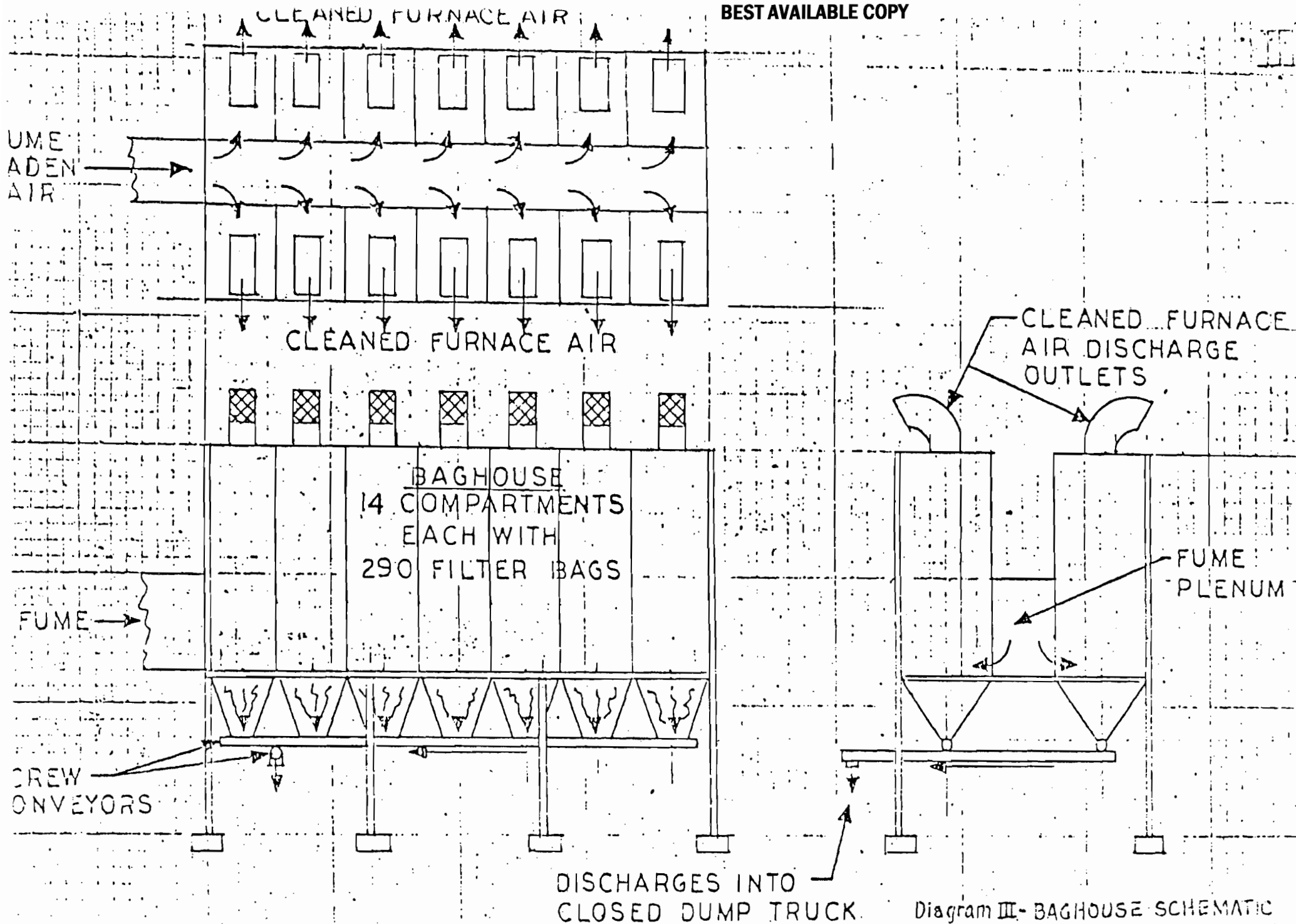


Diagram III - BAGHOUSE SCHEMATIC

FLORIDA STEEL  
CORPORATION

TITLE AIR  
FILTRATION  
EQUIPMENT  
DRAWN DATE

# STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

## OPERATION PERMIT

FOR Florida Steel Corporation  
Box 518  
Baldwin, Florida 32234

PERMIT NO. A016-2695 DATE OF ISSUE June 23, 1977

PURSUANT TO THE PROVISIONS OF SECTIONS 403.061 (16) AND 403.707 OF CHAPTER 403, FLORIDA STATUTES AND CHAPTERS 17-4 AND 17-7 FLORIDA ADMINISTRATIVE CODE, THIS PERMIT IS ISSUED TO:  
Mr. D. J. Andrew, Manager

FOR THE OPERATION OF THE FOLLOWING:

Electric Arc Furnace, 70,320 #/hr. with Baghouse  
(Fuller Model "6000") or 32 BT/hr product

This unit is being upgraded  
to 67 BT/hr with an  
additional baghouse

LOCATED AT I-10 & Yellow V Duval County, Fla.

UMT: E-7406300 N-33

0.91 % C (scrap to product)

IN ACCORDANCE WITH THE APPLICATION DATED March 22, 1977

ANY CONDITIONS OR PROVISOS WHICH ARE ATTACHED HERETO ARE INCORPORATED INTO AND MADE A PART OF THIS PERMIT AS THOUGH FULLY SET FORTH HEREIN. FAILURE TO COMPLY WITH SAID CONDITIONS OR PROVISOS SHALL CONSTITUTE A VIOLATION OF THIS PERMIT AND SHALL SUBJECT THE APPLICANT TO SUCH CIVIL AND CRIMINAL PENALTIES AS PROVIDED BY LAW.

THIS PERMIT SHALL BE EFFECTIVE FROM THE DATE OF ISSUE UNTIL March 31, 1982

OR UNLESS REVOKED OR SURRENDERED AND SHALL BE SUBJECT TO ALL LAWS OF THE STATE AND THE RULES AND REGULATIONS OF THE DEPARTMENT.

Frank Watkins, Jr.  
SUBDISTRICT ENGINEER

Joseph W. Landers, Jr.  
SECRETARY

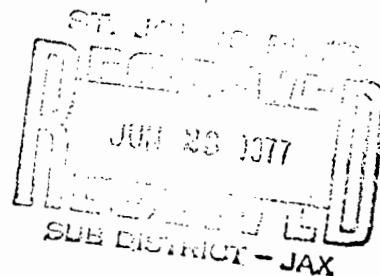
W. W. Honour, Division Chief  
Bio-Environmental Services Division  
City of Jacksonville

G. Doug Dutton  
SUBDISTRICT MANAGER, Acting

LOWER ST. JOHNS RIVER SUB DISTRICT  
DEPARTMENT OF ENVIRONMENTAL REGULATION



PERMIT NO. Roll-247  
DATE 6/22/77



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

**APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES**

Source Type: Air Pollution [ ] Incinerator [ ]  
Type application: [X] Operation [ ] Construction  
Source Status: [ ] New [X] Existing [ ] Modification  
Company Name: FLORIDA STEEL CORPORATION County: Duval  
Source Identification: \_\_\_\_\_  
Source Location: Street: I-10 and Yellow Water Road City: Jacksonville  
UTM: East 406300 North 3,350,500  
Appl. Name and Title: D. J. Andrew, Manager, Jacksonville Steel Mill  
Appl. Address: Florida Steel Corporation, Box 518, Baldwin, Florida 32234

STATEMENTS BY APPLICANT AND ENGINEER

**A. APPLICANT**

I am the undersigned owner or authorized representative of\* FLORIDA STEEL CORPORATION  
operating \_\_\_\_\_ permit are  
I certify that the statements made in this application for a \_\_\_\_\_ permit are  
true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and  
pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regula-  
tions of the Department and revisions thereof. I also understand that a permit, if granted by the Department, will be nontransferable and I will  
promptly notify the Department upon sale or legal transfer of the permitted establishment.  
Dennie Andrew  
Signature of the Owner or Authorized Representative and Title  
Date: March 22, 1977 Telephone No.: (904) 266-4261

\*Attach a letter of authorization. If applicant is a corporation, a Certificate of Good Standing must be submitted with application. This may be  
obtained for a \$5.00 charge from the Secretary of State, Bureau of Corporate Records, Tallahassee, Florida 32304.

**B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA**

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in con-  
formity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application.  
There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will  
discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulation of the Department. It is  
also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution  
control facilities and, if applicable, pollution sources.

Robert S. Sholtes  
Signature: \_\_\_\_\_ Mailing Address: 1213 N. W. 6th Street  
Name: R. S. Sholtes \_\_\_\_\_ Gainesville, Florida 32601  
(Please Type)  
Company Name: Sholtes and Koogler Telephone No.: (904) 377-5822  
Florida Registration Number: 7601 Date: March 22, 1977

(Affix Seal)

OPERATIONS PERMIT CONDITIONS  
FOR AIR POLLUTION SOURCES

(an "X" indicates applicable conditions)

A016-2695

Date: June 23, 1977

- X) 1. The permit holder must comply with Florida Statute 403 and the applicable Chapters of the Department of Environmental Regulation in addition to the conditions of this permit. (Florida Statute, subsection (1b) of section 403.161).
- X) 2. Test the emissions for the following pollutant(s) at intervals of one year from the date of June 1, 1977 and submit a copy of test data to the District Engineer of the Florida Department of Environmental Regulation, 3426 Bills Road, Jacksonville, Florida, 32207, and a copy to the City of Jacksonville, Air Pollution Control Activity, 515 West Sixth Street, Jacksonville, Florida, 32206, within fifteen (15) days of such testing. Chapter 17-2.07(1) Florida Administrative Code (FAC).
- |     |               |     |                      |
|-----|---------------|-----|----------------------|
| (X) | Particulates  | ( ) | Sulfur Oxides        |
| ( ) | Fluorides     | ( ) | Nitrogen Oxides      |
| (X) | Plume Density | ( ) | Hydrocarbons         |
| ( ) | Fuel Analysis | ( ) | Total Reduced Sulfur |
- X) 3. Testing of emissions must be accomplished at approximately the rates as stated in the application. Failure to submit input rates or to operate at conditions which do not reflect actual operating conditions may invalidate the data. Florida Statutes 403.161 Section (1c).
- ) 4. Submit for this source quarterly reports showing the type and monthly quantities of fuel used in the operation of this source. Also state the sulfur content of each fuel. Chapter 17-4.14 FAC.
- X) 5. Submit for this facility, each year, on or before November 15, an emission report for the preceding year, October 1-September 30, containing the following information: Chapter 17-4.14 FAC.
- (A) Annual amount of materials and/or fuels utilized  
(B) Annual emissions (note calculation basis)  
(C) Any changes in the information contained in the permit application
- ) 6. In the event the permittee is temporarily unable to comply with any of the conditions of the permit, the permittee shall immediately notify the District Office of the DER and the City of Jacksonville's Air Pollution Control Office as per Chapter 17-4.13, FAC. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement actions by the Department.
- ) 7. According to the Process Weight Table, the maximum allowable emission rate of particulates for a process rate of \_\_\_\_\_ tons/hour is \_\_\_\_\_ pounds/hour. At lesser process rates, the allowable emission rates can be determined from the graph.
- ) 8. This permit is associated with a Development of Regional Impact (DRI). It does not waive any other permits that may be required from this or any other state, federal or local agency.

# DETAILED DESCRIPTION OF SOURCE

- A. Describe the nature and extent of the project. Refer to existing pollution control facilities, expected improvement in performance of the facilities and state whether the project will result in full compliance. Attach additional sheet if necessary.

Fabric filter baghouse capturing particulate fume generated by a 70 ton capacity electric arc furnace. System utilizes a side-draft hood on the arc furnace in combination with a roof canopy hood over the furnace.

Ref. DPC Permit #AC 16-2395

- B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction: \_\_\_\_\_

Completion of Construction: \_\_\_\_\_

- C. Costs of Construction (Show a breakdown of estimated costs for individual components/units of the project serving pollution control purpose only). Information on actual costs shall be furnished with the application for operation permit.

13 Compartment Baghouse c/w Fans, controls	473,391
Electrical Installation	59,492
Foundations	16,306
Mechanical and Pneumatic Assembly	56,210
Baghouse Structural Support Steel	12,683
Installed Ductwork Cost	150,687
Opacity Monitoring Equipment (estimate)	30,000
	798,769

- D. For this source indicate any previous DER permits, orders, and notices; including issuance dates and expiration dates.

DPC Permit #AC 16-2395

Expiration Date 12-01-76

- E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? Yes \_\_\_\_\_ No \_\_\_\_\_



**AIR POLLUTION SOURCES & CONTROL DEVICES**  
(other than incinerators)

**A. Identification of Air Contaminants:**

- 1) ☒ Particulates  
a) ☒ Dust                      b) ☐ Fly Ash                      c) ☐ Smoke                      d) ☐ Other (Identify)
- 2) ☐ Sulfur Compounds  
a) ☐ SO<sub>x</sub> as SO<sub>2</sub>                      b) ☐ Reduced Sulfur as H<sub>2</sub>S                      c) ☐ Other (Identify)
- 3) ☐ Nitrogen Compounds  
a) ☐ NO<sub>x</sub> as NO<sub>2</sub>                      b) ☐ NH<sub>3</sub>                      c) ☐ Other (Identify)
- 4) ☐ Fluorides                      5) ☐ Acid Mist                      6) ☐ Odor
- 7) ☐ Hydrocarbons                      8) ☐ Volatile Organic Compounds
- 9) ☐ Other (Specify): None

**B. Raw Materials and Chemicals Used (Be Specific):**

Description	Utilization Rate lbs./hr.	Approximate Contaminant Content		Relate to Flow Diagram
		Type	% Wt.	
Steel Scrap	70,320	FeO	65	Diagram I-B
		Al <sub>2</sub> O <sub>3</sub>	20	
		SiO <sub>2</sub>	6	
		other oxides	9	

**C. Process Rate:**

- 1) Total Process Input Rate (Units\*): 70,320 lbs/hour
- 2) Product Weight (Units\*): 64,000 lb/hour Steel Billets
- 3) Normal Operating Time: Continuous, if seasonal describe: \_\_\_\_\_  
hrs./day: 24                      days/wk.: 7                      wks/yr.: 50

**D. Airborne Contaminants Discharged:**

Name of Contaminant	Actual** Discharge		Discharge Criteria Rate*	Allowable Discharge lbs./hr.	Relate to Flow Diagram
	lbs./hr.	T/yr.			
Dust	2.1	8.82	Process Weight Rate	30.60 lbs/hour	Diagram I-B
			NSPS	6.4 #/h	

\*Refer to Chapter 17-2.04(2), Florida Administrative Code.  
(Discharge Criteria: Rate = lbs./ton P<sub>2</sub>O<sub>5</sub>, lbs./M BTU/hr., etc.)  
\*\* Estimate only if this is an application to construct.

E. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency*	Conditions of Operations	Basis for Efficiency Operational Data, Test, Design, Data
1) Fabric Filter			Continuous	
Baghouse (Fuller			Particle size	
Model "6000")			less than	
	Dust	98.0%	5 microns	Design
2) Side Draft Hood		98.2%	Roof on	Design
			furnace	
3) Roof Canopy Hood		80	Roof off	Design
			furnace or	
			furnace tilted	

\*See required supplement.

(Include any test data and/or design data for efficiency substantiation)

F. Fuels: No combustible fuels

Type (Be Specific)	Consumption*		Maximum Heat Input MMBTU/hr.
	Avg./hr.	Max./hr.	
Electricity	15,000 KW/hour	28,000 KW/hour	100 MMBTU/hour

\*Units: Natural Gas — MCF/hr.; Fuel Oils, Coal — lbs./hr.

Fuel Analysis: N/A

Percent Sulfur: \_\_\_\_\_ Percent Ash: \_\_\_\_\_

Density: \_\_\_\_\_ lb./gal.

Heat Capacity: \_\_\_\_\_ BTU/lb. \_\_\_\_\_ BTU/gal.

Other Fuel Contaminants: \_\_\_\_\_

G. Indicate liquid or solid wastes generated and method of disposal:

Slag - crushed into rock form for road building on site

Dust - sanitary land fill on site

H. Emission Stack Geometry and Flow Characteristics, (provide data for each stack): See attached sketches

Stack Height: \_\_\_\_\_ ft. Stack Diameter: \_\_\_\_\_ ft.

Gas Flow Rate: \_\_\_\_\_ ACFM Gas Exit Temperature: \_\_\_\_\_ °F

Water Vapor Content: \_\_\_\_\_ %

# COMPUTATION OF BAGHOUSE TOTAL EMISSION

Average Hood Flow = 158,447 ACFM

@ 50°C @ 1-2% H<sub>2</sub>O

$$\text{SCFM} = 158,447 \frac{(530)}{(582)} \times .99 = 142,847 \text{ SCFMD}$$

Average Grain Loading = 0.00172 gr/SCFD

$$\begin{aligned} \text{Total Baghouse Emission} &= \frac{0.00172 \times 142,847 \times 60}{7000} \\ &= 2.1 \text{ lb/hour} \end{aligned}$$

STATE OF FLORIDA  
DEPARTMENT OF  
POLLUTION CONTROL

CONSTRUCTION PERMIT

FOR Florida Steel Corporation  
P. O. Box 37116  
Jacksonville, Florida 32205

PERMIT NO. AC16-2395

DATE June 3, 1975

PURSUANT TO THE PROVISIONS OF SECTION 403.021 (18) OF CHAPTER 403 FLORIDA STATUTES AND  
CHAPTER 17-4 FLORIDA ADMINISTRATIVE CODE, THIS PERMIT IS ISSUED TO:  
D. J. Andrew, Manager

To Construct THE FOLLOWING:  
An Electric-Arc Furnace Steel Mill with a 260,000 cfm, 13 Module Fuller  
Dracco Model "6000" Baghouse

LOCATED AT: Yellow Water Road (SR 217) Near Interstate 10 and Highway 301,  
Jacksonville, Duval County, Florida UTM: E-406300 N-3350500

IN ACCORDANCE WITH THE APPLICATION DATED April 7, 1975

AND IN CONFORMITY WITH THE STATEMENTS AND SUPPORTING DATA ENTERED THEREIN, ALL OF WHICH  
ARE FILED WITH THE DEPARTMENT AND ARE CONSIDERED A PART OF THIS PERMIT.

THIS PERMIT SHALL BE EFFECTIVE FROM THE DATE OF ITS ISSUANCE UNTIL 12-1-76 OR UNTIL  
REVOKED OR SURRENDERED AND SHALL BE SUBJECT TO ALL LAWS OF THE STATE AND THE RULES AND  
REGULATIONS OF THE DEPARTMENT.

W. W. Honour  
W. W. Honour, Division Chief  
Bio-Environmental  
Services Division  
City of Jacksonville

Frank Watkins, Jr.  
REGIONAL ENGINEER  
Frank Watkins, Jr.

Peter P. Baggett  
PETER P. BAGGETT  
EXECUTIVE DIRECTOR

2:20 1-30-91

Wayne Walker @ BESO  
via ferry  
to retrieve; Webster,

EAF

83-present

- ① lbs/hr <sup>row</sup> product feed / product <sub>BT</sub>
- ② goldseam and lbs/hr; and,
- ③ date

Bm-

STATE OF FLORIDADEPARTMENT OF POLLUTION CONTROLCONSTRUCTION PERMIT PROVISOSAIR POLLUTION SOURCES

Permit No. AC16-2395

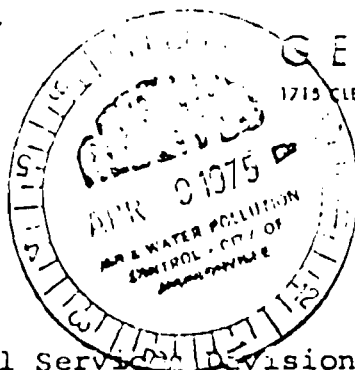
Date: 6/3/75

- (X) 1. Construction of this installation shall be completed by June 1, 1976. Application for Permit to Operate to be submitted by Oct. 1, 1976.
- (X) 2. This construction permit expires on Dec. 1, 1976 following an initial period of operation for appropriate testing to determine compliance with the Rules of the Florida Pollution Control Board.
- (X) 3. All applicable rules of the Department including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.
- (X) 4. The applicant shall continue the retention of the engineer of record for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. A report of such inspection shall be submitted by the engineer to the Department of Pollution Control for consideration toward the issuance of an operation permit.
- (X) 5. This baghouse shall be tested\* for particulates within        days after it is placed in operation. These test results are required prior to our issuance of an operation permit and shall be submitted in duplicate to the DPC Northeast Florida Regional Office 3426 Bills Road, Jacksonville, Florida 32207.
- \*FUEL ANALYSIS MAY BE SUBMITTED FOR REQUIRED SULFUR DIOXIDE EMISSION TEST.
- (X) 6. The operation of this installation shall be observed for visible emissions in accordance with Method 9 - Visible Determination of the Opacity of Emissions from Stationary Sources (36FR24895; Federal Register, December 23, 1971). The observation results are required prior to our issuance of an operation permit, and shall be submitted in duplicate to the DPC Northeast Florida Regional Office, 3426 Bills Rd., Jax., Fla. 32207.
- (X) 7. Satisfactory ladders, platforms, and other safety devices shall be provided/available as well as necessary ports to facilitate the carrying out of an adequate sampling program.
- (X) 8. There shall be no discharges of liquid effluents or contaminated runoff from the plant site.
- (X) 9. All fugitive dust generated at this site shall be adequately controlled.
- (X) 10. This source shall comply with the applicable Federal New Source Performance Stds.

FLORIDA STEEL  
CORPORATION

Steel when you want it

April 2, 1975

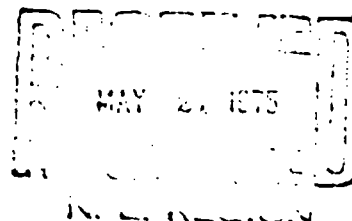


GENERAL OFFICES

1715 CLEVELAND ST. • P. O. BOX 23328 • TAMPA, FLA. 33622

Please reply to:  
P. O. Box 37116  
Jacksonville, Florida 32205

Bio-Environmental Services Division  
City of Jacksonville Department of Health,  
Welfare & Bio-Environmental Services  
515 West 6th Street  
Jacksonville, Fla. 32206



Gentlemen:

Enclosed herein for forwarding to the Department of Pollution Control is an executed application to construct pollution sources. Four facsimile copies are enclosed. With each is included:

- Diagram I - Schematic of Electric Furnace and Steelmaking Process
- Diagram II-A - Jacksonville Steel Mill Site Location
- Diagram II-B - Jacksonville Steel Mill Site Layout, showing locations of buildings, arc furnace, and baghouse
- Diagram III - Baghouse Schematic
- Diagram IV - Air Pollution Control Schematic

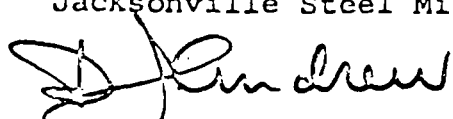
In addition to a \$20.00 check for the permit fee is the Proposal and Contract from Fuller Company. Essentially, the proposed system utilizes the latest technology in baghouse design and operation.

In order to provide continuous capture during all phases of the operation a canopy hood device is incorporated into the building roof to capture emissions during tapping and charging when the conventional (side-draft hood) equipment is not effective.

We believe everything is in order, but if additional information is needed, please advise.

Yours very truly,

FLORIDA STEEL CORPORATION  
Jacksonville Steel Mill Division

  
D. J. Andrew, Manager

DJA:ah-ENC.

DIVISIONS

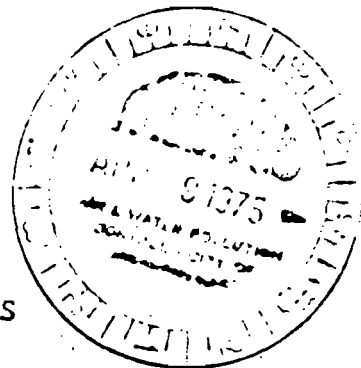
FT. LAUDERDALE, FLORIDA • FT. MYERS, FLORIDA • INDIANTOWN, FLORIDA • JACKSONVILLE, FLORIDA • MIAMI, FLORIDA • ORLANDO, FLORIDA • TAMPA, FLORIDA  
CHARLOTTE, NORTH CAROLINA • RALEIGH, NORTH CAROLINA • AIKEN, SOUTH CAROLINA • ATLANTA, GEORGIA



STATE OF FLORIDA  
DEPARTMENT OF POLLUTION CONTROL

APPLICATION TO OPERATE/CONSTRUCT POLLUTION SOURCES

SECTION I - GENERAL INFORMATION FOR ALL POLLUTION SOURCES  
I TO BE FILLED IN BY APPLICANT



Source Type: ☒ Air Pollution ☐ Water Pollution  
Type application: ☐ [ ] Operation ☐ [ ] Temporary Operation ☐ [ ] Construction  
Status Source: ☐ [ ] New ☐ [ ] Existing ☐ [ ] Modification  
Source Name: Florida Steel Corporation County: Escambia

Source Location: Street: Yellow Water Rd. (CR 217) near City: Jacksonville  
Interstate 10 and Hwy. 301  
(Water Source Only) Lat:            Long:             
(Air Source Only) UTM: East            North           

Appl. Name and Title: D. G. Anderson, Manager, Jacksonville Steel Mill  
Appl. Address: Florida Steel Corporation, P.O. Box 37116, Jacksonville, Fla. 32205

II TO BE FILLED IN BY REGION (\*BY BUREAU OF PERMITTING)

Control No.:            Region:            County:            Type:            Project:           

Type Permit:            Date Rec'd:            Permit No.:            Status Date:            Compl. Date:            Exp. Date:           

Source Description:           

Control Equipment:           

Permitting Duty Cycle:           

Station No.:           

Estimate:            Average:            Daily:           

Flow rate, MGD	DDO, lbs/day	Susp. Sol., lbs/day	Other:
<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

Operating Time: ☐ Continuous ☐ Intermittent

Fuel: Type            M-BTU/hr. In Put           

Incinerator: Capacity, tons/day            Type Waste           

Mfg. & Model           

Pollutant Emissions, lbs/day	Actual	Design	Allowable
Particulate	<u>          </u>	<u>          </u>	<u>          </u>
Sulfur Dioxide	<u>          </u>	<u>          </u>	<u>          </u>
Other:	<u>          </u>	<u>          </u>	<u>          </u>

Implementation: Estimated Appl. Filing Date           

Estimated Start of Const.            Estimated Completion Date



## DESCRIPTION OF PROPOSED PROJECT

- A. Describe the nature and extent of the proposed project. Refer to existing pollution control facilities, DPC permits, conditions, orders and notices, expected improvement in performance of the facilities and state whether the proposed project will result in full compliance of the source. Attach additional sheet if necessary.

The proposed system is designed to capture particulate matter generated by a new 70-ton electric arc furnace. The collection system will utilize a side-draft hood (mounted on the arc furnace) in combination with a canopy hood over the furnace to capture fugitive particulate during starting and tapping. The hoodwork is a 13-module fabric filter system with 6000 sq. ft. of cloth per module capable of handling 200,000 cfm of dust-laden air at 11 in. w.g.

- B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Federally or State Financed Projects only:

Planning Complete \_\_\_\_\_

Financing Program Complete \_\_\_\_\_

Indicate other local, state and/or federal agency approvals and dates \_\_\_\_\_

All projects:

Start of Construction \_\_\_\_\_

10-1-75

Completion of Construction \_\_\_\_\_

6-1-76

- C. Costs of Construction (Show a breakdown of costs for individual components/units of the proposed project having pollution control purpose only). Information on actual costs shall be furnished with the application for operation permit.

Backhoe, Excavator, Pumps, Controls	\$450,000
Two 5000 lbm license and controls	40,000
Connecting ductwork and canopy hood	100,000
Foundation	50,000
Erection, Installation, etc.	160,000
<b>TOTAL</b>	<b>\$740,000</b>

- D. Indicate any previous DPC permits, issuance dates, and expiration dates.

None. This is a new steel mill.

### AIR POLLUTION SOURCES & CONTROL DEVICES

**A. Identification of Air Contaminants**

- 1) ☒ Particulates
  - a) ☒ Dust
  - b) ☐ Fly Ash
  - c) ☐ Smoke
  - d) ☐ Other (Identify)
- 2) ☐ Sulfur Compounds
  - a) ☐ SO<sub>x</sub> as SO<sub>2</sub>
  - b) ☐ Reduced Sulfur as H<sub>2</sub>S
  - c) ☐ Other (Identify)
- 3) ☐ Nitrogen Compounds
  - a) ☐ NO<sub>x</sub> as NO<sub>2</sub>
  - b) ☐ NH<sub>3</sub>
  - c) ☐ Other (Identify)
- 4) ☐ Fluorides
- 5) ☐ Acid Mist
- 6) ☐ Odor
- 7) ☐ Hydrocarbons
- 8) ☐ Volatile Organic Compounds
- 9) ☐ Other (Specify): None

**B. Raw Materials and Chemicals Used (Be Specific)**

Description	Utilization Ton/day, lbs./day, etc.	Approximate Contaminant Content		Relate to Flow Diagram
		Type	Conc.	
Steel Scrap	1,687,000 lbs/day	FeO	65	Diagr. I-B
		CO	20	
		SiO <sub>2</sub>	6	
		Carbon	9	

**C. Process Weight:**

- 1) Total Process Weight Rate 70,320 lbs/hr. [See Sec. 17-2.04(2)]
- 2) Product Weight 64,000 lb./hr. expressed as Steel Billets
- 3) Normal Operating Time 24 hr/day; 7 days/week, if seasonal describe: \_\_\_\_\_

**D. Airborne Contaminants Discharged:**

Name of Contaminant	Actual Discharge (calculated)	Discharge Criteria*	Allowable Discharge*	Relate Location to Flow Diagram
Dust	22.14 lbs/hr	PROCESS Weight Rate	30.60 lbs/hr	Diagr. I-B (total cycle)

\* Refer to Chapter 17-2 Florida Administrative Code  
(Discharge Criteria: Process Weight Rate, #/ton P<sub>2</sub>O<sub>5</sub>, #/M BTU/hr etc.)

## E. Control Devices:

Name	Eff.	Conditions of Operation, Particle Size Range, etc.	Relate to Flow Diagram
Fabric Filter Baghouse	98.0	Continuous (0-250°F), Particle Size < 5 microns	Diagr. I--A
Side Draft Hood	98.2	Roof on Arc Furnace	do --C
Canopy Hood	80%	Roof off (on charge) and Tap	do --D

## F. Fuels:

Type (Be specific)	Daily Consumption	Heat Input BTU/hr.	Relate to Flow Diagram
Electricity	384,000 KWH	54,640,000	Diagr. I--E

## G. Describe briefly, without revealing trade secrets, the unit processes/operations generating the airborne emissions identified in this application:

Melting scrap steel, and superheating and refining liquid steel in an electric arc furnace

## H. Indicate liquid or solid wastes generated and method of disposal.

Slag: paving material -- used on premises

Dust: sanitary land fill (Eventually will be sold for use in fertilizer).

## STATEMENTS BY APPLICANT AND ENGINEER

## A. Applicant

The undersigned owner or authorized representative of \* Florida Steel Corporation is fully aware that the statements made in this application for a construction permit are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403 Florida Statutes and all the rules and regulations of the Department or revisions thereof. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted establishment.

Dennis J. Andrew

Signature of the Owner or Authorized Representative

D.J. Andrew, Manager, Jacksonville Steel Mill Division

Name and Title (Please Type)

Date: April 7, 1975 Telephone No.: (904) 783-0201

\* Attach a letter of authorization

## B. Professional Engineer Registered in Florida:

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the control and discharge of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution source(s) with appropriate control facilities, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the installation covered in this application.

Signature

Charles A. Sutton

Name: Charles A. Sutton  
(please type)

Mailing Address: Florida Steel Corporation  
P. O. Box 37116  
Jacksonville, Fla. 32205  
Telephone No.: (904) 783-0201

Florida Registration Number 3855  
(Please affix seal)

Date: April 7, 1975

If applicant is a corporation, a Certificate of Good Standing must be submitted with application.

This may be obtained, for a \$5.00 charge, from the Secretary of State, Bureau of Corporate Records, Tallahassee, Florida 32304.

PERMITTED  
BY  
NORTHEAST REGION  
DEPT. OF POLLUTION CONTROL  
PERMIT NO. 4016-2395  
DATE 4/13/75

## ADDENDUM TO PERMIT APPLICATION

FOR

AIR POLLUTION SOURCES

Listed below are clarifications of some of the information required on the application form. All information submitted must be in the format of lines below. Space is also provided below for additional information contained in the original form.

AIR POLLUTION SOURCES & CONTROL DEVICES:

Item: C 1) Show the derivation of process weight.

Item: C 2) Normal operating time must be given as Hrs/Day, Days/Week and Weeks/Year.

If seasonal, give % operation by month.

Contaminants must include but not limited to: particulate matter, sulfur oxides, carbon monoxide, hydrocarbons and nitrogen oxides. This information must be submitted even though an applicable standard may not exist.

Also give actual discharge of each contaminant in lbs/hr and tons/yr.

Item: D In the space provided for Name, give model number and serial number of control device.

On separate page, give basis for efficiency on the process, i. e. calculations, (Do not give a general efficiency).

Item: F Include the commercial standard number of fuel oil and % sulfur, e.g. No. 6 fuel oil with 2.5% sulfur.

In the space provided for daily consumption, give mean and extremes.

Heat input must be the design capacity.

If application is for boiler, include manufacturer, model no. and serial no.

ADDITIONAL INFORMATION REQUIRED:

1. Flow diagram of process (without revealing trade secrets)

2. Plot plan

3. Stack data:

Height (ft.):

55 ft

Diameter (ft.):

2' x 3'

(13 stacks)

Temperature (°F):

150°F

(avg)

ACFM (ft<sup>3</sup>/min)

18500

at 150 °F

(Stack temp)

in each of 13 stacks

FLORIDA STEEL  
CORPORATION

"Steel when you want it"

## GENERAL OFFICES

1715 CLEVELAND ST. • P.O. BOX 23328 • TAMPA, FLA. 33622

April 2, 1975

## LETTER OF AUTHORIZATION

TO WHOM IT MAY CONCERN:

This authorizes D. J. Andrew, Manager, Jacksonville Steel Mill Division to act as the general agent of this corporation for the construction and operation of a steel mill in the City of Jacksonville.

Yours very truly,

FLORIDA STEEL CORPORATION

*Edward L. Flom*  
Edward L. Flom

ELF:mew

## DIVISIONS

FORT MYERS, FLORIDA • JACKSONVILLE, FLORIDA • MIAMI, FLORIDA • ORLANDO, FLORIDA • TAMPA, FLORIDA  
HAYLOTTE, NORTH CAROLINA • RALEIGH, NORTH CAROLINA • AIKEN, SOUTH CAROLINA • ATLANTA, GEORGIA • INDIANTOWN, FLORIDA



STATE OF FLORIDA)

Department of State )

SS

I, DOROTHY W. GLISSON, Secretary of State of the State of Florida, do hereby  
certify from the records of this office that

## FLORIDA STEEL CORPORATION

is a corporation duly organized and existing under the laws of the State of Florida.

Charter number: 1-95537

I further certify that said corporation has paid all fees and taxes due this office to  
date; has otherwise fully complied with the corporation laws administered by this  
office; and that its Charter is in full force and effect.

GIVEN under my hand and the Great  
Seal of the State of Florida, at  
Tallahassee, the Capital, this the  
24th day of October,  
A.D., 1974.



*Dorothy W. Glisson*  
SECRETARY OF STATE

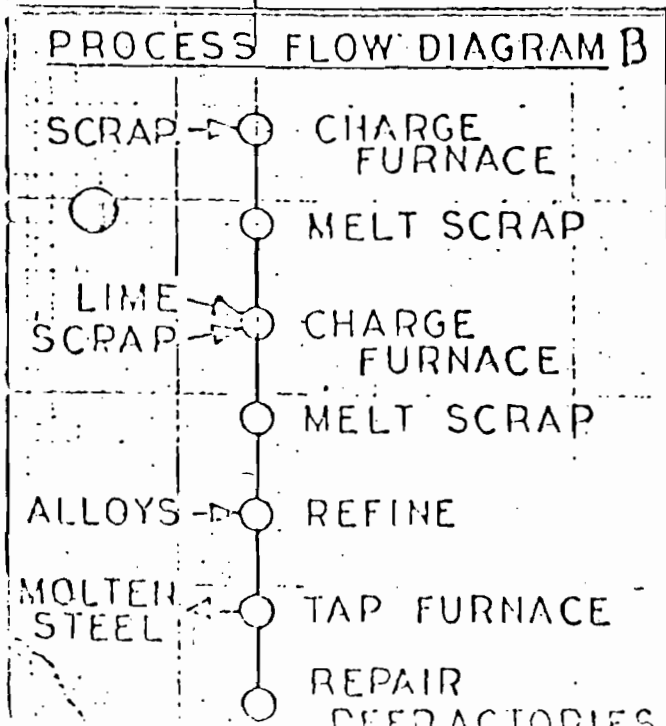
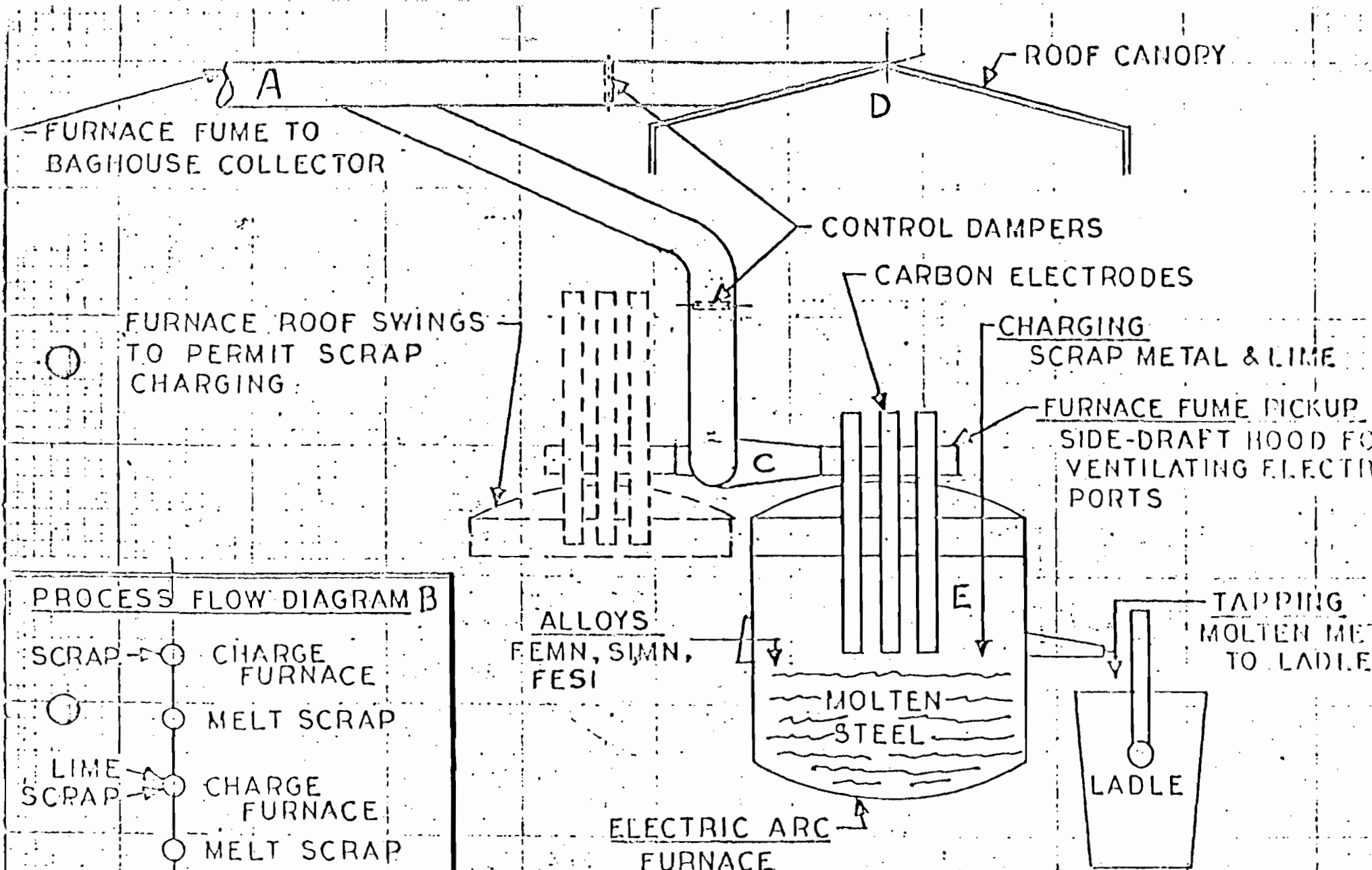


Diagram 1 - PROCESS FLOW

FLORIDA STEEL CORPORATION  
TAMPA, FLORIDA

TITLE  
STEELMAKING  
DRAWN BY  
CHECKED  
APPROVED



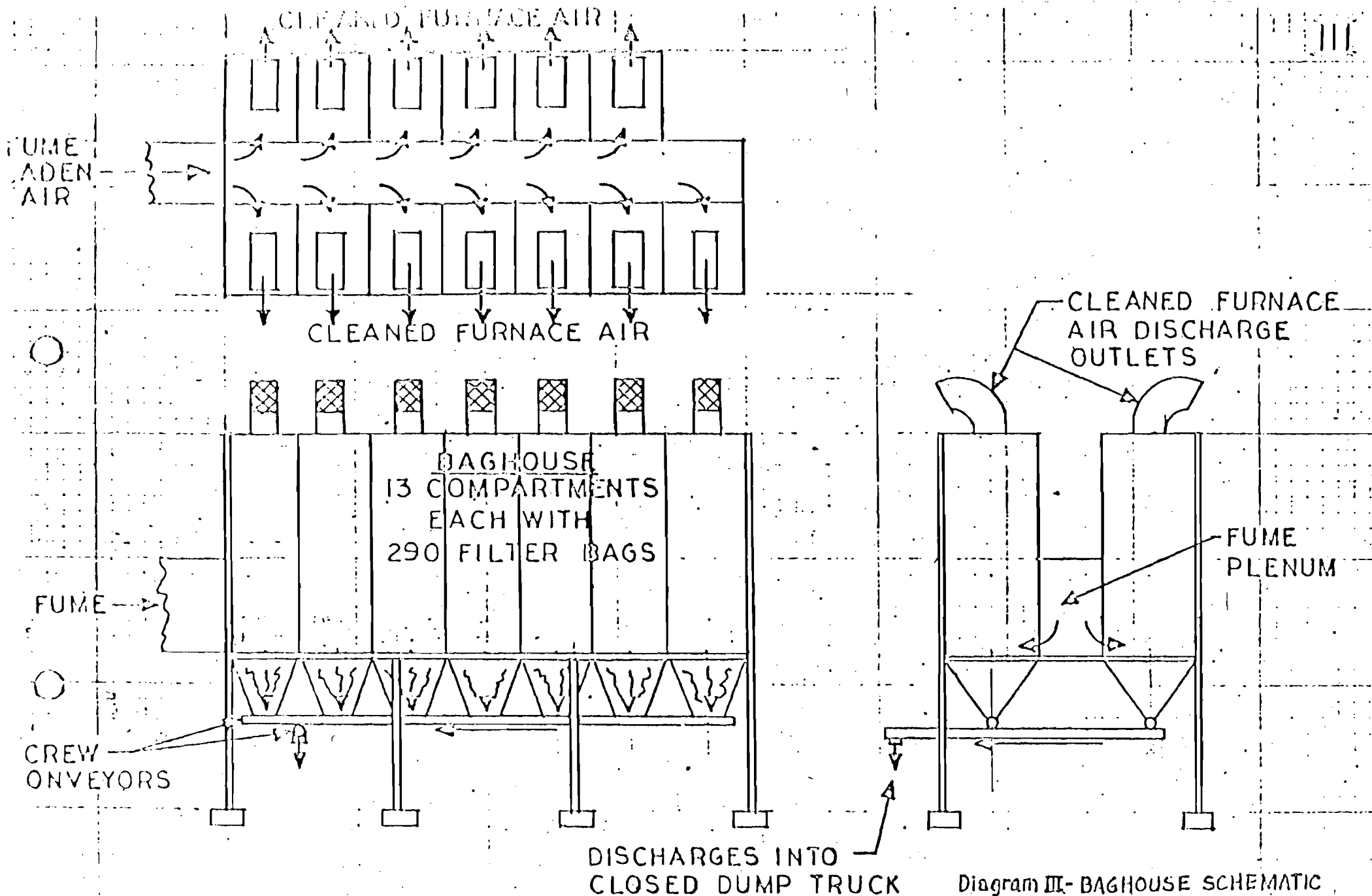


Diagram III- BAGHOUSE SCHEMATIC

FLORIDA STEEL  
CORPORATION  
TAMPA, FLORIDA

TITLE AIR  
FILTRATION  
EQUIPMENT  
DRAWN G.E.H. DATE 5/75  
CHECKED

BEST AVAILABLE COPY

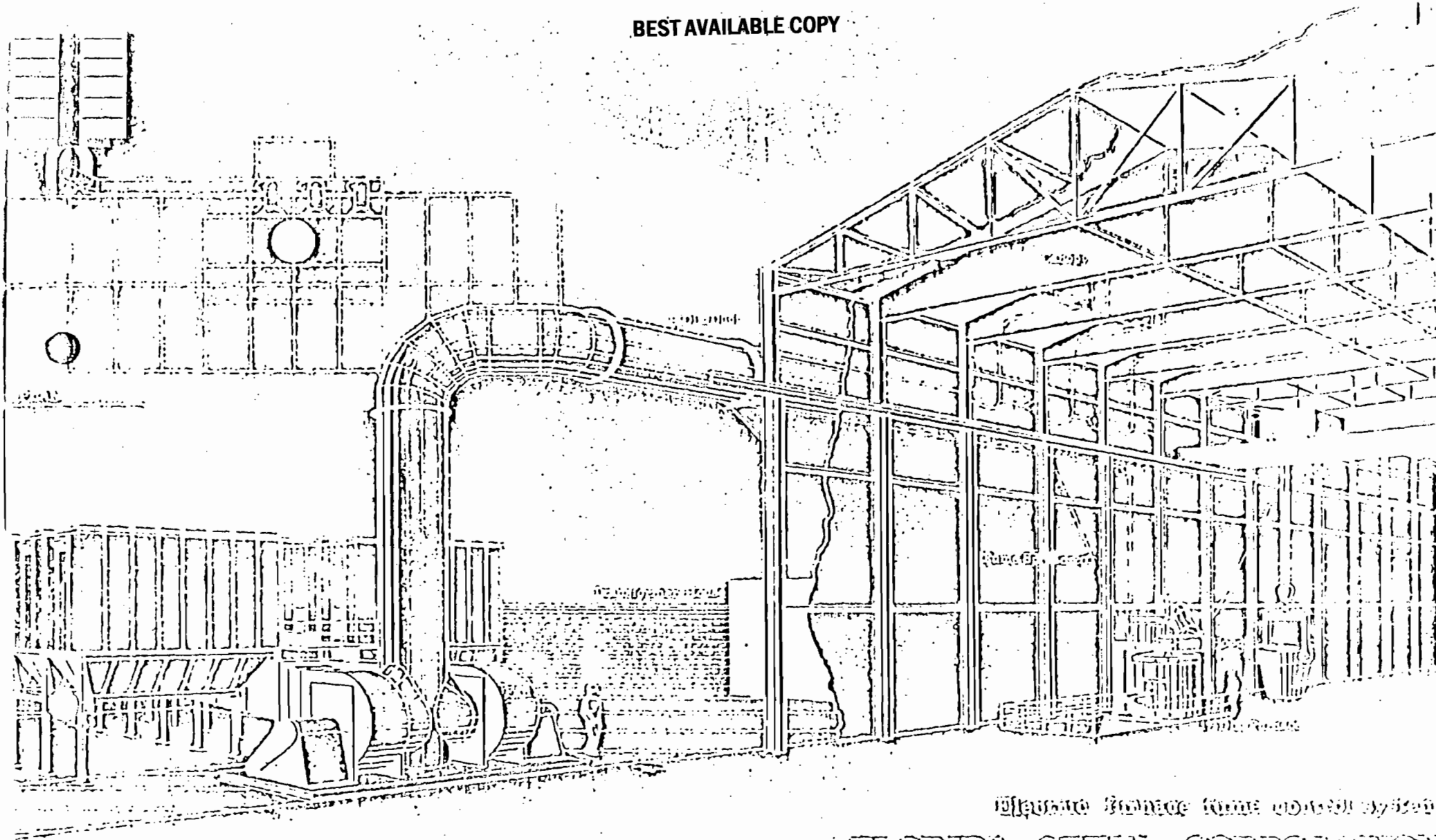
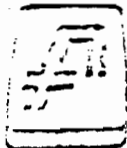


Diagram IV - Air Pollution Control System  
for FLORIDA STEEL CORPORATION

Diagram IV - AIR POLLUTION CONTROL  
SCHEMATIC



FULLER COMPANY

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124 BRIDGE ST., CAMAS, OREGON, 97013

TELEPHONE: 503-264-8011 TWX: 510-841-5018 TELETYPE: 004-7443 CABLE: COLFULLER  
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

## PROPOSAL AND CONTRACT

Proposal No. 4-46218-340, Rev. 2

Date February 10, 1975

TO: Florida Steel Corporation  
1715 Cleveland Street  
Post Office Box 23328  
Tampa, FL 33622

*Order # 84-906650-0006*  
*2-20-75*

Attention: Mr. Dennie Andrew - Divisional Manager  
Mr. George Humiston - Project Engineer

(hereinafter referred to as the Purchaser)

The Fuller Company, (hereinafter referred to as FULLER), hereby offers to furnish the following described machinery and equipment (hereinafter sometimes collectively referred to as "products"), and/or services under the terms and prices stated on the last page of this proposal, and in accordance with the conditions hereinafter set forth. This proposal will remain in effect for thirty (30) days unless changed in the interim by written notice from FULLER.

Equipment to be furnished by Fuller Company to collect fumes from your new electric arc furnace, Jacksonville Mill, Jacksonville, Florida. System design to include combination side draft hood with canopy (recommended size of 40' X 40') to capture all furnace fumes during charging, melting, lancing, refining, and tapping.

SIDE DRAFT VOLUME-----185,000 ACFM  
SYSTEM VOLUME DESIGN-----240,000 ACFM  
SYSTEM TEMPERATURE-----150°F  
FAN DESIGN-----240,000 ACFM @ 70°F @ 14.0" S.P.  
FAN VOLUME (MAXIMUM)-----260,000 ACFM  
BAGHOUSE DESIGNATION-----13 MODULE "6000"  
CLOTH TYPE-----DACRON POLYESTER  
FILTRATION (AIR-TO-CLOTH RATIO)-----3.08:1 GROSS  
3.33:1 NET  
GENERAL ARRANGEMENT DRAWING NUMBER-----340-73-4-0103, Shts. 1 & 2  
SIDE DRAFT HOOD SKETCH-----#F1  
SYSTEM FLOW-----#F2



# FULLER COMPANY

124 BRIDGE ST., CAMDEN, PA. 19022  
TELEPHONE: 215-262-8011 TWX: 510-851-5018 TELEX: 004-7443 CABLE: COLFULLER  
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

BEST AVAILABLE COPY

## PROPOSAL AND CONTRACT

Proposal No. 4-46218-340, Rev. 2

Date February 10, 1975

TO: Florida Steel Corporation  
1715 Cleveland Street  
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Order # 84-906650-0006  
2-20-75

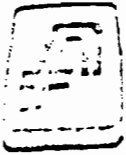
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SIDE DRAFT VOLUME-----	185,000 ACFM
SYSTEM VOLUME DESIGN-----	240,000 ACFM
SYSTEM TEMPERATURE-----	150°F
FAN DESIGN-----	240,000 ACFM @ 70°F @ 14.0" S.P.
FAN VOLUME (MAXIMUM)-----	260,000 ACFM
BAGHOUSE DESIGNATION-----	13 MODULE "6000"
CLOTH TYPE-----	DACRON POLYESTER
FILTRATION (AIR-TO-CLOTH RATIO)-----	3.08:1 GROSS 3.33:1 NET
GENERAL ARRANGEMENT DRAWING NUMBER-----	340-73-4-0103, Shts. 1 & 2
SIDE DRAFT HOOD SKETCH-----	#F1
SYSTEM FLOW-----	#F2



## FULLER COMPANY

174 BRIDGE ST., CATASAUQUA, PA. 18032

TELEPHONE: 215-264-6011 TWX: 310-831-5815 TELEX: 084-7443 CABLE: COLFULLER  
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Proposal No. 4-46218-340, Rev. 2

Date February 10, 1975

EQUIPMENT TO BE FURNISHED BY FULLER COMPANY

One (1) Fuller/DRACCO Model "6000" mechanical shaking, continuous-automatic, pressure type, modular dust collector consisting of thirteen (13) shop-assembled modules in a double row arrangement. The dust collector is designed to filter dust laden air at 240,000 CFM at 150°F and contains 78,000 square feet of filter area. The air-to-cloth ratio is 3.08:1 with all modules in service and 3.33:1 with one module off-line for cleaning.

1) DUST COLLECTOR

The dust collector is approximately 28'7" wide X 75'3" long X 52'0" high and is comprised of the following elements:

A.1 HOUSING AND HOPPER

The side and roof panels are constructed of 12 gauge steel sheets with 6" X 10 gauge thick horizontal reinforcing members at all the bolted panel joints; caulking between the flanges provides an air-tight seal.

The pyramid hoppers are made of 10 gauge sheet steel, suitably reinforced and have 60° side slopes. The hopper inlet fitting has a 3/16" thick target plate and is shaped to prevent high velocity dust laden gases from impinging directly on the filter bags. There is a 10-1/2" square flanged opening on the hopper bottom. Both the housing and hopper are reinforced to withstand 20" W.G. suction or pressure.

The bottom plates or tube sheets are made of 12 gauge reinforced sheet steel with rolled-in 20 gauge 3" high bag collars.

To insure convenient access for filter bag inspection and replacement each module has two (2) 15" wide aisles at the tube sheet elevation, which provide a maximum reach of four (4) 5" diameter bags (23") from the aisle. For each module we include an internal ladder and two (2) matching platforms, about 18" wide, at a suitable height in each aisle to insure convenient access to the bag suspension.

Each hopper is equipped with an 18" X 20" quick-opening cast iron inspection door. The entire dust collector is painted with Fuller's standard primer, inside and outside.

A.2 FILTER BAGS

Each module contains 290 filter bags (5" diameter X 15-1/2' effective length). The cloth is DRACCO H-8 polyester with a sateen weave, 100/60 thread count, all spun, heat set, 9.0 to 9.4 ounces per square yard and an ASTM clean permeability of 20 to 30 CFM at 1/2" W.G. Each filter bag has an effective cloth area of 20.7 square feet and each module contains 6,000 square feet of cloth.



124 BRIDGE ST., CAMDEN, PA. 19002

TELEPHONE: 610-291-6011 TWX: 510-651-5818 TELEX: 007443 CABLE: COLFULLER  
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

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Proposal No. 4-46218-340, Rev. 2

Date February 10, 1975

### EQUIPMENT TO BE FURNISHED BY FULLER COMPANY

#### A.2 FILTER BAGS (CONT.)

The bags are secured to the bottom tube collars with quick opening steel spring clamps and to the top with patented spring clips. No tools are required for bag installation or adjustment.

The maximum recommended temperature for the polyester fabric is 275°F.

#### A.3 SHAKING MECHANISM

A 1-1/2 HP, TEFC, 1800 RPM, 230/460 Volt, 3 Phase, 60 Hertz motor powers the bag shaking mechanism for each module. This motor and the shaker drive components are mounted externally to the dust collector housing. There are no internal bearings; the bag shaker shafts oscillate on hardened cast iron V-pivot supports on one end. The bearings for the other end are sealed, anti-friction flange blocks mounted outside the dust collector housing. The bushings for the connecting bars are of graphited bronze.

#### A.4 AIR VALVES

Each module is provided with a 30" diameter DRACCO, poppet-type, heavy duty air valve. Each damper is equipped with a double action air cylinder and weather-proof solenoid valve. The valve is completely shop-fabricated and includes housing for convenient mounting to each module inlet.

#### A.5 INLET MANIFOLD

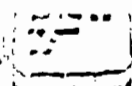
One (1) common inlet manifold running the entire length of the collector, tapered to maintain an average gas velocity of 3,500 RPM. It is constructed of 7 gauge mild steel, complete and reinforced to withstand 20" W.G. Quick opening cast iron inspection doors are provided every 20' along the length of the manifold.

#### A.6 INLET FITTINGS

A 30" diameter inlet duct is furnished to connect the inlet manifold to each hopper. They house the inlet poppet valves, are constructed of 10 gauge mild steel, and are reinforced to withstand 20" W.G.

#### A.7 DIFFERENTIAL PRESSURE GAUGES

A U-tube manometer is provided for each module to indicate the pressure drop across the compartment. Pressure taps for connection to the manometers are located in the hopper and in the door panel of the housing. A manometer board, housing all thirteen (13) compartment U-tubes is included.



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Proposal No. 4-40218-340, Rev. 2 Date February 10, 1975

EQUIPMENT TO BE FURNISHED BY FULLER COMPANY

**A.8 EXIT DUCTS**

A 24" X 36" flanged gooseneck stack is mounted on the roof of each module to exhaust clean air and prevent any moisture from entering the collector. Bird-screening is included for the discharge.

One (1) supporting structural steel unit provides common access to all dust collector modules and includes the following:

**B.1 COLLECTOR SUPPORT**

One (1) common structural steel support with 1'1" clearance between each module. Designed to readily accept shop-assembled collectors to facilitate field labor and erection and adequately reinforced to withstand a windload of 33 pounds/square foot. The vertical clearance is approximately 12'0" from conveyor flange to support base plate.

**B.2 SUPPORT BRACING**

Bracing to reinforce structural steel support and integrally designed for supporting manifolding and conveying equipment.

**B.3 ACCESS PLATFORMS**

Access platforms are provided at collector entry and shaker mechanism levels. An access ladder from ground level to all collector levels and all necessary handrails are included.

**DUST REMOVAL**

One (1) common dust removal system conveying collected dust from all module hoppers, complete, including the following:

**C.1 DISCHARGE LOCK**

10" diameter heavy-duty cast iron rotary locks, to meter collected dust and provide a positive seal from each hopper discharge. Each lock is complete with a 1/2 HP, TE right angle gearmotor for 230/460 volt, 3 Phase, 60 Hertz service, mounting plate, chain drive, guard and assembly. The standard lock speed is 15 RPM with a gearmotor speed of 35 RPM.

**C.2 GATHERING SCREW CONVEYORS**

Two (2) 12" diameter heavy-duty screw conveyors with 10 HP, TEFC motors, V-belt drives and guards. Each screw collects from the rotary locks and conveys to a common cross-conveyor.

Proposal No. 4-46210-340, Rev. 2

Date February 10, 1975

EQUIPMENT TO BE FURNISHED BY FULLER COMPANYC.3 CROSS CONVEYOR

One (1) 12" diameter heavy-duty screw conveyor with 3 HP, TEFC motor, V-belt drive and guard designed to collect from each gathering screw and discharge at one common point. The vertical clearance underneath the dust discharge is approximately 12'0".

D) CONTROL PANEL

An Eagle cam timer is provided to stop the air flow through each module at regular intervals, operate the bag shaking mechanism, and then reopen the air valves. The normal timer setting operates the shaker motor for about 30 seconds each hour for each module. The length of the shaking period as well as the period between cleaning operations is adjustable. A module is off-line for 2 to 3 minutes for cleaning the filter bags. Multiple contact selector switches will be included to provide module isolation from the cleaning cycle during compartment maintenance. All controls related to motor starters (excluding fan starters) and cleaning cycle shall be mounted in a NEMA 12 floor-mounted, graphic control panel, which has been pre-wired and shop-tested. The panel box shall measure approximately 85" high X 112" wide X 14" deep and shall contain the main circuit breaker disconnect, all pushbuttons, pilot lights, relays, timers, and starters. Collector cleaning will be energized by a pressure differential switch.

E) SYSTEM ENGINEERING

Complete system design engineering from the side draft hood to the fan inlets. Including all ductwork sizing, routing and loads for use by others to determine actual details, for fabrication, supports, and their locations and in general all features to connect pollutant source to collecting equipment.

*option to build structure & hood*

TOTAL PRICE FOR ITEMS A THROUGH E, F.O.B. SHIPPING POINTS.....\$355,573.00

ESTIMATED SHIPPING WEIGHT.....320,000 POUNDS

*3 days installation supervision*

*2 modules to car*

*Fans* 58,300,

*Hood* 28,950,

OPTIONAL EQUIPMENT

*(2) Dampers & Controls* 22,000

SUPPORT STAIRTOWER

*Firm Price - no Escalation* 450,000

One (1) common structural stairtower from ground to all access levels. Complete including platforms, handrailing, grating, and integrally designed with main support structure.

PRICE FOR THE ABOVE EQUIPMENT, F.O.B. SHIPPING POINTS.....\$805,573.00

Sheet No. 5





# FULLER COMPANY

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124 BRIDGE ST., C. SAUGUA, PA. 19032

TELEPHONE 215-284-4001 TWX 510-418-5118 TELEX 005-7453 CABLE COLFULLER  
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Proposal No. 4-46218-340

Date February 10, 1975

## EQUIPMENT TO BE FURNISHED BY FULLER COMPANY

### OPTIONAL EQUIPMENT (CONT.)

#### HOPPER AND CONVEYOR ACCESS PLATFORM

One (1) common structural access platform, designed the entire length of the dust collector, including grating, handrail and platforms for stair-tower or ladder.

PRICE FOR THE ABOVE EQUIPMENT, F.O.B. SHIPPING POINTS.....~~\$18,000.00~~

#### MAIN FANS

Two (2) high efficiency mechanical draft fans, each rated at 120,000 CFM, 890 RPM, 472 BHP, 14" W.P.W.G. at 70°F. The fans are Clarage, or equal, 3200 RT, Arrangement 3, including inlet and outlet dampers, flanged connections, inspection doors, drain and coupling, sole plates, coupling guard and shaft guard.

Per the enclosed fan curves, we are utilizing only 96% of the fan wheel. We will suggest a 100% wheel width and provide 130,000 ACFM for system conditions.

PRICE FOR THE ABOVE EQUIPMENT, F.O.B. SHIPPING POINTS.....\$58,300.00

#### FURNACE HOODING

One (1) side draft exhaust hood for a 17'6" roof ring diameter electric arc furnace.

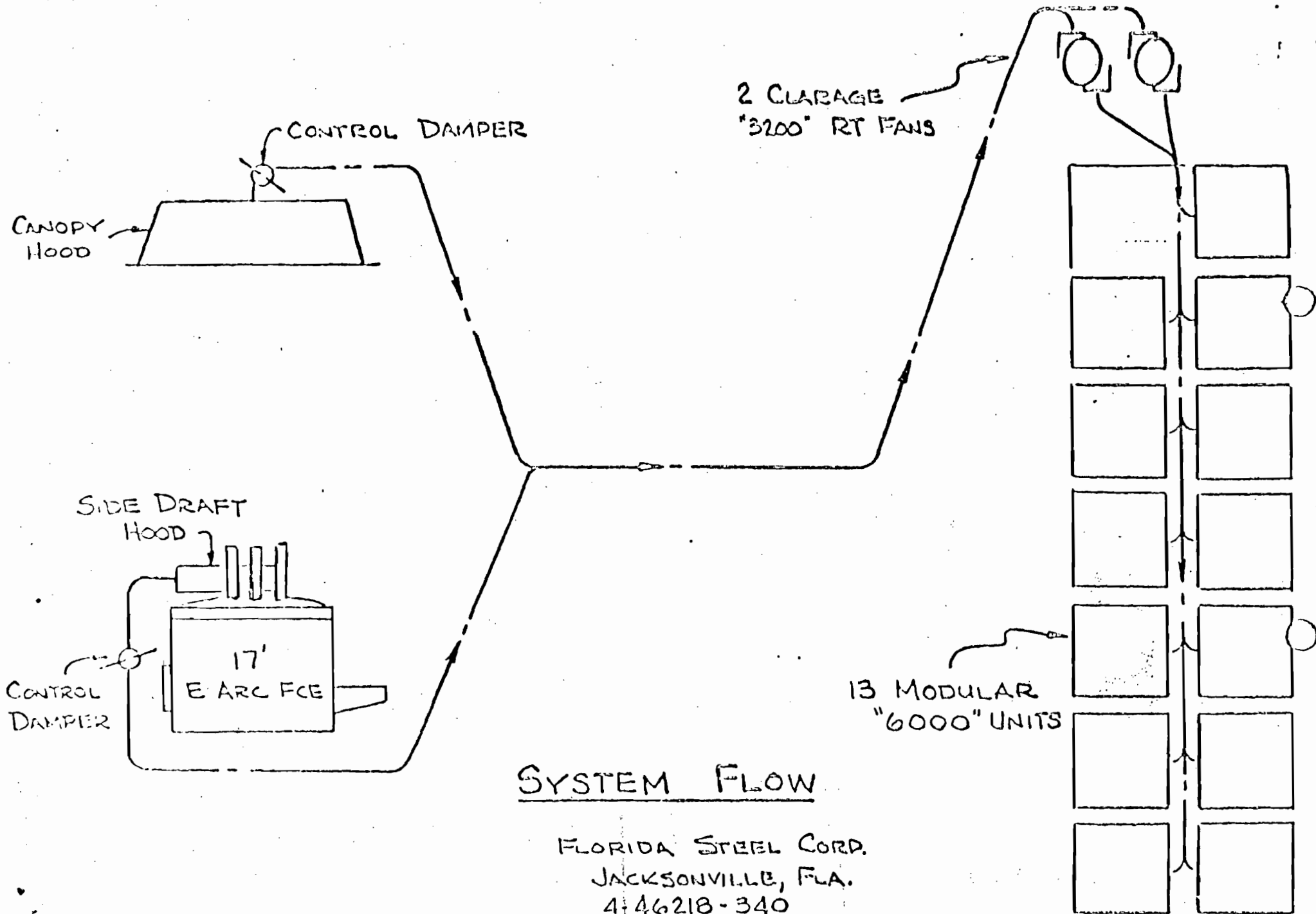
The hood section at the electrode area is fabricated of 1/4" heat resistant stainless steel plate. Internal dampers are included for establishing correct air flow and all hood sections are reinforced for operating conditions. Hood sections at electrode area are supported off the roof structure to swing aside with roof during charging. The hood design will include a common swing-break tilt flange to provide complete furnace movement during charging, tapping or slagging.

PRICE FOR THE ABOVE EQUIPMENT, F.O.B. SHIPPING POINTS.....\$28,950.00

#### CONTROL DAMPERS - 22,000 & Controls (3 Panels)

Two (2) 86" diameter butterfly-type control dampers, one (1) provided to isolate side draft ventilation, the other to function with ventilation need to the canopy. Each complete with air cylinder actuator and full open/full closed controls. The control panel will indicate damper operation, show that the bag-house is running and provide a manual override control to adjust the side draft volume for any up-set conditions.

PRICE FOR THE ABOVE EQUIPMENT, F.O.B. SHIPPING POINTS TO FOLLOW SHORTLY.



FLORIDA STEEL CORP.  
JACKSONVILLE, FLA.  
4-46218-340



# AIR SYSTEMS

ESTABLISHED 1946  
CLARK, ILL. BY AIR MAIL

## FAN PERFORMANCE CURVE

PAGE \_\_\_\_\_ OF \_\_\_\_\_  
E. \_\_\_\_\_

FAN SIZE 7670  
SERIES 3200 RT

ARRG'T 351, 1, 3 OR 9  
S.I. (96.00%) S.W.

evase outlet

BASE DENSITY (#/ft<sup>3</sup>)  
BAROMETRIC PRESS. (ins. Hg.)

TEST BLOCK

CONDITION 1

CONDITION 2

FAN SPEED (R.P.M.)

830

TEMPERATURE (°F)

INLET PRESS. (ins. Water)

INLET DENSITY (#/ft<sup>3</sup>)

.07500

S. P. IN. H2O

INCHES WATER

