

No. 0158705
 RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED—
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

SENT TO		Yorke Doliner & Co.	
STREET AND NO.		c/o Frank L. Cross	
P.O., STATE AND ZIP CODE			
POSTAGE		\$	
CERTIFIED FEE		¢	
SPECIAL DELIVERY		¢	
RESTRICTED DELIVERY		¢	
OPTIONAL SERVICES RETURN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED	¢	
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢	
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢	
	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢	
TOTAL POSTAGE AND FEES		\$	
POSTMARK OR DATE			
7/3/85			

PS Form 3800, Apr. 1976

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

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

1. Show to whom, date and address of delivery.
 2. Restricted Delivery.

3. Article Addressed to:
 Yorke Doliner and Company
 c/o Frank L. Cross, Jr., P.E.
 4759 S. Conway Road, Suite D
 Orlando, Florida 32812

4. Type of Service:	Article Number
<input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail	0158705

Always obtain signature of addressee or agent and **DATE DELIVERED.**

5. Signature - Addressee
 X *m. Cross*

6. Signature - Agent
 X *[Signature]*

7. Date of Delivery
 7-8

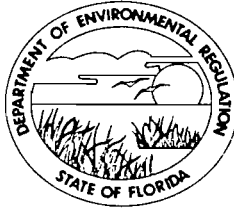
8. Addressee's Address (ONLY if requested and fee paid)

DOMESTIC RETURN RECEIPT



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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMITS

Yorke Doliner and Company
c/o Frank L. Cross, Jr., P.E.
Cross/Tessitore and Associates, P.A.
4759 S. Conway Road, Suite D
Orlando, Florida 32812

July 2, 1985

Enclosed is Permit Number AC 05-097961 to Yorke Doliner and Company to construct a wet process auto/metal shredder, issued pursuant to Section 403, Florida Statutes.

Any Party to the permit has the right to seek judicial review of the permits pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this permit is filed with the clerk of the Department.

Sincerely,

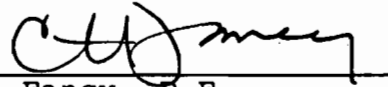
C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

Enclosure

cc: Charles Collins

CERTIFICATION

This is to certify that the foregoing Notice of Permit and all copies requested were mailed before the close of business on 3 JULY, 1985.



C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management
2600 Blair Stone Road
Tallahassee, Florida 32301

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

Patricia G. Adams
Clerk

July 3, 1985
Date

Final Determination

Yorke Doliner & Company
Brevard County
Rockledge, Florida

Wet Process Auto/Metal Shredder

Permit Number AC 05-097961

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

June 21, 1985

Final Determination
Yorke Doliner and Company

Yorke Doliner's permit application for construction of a wet process auto/metal shredder has been reviewed by the Department. Public Notice of the Department's Intent to Issue was published in the Orlando Sentinel on May 3, 1985.

Copies of the Final Determination and Technical Evaluation have been available for public inspection at the Department's St. Johns River District office in Orlando, Orange County, and in the Bureau of Air Quality Management in Tallahassee.

Comments were received from Mr. Frank Cross of Cross, Tessitore and Associates who represents the permittee in the matter of this application on May 13, 1985. Mr. Cross requested that Specific Condition Nos. 3 and 8 be revised as shown in his letter (attachment A).

The Department considered the comments and questions and reply as follows:

Specific Condition:

No. 3 The Department agrees not to require particulate matter emissions via EPA Method 5. This Specific Condition shall read:

Particulate matter emissions, as determined by EPA Method 9 (described in 40 CFR 60, Appendix A) or other methods approved by the Department shall not exceed 5% opacity beyond the wet plume, and 34.4 lbs/hr and 35.8 TPY.

No. 8 With the revision to Specific Condition No. 3 to wit the Department believes this condition to be appropriate and remains as declared in the original Intent to Issue.

Attachments to be incorporated are:

Attachment A: Mr. Frank L. Cross, Jr.'s letter dated 5/9/85.

The final action of the Department will be to issue the permit.



CROSS/TESSITORE & ASSOCIATES, P.A.

4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

May 9, 1985

DER
MAY 11 1985
BAQM

Mr. Bill Thomas, P.E.
Bureau of Air Quality
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

SUBJECT: Yorke Doliner & Company
Brevard Co. AC05-097961

Dear Bill:

We have received your technical evaluation and preliminary determination for the proposed permit to subject source to construct a wet process auto-metal shredder at Rockledge, Florida.

The permit conditions have been reviewed, and as our per conversation in Tallahassee on May 7, 1985, we would appreciate reconsideration of Specific Permit Conditions 3 and 8. It appears that FDER wishes our client to test the wet shredder using a Method 5 procedure, and we're not sure how to do this.

We would like to get a clarification on this now, rather than confront the requirement after the permit is issued.

Best regards.

Sincerely,

Frank L. Cross, Jr., P.E.
President

FLC:kim

cc: Mr. Jeffrey Doliner
Mr. Dan Smith

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

PERMITTEE:
Yorke Doliner and Company
P. O. Box 1659
Cocoa, Florida 32922

Permit Number: AC 05-097961
Expiration Date: July 1, 1986
County: Brevard
Latitude/Longitude: 28° 16' 15"N/
80° 42' 08"W
Project: Wet Process Auto-Metal
Shredder with Conveyors,
Separators, and Settling Chamber

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

For the construction of a 65 ton per hour (maximum) wet process auto-metal shredder at the existing facility located in the Nova Industrial Park off U.S. Highway 1, Rockledge, Florida. The UTM coordinates are Zone 17, 753.01 km East and 3126.58 km North.

Construction shall be in accordance with the permit application and plans, documents, amendments and drawings, except as otherwise noted on pages 5 and 6 of the "Specific Conditions".

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-1.202(1), which was received on January 7, 1985, by the St. Johns River District office.
2. C. H. Fancy's letter dated February 6, 1985.
3. Frank L. Cross's letter dated February 15, 1985.
4. Frank L. Cross's letter with attachments dated February 21, 1985.
5. Frank L. Cross's letter with attachment dated March 21, 1985.

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

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

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

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

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

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

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

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

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

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

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

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

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

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

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

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

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

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

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

13. This permit also constitutes:

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

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

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

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

- b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.
- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

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

SPECIFIC CONDITIONS:

1. The operations hours shall not exceed 2,080 hours per year.
2. Input rate shall not exceed 65 tons per hour.
3. Particulate matter emissions, as determined by EPA Method 9 (described in 40 CFR 60, appendix A) or other methods approved by the Department, shall not exceed 5% opacity beyond the wet plume, and 34.4 lbs/hr and 35.8 TPY.
4. Objectionable odors shall not be allowed on off-plant property.

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

SPECIFIC CONDITIONS:

5. Visible emissions, as determined by EPA Method 9 (described in 40 CFR 60, Appendix A), shall not exceed 20 percent opacity, 6 minute average.

6. Construction shall reasonably conform to the plan and schedule in the application. Any changes in the plan or schedule shall be reported to the St. Johns River District office.

7. The permittee shall take precautionary measures, such as wetting the work area, to minimize fugitive dust emissions during the construction and operation of the shredder. Solid waste and sludge shall be disposed of in an environmentally sound manner and where required, in accordance with permitted conditions pursuant to Department rules and regulations.

8. The permittee shall submit a complete application for a permit to operate the shredder, which must include an emissions tests report, to the St. Johns River District at least 90 days prior to the expiration date of this construction permit. The permittee may continue to operate this source, if it is in compliance with all conditions of this construction permit, until its expiration date.

9. Upon obtaining a permit to operate, the permittee will be required to submit annual operation reports to the St. Johns River District office which shall include the actual hours of operation, total tonnage of input material, and the actual annual pollutant emissions.

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

SPECIFIC CONDITIONS:

Issued this 21 day of June, 1985

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION



VICTORIA J. SCHINKEL, Secretary

_____ pages attached.

Page 7 of 7

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: _____	

DER
JUN 24 1985
BAQM

TO: Victoria J. Tschinkel
FROM: *for* Clair Fancy
DATE: June 21, 1985
SUBJ: Approval of Attached Air Construction Permit

Attached for your approval and signature is one Air Construction Permit to Yorke Doliner and Company for the construction of a wet process auto/metal shredder at the applicant's existing facility in Rockledge, Brevard County, Florida.

Day 90, after which the permit would be issued by default, is July 20, 1985.

The Bureau recommends your approval and signature.

CF/pa

Attachment

RECEIVED
JUN 21 1985

Office of the Secretary

Check Sheet

Company Name: Yorke Dobner & Company
Permit Number: JACOS-097961
PSD Number: _____
Permit Engineer: _____

Application:

- | | |
|--|--------------------------|
| <input checked="" type="checkbox"/> Initial Application | Cross References: |
| <input checked="" type="checkbox"/> Incompleteness Letters | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Responses | <input type="checkbox"/> |
| <input type="checkbox"/> Waiver of Department Action | <input type="checkbox"/> |
| <input type="checkbox"/> Department Response | |
| <input type="checkbox"/> Other | |

Intent:

- Intent to Issue
 - Notice of Intent to Issue
 - Technical Evaluation
 - BACT or LAER Determination
 - Unsigned Permit
- Correspondence with:
- EPA
 - Park Services
 - Other
- Proof of Publication
 - Petitions - (Related to extensions, hearings, etc.)
 - Waiver of Department Action
 - Other

Final

Determination:

- Final Determination
- Signed Permit
- BACT or LAER Determination
- Other

Post Permit Correspondence:

- Extensions/Amendments/Modifications
- Other

In the folder labeled as follows there are documents, listed below, which were not reproduced in this electronic file. That folder can be found in one of the file drawers labeled Supplementary Documents Drawer. Folders in that drawer are arranged alphabetically, then by permit number.

Folder Name: Yorke Doliner & Company

Permit(s) Numbered:

AC	05	-	097961
----	----	---	--------

Period during
which document
was received:

Detailed Description

Period during which document was received:		Detailed Description
APPLICATION 7 JAN 1985	1.	24"×36" BLUEPRINT: WET SYSTEM LAYOUT (DRAWING NUMBER: A1-000-00163-A)



CROSS/TESSITORE & ASSOCIATES, P.A.

4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

JULY 11, 1985

DER
JUL 15 1985
BAQM

7/18 Bill
Mike
Please draft
a response.
clm

Mr. C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
State of Florida DER
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

SUBJECT: Yorke Doliner & Company
Brevard County, Rockledge
Wet Process Auto/Metal Shredder
Permit Number AC 05-097961

Dear Mr. Fancy:

We are pleased to have received subject permit to construct; however, we do have a question.

There is some confusion on the Specific Conditions. Please see Page 5 (of 7) Condition 3 and Page 6 (of 7) Condition 5. These are contradictory.

Should the visible emissions be 5% or 20% opacity?

We're also not sure how you would measure the 34.4 lbs/hr (Condition 3) other than by using an emission factor.

We'd appreciate some clarification on this.

Sincerely,

Frank L. Cross, Jr., P.E.
President

FLC:kim
cc: Mr. Dan Smith
Mr. Jeff Doliner



PM
5-11-85
Orlando, FL
CROSS/TESSITORE & ASSOCIATES, P.A.

4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

May 9, 1985

DER
MAY 13 1985
BAQM

Mr. Bill Thomas, P.E.
Bureau of Air Quality
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

SUBJECT: Yorke Doliner & Company
Brevard Co. AC05-097961

Dear Bill:

We have received your technical evaluation and preliminary determination for the proposed permit to subject source to construct a wet process auto-metal shredder at Rockledge, Florida.

The permit conditions have been reviewed, and as our per conversation in Tallahassee on May 7, 1985, we would appreciate reconsideration of Specific Permit Conditions 3 and 8. It appears that FDER wishes our client to test the wet shredder using a Method 5 procedure, and we're not sure how to do this.

We would like to get a clarification on this now, rather than confront the requirement after the permit is issued.

Best regards.

Sincerely,

Frank L. Cross, Jr., P.E.
President

FLC:kim

cc: Mr. Jeffrey Doliner
Mr. Dan Smith

~~Bill 101~~ 5/14
FYI
Mike has copy -
Please return
for file patty



PM
5-10-85
Orlando, FL
CROSS/TESSITORE & ASSOCIATES, P.A.

4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

May 8, 1985

DER
MAY 13 1985
BAQM

Mr. Bill Thomas, P.E.
Bureau of Air Quality Management
Florida Dept. of Env. Reg.
2600 Blair Stone Road
Tallahassee, Florida 32301

SUBJECT: Yorke Doliner & Company
Brevard AP

Dear Bill:

Enclosed attached is certified copy of ad which appeared
as instructed.

We appreciate your assistance.

Sincerely,

Margaret F. Cross
?

MFC:kim
Enc.a/s

cc: A. T. Sawicki, P.E.
St. Johns River District

Yorke Doliner & Co:
Jeffrey Doliner
Dan Smith

The Orlando Sentinel

Published Daily
Orlando, Orange County, Florida

DER

MAY 13 1985

ADVERTISING CHARGE \$ 77.99

State of Florida) ss.
COUNTY OF ORANGE

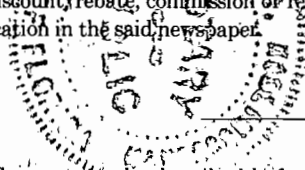
BAQM

Before the undersigned authority personally appeared
Nancy A. Puglia

_____ , who on oath says that
she is the Legal Advertising Representative of the Orlando Sentinel, a Daily newspaper
published at Orlando, in Orange County, Florida; that the attached copy of ad-
vertisement, being a Proposed Agency Action in the matter of
Permit to Yorke Doliner and Company

_____ in the _____ Court,
was published in said newspaper in the issues of _____
May 3, 1985

Affiant further says that the said Orlando Sentinel is a newspaper published at Orlando, in
said Orange County, Florida, and that the said newspaper has heretofore been continuously
published in said Orange County, Florida, each Week Day and has been entered as second-
class mail matter at the post office in Orlando, in said Orange County, Florida for a period of
one year next preceding the first publication of the attached copy of advertisement; and af-
fiant further says that he/she has neither paid nor promised any person, firm or corporation
any discount, rebate, commission or refund for the purpose of securing this advertisement for
publication in the said newspaper.



Nancy A. Puglia

Sworn to and subscribed before me this 3rd day

of May A.D. 1985

Virginia M. Hallingworth
Notary Public, State of Florida at Large
My Commission Expires July 13, 1985



Bonded by American Fire & Casualty Co. FORM NO. AD-262

State of Florida
Department of Environmental
Regulation

Notice of Proposed Agency
Action on Permit Application

The Department of Environ-
mental Regulation gives notice
of its intent to issue a permit to
Yorke Doliner and Company to
construct a wet process auto-
metal shredder at the appli-
cant's existing facility at Nova
Industrial Park, U.S. Highway 1,
Rockledge, Brevard County,
Florida. A determination of best
available control technology
(BACT) was not required.

Persons whose substantial
interests are affected by the
Department's proposed permit-
ting decision may petition for
an administrative proceeding
(hearing) in accordance with
Section 120.57, Florida Stat-
utes. The petition must con-
form to the requirements of
Chapters 17-103 and 28-5,
Florida Administrative Code,
and must be filed (received) in
the Office of General Counsel
of the Department at 2600 Blair
Stone Road, Twin Towers Of-
fice Building, Tallahassee, Flor-
ida 32301, within fourteen (14)
days of publication of this no-
tice. Failure to file a request for
hearing within this time period
shall constitute a waiver of any
right such person may have to
request an administrative de-
termination (hearing) under Sec-
tion 120.57, Florida Statutes.

If a petition is filed, the ad-
ministrative hearing process is
designed to formulate agency
action. Accordingly, the De-
partment's final action may be
different from the proposed
agency action. Therefore, per-
sons who may not wish to file a
petition may wish to intervene
in the proceeding. A petition
for intervention must be filed
pursuant to Model Rule 28-
5.207, Florida Administrative
code, at least five (5) days be-
fore the final hearing and be
filed with the hearing officer if
one has been assigned at the
Division of Administrative Hear-
ings, Department of Adminis-
tration, 2009 Apalachee Park-
way, Tallahassee, Florida
32301. If no hearing officer has
been assigned, the petition is
to be filed with the depart-
ment's Office of General Coun-
sel, 2600 Blair Stone Road,
Tallahassee, Florida 32301.
Failure to petition to intervene
within the allowed time frame
constitutes a waiver of any
right such person has to re-
quest a hearing under Section
120.57, Florida Statutes.

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

Dept. of Environmental
Regulation
St. Johns River District
3319 Maguire Blvd.,
Suite 232
Orlando, Florida 32803
Dept. of Environmental
Regulation
Bureau of Air Quality
Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Any person may send written
comments on the proposed ac-
tion to Mr. Bill Thomas at the
department's Tallahassee ad-
dress. All comments mailed
within 30 days of the publica-
tion of this notice will be con-
sidered in the department's fi-
nal determination.

No. 0155554

RECEIPT FOR CERTIFIED MAIL

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

SENT TO		Mr. Frank Cross	
STREET AND NO.			
P.O., STATE AND ZIP CODE			
POSTAGE		\$	
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	¢	
	SPECIAL DELIVERY	¢	
	RESTRICTED DELIVERY	¢	
	OPTIONAL SERVICES	SHOW TO WHOM AND DATE DELIVERED	¢
		SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
		SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		¢	
TOTAL POSTAGE AND FEES	\$		
POSTMARK OR DATE		4/30/85	

PS Form 3800, Apr. 1976

PS Form 3811, July 1983

DOMESTIC RETURN RECEIPT

SENDER: Complete items 1, 2, 3 and 4.

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

1. Show to whom, date and address of delivery.

2. Restricted Delivery.

3. Article Addressed to:
Mr. Frank Cross, P.E.
Cross/Tessitore and Assoc.
4759 S. Conway Road
Orlando, Florida 32812

4. Type of Service:	Article Number
<input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail	0155554


Always obtain signature of addressee or agent and **DATE DELIVERED.**

5. Signature - Addressee
X *Mr. Cross*

6. Signature - Agent
X

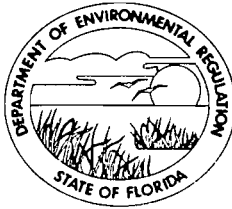
7. Date of Delivery
5-2

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



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

April 30, 1985

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Frank Cross, P.E.
Cross/Tessitore and Associates
4759 S. Conway Road
Orlando, Florida 32812

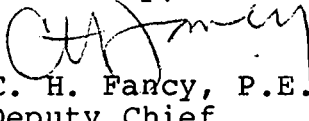
Dear Mr. Cross:

Attached is one copy of the Technical Evaluation and Preliminary Determination, and proposed permit to Yorker Doliner and Company to construct a wet process auto-metal shredder at the applicant's facility in Rockledge, Brevard County, Florida.

Before final action can be taken on your draft permit, you are required by Florida Administrative Code Rule 17-103.150 to publish the attached Notice of Proposed Agency Action in the legal advertising section of a newspaper of general circulation in Brevard County no later than fourteen days after receipt of this letter. The department must be provided with proof of publication within seven days of the date the notice is published. Failure to publish the notice may be grounds for denial of the permit.

Please submit, in writing, any comments which you wish to have considered concerning the department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,


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

CHF/pa

Attachments

cc: Jeffrey Doliner
Charles Collins

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of an)
Application for Permit by:)
)
Yorke Doliner and Company) DER File No. AC 05-097961
Post Office Box 1659)
Cocoa, Florida 32922)

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its Intent to Issue, and proposed order of issuance for, a permit pursuant to Chapter 403, Florida Statutes, for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Yorke Doliner and Company, applied on January 7, 1985, to DER for a permit to construct a wet process auto-metal shredder at the applicant's existing facility in Rockledge, Brevard County, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The applicant was officially notified by the Department that an air construction permit was required for the proposed work.

This intent to issue shall be placed before the Secretary for final action unless an appropriate petition for a hearing pursuant to the provisions of Section 120.57, Florida Statutes, is filed within fourteen (14) days from receipt of this letter or

publication of the public notice (copy attached) required pursuant to Rule 17-103.150, Florida Administrative Code, whichever occurs first. The petition must comply with the requirements of Section 17-103.155 and Rule 28-5.201, Florida Administrative Code (copy attached) and be filed pursuant to Rule 17-103.155(1) in the Office of General Counsel of the Department of Environmental Regulation at 2600 Blair Stone Road, Tallahassee, Florida 32301.

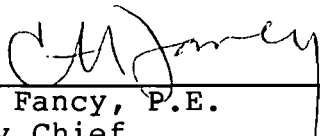
Petitions which are not filed in accordance with the above provisions are subject to dismissal by the Department. In the event a formal hearing is conducted pursuant to Section 120.57(1), all parties shall have an opportunity to respond, to present evidence and argument on all issues involved, to conduct cross-examination of witnesses and submit rebuttal evidence, to submit proposed findings of facts and orders, to file exceptions to any order or hearing officer's recommended order, and to be represented by counsel. If an informal hearing is requested, the agency, in accordance with its rules of procedure, will provide affected persons or parties or their counsel an opportunity, at a convenient time and place, to present to the agency or hearing officer, written or oral evidence in opposition to the agency's action or refusal to act, or a written statement challenging the grounds upon which the agency has chosen to justify its action or inaction, pursuant to Section 120.57(2), Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition, may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207 at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of

Administrative Hearings, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

Executed the 30 day of April, 1985, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



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

Copies furnished to:

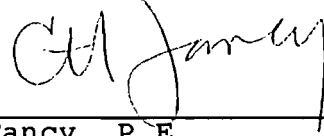
Jeffrey B. Doliner
Yorke Doliner and Company
Post Office Box 1659
Cocoa, Florida 32922

Frank Cross, P.E.
Cross/Tessitore and Associates
4759 S. Conway Road
Orlando, Florida 32812

Charles Collins
Department of Environmental Regulation
St. Johns River District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

CERTIFICATION

This is to certify that the foregoing Intent to Issue and all copies were mailed before the close of business on 30 April, 1985.



C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management
2600 Blair Stone Road
Tallahassee, Florida 32301

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

Patricia G. Adams 4/30/85
Clerk Date

Technical Evaluation
and
Preliminary Determination

Yorke Doliner and Company
Brevard County
Rockledge, Florida

Permit Number:
AC 05-097961

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

April 30, 1985

State of Florida
Department of Environmental Regulation
Notice of Proposed Agency Action on Permit Application

The Department of Environmental Regulation gives notice of its intent to issue a permit to Yorke Doliner and Company to construct a wet process auto-metal shredder at the applicant's existing facility at Nova Industrial Park, U.S. Highway 1, Rockledge, Brevard County, Florida. A determination of best available control technology (BACT) was not required.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within fourteen (14) days of publication of this notice. Failure to file a request for hearing within this time period constitutes a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009, Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

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

Dept. of Environmental Regulation
St. Johns River District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

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

RULES OF THE ADMINISTRATIVE COMMISSION
MODEL RULES OF PROCEDURE
CHAPTER 28-5
DECISIONS DETERMINING SUBSTANTIAL INTERESTS

28-5.15 Requests for Formal and Informal Proceedings

- (1) Requests for proceedings shall be made by petition to the agency involved. Each petition shall be printed typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double spaced and indented.
- (2) All petitions filed under these rules should contain:
 - (a) The name and address of each agency affected and each agency's file or identification number, if known;
 - (b) The name and address of the petitioner or petitioners;
 - (c) All disputed issues of material fact. If there are none, the petition must so indicate;
 - (d) A concise statement of the ultimate facts alleged, and the rules, regulations and constitutional provisions which entitle the petitioner to relief;
 - (e) A statement summarizing any informal action taken to resolve the issues, and the results of that action;
 - (f) A demand for the relief to which the petitioner deems himself entitled; and
 - (g) Such other information which the petitioner contends is material.

I. Project Description

A. Applicant

Yorke Doliner and Company
P. O. Box 1659
Cocoa, Florida 32922

B. Project and Location

The company applied on January 7, 1985, for a construction permit to add a new wet process auto-metal shredder. The SIC designation is 5093 (SCC: 3-04-002-30). This addition of the wet process auto-metal shredder will have a significant net emissions increase of particulate matter from the facility. Yorke Doliner & Company currently operates an existing automobile based resource recovery facility located in Rockledge, Brevard County, Florida. The wet process auto-metal shredder will be located centrally on this property, which lies at the southwest corner of Nova Industrial Park, Rockledge, Brevard County, Florida. The UTM coordinates are Zone 17, 753.01 km East and 3126.58 km North.

C. Process and Controls

The wet process auto-metal shredder to be constructed is designed and fabricated by Newell Industries/Texas Shredder Parts Inc. An automobile designated for shredding undergoes three distinct stages:

- 1) Pre-shredder preparation: Items and contaminants which are either most easily removed manually (battery, tires, electronics, etc.) or which are essential to remove due to possible contamination to the environment (brake shoes and pads, all VOC's, battery and tires) are dealt with in this stage. After these items and contaminants have been removed, the remainder of the vehicle is positioned on a conveyor feeding the shredder.
- 2) Shredding: This a purely mechanical methodology which reduces an articulate vehicle to more manageable pieces. This process intrinsically produces a great amount of heat and particulate debris. In an effort to reduce the likelihood of an explosion of a vehicle subjected to shredding and to reduce fugitive particulate emissions, water is introduced to the system. Water is also employed as a medium of transport for the third stage.
- 3) Recovery: Ferrous and non-ferrous metals are recovered in this stage. The properties which make these groups dissimilar are employed to segregate the same. The process is wet and very little particulate matter should escape.

The primary shredder consists of the feed chute, feed rollers, shredder and undermill pick-up conveyor. Water drains out and is collected in a sump.

Shredder material from the shredder is wetted in a magnetic separator from which the ferrous material is spilled onto a drainage apron. The non-ferrous metals and debris are routed through a rising current separator and subsequent flotation separator.

II. Rule Applicability

The proposed project to construct a wet process auto-metal shredder is subject to preconstruction review under provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Chapters 17-2 and 17-4.

The application was complete on March 26, 1985.

The plant site is located in an area of attainment for all criteria air pollutants (17-2.420).

The existing site is a minor facility. With the addition of this new source, Yorke Doliner and Company will become a major facility for particulate matter.

Under current Federal guidelines, a PSD (Prevention of Significant Deterioration) review is not required because the proposed project is a minor modification to a minor facility (FAC Rule 17-2.500). The auto-metal shredder will be permitted under FAC Rule 17-2.610, General Particulate Emission Limiting Standards, and FAC Rule 17-2.620, General Pollutant Emission Limiting Standards.

III. Summary of Emissions

No specific procedures allow for calculations of this type of auto-metal shredding process with respect to airbourne emissions for particulate matter (PM). Emissions are, therefore, based on "process weight" (FAC Rule 17-2.610(1)). Upon this basis, the following emission data are summarized:

Pollutant	Emissions (actual)	Emissions (allowable)	Emissions (w/o controls)
PM	Unknown	34.4 lb/hr *35.8 TPY	Unknown

Note: *Based on 2080 hours of operation.

IV. Ambient Air Impact

Because of the low elevation of the emissions and relatively large size of the particles from the shredder, the ambient air impact should be confined to the yard. No significant impact is expected off the yard's property. Consequently, no ambient air quality analysis was required.

V. Conclusion

Based on a review of the data submitted by Yorke Doliner and Company, the Department has concluded that the emissions for the addition of the wet process auto-metal shredder can be approved without causing any violations of the air pollution control regulations.

Therefore, the Department proposes to issue Yorke Doliner and Company a permit for construction of the wet process auto-metal shredder. The General and Specific Conditions listed in the proposed permit will assure compliance with all applicable air pollution regulations.

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

PERMITTEE:
Yorke Doliner and Company
P. O. Box 1659
Cocoa, Florida 32922

Permit Number: AC 05-097961
Expiration Date: July 1, 1986
County: Brevard
Latitude/Longitude: 28° 16' 15"N/
80° 42' 08"W
Project: Wet Process Auto-Metal
Shredder with Conveyors,
Separators, and Settling Chamber

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

For the construction of a 65 ton per hour (maximum) wet process auto-metal shredder at the existing facility located in the Nova Industrial Park off U.S. Highway 1, Rockledge, Florida. The UTM coordinates are Zone 17, 753.01 km East and 3126.58 km North.

Construction shall be in accordance with the permit application and plans, documents, amendments and drawings, except as otherwise noted on pages 5 and 6 of the "Specific Conditions".

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-1.202(1), which was received on January 7, 1985, by the St. Johns River District office.
2. C. H. Fancy's letter dated February 6, 1985.
3. Frank L. Cross's letter dated February 15, 1985.
4. Frank L. Cross's letter with attachments dated February 21, 1985.
5. Frank L. Cross's letter with attachment dated March 21, 1985.

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

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

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

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

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

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

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

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

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

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

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

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

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

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

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

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

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

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

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

13. This permit also constitutes:

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

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

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

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

GENERAL CONDITIONS:

- b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.
- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

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

SPECIFIC CONDITIONS:

1. The operations hours shall not exceed 2,080 hours per year.
2. Input rate shall not exceed 65 tons per hour.
3. Particulate matter emissions, as determined by EPA Method 5 (described in 40 CFR 60, appendix A) or other methods approved by the Department, shall not exceed 34.4 lb/hr and 35.8 TPY.
4. Objectionable odors shall not be allowed on off-plant property.

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

SPECIFIC CONDITIONS:

5. Visible emissions, as determined by EPA Method 9 (described in 40 CFR 60, Appendix A), shall not exceed 20 percent opacity, 6 minute average.
6. Construction shall reasonably conform to the plan and schedule in the application. Any changes in the plan or schedule shall be reported to the St. Johns River District office.
7. The permittee shall take precautionary measures, such as wetting the work area, to minimize fugitive dust emissions during the construction and operation of the shredder. Solid waste and sludge shall be disposed of in an environmentally sound manner and where required, in accordance with permitted conditions pursuant to Department rules and regulations.
8. The permittee shall submit a complete application for a permit to operate the shredder, which must include an emissions tests report, to the St. Johns River District at least 90 days prior to the expiration date of this construction permit. The permittee may continue to operate this source, if it is in compliance with all conditions of this construction permit, until its expiration date.
9. Upon obtaining a permit to operate, the permittee will be required to submit annual operation reports to the St. Johns River District office which shall include the actual hours of operation, total tonnage of input material, and the actual annual pollutant emissions.

PERMITTEE: Yorke Doliner and
Company

Permit Number: AC 05-097961
Expiration Date: July 1, 1986

SPECIFIC CONDITIONS:

Issued this ___ day of _____, 1985

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

VICTORIA J. TSCHINKEL, Secretary

___ pages attached.

Page 7 of 7

INTEROFFICE MEMORANDUM

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

ST. JOHNS RIVER DISTRICT

TO: *Bill Thomas*
THROUGH: *A. Alexander c m c*
THROUGH: *C. Collins c m c*
THROUGH:
THROUGH:
FROM: *A. T. Sawicki*
DATE: *3/21/85*
SUBJECT: *Construction Permit, Doliner Yorke Auto Shredder*

The facility was inspected 3/12/85 by John Turner. He found the site was cleared and grubbed and equipment for the shredder was stored nearby. No foundations were laid at this time and no assembly of equipment was started. A copy of the inspection report is attached.

DER
MAR 26 1985
BAQM

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)

Mr. Bill Thomas

Initial

Date

2.

Tallahassee

Initial

Date

3.

Initial

Date

4.

Initial

Date

REMARKS:

F. Y. I

INFORMATION

Review & Return

Review & File

Initial & Forward

DISPOSITION

Review & Respond

Prepare Response

For My Signature

For Your Signature

Let's Discuss

Set Up Meeting

Investigate & Report

Initial & Forward

Distribute

Concurrence

For Processing

Initial & Return

DER
MAR 26 1985
BAQM

FROM:

Tom Sawicki

DATE

3/22/85

PHONE



CROSS/TESSITORE & ASSOCIATES, P.A.
4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

DER
MAR 26 1985
BAQM

March 21, 1985

Mr. Ralph Maloy, P.E.
Industrial Waste Engineering
FDER-St. Johns River District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

SUBJECT: OSJ-IW-85-0093
Brevard County, York Doliner & Company

Dear Mr. Maloy:

Enclosed are copies of letters from Texas Shredder
Parts, Inc., and Newell Industries, Inc., in connection
with subject source.

Sincerely,


Frank L. Cross, Jr., P.E.
President

FLC:kim

Enc.a/s

cc: Mr. Clair Fancy
Mr. Dan Smith

Texas Shredder Parts, Inc.

10622 SENTINEL
SAN ANTONIO, TEXAS 78217
512 / 654-1098

March 13, 1985

Mr. Dan Smith
Yorke Doliner Co.
P. O. Box 1659
Cocoa, Florida 32922

Dear Dan:

For your information, all conveyors supplied by Texas Shredder Parts for your new shredder system shall have belt speeds of 250 feet per minute.

Please let us know if you require additional information.

Yours truly,


Jim Schwartz

JS/ss

Newell Industries Inc.

March 13, 1984

Yorke-Doliner Company
P. O. Box 2053
Daytona Beach, Florida 32015

Attn: Mr. Dan Smith

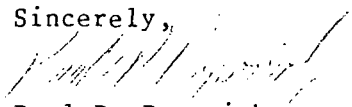
Dear Dan:

With reference to our recent telephone conversation about the production capacity of our 80104 TBD machine, it has been our experience that this machine will average approximately 65 tons per hour of shredded production. This translates into approximately 65 car bodies per hour or a mixture of car bodies and other shreddable material.

You also asked about the water recirculation system and if there was any build up of oil in the water. We have seven of these wet systems operating through out the world and this has not occurred in any of these systems.

I hope this answers your questions. Please do not hesitate to contact me if you have any other questions or comments.

Sincerely,


Paul D. Popovich
Vice-President



CROSS, TESSITORE & ASSOCIATES, P.A.
4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

February 21, 1985

DER
FEB 25 1985
BAQIM

Mr. C. H. Fancy, P.E.
Deputy Chief, Bureau of
Air Quality Management
State of Florida DER
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

RE: Permit Application No. AC 05-097961
Yorke Doliner & Company, Auto Metal Shredder

Dear Mr. Fancy:

Reference is made to your letter of February 6, 1985.

Question 1: In Section II-A, state whether the project will result in full compliance with existing DER rules.

Response: This project will result in full compliance with FDER rules and regulations.

Question 2: In Section II-B, give actual dates for expected construction start and completion.

Response: Start of Construction: 1 April 1985
Completion of Construction: 1 May 1985.

Question 3: In Section III-A and V-I, please clarify raw materials processed. Specifically: (1) Have all volatile liquids been removed? (2) Is the interior (vinyl seats, etc.) shredded also? (3) Are batteries removed prior to shredding? (4) Is any of the drive-train removed from auto? (5) Describe: (a) non-ferrous metals (b) trash (c) waste solids; also substantiate percentages of contaminants. (6) Clarify process rate via flow diagram or manufacturers specifications.

Mr. C. H. Fancy, P.E.
Page 2, 21 February 85
RE: Yorke Doliner & Co.
AC 05-097961

Response: Part (1) All volatile liquids have been removed from the vehicles before processing.

Part (2) The interior of the vehicles are shredded along with the rest of the vehicle.

Part (3) All batteries are removed from the vehicles before shredding.

Part (4) The drive train remains with the auto and is shredded along with the rest of the vehicle.

Part (5) We have enclosed a copy of the Scrap Age Report of October 1984, and ISIS Report done by Clayton dated 1 January 1980.

Part (6) See figure in Section V-6 flow diagram. This balance is based upon the manufacturer's information and indicates an input of 65 TPH and an output as follows:

Ferrous Scrap	-	49.0 TPH
Solids from Settling Chamber	-	1.3 TPH
Non-Ferrous Scrap	-	3.0 TPH
Trash		<u>11.7 TPH</u>
		65.0 TPH

Question 4: In Section V-2: Manufacturers information/data on this system should be provided. Specific sketch(s) of process system is to be provided us inclusive of any inhibiting devices (e.g. curtains), which are to be utilized to reduce fugitive emissions from process.

Response: Enclosed are manufacturers drawings, data, information requested.

Question 5: In Sections V-4 & 8: Specific cross sections/sketch are required to indicate emissions control: (a) Indicate by means of a cross-section how the level of flooding water will be maintained in the auto shredder (the drainage and circulation system sketch does not indicate the amount of water flow to the primary crusher & water losses from the crusher and magnetic separator). (cont.)

Mr. C. H. Fancy, P.E.
Page 2, 21 February 85
RE: Yorke Doliner & Co.
AC 05-097961

(b) Placement of any other devices to inhibit fugitive airborne particulates (e.g. curtains around inlet & outlet).

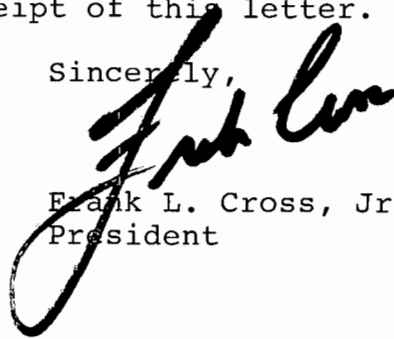
Response: (a) Water is injected into the center top of the shredder through 5-3/4" \emptyset pipes and then flows directly out of the bottom and then into the sump for recirculation. There is no water level maintained in the shredder. (See sketch). Attached is a water balance flow sheet as requested.

(b) No devices are provided to inhibit fugitive airborne particulates. The equipment manufacturer expects these to be negligible. If after construction, FDER inspection reveals any problems in this area, the owner will agree to fugitive control before an operating permit is issued.

Mr. Maloy has been contacted as you suggested in your letter.

We appreciate that the processing of subject application will resume upon your receipt of this letter.

Sincerely,



Frank L. Cross, Jr., P.E.
President

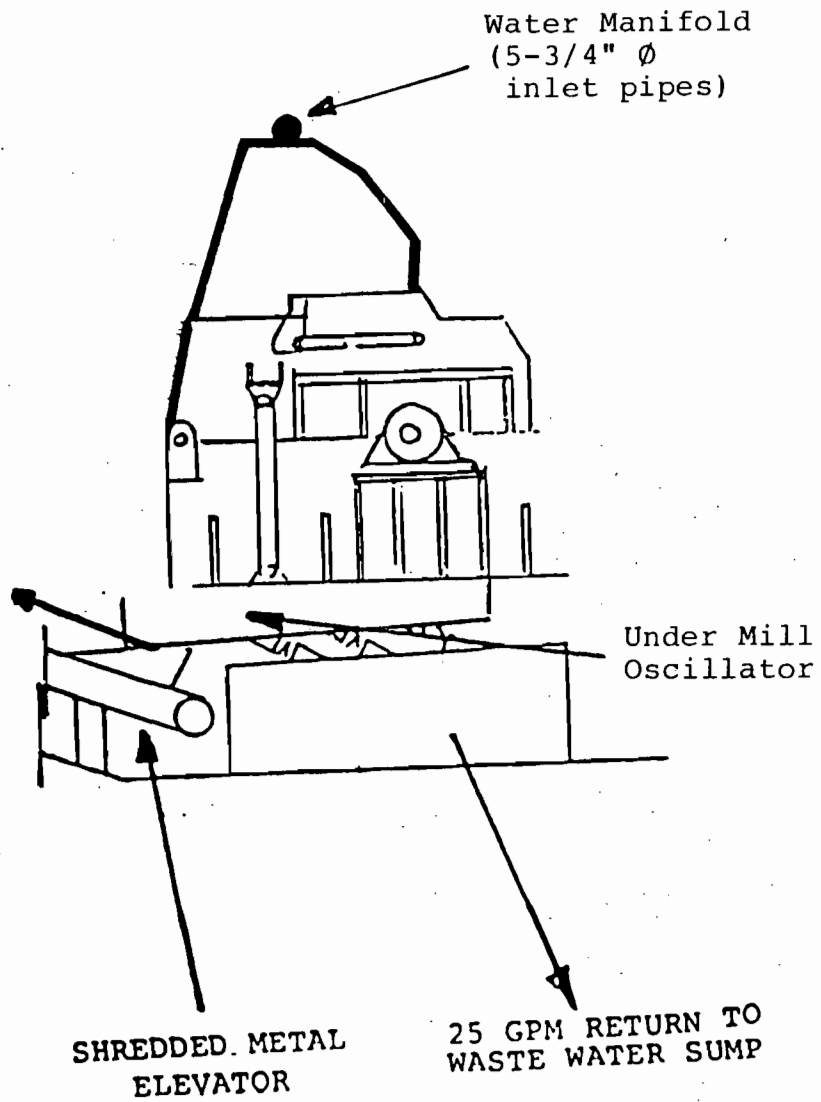
FLC:kim
Enc.a/s

cc: Mr. A. T. Sawicki
FDER, St. Johns River District

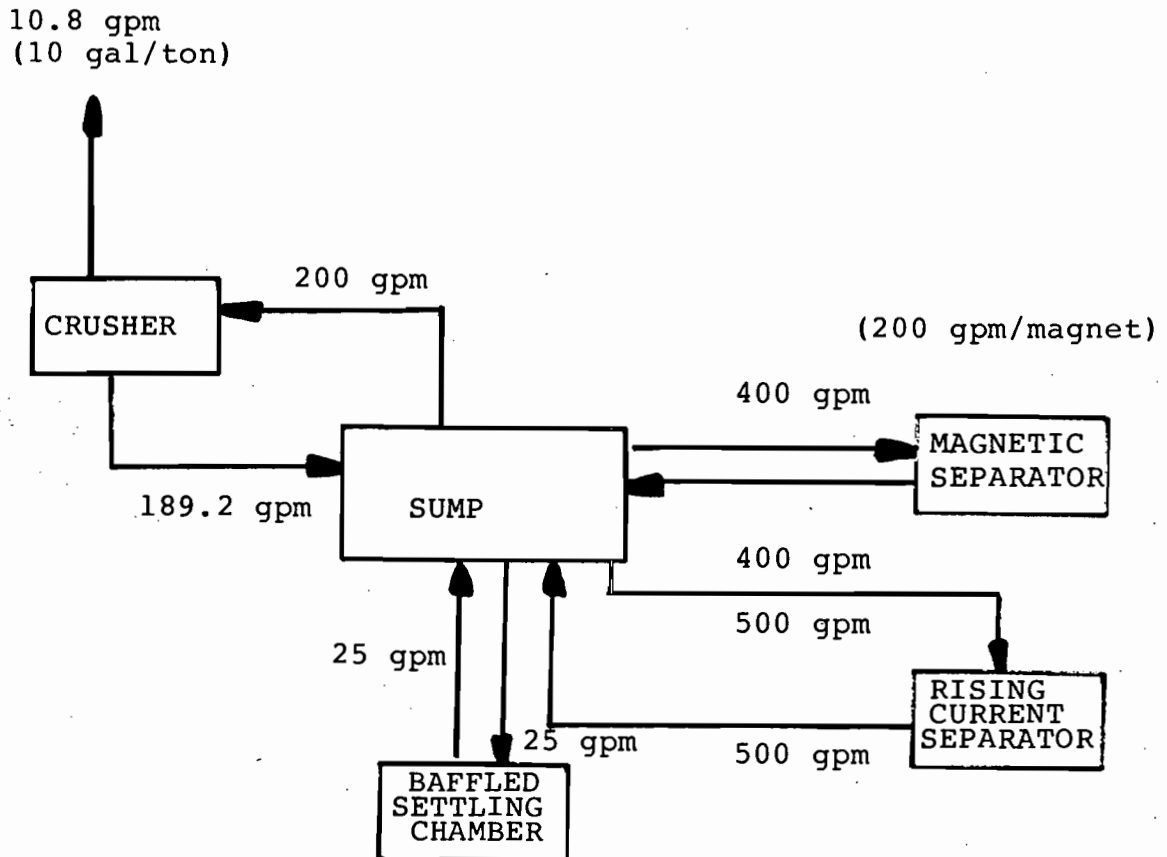
Mr. Dan Smith, Plant Superintendent
Yorke Doliner & Company

Q5
(2)

DETAIL OF CRUSHER SHOWER WATER INLET PIPING



WATER FLOW USAGE SKETCH



Q3
R5

Hand Dismantling and Shredding Of Japanese Automobiles to Determine Material Contents and Metal Recoveries

By J.W. Sterner, D.K. Steele and M.B. Shirts
Bureau of Mines, U.S. Department of the Interior

ABSTRACT

The Bureau of Mines conducted studies on four makes of Japanese automobiles, three 1981 and one 1982 model years, received from three manufacturers to determine if their materials composition would present problems to the current technology used to process junk automobiles for metal recovery. One of each make of automobile was hand dismantled to determine the materials composition. In addition, two nearly identical automobiles of each make were shredded at a commercial operation where all metal products and rejects were collected for analysis to determine metal and nonmetal distribution. The average weight of the four automobiles to be dismantled, less batteries, tools and fluids, was 1,938.3 lb. The weight was distributed as 1,472.9 lb ferrous and 115.6 lb nonferrous metals,

275.2 lb combustibles, 72.3 lb noncombustibles, and 2.3 lb electrical components. The dismantled automobiles, less gas tanks, fluids, tools, wheels, tires and batteries, which were all removed from the automobiles that were shredded, contained an average of 1,389.1 lb ferrous and 101.6 lb nonferrous metals, 305.7 lb nonmetals, and 2.3 lb electrical components. In comparison, materials collected from the shredded automobiles averaged 1,304 lb ferrous metals, 80 lb nonferrous metals, and 341 lb landfill materials. There were no materials used in the manufacture of the late model Japanese automobiles that should present handling or processing problems to the steelmaking or secondary metal recyclers.

INTRODUCTION

Since the energy shortage crisis in the mid-1970s, the popularity of smaller, fuel-efficient automobiles has resulted in downsizing, redesigning and substitution of lighter weight materials in both domestic and foreign automobiles. Newly developed nonferrous metal alloys and high-strength, low-alloy (HSLA) steels are being used to reduce automobile weights. The use of plastics also continues to increase.

Foreign automobile manufacturers, already producing compact and subcompact automobiles, quickly increased their exports to the United States, where most auto production was geared to larger cars. Expansion of existing technology was easier, less costly and quicker for foreign automobile manufacturers to accomplish than was this country's retooling and redesigning of automobile production facilities. Today, Japanese imported automobiles account for approximately one-third of domestic new car sales¹.

The changing automobile size and materials content potentially could affect the capability and technology of the automobile scrap processors. Junked automobile ferrous and nonferrous metals are a major scrap source for steel and secondary metal industries. The smaller automobiles contain less ferrous metals but as much or more nonferrous metals and nonmetals than most automobiles being junked today. Automobile shredders presently process 80 to 90 percent of the junked automobiles for metal recycling. These shredders tear and cut an automobile into fist-sized or smaller chunks in less than a minute. Ferrous metals are recovered by magnetic separation; nonmagnetic metals are recovered by air classification or water elutriation²⁻³. Nonmetal rejects are used as landfill.

In 1969, the Bureau of Mines completed research to deter-

mine the average composition of a typical automobile to determine the potential quantities of recoverable metals and nonmetals. A detailed hand-dismantled material classification was conducted on 15 junked automobiles⁴ and showed that the circa 1960 "full-size" automobile contained, in pounds:

Ferrous metals	3,043.3
Nonferrous metals	157.1
Rubber and combustibles	172.2
Glass and noncombustibles	102.0
Total	3,574.6

The nonferrous metals included 20.4 lb battery lead.

The Bureau of Mines obtained four makes of 1981 and 1982 Japanese manufactured automobiles (fig. 1) to determine their materials content and if any of the materials used would present potential recycling problems. A three-phase study was conducted to:

1. Determine material composition of Japanese-imported automobiles by hand dismantling and categorizing.
2. Shred nearly identical model automobiles from each manufacturer to determine shredded component distribution.
3. Compare known metal contents of hand dismantled automobiles with metals recovered from shredding.

The automobiles used in the study included three each of the following:

1981 Honda Accord
1981 Toyota Tercel

1981 Datsun 210
1982 Nissan Sentra



FIGURE 1. 1981 Honda Accord, 1981 Toyota Tercel, 1981 Datsun 210, and 1982 Nissan Sentra automobiles donated for the study.

PROCEDURES

Hand Dismantling

The automobiles to be dismantled were weighed, then systematically dismantled using common handtools plus air and electric-powered hammers, wrenches, chisels and screwdrivers. Infrequently, an acetylene cutting torch was required for bimetal separations.

Each area of the automobile—interior, exterior, body, engine and transmission—was systematically dismantled (fig. 2). Identification of components, materials, location and weight data were continuously recorded during the progress of the work. Electronic components were removed from the automobiles as complete units, and weight data were obtained before they were forwarded to the Bureau's Avondale Research Center for determining the precious metal content. After dismantling, material balances were obtained. All materials were categorically displayed, identified and photographed (figs. 3-6). Each automobile was dismantled and categorized completely before progressing to the next one to avoid material loss or mix-up.

The automobile compositions were calculated excluding batteries, fluids and tools. A second composition was also calculated which excluded batteries, fluids, tools, gasoline tanks, wheels and tires to represent the automobiles as they would be shredded.

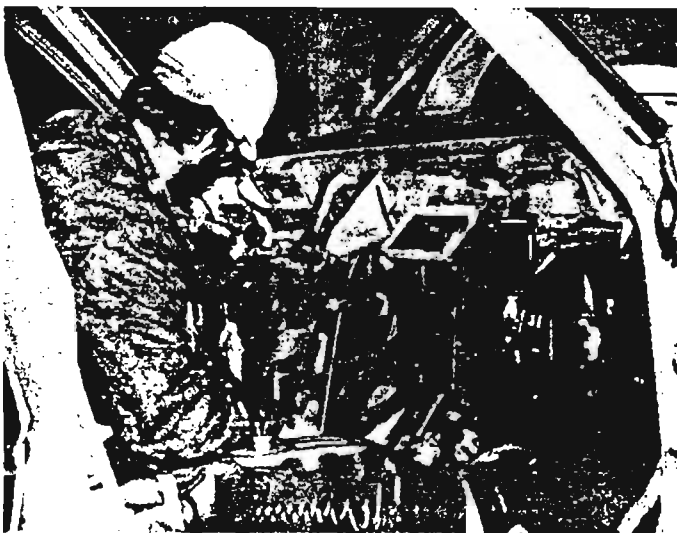


FIGURE 2 Dismantling the 1981 Honda Accord

Shredding

Automobile weights were obtained at the shredding site both before and after preparation for shredding. Preparation included removing the gasoline tanks (fig. 7), batteries, tires and wheels. The shredding mill, transfer conveyors, dust collection systems, and processing classifiers were purged before shredding the test automobiles to remove residual metals and nonmetals hung up or trapped in the system during production operation. Paired automobiles were fed into the shredder (fig. 8), one behind the other. Two metal products and six reject stream discards were collected in containers, weighed, and taken to the Bureau of Mines for analysis. Products and rejects were dried, if required, and hand-picked to separate metals and nonmetals into categories. Two or more different metals, physically attached, that could not be readily separated were classified with the major metal.

All tires and batteries were disposed of in accordance to donors' stipulations.

A schematic of the shredder operation is presented in figure 9. The collection sites for all products and rejects are highlighted.

High-Strength, Low-Alloy Steel Melting Test

The 1982 Nissan Sentra is the only automobile in the completed study to contain HSLA steel in significant quantities as shown in figure 10. HSLA steel is used to reduce the weight of the automobile as well as increase the strength of the structural supports.

There is concern among some U.S. foundries that the alloys in HSLA steels from shredded automobile scrap could detrimentally affect ferrous scrap metal processing or the quality of the iron products. There is also the realization that a separated HSLA steel scrap could be a premium product for recycling. For these reasons, special attention was taken to locate, identify and determine the potential of concentrating HSLA steel during the dismantling and shredding of the Nissan Sentra automobiles. Each automobile contains from 186 to 206 lb HSLA steel. Detailed locations of the HSLA steels contained in the automobiles were provided by the Nissan Motor Corp.

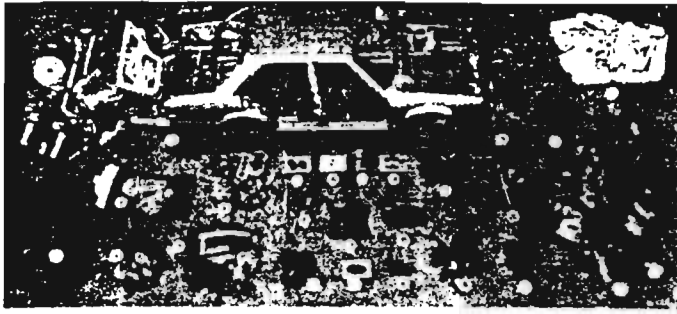
The entire ferrous product from one shredded Sentra was melted in the Bureau's Albany Research Center furnace to determine if the HSLA steel additions would adversely affect recycling of scrap steel.

The melting test was conducted in a three-phase ac. 1-ton capacity, tiltable electric arc furnace. The furnace was filled with 1,197 lb magnetic metal scrap product from the Sentra; nonmetals physically attached to the ferrous product such as rubber, plastic and upholstery were first removed by hand picking. The metal scrap was then melted down in the furnace. The melt was sampled and analyzed using a direct reading spectrograph.

Subsequently, 49.3 lb quartz and 51.5 lb limestone were added to the melt and rabbled to form a suitable slag. Then, 5 lb FeMn was added to determine if the carbon and manganese levels could be increased. The melt was again sampled and analyzed.

The bath temperature was then increased from 1,540° to 1,618° C to increase fluidity, and the furnace contents were tapped into a 1-ton capacity ladle.

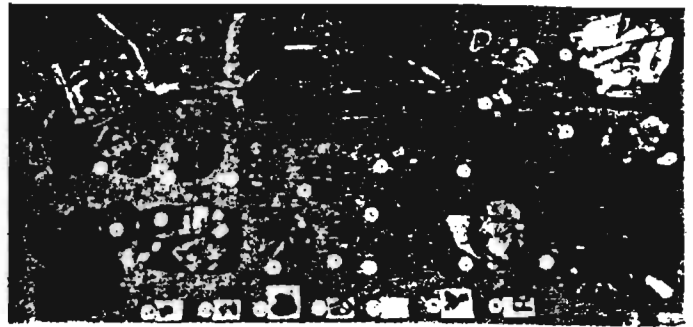
The slag was decanted into a slag pot, and the metal was



KEY

- | | | |
|------------------------|---------------------|-------------------------|
| 1. Light iron | 10. Lead | 18. Heavy iron |
| 2. Glass | 11. Battery | 19. Chrome-plated steel |
| 3. Rubber | 12. Brass | 20. Hardened steel |
| 4. Vinyl | 13. Charcoal | 21. Cast steel |
| 5. Combustibles | 14. Circuit boards | 22. Spring steel |
| 6. Aluminum | 15. Stainless steel | 23. Polyurethane foam |
| 7. Catalytic converter | 16. Padded steel | 24. Plastic |
| 8. Zinc | 17. Cast iron | |
| 9. Coated copper wire | | |

FIGURE 3. - Disassembled and categorized 1981 Honda Accord.



KEY

- | | | |
|------------------------|------------------------|-------------------------|
| 1. Light iron | 10. Copper and brass | 18. Battery |
| 2. Rubber | 11. Coated copper wire | 19. Zinc |
| 3. Glass | 12. Vinyl | 20. Lead |
| 4. Cast iron | 13. Spring steel | 21. Asbestos |
| 5. Cast steel | 14. Aluminum | 22. Carbon |
| 6. Heavy iron | 15. Polyurethane foam | 23. Ceramic |
| 7. Chrome-plated steel | 16. Combustibles | 24. Catalytic converter |
| 8. Hardened steel | 17. Plastics | |
| 9. Stainless steel | | |

FIGURE 4. - Disassembled and categorized 1981 Toyota Tercel.

poured into 60-lb pig molds. Metal and slag samples were taken.

DESCRIPTION OF AUTOMOBILES

Honda. Three 1981 Honda Accord deluxe models; four-cylinder, 1,600-cm³ transverse engines; five-speed manual transmissions with front-wheel drive, equipped with power steering.

Toyota. Two 1981 Toyota Corolla Tercel models, including standard and deluxe two-door sedans; four-cylinder, 1,500-cm³ transverse engines; five-speed manual transmissions with

front-wheel drive, equipped with power steering.

One 1981 Toyota Corolla Tercel SR5 with a four-cylinder, 1,600-cm³ transverse engine and five-speed transmission. Deluxe model with sunroof, air conditioning and power steering.

Datsun. Three 1981 Datsun 210 models, two-door hatchback coupes. Deluxe equipment package; four-cylinder, 1,500-cm³ engines and five-speed manual transmissions.

Sentra. Three 1982 Nissan Sentra models, including two standard and one deluxe two-door sedans; four-cylinder,

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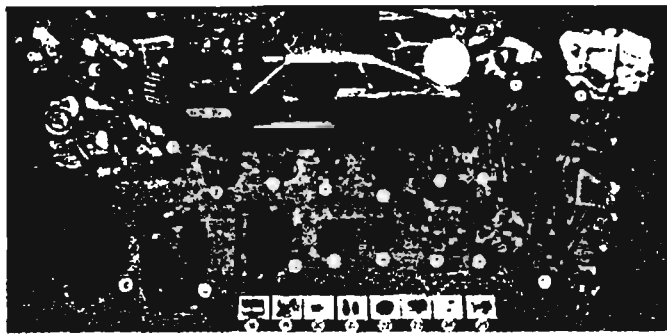
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KEY

- 1. Light iron
- 2. Cast iron
- 3. Cast steel
- 4. Hardened steel
- 5. Spring steel
- 6. Stainless steel
- 7. Chromium-plated steel
- 8. Combustibles
- 9. Polyurethane foam
- 10. Rubber
- 11. Glass
- 12. Heavy iron
- 13. Brass and copper
- 14. Coated copper wire
- 15. Aluminum
- 16. Vlayl
- 17. Plastic
- 18. Battery
- 19. Electrical components
- 20. Ceramic
- 21. Ceramic (catalytic converter)
- 22. Carbon
- 23. Asbestos
- 24. Lead
- 25. Zinc

FIGURE 5. - Dismantled and categorized 1981 Datsun 210.

1,500-cm³ engines; five-speed manual transmissions and front-wheel drive.

RESULTS

Hand Dismantling

Table 1 gives weights of the automobiles as received and as prepared for dismantling.

The completed hand dismantling study shows (see table 2)

TABLE 1. - Weights of the four Japanese automobiles as received, and as prepared for hand dismantling, pounds

	Honda	Toyota	Datsun	Nissan
As received.....	2,183	2,000	2,010	1,975
Removed before dismantling:				
Coolant.....	10	11.9	12.1	15.1
Oil and grease.....	14	12.3	12.2	17.0
Gasoline.....	3.3	22.4	59.8	68.3
Battery.....	36	28.4	35.1	34.2
Tools and lift.....	7	4.6	5.4	5.7
Total.....	70.3	79.6	124.6	140.3
To be dismantled.....	2,112.7	1,920.4	1,885.4	1,834.7

TABLE 2. - Materials contained in four Japanese automobiles as determined by hand dismantling

Class of material	1981 Honda Accord		1981 Toyota Tercel		1981 Datsun 210		1982 Nissan Sentra		Combined average	
	lb	pct	lb	pct	lb	pct	lb	pct	lb	pct
Ferrous:										
Light iron.....	1,079.6	51.1	958.1	49.9	754.2	40.0	671.6	36.6	845.9	44.7
BSL steel.....	0	0	0	0	0	0	169.3	9.2	42.3	2.2
Galvanized iron.....	0	0	.1	0	19.2	1.0	6.8	.4	6.5	.3
Chromium-plated steel.....	24.8	1.2	6.7	.4	31.1	1.6	2.6	.2	16.3	.8
Copper-coated iron.....	.1	0	.1	0	0	0	.2	0	.1	0
Spring steel.....	30.1	1.4	36.5	1.9	39.5	2.1	25.8	1.4	33.0	1.7
Steelplate.....	183.3	8.7	84.0	4.3	277.5	14.7	201.5	11.0	186.6	9.6
Hardened steel.....	85.2	4.0	91.0	4.7	135.3	7.2	50.0	2.7	90.4	4.7
Cast iron.....	128.0	6.1	101.7	5.3	146.4	7.8	115.5	6.2	122.4	6.3
Cast steel.....	92.9	4.4	104.7	5.5	54.0	2.9	139.8	7.6	97.8	5.1
Stainless steel.....	13.2	.6	15.7	.7	13.9	.7	5.7	.3	11.6	.6
Subtotal.....	1,637.2	77.3	1,396.6	72.7	1,471.1	78.0	1,186.8	75.6	1,472.9	76.0
Nonferrous:										
Aluminum.....	67.7	3.2	141.5	7.4	52.5	2.8	76.7	4.2	84.6	4.4
Zinc.....	10.8	.5	5.4	.3	2.0	.1	2.9	.2	5.3	.3
Lead ²	1.2	.1	.6	0	.9	0	.9	0	.9	0
Copper and brass.....	19.9	1.0	19.5	1.0	18.9	1.0	17.4	1.0	18.9	1.0
Copper (wire) ³	7.2	.3	5.0	.3	5.1	.3	6.4	.3	5.9	.3
Subtotal.....	106.8	5.1	172.0	9.0	79.4	4.2	104.3	5.7	115.6	6.0
Combustibles:										
Plastic (wire) ⁴	4.8	.2	3.3	.1	3.3	.2	4.2	.2	3.9	.2
Polyurethane foam.....	22.7	1.1	24.4	1.3	19.6	1.1	22.7	1.2	22.3	1.2
Vinyl.....	13.4	.6	14.0	.7	13.9	.7	8.8	.5	12.5	.6
Other plastics.....	82.5	3.9	75.1	3.9	64.8	3.4	67.0	3.7	72.4	3.8
Rubber.....	144.7	6.9	101.3	5.3	103.2	5.5	117.3	6.4	116.6	6.0
Carbon.....	.6	0	1.8	.1	.7	0	.7	0	1.0	0
Other combustibles.....	32.3	1.5	45.2	2.4	52.2	2.8	56.2	3.1	46.5	2.4
Subtotal.....	301.0	14.2	265.1	13.8	257.7	13.7	276.9	15.1	275.2	14.2
Noncombustibles:										
Ceramics.....	2.9	.1	4.8	.2	3.3	.2	4.0	.2	3.8	.1
Glass.....	63.0	3.0	80.0	4.2	68.6	3.6	57.8	3.1	67.3	3.5
Asbestos.....	1.2	.1	1.5	.1	1.1	.1	1.1	.1	1.2	.1
Subtotal.....	67.1	3.2	86.3	4.5	73.0	3.9	62.9	3.4	72.3	3.7
Electric components⁵.....	.6	0	.4	Trace	4.2	.2	3.8	.2	2.3	.1
Total.....	2,112.7	100.0	1,920.4	100.0	1,885.4	100.0	1,834.7	100.0	1,938.3	100.0

¹The high aluminum content of the Toyota is attributed to aluminum wheels.
²Excluding batteries, which were not used in composition calculations.
³The plastic-coated wire was stripped to obtain a 50 copper-50 coating weight ratio.
⁴The steel-belted radial tires were weighed as rubber; however, they can contain up to 30 pct steel wire.
⁵Electrical components such as circuit boards and relays were weighed as single units and forwarded to the Bureau of Mines Avondale Research Center for precious metal identification.

that the four models of Japanese automobiles averaged, in pounds:

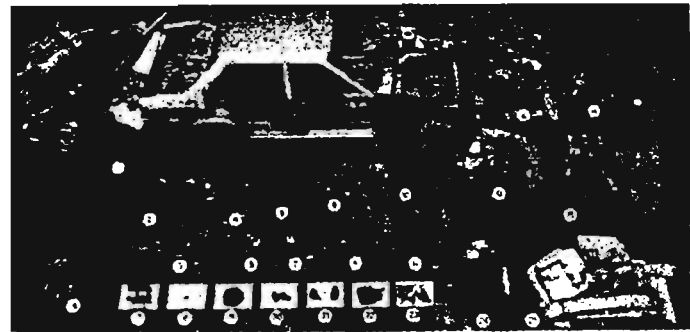
Ferrous metals	1,472.9
Nonferrous metals	115.6
Combustibles	275.2
Noncombustibles	72.3
Electrical components	2.3
Total	<u>1,938.3</u>

Light iron (less than 1/8 in. thick) was the largest single weight category in all of the bodies. The heavier ferrous metals were concentrated in the engines, transmissions, drive trains and suspensions. The ferrous metals comprised an average 76% of the automobiles' weight.

The nonferrous metal contents of the dismantled automobiles averaged, in pounds:

Aluminum	84.6
Copper and brass	24.8
Zinc diecast	5.3
Lead9
Total	<u>115.6</u>

Nonferrous metals averaged 6% of the automobiles' weight. Aluminum comprised over 73% of the nonferrous metals weight and was concentrated in the engines and transmissions. The Toyota Tercel also had aluminum wheels. Copper and brass were concentrated in dashboard and engine compartments as wiring and electrical components; however, they were found in smaller quantities throughout the entire automobile. The Honda Accord contained the greatest percentage of zinc diecast, mostly as knobs and switches with only



KEY

- 1. Light iron
- 2. Cast steel
- 3. Stainless steel
- 4. Heavy iron
- 5. Zinc
- 6. Spring steel
- 7. Chromium-plated steel
- 8. Hardened steel
- 9. Coated copper wire
- 10. Cast iron
- 11. Copper and brass
- 12. Aluminum
- 13. Vinyl
- 14. Plastic
- 15. Combustibles
- 16. Rubber
- 17. Battery
- 18. Lead
- 19. Carbon
- 20. Ceramic magnetic
- 21. Ceramic
- 22. Asbestos
- 23. Electrical components
- 24. Glass
- 25. Polyurethane foam

FIGURE 6. - Dismantled and categorized 1982 Nissan Sentra.

minor engine usage. Lead tire weights were on all the automobiles.

Rubber and plastics were the primary combustibles. Glass was the major noncombustible.

Spectrographic analysis of the electronic components removed from the four automobiles as analyzed at the Avondale Research Center showed gold, silver and palladium as alloying elements or trace contents. Indium was detected in several of the flasher units in the Datsun 210, which also contained more precious metals than the other automobiles. Soldered connections accounted for most of the silver detected.

Shredding

Collected shredded products and rejects from each pair of



FIGURE 7. Removing gas tank of 1981 Toyota Tercel prior to shredding.



FIGURE 8. Shredding 1981 Datsun 210's.

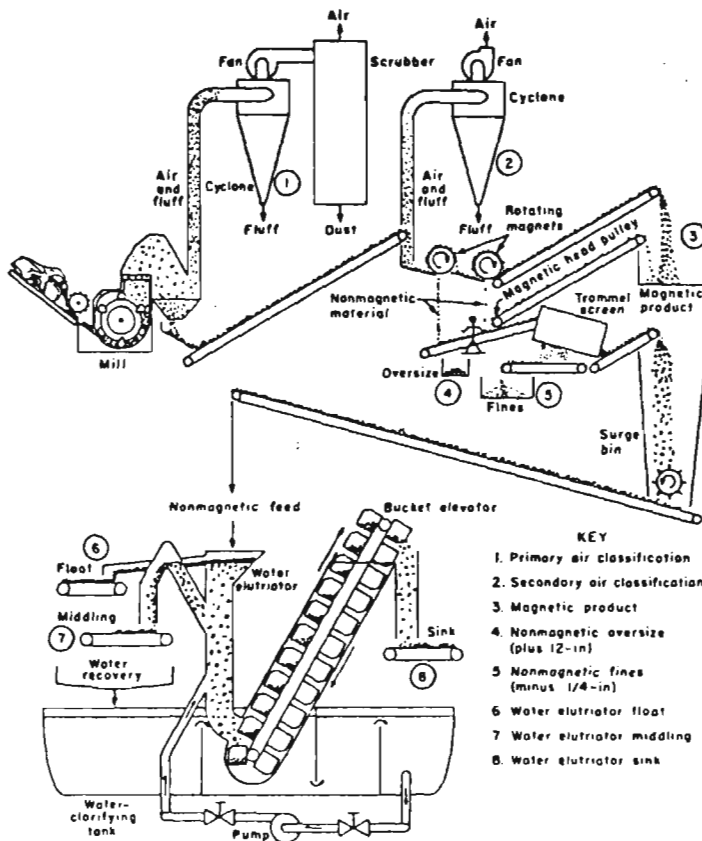


FIGURE 9. - Diagram of shredding and processing operation showing product and reject collection areas.

shredded automobi. varied in total weight from a 6.0% loss to a 9.2% gain of the prepared automobile weights, as shown in the shredded materials distribution in table 3. Losses and gains in weights are common in batch-type operations of the shredding process.

The distribution of products and rejects from processing shredded automobiles followed the typical pattern. The air classification systems collected most of the combustibles, and magnetic separation removed most of the iron. The fines collected from screening the non-magnetic material contained most of the noncombustibles. Screened nonmagnetics processed by water elutriation yielded a clean, mixed nonmagnetic metal sink product and two reject fractions. The float and middling reject fractions from water elutriation contained both combustibles and noncombustibles. Tables 4 through 7 show the analysis and weight distribution of the products and rejects from each of the shredded automobiles.

Data from table 8 show a ferrous metal recovery of 99.2% and a nonferrous metal recovery of 79%.

COMPARISON OF RECOVERED SHREDDED PRODUCTS AND HAND-DISMANTLED AUTOMOBILE CONTENTS

The Japanese automobiles contained a greater percentage of light gage steel than the previously dismantled automobiles⁴, and the Sentra contained a significant amount of HSLA steel. The Japanese automobiles also contained a significantly higher percentage of aluminum, which comprised more than 73% of the nonferrous metal content. Tables 9 and 10 compare the materials collected from shredded automobiles with the corresponding materials in the dismantled automobiles. Metal losses after shredding were noted in both the ferrous and nonferrous metal categories, with some inconsistencies in the ferrous metal category when compared to the dismantling data. These were attributed to difficulties in identification of the shredded metals, which are discolored, squeezed together, and often not separable.

Apparent metal losses in material hangups occurred throughout the system when shredding only two automobiles at a time without purging the entire shredding system after

TABLE 3. - Material distribution of the collected products and rejects obtained from shredding and processing four Japanese automobiles

Shredder products and rejects	1981 Honda Accord	1981 Toyota Tercel	1981 Datsun 210	1982 Nissan Sentra	Average
Prepared weight to auto shredder.....lb..	1,900	1,670	1,790	1,570	1,732.5
Combined recovered weight.....lb..	1,785.9	1,822.8	1,712.3	1,579.1	1,725.0
Primary air classification.....pct..	6.2	11.6	8.2	6.2	8.0
Secondary air classification.....pct..	5.5	7.3	5.1	4.9	5.7
Magnetic product.....pct..	73.2	78.7	73.4	76.7	75.4
Nonmagnetic oversize.....pct..	.2	.2	.6	2.5	3.4
Nonmagnetic fines.....pct..	2.0	3.2	2.4	(2)	(3)
Water elutriator, pct:					
Float.....	2.5	1.6	1.4	.2	1.5
Middling.....	⁴ Trace	1.5	1.2	1.2	.9
Sink.....	4.4	5.1	3.4	6.0	4.7
Total.....pct..	94.0	109.2	95.7	100.7	99.6
Material balance.....pct..	-6.0	+9.2	-4.3	+7	-4

¹Weight gains are attributed to materials missed when the system was purged prior to shredding the cars.

²A tertiary air classifier was substituted for screen sizing for the Nissan Sentra processing; rejects were collected as 1 unit.

³Average is for the combined oversize and fines from all automobiles, as air classifying the Sentra distorted the results.

⁴The minimal amount of middling product collected from processing the Hondas was combined with the float product.

processing the cars. The losses appear excessive, but during operation the system is continuously purging so the losses would become insignificant compared to the total throughput. Other losses were attributed to brittle metals such as cast iron, aluminum and zinc diecast, which shattered and were lost to the fines, were removed as dirt in the air collection system, or became part of the sludge in the elutriation system.

The combustibles showed little difference between the dismantled contents and the shredded rejects. There were differences in noncombustibles because glass from the shredded

TABLE 8. - Analysis and weight distribution of metal products and rejects obtained from shredding a 1981 Honda Accord automobile, 1 pound

Class of material	Metal products		Rejects					Combined totals
	Magnetic	Nonmag. metal	Primary air	Secondary air	Nonmagnetic oversize (212 in)	Minus 1/2" to fines	Water elutriator float and middling	
Ferrous:								
Light iron.....	901.2	0.4	5.0	1.9	0	8.4	Trace	909.1
Chrom-plated steel.....	.7	0	0	0	0	0	0	.7
Spring steel.....	30.3	Trace	.3	.2	0	.7	Trace	31.5
Steelplate.....	370.0	3.3	9.9	0	0	0	0	383.2
Hardened steel.....	ND	ND	ND	ND	ND	ND	ND	ND
Cast iron.....	155.7	1.5	0	1.8	0	1.7	Trace	161.7
Cast steel.....	ND	ND	ND	ND	ND	ND	ND	ND
Stainless steel.....	2.2	4.3	.1	.4	0	Trace	Trace	9.0
Minus 1/4 in.....	6.7	0	0	0	0	0	0	6.7
Subtotal.....	1,345.8	18.7	15.3	4.3	0	2.8	Trace	1,410.9
Nonferrous:								
Aluminum.....	2.1	41.9	.3	.3	0	6.0	.7	46.8
Zinc.....	0	3.1	0	0	0	.1	Trace	3.2
Lead.....	0	.1	0	0	0	Trace	Trace	.1
Copper and brass.....	4.4	8.9	.1	.2	0	1.2	.3	13.1
Copper-plated wire.....	1.7	2.3	.4	.4	0	.3	2.0	7.0
Subtotal.....	7.7	54.7	1.5	1.1	0	5.4	2.3	74.2
Combustibles:								
Polystyrene foam.....	.1	Trace	11.2	2.5	0	.2	3.4	24.4
Wool.....	2.8	0	3.4	4.0	0	Trace	2.0	12.4
Other plastic.....	.3	.7	6.0	14.2	1.6	3.8	23.8	30.4
Rubber.....	6.7	3.5	2.8	1.7	1.7	2.8	11.9	20.8
Other combustibles.....	3.0	.1	40.4	30.8	0	2.8	4.2	81.3
Subtotal.....	12.9	8.3	64.0	53.2	3.3	7.4	45.3	194.5
Noncombustibles:								
Glass.....	0	.7	0	0	0	.1	.7	.5
Autosol.....	0	0	0	0	0	0	0	0
Subtotal.....	0	.7	0	0	0	.1	.7	.5
Nonmetallic:								
Minus 1/4 in.....	0	.7	34.8	40.9	0	27.6	.5	99.0
Total.....	1,390.1	83.7	117.1	104.5	3.3	38.7	48.5	1,782.9

ND Not determined.
 1/2 Honda Accords were shredded. The data shown here have been adjusted to represent 1 automobile.
 Average analysis for metal support wire: 60 pct copper, 40 pct metal.

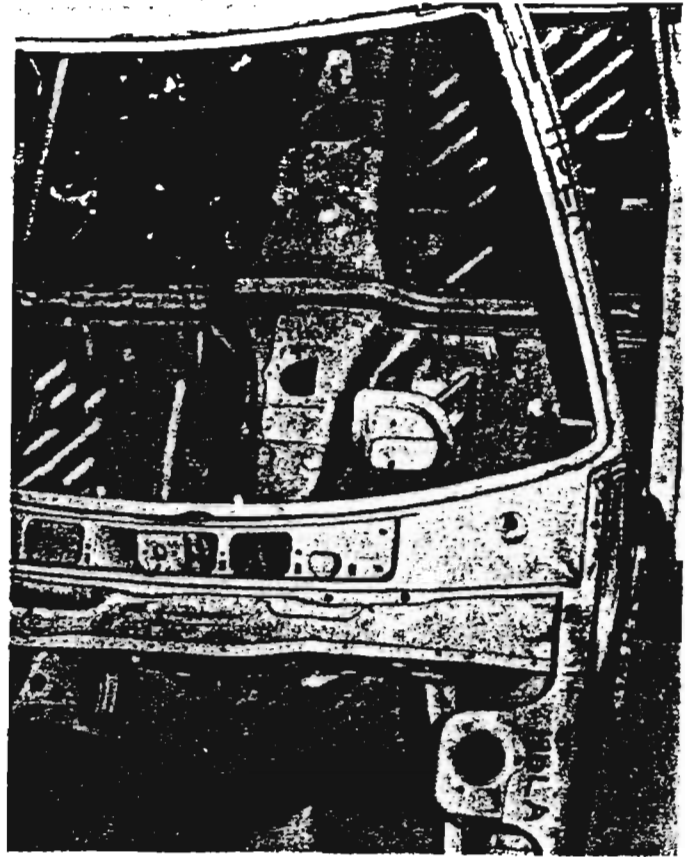


FIGURE 10. HSLA steel application in 1982 Nissan Sentra.

automobiles was collected in the minus 1/4 in. rejects, which were not analyzed.

An averaged weight comparison of the metals recovered with the total metals contained in the shredded magnetic and non-magnetic products is shown in table 8. A similar weight comparison of the averaged metals recovered from shredded automobiles with the metal content of similar dismantled automobiles is presented in table 11.

Metal recovery based upon the total collected shredded materials averaged 99.2% for ferrous and 79.0% for nonferrous metals. Compared to the dismantled automobile weights, the averaged recoveries were 93.1% for the ferrous metals and 62.2% for the nonferrous metals.

HIGH-STRENGTH, LOW-ALLOY STEEL

Hand Dismantling

HSLA steel is contained throughout the "white body"⁵ of the Sentra automobiles and constitutes, by weight of the metals, 33.1% of the two-door and 35.8% of the four-door sedan. The major portions are used in the doors, hood and trunk lid, which are accessible for removal.

Structural and support applications throughout the body framework account for the remaining HSLA steel. The difficulty in identifying the HSLA steels and the welded construction of the unibody and components would deter practical hand recovery methods.

Recycling

Meltdown of the magnetic product from one of the shredded Sentras at the Albany Research Center produced a steel

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TABLE 1. - Analysis and weight distribution of metal products and rejects obtained from shredding a 1981 Toyota Tercel automobile, 1 pound

Class of material	Metal products				Rejects		Water electrolyzer float	Water electrolyzer anodizing	Combined totals
	Magnetic	Nonmagnetic	Primary air	Secondary air	Nonmagnetic (212 lb)	Misc in time			
Ferrous:									
Light iron.....	812.9	2.8	3.9	0.3	0	0.1	0.6	0.1	819.7
Chrom-plated steel.....	4.9	0	0	0	0	0	0	0	5.0
Spring steel.....	35.8	0	0	0	0	0	0	0	35.7
Steelplate.....	154.7	0	0	0	0	0	0	0	154.9
Hardened steel.....	56.1	0	0	0	0	0	0	0	56.3
Cast iron.....	77.8	0	0	0	0	0	0	0	78.8
Cast steel.....	180.2	0	0	0	0	0	0	0	180.2
Stainless steel.....	2.3	2.5	0	0	0	0	0	0	5.0
Misc 1/4 in.....	35.2	0	0	0	0	0	0	0	35.2
Subtotal.....	1,301.7	4.3	3.9	0.3	0	1.1	0.6	0.1	1,311.1
Nonferrous:									
Aluminum.....	2.0	41.7	4.1	0	0	2.9	0	0	47.4
Zinc.....	0	3.9	0	0	0	0	0	0	3.9
Lead.....	0	0	0	0	0	0	0	0	0
Copper and brass.....	1.9	11.7	4.1	0	0	1.2	4.1	0	16.2
Coated copper wire.....	1.2	0	0	0	0	0	0	0	1.2
Subtotal.....	5.2	77.2	8.2	0	0	4.1	4.1	0	91.7
Combustibles:									
Polyurethane foam.....	0	0	0	0	0	0	1.7	0	1.7
Vinyl.....	0	0	0	0	0	0	1.5	0	1.5
Other plastics.....	0	0	0	0	0	0	3.3	0	3.3
Rubber.....	0	0	0	0	0	0	1.0	0	1.0
Other combustibles.....	0	0	0	0	0	0	2.6	0	2.6
Subtotal.....	0	0	0	0	0	0	10.1	0	10.1
Noncombustibles:									
Glass.....	0	0	0	0	0	0	0	0	0
Asbestos.....	0	0	0	0	0	0	0	0	0
Subtotal.....	0	0	0	0	0	0	0	0	0
Nonmagnetic:									
Misc 1/4 in.....	2.2	0	0	0	0	0	0	0	2.2
Total.....	1,311.1	45.4	121.1	0.3	0	5.2	27.3	0.1	1,522.0

1 Toyota Tercel was shredded. The data shown have been adjusted to represent 1 automobile.
 2 Average analysis for coated copper wire: 60 pct copper, 40 pct coating.
 3 Combined with other combustibles.

TABLE 2. - Analysis and weight distribution of metal products and rejects obtained from shredding a 1981 Datsun 210 automobile, 1 pound

Class of material	Metal products				Rejects		Water electrolyzer float	Water electrolyzer anodizing	Combined totals
	Magnetic	Nonmagnetic	Primary air	Secondary air	Nonmagnetic (212 lb)	Misc 1/4 in			
Ferrous:									
Light iron.....	690.7	2.2	6.1	0.6	1.2	1.3	0.4	0.2	700.9
Chrom-plated steel.....	17.9	0	0	0	0	0	0	0	17.9
Spring steel.....	32.6	1.1	0	0	0	0	0	0	34.2
Heavy iron.....	28.8	0	0	0	0	0	0	0	29.0
Hardened steel.....	60.4	0	0	0	0	0	0	0	61.4
Cast iron.....	113.4	1.8	0	0	0	0	0	0	115.3
Cast steel.....	93.2	2.3	0	0	0	0	0	0	95.4
Stainless steel.....	8.8	0	0	0	0	0	0	0	8.7
Misc 1/4 in.....	17.0	0	0	0	0	0	0	0	17.0
Subtotal.....	1,184.8	8.4	6.1	0.6	1.2	1.3	0.4	0.2	1,197.0
Nonferrous:									
Aluminum.....	6.7	31.1	0.3	0	0	1.6	0	0	39.7
Zinc.....	1.7	6.0	0	0	0	0	0	0	7.0
Lead.....	0	0	0	0	0	0	0	0	0
Copper and brass.....	2.3	5.6	0	0	0	0	0	0	7.9
Coated copper wire.....	1.9	0	0	0	0	0	0	0	1.9
Subtotal.....	10.6	42.7	0.3	0	0	1.6	0	0	55.2
Combustibles:									
Polyurethane foam.....	0	0	0	0	0	0	1.3	0	1.3
Vinyl.....	0	0	0	0	0	0	2.1	0	2.1
Other plastics.....	0	0	0	0	0	0	3.0	0	3.0
Rubber.....	0	0	0	0	0	0	1.7	0	1.7
Other combustibles.....	0	0	0	0	0	0	2.7	0	2.7
Subtotal.....	0	0	0	0	0	0	10.8	0	10.8
Noncombustibles:									
Glass.....	0	0	0	0	0	0	0	0	0
Asbestos.....	0	0	0	0	0	0	0	0	0
Subtotal.....	0	0	0	0	0	0	0	0	0
Nonmagnetic:									
Misc 1/4 in.....	1.8	0	0	0	0	0	0	0	1.8
Total.....	1,197.0	48.4	167.7	0.6	1.2	1.3	25.7	0.2	1,412.2

1 Datsun 210's were shredded. The data shown have been adjusted to represent 1 automobile.
 2 Average analysis for coated copper wire: 60 pct copper, 40 pct coating.
 3 Combined with other combustibles.

TABLE 3. - Analysis and weight distribution of metal products and rejects obtained from shredding a 1981 Nissan Sentra automobile, 1 pound

Class of material	Metal products				Rejects		Water electrolyzer float	Water electrolyzer anodizing	Combined totals
	Magnetic	Nonmagnetic	Primary air	Secondary air	Nonmagnetic (212 lb)	Misc 1/4 in			
Ferrous:									
Light iron.....	761.1	0.7	0.6	0.1	0	0	0	0	762.5
Chrom-plated steel.....	1.3	0	0	0	0	0	0	0	1.3
Spring steel.....	31.6	0	0	0	0	0	0	0	31.9
Steelplate.....	152.2	0	0	0	0	0	0	0	152.2
Hardened steel.....	17.9	0	0	0	0	0	0	0	17.9
Cast iron.....	104.3	0	0	0	0	0	0	0	104.3
Cast steel.....	93.8	0	0	0	0	0	0	0	93.8
Stainless steel.....	1.6	2.4	0	0	0	0	0	0	4.0
Misc 1/4 in.....	9.0	0	0	0	0	0	0	0	9.0
Subtotal.....	1,181.8	3.8	0.6	0.1	0	0	0	0	1,186.3
Nonferrous:									
Aluminum.....	1.1	61.1	0.2	0	0	0	0	0	62.4
Zinc.....	0	2.2	0	0	0	0	0	0	2.2
Lead.....	0	0	0	0	0	0	0	0	0
Copper and brass.....	2.9	12.1	0.2	0	0	0	0	0	15.2
Coated copper wire.....	2.0	0	0	0	0	0	0	0	2.0
Subtotal.....	10.0	75.3	0.4	0	0	0	0	0	85.7
Combustibles:									
Polyurethane foam.....	0	0	0	0	0	0	1.1	0	1.1
Vinyl.....	0	0	0	0	0	0	2.4	0	2.4
Other plastics.....	0	0	0	0	0	0	3.0	0	3.0
Rubber.....	0	0	0	0	0	0	1.7	0	1.7
Other combustibles.....	0	0	0	0	0	0	2.7	0	2.7
Subtotal.....	0	0	0	0	0	0	10.9	0	10.9
Noncombustibles:									
Glass.....	0	0	0	0	0	0	0	0	0
Asbestos.....	0	0	0	0	0	0	0	0	0
Subtotal.....	0	0	0	0	0	0	0	0	0
Nonmagnetic:									
Misc 1/4 in.....	0	0	0	0	0	0	0	0	0
Total.....	1,191.8	84.7	92.2	0.7	0	0	36.8	0	1,371.5

1 Nissan Sentra was shredded. The data shown have been adjusted to represent 1 automobile.
 2 Water and overflow were not removed by screening. 3 26 air classification use none.
 4 Average analysis for coated copper wire: 60 pct copper, 40 pct coating.
 5 Combined with other combustibles.

TABLE 4. - Metals recovered compared with total metals contained in the magnetic and nonmagnetic shredded products of Japanese automobiles¹

Metals	Total metals collected, lb	Recovered metals, ² lb	Shredded metal recovery versus collected shredded metals, pct
Ferrous metals.....	1,304.0	1,293.7	99.2
Nonferrous metals:			
Aluminum.....	36.0	49.4	88.2
Zinc.....	4.6	4.1	89.1
Lead.....	0.2	0	50.0
Copper and brass.....	15.0	9.6	64.0
Copper (coated wire).....	4.2	0	0
Subtotal.....	80.0	63.7	79.0
Total.....	1,384.0	1,356.9	98.0

1 The metal weights shown are average weights from the combined automobiles.
 2 Recovered metals are collected in the magnetic and elutriated products. Nonferrous metals in the collected magnetic product and copper from coated wire were not recovered.

TABLE 5. - Comparison of materials determined by hand dismantling and collected from shredding the Honda and Toyota automobiles¹

Class of material	Honda Accord		Shredded		1981 Toyota Tercel		Shredded	
	Dismantled lb	pct	lb	pct	lb	pct	lb	pct
Ferrous:								
Light iron.....	1,034.9	34.3	909.1	56.9	739.1	32.4	819.7	45.0
Galvanized iron.....	0	0	0	0	0	0	0	0
Copper-coated iron.....	0	0	0	0	6.7	0.4	0	0
Chrom-plated steel.....	24.8	1.3	0	0	0	0	0	0
Spring steel.....	30.1	1.6	31.5	1.8	36.4	2.0	35.7	2.0
Steelplate.....	181.2	9.3	283.2	15.9	69.2	3.9	154.9	8.5
Hardened steel.....	ND	ND	ND	ND	91.0	5.1	58.5	3.2
Cast iron.....	128.0	6.6	167.7	9.4	101.7	5.7	78.8	4.3
Cast steel.....	92.9	4.8	ND	ND	104.7	5.8	120.2	6.6
Stainless steel.....	13.2	0.7	9.0	0.5	13.7	0.8	5.0	0.3
Misc 1/4 in.....	0	0	9.7	0.5	0	0	35.3	1.9
Subtotal.....	1,523.2	78.6	1,410.9	79.0	1,362.7	76.1	1,313.1	72.1
Nonferrous:								
Aluminum.....	67.7	3.5	48.8	2.7	87.5	4.9	67.4	3.7
Zinc.....	10.8	0.6	5.2	0.3	5.4	0.3	3.0	0.1
Lead.....	0	0	0	0	0	0	0	0
Copper and brass.....	19.9	1.0	15.1	0.9	19.4	1.1	16.2	0.9
Copper (coated wire).....	7.2	0.4	4.2	0.2	5.0	0.3	3.1	0.2
Subtotal.....	106.2	5.5	73.4	4.1	117.7	6.6	89.9	4.9
Combustibles:								
Plastic (coated wire).....	4.8	0.3	2.8	0.2	3.3	0.2	2.0	0.1
Polyurethane foam.....	22.7	1.2	24.4	1.4	24.4	1.4	2.1	0.1
Vinyl.....	13.4	0.7	12.4	0.7	14.0	0.8	3.0	0.2
Other plastics.....	82.5	4.2	50.4	2.8	74.7	4.2	28.1	1.5
Rubber.....	62.2	3.2	30.8	1.7	36.4	2.0	29.4	1.6
Carbon.....	0	0	0	0	1.8	0.1	0	0
Other combustibles.....	32.9	1.7	81.3	4.6	45.6			

with the following analysis (weight percent):

Al = < 0.01	Ni = 0.064
C = 0.019	P = 0.033
Cr = 0.013	S = 0.019
Cu = 0.31	Si = < 0.01
Mn = < 0.01	Sn = < 0.01
Mo = < 0.01	V = < 0.01

Addition of quartz and limestone to the furnace to form a suitable slag and FeMn addition to increase the carbon and manganese levels produced a melt having the following analysis (weight percent):

Al = 0.020	Ni = 0.072
C = 0.048	P = 0.041
Cr = 0.017	S = 0.024
Cu = 0.45	Si = < 0.01
Mn = 0.040	Sn = 0.01
Mo = < 0.01	V = < 0.01

After 30 min, the melt was tapped, sampled and analyzed. The analysis of the final steel product follows (weight percent):

Al = < 0.01	Ni = 0.075
C = 0.021	P = 0.037
Cr = 0.018	S = 0.012
Cu = 0.39	Si = < 0.01
Mo = < 0.01	Sn = < 0.01
Mn = < 0.01	V = < 0.01

The slag analysis (weight percent) was:

Al ₂ O ₃ = 3.82	Mo = 0.001-0.01
B = 0.01-0.1	Ni = ND
C = ND	P = ND
CaO = 10.8	S = 0.034
Cr = 0.03-0.3	SiO ₂ = 18.0
Cu = 0.001-0.01	Sn = ND
Fe = 51.0	Ti = 0.003-0.03
MgO = 0.91	V = 0.003-0.03
Mn = 0.03-0.3	(ND = Not detected)

In all three metal samples, elements not detected by the spectrographic qualitative analysis were As, B, Ba, Be, Ca, Cd, Co, Hf, Mg, Na, Pb, Sb, Ta, Ti, W, Zn and Zr.

The analysis represents a standard carbon steel that conforms to AISI grade 1005 and shows that a standard steel can be melted directly from this scrap material. Any number of steel compositions can be prepared therefrom with suitable alloy additions.

Spectrographic analyses demonstrated that undesirable tramp elements were not present at levels above our detection limits in any of the metal samples. This indicates that HSLA steel from these automobiles should not adversely affect the quality of ferrous products prepared therefrom.

CONCLUSIONS

The average weight of the four hand-dismantled Japanese automobiles was 1,938.3 lb, including 1,472.9 lb ferrous metals, 115.6 lb nonferrous metals, 275.2 lb combustibles, 72.3 lb noncombustibles, and 2.3 lb electrical components. The respective weight percents were 76.0% ferrous metals, 6.0% nonferrous metals, 14.2% combustibles, 3.7% noncombustibles, and 0.1% electronic components. Compared to previously dismantled circa 1960 U.S. automobiles, the four Japanese-manufactured automobiles were smaller and con-

nonferrous metals, and a higher percentage of nonmetals. More than 60% of the ferrous metals were light gage steel, including HSLA steel, and of the 6% nonferrous metal content, more than 73% was aluminum.

Shredding of the Japanese automobiles, less tires, fluids, tools, wheels, batteries and gas tanks, yielded average ferrous metal recoveries of 1,293.7 lb and nonferrous metal recoveries of 63.2 lb per automobile. There was also 223.2 lb of reject materials to be landfilled. This calculated to 99.2% ferrous metal recovery based upon total collected products, or 93.9% recovery based upon the projected shredder input from dismantling data. The major difference in loss is shredding mill and transfer equipment, which would be ultimately recovered in continuous operation.

Nonferrous metal recovery from the shredded automobiles was 79%. There was an 8.2% nonferrous metal loss during magnetic separation which reported with the ferrous product, and 12.8% was lost in the combined rejects. The nonferrous metal loss from shredding is excessive, and continued emphasis on nonferrous metal recovery appears to be warranted. Automobile shredder rejects, presently landfilled, will be of future concern when shredding the smaller automobiles. There will be a one-third increase in the amount of rejects for landfill to maintain the current shredded ferrous scrap production.

The HSLA steels used in the manufacture of the Sentra automobile, which are 12.2% of the total ferrous metals content, appear to be amenable to steel and foundry usage in recycling ferrous scrap. Total separation of a HSLA steel product by hand dismantling or from the shredded automobile does not appear to be feasible. No materials used in the manufacture of the Japanese automobiles would pose problems in present recycling technology. □

¹Callahan, J.M., and R. Hartley, Jr. *Why Japan's Ahead. Automotive Industries*, March 1982, pp. 34-37.

²Chindgren, C.J., K. Dean, and L. Peterson. *Recovery of the Nonferrous Metals From Auto Shredder Rejects by Air Classification. BuMines TPR 31, 1971, 11 pp.*

³Steele, D.K., and J. Sterner. *A Water Elutriation System for Recovering Nonmagnetic Metals From Automobile Shredder Rejects. BuMines RI 8771, 1983, 22 pp.*

⁴Dean, K.C., and J.W. Sterner. *Dismantling a Typical Junk Automobile to Product Quality Scrap. BuMines RI 7350, 1969, 17 pp.*

Materials Usage in New Cars, 1975-85

Pounds Dryweight						
Model Year	1975		1980		1985	
Total Weight	3,970		3,080		2,400	
Material Mix	Pct	Lbs	Pct	Lbs	Pct	Lbs
High Strength Steel	2.7	106	5.4	165	12.5	300
Plain Carbon Steel	58.3	2,315	54.2	1,669	44.0	1,056
Iron	15.8	626	14.9	458	9.0	216
Aluminum	2.2	86	4.0	124	6.5	156
Copper	0.9	37	0.8	25	1.0	24
Lead	0.7	29	0.7	22	1.0	24
Zinc	1.3	53	0.6	19	0.5	12
Glass	2.4	94	2.6	80	3.0	72
Rubber	4.0	160	4.0	124	4.5	180
Other Plastics	4.2	168	6.0	184	10.5	252
Other	7.5	297	6.8	212	7.5	180

Source: The U.S. Automobile Industry, 1980: Report to the President from the Secretary of Transportation.
Note: Dry weight does not include fuel, oil, water and other liquids.

smaller radiator that will be efficient; who can come up with a plastic fender that will really save half the weight, look like sheet metal, and be paintable. It will probably lead to significant shakeout in suppliers."

"If it makes sense to source outside the automakers," says Maryann N. Keller, the analyst with Wall Street's Paine Webber Mitchell Hutchins, Inc., "it makes no difference whether it's sourced to the United States or Japan. The U.S. parts companies are in competition with the rest of the world and they won't get preferential treatment."

"I see diversification being attempted by every company I know. Diecasters are looking at frames for computers, foundries at construction and agricultural equipment."

"The auto industry is nothing more or less than a cash cow. If the suppliers can't make money on it, they'll take their business elsewhere. There's quite a metamorphosis occurring." Automotive's cyclical, smaller, more standardized products, and moves to foreign sourcing will all mean less business for American suppliers, she says.

In particular, "suppliers that are narrower in scope and don't have proprietary products could have problems with overseas competition," says Philip K. Fricke, an analyst with Goldman, Sachs & Co., the Wall Street firm.

"There will be a gradual increase in the amount of foreign sourcing," says Ford's Mr. Chicoine, "as business tends to migrate toward the most efficient areas, but at the same time I don't think that the domestic auto parts and machine tool business is so deficient versus foreign competition that there is any risk that they won't

be around for a very long time to come. I think some of our auto parts suppliers and machine tool suppliers have already demonstrated in face-to-face competition that they may very well be the most efficient source."

Machine tool orders for Ford's Mexican engine plant, for instance, went to Lamb, LaSalle, and Cross. Favorable financing arrangements induced Cross to build most of the machines in its English plant, some in its West German plant, and about 10 pct here.

"We don't have any particular inhibitions about sourcing to qualified suppliers anywhere in the world," says Mr. Chicoine. "We are in a very dynamic period where everything is in a state of change and the predicting is uncertain at best and right now it's hazardous indeed. Opportunities for complementation, however, are coming to the forefront in certain parts of the world where you will produce engines in one country, transmissions in a second, and vehicles in a third, and sell vehicles in all three countries."

Mr. Busch of Bendix evinces some frustration at the volatile climate in sourcing. Bendix, he says, is prepared to source parts on a long-term basis from whichever of its worldwide plants the automakers prefer, but so far the automakers have given Bendix no clear instructions.

"If the OEMs come to us and say 'Hey, we want the lowest cost product we can get, we don't care where in the world you get it for us, but get it for us,' we can do that through the Bendix system. If they said, 'We want to buy 30 pct of our master cylinders offshore and 70 pct at home, or 50-50, or whatever,' we could say 'Okay, we'll supply you 50 pct from the U.S. and 50 pct from our facility in Japan

and have 100 pct capability in the U.S. in case there's a catastrophe on the oceans or something keeps you from getting your supply from Japan. We'll save you the trouble of trying out all the cylinders made around the world, and we'll assure you quality, engineering, and everything else.' That's the philosophy we've been preaching to the automakers, but we're not getting very far with that. I don't know what their philosophy is. They haven't told us, they won't tell us."

"The way they're doing it now is: Today they'll buy from Brazil because the exchange rate is right and the government gives them an incentive. Tomorrow the government changes its policy and they say, 'Forget that, I'll go somewhere else.' So they go to another facility, and all they're doing is running around and causing suppliers to respond to a very short-term contract, and we're saying 'Hey! Why don't we get together and do it on a long-term basis?'"

Some customers, says Mr. Busch, have asked Bendix to quote prices based on its different international plants, pitting them against one another. Some have even wanted to source Bendix proprietary products from non-Bendix plants. "They want to take our innovation, our technology and do it somewhere else. That's ridiculous! That's what we're in business for."

Automotive sourcing to foreign plants and affiliates of American-based multinationals means the loss of American blue collar jobs but the retention of at least some American profits and employment. American auto companies seem to be making an effort to source overseas through these American multinationals. In some cases, they have encouraged the American suppliers to affiliate with companies in the foreign country of choice. Ford is encouraging such affiliation with Mexico so that it can meet the local content law there.

In these cash-short times, cost is automotive's primary consideration. Chrysler's debts are large, and where Ford and GM will get the cash necessary for their planned retooling is still unclear.

General Motors projects self-confidence about the future and promises to spend \$32 billion of its \$40 billion capital expenditures within the U.S. "We're fully expecting sourcing of our domestically built vehicles to be domestic," says one spokesman. GM Chairman Roger B. Smith recently predicted that U.S. retail sales of cars and trucks will be nearly

Q³
P⁵

AN INDUSTRYWIDE
HAZARDOUS WASTE
IDENTIFICATION STUDY
OF THE FERROUS
SCRAP PROCESSING INDUSTRY

Prepared For
THE INSTITUTE OF SCRAP IRON AND STEEL, INC.
Washington, D.C.

By
Clayton Environmental Consultants, Inc.
November 10, 1980

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ABBREVIATIONS

Ag = silver
As = arsenic
B = baler
Ba = barium
Cd = cadmium
CEC = Clayton Environmental Consultants, Inc.
Cr = chromium
E = Endrin
EP = Extraction Procedure
EP TOX = Extraction Procedure Toxicity
EPA = United States Environmental Protection Agency
Hg = mercury
HWM = hazardous waste management
IS = shredder (from a CEC field survey)
ISIS = The Institute of Scrap Iron and Steel, Inc.
ISS = shredder scrubber (from a CEC field survey)
L = Lindane
M = Methoxychlor
mg/L = milligrams per liter
Pb = lead
PBB = Patton, Boggs & Blow
RCRA = Resource Conservation and Recovery Act
ret = rotary extractor technique
S = shredder
s = standard deviation

Se = selenium
SH = shear
SS = shredder scrubber
st = stirrer technique
SW = sweat furnace
T = Toxaphene
UCL = Upper Confidence Level
 \bar{x} = average
2,4-D = 2,4-Dichlorophenoxyacetic acid
2,4,5-TP = Silvex
< = less than
> = greater than
> = greater than or equal to

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AN INDUSTRYWIDE HAZARDOUS WASTE
IDENTIFICATION STUDY OF THE
FERROUS SCRAP PROCESSING INDUSTRY
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Washington, D.C.

JOB NO. 10355-0780-WMS

I. INTRODUCTION

On February 26, 1980 and May 19, 1980, the U.S. Environmental Protection Agency (EPA) promulgated hazardous waste management regulations under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), as amended. Essentially, each potential generator of hazardous waste must notify the EPA by August 18, 1980 if they know or believe they are a generator of hazardous waste. The methodology, criteria, etc. by which one determines whether a waste is hazardous are specified in Part 261 of the regulations.

No waste produced by the ferrous scrap iron and steel industry was listed under Sections 261.31 or 261.32 so that no waste produced by this industry was listed as hazardous. Nevertheless, perhaps the most salient characteristic of this industry is its highly heterogeneous materials input and its highly variable production rates. For that reason, it was unclear how or with what frequency individual scrap processors would be required to sample and analyze their wastes.

Thus, the Institute of Scrap Iron and Steel, Inc. (ISIS), which is an industry association serving the ferrous scrap processing industry, contracted for a statistically sound industrywide hazardous waste management (HWM) identification study to:

1. Ascertain whether each of the various types of waste produced by members of the ferrous iron and steel industry (SIC 5093) are hazardous as defined by the U.S.E.P.A. regulations promulgated on May 19, 1980

(exclusive of ignitability, corrosivity,
and reactivity).

2. Report the EP Toxicity and other contaminant data in both tabular and summary formats which will permit generalizations concerning the characteristics of each type of waste.

II. EXECUTIVE SUMMARY

Essentially five categories of waste from ferrous scrap processing plants were evaluated for their EP Toxicity as a result of this study. They were:

1. Balers (B)
2. Shears (SH)
3. Shredders (S)
4. Shredder Scrubbers (SS)
5. Sweat Furnaces (SW)

Our findings, based upon EPA's EP Toxicity procedure (from SW-846, based upon the Stirrer technique), are that:

1. Waste from Balers is not hazardous.¹ However, waste generated during "atypical" baling operations (i.e., the processing of radiators exclusively) apparently are hazardous due to their lead (Pb) content.
2. Waste from Shears is not hazardous.
3. Waste from Shredders is not hazardous.
4. Waste from Shredder Scrubbers is not hazardous.
5. Waste from Sweat Furnaces is hazardous due to its lead (Pb) content.

Consolidated EP Toxicity results for each of these categories are presented in Tables 2.1 through 2.9.

¹ As of the date of this report, CEC has not completed its analyses of all samples of waste from balers. However, based upon the samples thus far analyzed, CEC has concluded with 95% confidence that waste from typical baler operations is not hazardous.

TABLE 2.1

SUMMARIZED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x} *	.011	17.2	.136	.311	3.18	.011	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	24.2	.297	.070	6.85	0	0	0	0	0	0	0	0	0	
UCL	.011	20.9	.182	.322	4.24	.011	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
\bar{x} **	.011	16.5	.138	.311	7.20	.011	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	23.7	.289	.068	17.1	0	0	0	0	0	0	0	0	0	
UCL	.011	20.1	.181	.321	9.77	.011	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	

* Typical Balers

** Includes "Atypical" Balers (B-5, B-8, B-9, B-54)

TABLE 2.2

SUMMARIZED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<.01	16.6	.293	.31	1.93	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	22.0	.375	.078	4.24	0	0	0	0	0	0	0	0	0	
UCL	<.01	19.9	.349	.32	2.57	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	

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TABLE 2.3

SUMMARIZED EP TOXICITY RESULTS FOR ALL SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<0.01	12.9	.496	<0.3	3.47	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	18.0	.265	<0.3	4.04	0	0	0	0	0	0	0	0	0	
UCL	<0.01	15.5	.303	<0.3	4.05	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

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TABLE 2.4

SUMMARIZED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<.01	15.9	.573	.3	3.79	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	19.0	.317	0	3.81	0	0	0	0	0	0	0	0	0	
UCL	<.01	19.8	.637	.3	4.53	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 2.5

SUMMARIZED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<.01	9.72	.427	.3	3.15	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	16.5	.157	0	4.30	0	0	0	0	0	0	0	0	0	
UCL	<.01	13.1	.449	.3	4.03	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 2.6

SUMMARIZED EP TOXICITY RESULTS FOR ALL SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)														
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
\bar{x}	.03	38.7	.255	.319	1.88	<.01	<.01	.054	<.002	<0.04	<1.0	<0.05	<10	<1
s	0	67.6	.226	.088	2.29	0	0	.025	0	0	0	0	0	0
UCL	.03	52.9	.303	.338	2.36	<.01	<.01	.059	<.002	<0.04	<1.0	<0.05	<10	<1

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TABLE 2.7

SUMMARIZED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<.01	29.5	.283	.3	2.23	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	28.9	.201	0	2.09	0	0	0	0	0	0	0	0	0	
UCL	<.01	37.0	.335	.3	2.77	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	

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TABLE 2.8

SUMMARIZED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<.01	56.1	.211	.329	1.46	<.01	<.01	.059	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	96.1	.209	.121	2.27	0	0	.036	0	0	0	0	0	0	
UCL	<.01	87.3	.279	.368	2.20	<.01	<.01	.071	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 2.9

SUMMARIZED EP TOXICITY RESULTS FOR SWEAT FURNACES WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	.013	22.2	.357	.307	53.4	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	.007	27.1	.431	.026	101	0	0	0	0	0	0	0	0	0	
UCL	.015	28.9	.464	.313	78.5	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1	

III. LITERATURE REVIEW AND INITIAL INSPECTIONS

As described in IV.A, a literature review was conducted to identify and evaluate all available information concerning wastes from ferrous scrap processing plants. Over twenty sources were found to contain valuable information for a profile of the industry, the materials processed, and its expected wastes. A wide variety of processing equipment is used, however, the major types of ferrous scrap processing equipment fell into eight categories.

Three randomly-chosen site surveys were then conducted to validate the previous findings as well as to obtain an in-depth practical understanding of the industry as a whole. At one site, a shredder was the principal scrap processing equipment and a shredder waste sample was acquired in anticipation of conducting the effort described in Section VI.C. of this report. Two other sites, one with a baler and the other with a shear, were also surveyed prior to beginning the effort described in this report. The efforts reported herein were then undertaken after consultation and review of the protocol of this industrywide hazardous waste identification study of the ferrous scrap processing industry with the U.S.E.P.A. on July 8, 1980.

IV. STUDY PROTOCOL

This study's protocol was divided into two distinct sections (sampling strategy and analytical protocol). Statistical evaluations of analytical data were conducted in accordance with EPA's Guidance Document SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Section 1.0, distributed by EPA on July 2, 1980. Discussion of these statistical evaluations occurs in IV.B. "Analytical Protocol."

A. Sampling Strategy

A wide variety of sampling strategies and approaches exist for accurately defining [with a high degree of confidence (95%)] any sample population. An extremely useful statistical approach to determine the minimum number of samples to be acquired for development of representative data from an expected heterogeneous population has now been in use by another U.S. governmental agency for some time.² Extrapolated to this study, the following tabular summary appears to be the best approach.

TABLE 1

<u>Number of Same Kind of Waste Generating Equipment</u>	<u>Minimum Number of Samples to be Acquired</u>
1-20	50% of the total number of pieces of same kind of equipment
21-100	10 plus 25% of the excess over 20 pieces of equipment
Over 100	30 plus 5% of the excess over 100 pieces of equipment

²Leidel, N.A., Busch, K.A., Lynch, J.R., Occupational Exposure Sampling Strategy Manual, U.S. Dept. of Health, Education, and Welfare, NIOSH, Cincinnati, OH 45226, January, 1977, Contract CEC-99-74-75.

Based upon a research report prepared for the Metal Scrap Research and Education Foundation,³ the major types of scrap processing equipment fall into the following categories:

- Balers
- Alligator Shears
- Guillotine Shears
- Shredders
- Turnings Crushers
- Briquettes
- Motor Block Breakers
- Other (torches, rail breaking, cast iron breaking, etc.)

However, of these eight categories of processing equipment, only four (balers, guillotine shears, shredders and motor block breakers) are expected to have any significant amount of waste production, based upon a review of recent literature in the scrap processing field. Further, because the primary waste from motor block breakers is waste oil, for which at the time of this study EPA had not yet specified appropriate analytical procedures, this potential hazardous waste source was excluded from the conduct of this study. Summarizing the total number of pieces of each of the three remaining types of waste-generating processing equipment (Number of units in 1974 + Number of units installed or on order through 1980) yields the following table.

TABLE 2

	Number of Units in 1974	Number of Units Installed or on Order 1975-1980	Total
Balers	1040	130	1170
Guillotine Shears	830	235	1065
Shredders	120	80	200

³Battelle Columbus Laboratories, The Processing Capacity of the Ferrous Scrap Industry, Metal Scrap Research and Education Foundation, 1627 K Street, N.W., Washington, D.C. 20006, 1976.

Thus, based on Tables 1 and 2, we proposed to sample thirty-five (35) shredders, seventy-seven (77) guillotine shears, and eighty-four (84) balers. Sites were chosen at random first from a list of shredders, and then from ISIS 1980 Directory of Members. Essentially then, this sampling strategy defined the "between-site" variations. Written Sampling Procedures were sent to each randomly chosen site for sample acquisition, and sample containers to be followed by analysis in our laboratory. Later, when it became clear that two other potential waste generating sources from ferrous scrap processing plants existed, ISIS in consultation with CEC, decided to acquire and analyze a minimum of 29 samples for both shredder scrubbers and aluminum sweat furnaces.

Additionally, it was necessary to define the "within-site" variation. Based upon the same statistical procedure outlined above, 14 sites were sampled for "within-site" variations. We chose three additional samples per shredder as being sufficient to characterize the "within-site" variation. This sampling was performed exclusively by Clayton personnel to validate the accuracy of both the EPA SW-846 procedures, and the "between-site" versus the "within-site" sampling programs, and determine if there is a significant contaminants concentration variation with time.

Sampling and analytical procedures conformed to Appendix I (including SW-846) of the EPA HWM regulations where appropriate and applicable, and to Clayton-specified methodologies where no federal guidelines existed (see Appendix B). Sampling, analytical and statistical procedures were reviewed with U.S.E.P.A. personnel on July 8, 1980 and subsequently (see Appendix D) approved.

The actual "within-site" sampling program was conducted by various Clayton staff (from our headquarters in Southfield, Michigan, plus one of our branch offices, Atlanta). Rigorous chain-of-custody procedures were utilized for shipping samples from a site to our laboratories in Southfield, Michigan.

B. Analytical Protocol

All samples reported were analyzed according to the U.S.E.P.A.'s Analytical Protocol for EP Toxicity, which has been described in the May 19, 1980 Federal Register (pgs. 33127-33131) and EPA Document No. SW-846. "Test Methods for Evaluating

Solid Waste, Physical/Chemical Methods," dated May, 1980, distributed July 2, 1980.

The EPA Analytical Protocol specifies that each waste be subjected to the following procedure:

- A. Separation (solid and liquid phases)
- B. Structural Integrity/Particle Size Reduction
- C. Extraction of Solid Material
- D. Final Separation of the Extraction from the Remaining Solid
- E. Testing (Analysis) of the EP Extract.

In addition, it should be noted that SW-846 provides for two different acceptable extractors (under item C. above): 1) Stirrers and 2) Tumblers. Clayton Environmental Consultants, Inc. utilized both extraction techniques during the conduct of this study. All data in the body of this report is reported on the basis of the "Stirrer" technique.

V. SUMMARY OF FINDINGS

The following eleven tables summarize all of the EP Toxicity Waste analyses for the five principal categories of waste produced by the ferrous scrap processing industry. Review of the data indicates that the pesticide and herbicide contaminant concentrations were universally below detectable limits, and thus federal regulatory limits as well.

Furthermore, with a few minor exceptions, concentrations of 5 of the remaining 8 metal EP Toxicity contaminants (arsenic - As, chromium - Cr, mercury - Hg, selenium - Se, and silver - Ag) were below detectable levels in the wastes from all five processes.

None of the wastes produced by the five scrap processing sources evaluated in this study was found to be in excess of the federal EPA EP Toxicity limits (with 95% confidence) with the exception of the sweat furnaces and "atypical" baling operations (i.e., processing of radiators exclusively), the wastes from both of which were determined to be hazardous on the basis of lead.

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-1	<0.01	4.1	.01	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-2	<0.01	5.6	.14	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-3	<0.01	1.9	.08	<0.3	1.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-4	<0.01	20	.12	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-5	<0.01	3.3	.10	<0.3	55	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-6	<0.01	1.3	.09	<0.3	0.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-7	<0.01	34	.16	<0.3	27	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-8	<0.01	1.1	.31	<0.3	89	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-9	<0.01	19	.07	<0.3	85	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-10	<0.01	5.6	.04	<0.3	2.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)														
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
B-11	<0.01	2.9	.06	<0.3	1.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-12	<0.01	40	.18	0.6	1.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-13	<0.01	1.5	.07	<0.3	.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-14	<0.01	25	.04	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-15	<0.01	15	.65	0.8	8.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-16	<0.01	1.9	.02	<0.3	0.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-17	<0.01	1.3	.06	<0.3	10	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-18	<0.01	1.2	.05	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-19	<0.01	1.5	.06	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-20	<0.01	8.5	.03	<0.3	1.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-21	0.04	97	.04	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-22	<0.01	4.6	.02	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-23	<0.01	11	.05	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-24	<0.01	22	.18	<0.3	2.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-25	<0.01	120	.09	<0.3	.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-26	<0.01	52	.10	<0.3	.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-27	<0.01	57	.11	<0.3	1.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-28	<0.01	1.0	.24	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-29	<0.01	17	.01	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-30	<0.01	10	.01	<0.3	.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-31	<0.01	43	.05	<0.3	.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-32	<0.01	7.9	.08	<0.3	2.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-33	<0.01	32	.16	<0.3	7.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-34	<0.01	3.3	.07	<0.3	2.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-35	<0.01	1.4	.02	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-36	<0.01	1.8	.11	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-37	<0.01	1.9	.03	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-38	<0.01	28	.05	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-39	<0.01	1.6	.03	<0.3	27	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-40	<0.01	2.4	.02	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

ISIS Company	EP CONTAMINANTS (mg/L)													
	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
B-41	0.02	0.85	.01	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-42	<0.01	3.2	.04	<0.3	3.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-43	<0.01	7.9	.14	<0.3	12	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-44	<0.01	1.9	.42	<0.3	3.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-45	<0.01	35	.06	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-46	<0.01	2.7	.34	<0.3	0.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-47	<0.01	61	.11	<0.3	1.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-48	<0.01	1.8	.04	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-49	<0.01	2.8	.34	<0.3	2.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
B-50	<0.01	4.4	.09	<0.3	1.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-51	<0.01	1.6	.07	<0.3	3.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-52	<0.01	91	.06	<0.3	1.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-53	<0.01	24	<0.01	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-54	<0.01	1.6	.22	<0.3	50	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-55	<0.01	59	.07	<0.3	11	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-56	<0.01	3.7	.09	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-57	<0.01	4.8	2.4	<0.3	8.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-58	<0.01	3.8	.04	<0.3	0.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-59	<0.01	15	.02	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-60	<0.01	3.3	.07	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-61	<0.01	12	.08	<0.3	1.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-62	<0.01	1.7	.10	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-63	<0.01	2.5	.08	<0.3	1.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-64	<0.01	1.5	.12	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-65	<0.01	3.0	.08	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-66	<0.01	17	.31	<0.3	2.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-67	<0.01	22	.07	<0.3	22	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-68	<0.01	4.8	.10	<0.3	5.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-69	<0.01	6.7	.08	<0.3	5.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-70	<0.01	4.5	.23	<0.3	2.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.1

CONSOLIDATED EP TOXICITY RESULTS FOR BALERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-71	<0.01	27	.08	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-72	<0.01	32	.23	<0.3	37	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-73	<0.01	28	.06	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-1	<0.01	44	.42	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-2	<0.01	34	.35	<0.3	2.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-3	<0.01	44	.38	<0.3	2.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-4	<0.01	110	<.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-5	<0.01	2.2	<.02	<0.3	.34	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-6	<0.01	2.4	.19	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-7	<0.01	1.8	.21	<0.3	.90	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-8	<0.01	18	<.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-9	<0.01	13	.16	<0.3	.38	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-10	<0.01	1.2	.72	<0.3	2.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-11	<0.01	1.9	.05	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-12	<0.01	56	.19	<0.3	.81	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-13	<0.01	.72	.05	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-14	<0.01	32	.23	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-15	<0.01	37	.55	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-16	<0.01	1.1	<.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-17	<0.01	10	.59	<0.3	25	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-18	<0.01	15	.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-19	<0.01	7.6	<.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-20	<0.01	8.0	.26	<0.3	3.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-21	<0.01	1.4	.51	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-22	<0.01	11	.10	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
SH-23	<0.01	13	.24	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-24	<0.01	4.4	.27	<0.3	1.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-25	<0.01	37	.13	<0.3	.41	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-26	<0.01	.96	.22	<0.3	.34	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-27	<0.01	33	.16	<0.3	3.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
SH-28	<0.01	1.3	2.2	<0.3	.20	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-29	<0.01	1.7	.38	<0.3	17	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-30	<0.01	17	.19	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-31	<0.01	.60	.01	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-32	<0.01	84	.19	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
SH-33	<0.01	.88	.30	<0.3	.34	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-34	<0.01	35	.29	<0.3	1.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-35	<0.01	32	2.2	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-36	<0.01	2.9	.47	<0.3	1.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-37	<0.01	1.0	.08	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
SH-38	<0.01	37	.68	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-39	<0.01	36	<.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-40	<0.01	17	.24	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-41	<0.01	1.8	.37	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-42	<0.01	.44	.33	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-43	<0.01	33	.38	<0.3	20	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-44	<0.01	24	.29	<0.3	9.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-45	<0.01	1.0	.06	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-46	<0.01	3.2	.38	<0.3	2.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-47	<0.01	3.9	.18	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-48	<0.01	23	.10	<0.3	.38	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-49	<0.01	20	.06	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-50	<0.01	2.4	.19	<0.3	2.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-51	<0.01	.48	.03	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-52	<0.01	1.7	.20	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-53	<0.01	2.6	.08	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-54	<0.01	5.2	.05	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-55	<0.01	2.4	.24	<0.3	1.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-56	<0.01	72	.55	<0.3	2.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-57	<0.01	34	<.02	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-58	<0.01	1.8	.42	<0.3	3.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-59	<0.01	.44	.11	<0.3	2.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-60	<0.01	1.2	.28	<0.3	3.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-61	<0.01	1.2	.93	<0.3	4.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-62	<0.01	2.3	.08	<0.3	.55	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-63	<0.01	1.3	.13	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-64	<0.01	30	.19	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-65	<0.01	2.4	.04	<0.3	.51	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-66	<0.01	20	.11	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-67	<0.01	1.3	.47	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-68	<0.01	1.8	.18	<0.3	1.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-69	<0.01	31	.13	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-70	<0.01	68	.11	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.2

CONSOLIDATED EP TOXICITY RESULTS FOR SHEARS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SH-71	<0.01	.80	.37	<0.3	4.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-72	<0.01	8.0	.55	<0.3	2.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SH-73	<0.01	1.0	.40	<0.3	.30	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

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TABLE 5.3

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
S-1	<0.01	1.0	.38	<0.3	.50	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-2	<0.01	2.4	.48	<0.3	.30	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
S-3	<0.01	2.7	.42	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-4	<0.01	4.1	1.1	<0.3	10	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-5	<0.01	1.2	.44	<0.3	4.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-6	<0.01	25	.66	<0.3	.96	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-7	<0.01	1.5	.53	<0.3	4.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
S-8	<0.01	1.1	1.2	<0.3	10	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-9	<0.01	43	.70	<0.3	.59	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-10	<0.01	3.4	.62	<0.3	1.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.3

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
S-11	<0.01	3.4	1.1	<0.3	6.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-12	<0.01	18	.37	<0.3	.33	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
S-13	<0.01	31	.44	<0.3	8.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-14	<0.01	47	.57	<0.3	3.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-15	<0.01	26	.53	<0.3	5.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-16	<0.01	2.5	1.1	<0.3	13	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-17	<0.01	1.3	.34	<0.3	5.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
S-18	<0.01	2.9	.48	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-19	<0.01	2.7	.40	<0.3	.81	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-20	<0.01	37	.40	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.3

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
S-21	<0.01	1.8	1.8	<0.3	5.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-22	<0.01	10.4	.48	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-23	<0.01	4.1	.27	<0.3	.63	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-24	<0.01	22	.75	<0.3	2.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-25	<0.01	4.3	.48	<0.3	5.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-26	<0.01	3.8	.57	<0.3	6.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-27	<0.01	94	.48	<0.3	8.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-28	<0.01	26	.22	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-29	<0.01	20	.24	<0.3	3.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-30	<0.01	30	.37	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.3

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
S-31	<0.01	16	.15	<0.3	.46	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-32	<0.01	9.4	.66	<0.3	.30	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
S-33	<0.01	24	.48	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-34	<0.01	17	.30	<0.3	3.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-35	<0.01	1.1	.38	<0.3	.42	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-36	<0.01	9.9	.79	<0.3	12	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-37	<0.01	1.9	.40	<0.3	2.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-38	<0.01	29	.75	<0.3	.31	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
S-39	<0.01	50	.70	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-40	<0.01	6.7	.60	<0.3	10.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.4

CONSOLIDATED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
1S-1	<0.01	2.0	.37	<0.3	.59	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-2	<0.01	24	.36	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-3	<0.01	32	.36	<0.3	0.30	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-4	<0.01	32	.40	<0.3	.67	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-5	<0.01	2.4	.44	<0.3	.80	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-6	<0.01	2.5	.53	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-7	<0.01	2.1	.26	<0.3	.63	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-8	<0.01	21	.18	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-9	<0.01	1.6	.20	<0.3	.89	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-10	<0.01	4.9	.29	<0.3	3.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.4

CONSOLIDATED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)														
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
1S-11	<0.01	3.0	.66	<0.3	1.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-12	<0.01	3.4	.70	<0.3	.59	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-13	<0.01	3.3	.44	<0.3	4.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-14	<0.01	1.3	.53	<0.3	1.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-15	<0.01	2.0	.66	<0.3	.50	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-16	<0.01	11	.23	<0.3	.81	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-17	<0.01	.99	.21	<0.3	16	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-18	<0.01	55	.35	<0.3	.96	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-19	<0.01	2.8	.28	<0.3	14	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1S-20	<0.01	84	.70	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.4

CONSOLIDATED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
1S-21	<0.01	4.3	.48	<0.3	3.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-22	<0.01	2.4	.30	<0.3	1.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-23	<0.01	3.0	.33	<0.3	.50	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-24	<0.01	1.5	.30	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-25	<0.01	3.7	.42	<0.3	2.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-26	<0.01	8.9	.37	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-27	<0.01	4.2	.35	<0.3	1.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-28	<0.01	7.5	.57	<0.3	.89	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-29	<0.01	1.2	.29	<0.3	1.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-30	<0.01	1.6	.75	<0.3	10	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.4

CONSOLIDATED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
1S-31	<0.01	6.0	.53	<0.3	5.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-32	<0.01	19	.44	<0.3	5.5	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-33	<0.01	1.5	.53	<0.3	18	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-34	<0.01	1.8	.24	<0.3	2.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-35	<0.01	.75	.34	<0.3	5.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-36	<0.01	3.1	.48	<0.3	.38	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-37	<0.01	6.0	.70	<0.3	1.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-38	<0.01	6.0	.44	<0.3	2.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-39	<0.01	5.5	.57	<0.3	4.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.5

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)														
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
SS-1	.03	25	.29	<.3	.88	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-2	.03	.70	.31	<.3	6.8	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-3	.03	6.6	.16	<.3	<.3	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-4	.05	1.1	<.02	.5	<.3	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-5	.03	22	.73	<.3	5.4	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-6	.03	29	.11	<.3	.44	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-7	.03	26	.51	<.3	4.4	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-8	.03	15	.07	<.3	.37	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-9	.03	26	.29	<.3	2.3	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-10	.03	19	<.02	<.3	1.3	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.5

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDER SCRUBBERS WASTE

ISIS Company	EP CONTAMINANTS (mg/L)													
	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
SS-11	.03	55	<.02	<.3	1.5	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-12	.03	12	.41	<.3	3.4	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-13	.03	28	.67	<.3	1.6	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-14	.03	19	.23	<.3	1.6	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-15	.03	36	.66	<.3	4.0	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-16	.03	24	.14	<.3	.30	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-17	.03	14	.18	<.3	.34	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-18	.03	15	.54	<.3	8.1	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-19	.03	55	<.02	<.3	1.1	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1
SS-20	.03	18	.48	<.3	.34	<.01	<.01	<.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.5

CONSOLIDATED EP TOXICITY RESULTS FOR "BETWEEN-SITE" SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SS-21	<0.03	140	.38	<0.3	1.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SS-22	<0.03	36	.35	<0.3	.98	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SS-23	<0.03	110	.25	<0.3	2.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SS-24	<0.03	12	.57	<0.3	4.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SS-25	<0.03	11	.44	<0.3	2.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SS-26	<0.03	16	.51	<0.3	2.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.6

CONSOLIDATED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)														
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
1SS-1	.03	400	<.02	<0.3	.54	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-2	.03	13	<.02	<0.3	.34	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-3	.03	12	.16	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-4	.03	164	.15	<0.3	.37	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-5	.03	28	.25	<0.3	.68	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-6	.03	28	.20	<0.3	<.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-7	.03	73	.10	<0.3	.54	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-8	.03	59	.16	<0.3	.51	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-9	.03	40	.19	<0.3	1.7	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
1SS-10	.03	21	<.02	<0.3	.54	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.6

CONSOLIDATED EP TOXICITY RESULTS FOR "WITHIN-SITE" SHREDDER SCRUBBERS WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
1SS-11	.03	14	.48	<0.8	3.4	<0.01	<0.01	<0.02	<.002	<0.04	<1.0	<0.05	<10	<1	
1SS-12	.03	30	.41	<0.3	1.0	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1SS-13	.03	13	.86	<0.3	4.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1SS-14	.03	8.1	.21	<0.3	.51	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1SS-15	.03	6.2	.11	<0.3	<0.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1SS-16	.03	3.4	.22	<0.3	8.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1SS-17	.03	1.7	<.02	<0.3	.74	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.7

CONSOLIDATED SUMMARY OF EP TOXICITY RESULTS FOR SWEAT FURNACES WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SW-1	<0.01	140	.30	<0.3	11	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-2	<0.01	19	.12	<0.3	34	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
SW-3	<0.01	27	.12	<0.3	110	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-4	<0.01	2.9	.11	<0.3	12	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-5	<0.01	6.1	.22	<0.3	17	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-6	<0.01	18	.02	<0.3	26	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-7	<0.01	17	.75	<0.3	40	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	●
SW-8	<0.01	10	.30	<0.3	30	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-9	<0.03	21	1.2	<0.3	130	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-10	<0.03	18	.33	<0.3	31	<0.01	<0.02	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.7

CONSOLIDATED SUMMARY OF EP TOXICITY RESULTS FOR SWEAT FURNACES WASTE

ISIS Company	EP CONTAMINANTS (mg/L)													
	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP
SW-11	<0.01	21	.33	<0.3	16	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-12	<0.01	14	.28	<0.3	44	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-13	<0.01	23	.68	<0.3	73	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-14	<0.01	6.5	<0.02	<0.3	1.6	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-15	<0.01	19	.46	<0.3	19	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-16	<0.01	6.9	.27	0.4	12	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-17	<0.01	71	2.1	<0.3	16	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-18	<0.01	8.4	.05	<0.3	9.8	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-19	<0.01	8.3	.29	<0.3	16	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1
SW-20	<0.01	29	.32	<0.3	9.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1

TABLE 5.7

CONSOLIDATED SUMMARY OF EP TOXICITY RESULTS FOR SWEAT FURNACES WASTE

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
SW-21	<0.01	6.1	.45	<0.3	54	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-22	<0.01	15	.20	<0.4	23	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-23	<0.01	4.6	<.02	<0.3	2.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-24	<0.01	50	.05	<0.3	23	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-25	<0.03	17	.34	<0.3	140	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-26	<0.01	21	<.02	<0.3	15	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-27	<0.01	3.8	.07	<0.3	540	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-28	<0.01	18	.48	<0.3	39	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.8

CONSOLIDATED SUMMARY OF EP TOXICITY RESULTS FOR REPLICATE SAMPLES

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
B-18A	<0.01	1.3	0.05	<0.3	1.1	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*B-18B	<0.01	1.1	0.05	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
B-49A	<0.01	2.9	0.34	0.3	3.9	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*B-49B	<0.01	2.7	0.34	<0.3	0.60	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-22A	<0.01	3.8	0.48	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*S-22B	<0.01	17	0.48	<0.3	1.2	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
S-40A	<0.01	12	0.40	<0.3	13	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*S-40B	<0.01	1.4	0.80	<0.3	8.4	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-1	<0.01	2.0	0.37	<0.3	0.59	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*1S-2	<0.01	24	0.36	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.8

CONSOLIDATED SUMMARY OF EP TOXICITY RESULTS FOR REPLICATE SAMPLES

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
1S-3	<0.01	32	0.36	<0.3	0.30	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*1S-4	<0.01	32	0.40	<0.3	0.67	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
1S-5	<0.01	2.4	0.44	<0.3	0.80	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*1S-6	<0.01	2.5	0.53	<0.3	1.3	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
SW-19A	<0.01	8.2	0.28	<0.3	16	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*SW-19B	<0.01	8.4	0.30	<0.3	16	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
UCL	.01	13.2	.383	.3	7.74	.01	.01	.05	<.002	<0.04	<1.0	<0.05	<10	<1	
*UCL	.01	16.5	.516	.3	6.61	.01	.01	.05	<.002	<0.04	<1.0	<0.05	<10	<1	

TABLE 5.9

CONSOLIDATED SUMMARY OF EP TOXICITY RESULTS FOR SITE-SPECIFIC
LONG-TERM VARIATION AT A SHREDDING OPERATION

EP CONTAMINANTS (mg/L)															
ISIS Company	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	E	L	M	T	2,4-D	2,4,5-TP	
\bar{x}	<.01	4.74	.383	0.3	.77	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	
s	0	9.65	.067	0	.424	0	0	0	0	0	0	0	0	0	
UCL	<.01	9.5	.416	0.3	.984	<0.01	<0.01	<0.05	<.002	<0.04	<1.0	<0.05	<10	<1	

VI. ADDITIONAL FINDINGS

Discussion of the results of this study will be divided into the following categories:

- A. "Between-site" vs. "Within-site" Variation
- B. Replicate Samples
- C. Site-Specific Long-Term Variation at a Shredding Operation
- D. Homogeneity of Sample Results

A. "Between-site" vs. "Within-site" Variation

As a means of insuring that samples mailed into the laboratory for analysis ("between-site" data) were representative, additional sampling was conducted by experienced environmental professionals, with subsequent analysis in the same laboratory ("within-site" data). It is clear from the results of this effort that there is no statistically significant difference between the two procedures. In fact, the "between-site" or "mailing" procedure tends to give slightly higher concentrations than sampling conducted by experienced environmental professionals. This may be due to strict adherence of Clayton personnel to acquiring integrated samples, or just a "blip" in the data base.

Additionally, this "between-site" vs. "within-site" effort was conducted to determine if there was any significant variation in contaminant concentrations over time. The "within-site" procedure provides a time-series analysis to complement the cross-sectional analysis of the "between-site" procedure. Based upon the data, there was no significant variation over time in the concentrations of contaminants.

B. Replicate Samples

Although not part of the contracted effort of this study, CEC acquired replicate samples during the conduct of this study. Some were due to the enthusiasm and "willingness-to-cooperate" of ISIS members who simply took duplicate samples and sent them to the CEC laboratory for analysis. Additionally CEC deliberately structured one of the field site surveys so that two persons performed

"separate" field studies at the same site. The results of these efforts indicate that the sampling and analytical protocol provides reproducible results based upon averages or upper confidence levels.

C. Site-Specific Long-Term Variation at a Shredding Operation

Again, although not part of the contracted effort of this study, CEC acquired samples over a "long" (3-month) period of time at one site to qualitatively ascertain the variation in results which might occur over time. Long term fluctuations of no more than 10^2 would be expected at a given shredder.

D. Homogeneity of Sample Results

It should also be noted that, in general, the data per scrap processing waste category are much more homogeneous than originally expected. Initially, it was expected that results for a given contaminant per waste category would routinely vary by greater than a factor of 10,000, and this study has shown the factor of variation to generally be much less than 10,000. Because the data are much more homogeneous than originally expected, it is likely that more waste samples were analyzed than were necessary for the various scrap processing waste categories, especially balers and shears, to support statistically valid (95%) conclusions.

TYPICAL MATERIALS PROCESSED BY BALERS

#2 tin
aluminum
misc. scrap
aluminum cans and sheet metal
light iron
white goods
misc. copper
auto bodies and fenders
misc. galvanized
fencing
wire
factory clips
304 stainless steel
concrete reinforcing wire

ATYPICAL MATERIALS PROCESSED BY BALERS

radiators exclusively

TYPICAL MATERIALS PROCESSED BY SHEARS

misc. steel

tin

pipe

farm machinery

iron scrap

auto parts

appliances

brass and copper pipe

hot water tanks, boiler tanks

industrial scrap iron

misc. aluminum

reinforcing rods

railroad scrap

#2 heavy melting steel

light sheet iron

truck frames

railroad cars

coal mine cars

car shock absorbers

TYPICAL MATERIALS PROCESSED BY SHREDDERS

autos

white goods

sheet iron

hot water tanks

tin

grab pile

autos with seats and motors

TYPICAL MATERIALS PROCESSED BY SWEAT FURNACES

irony aluminum

auto motor block aluminum

aluminum spills, general yard breakage

dross

contaminated sheet aluminum

ballmill tailings

zinc alloy die cast blocks

skim chunks

HERSCHEL CUTLER
Executive Director

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TEL. 466-4050

DEPARTMENT OF ENVIRONMENTAL REGULATION
 York-Dollin (David G)

DER

ROUTING AND TRANSMITTAL SLIP

ACTION NO.
 ACTION DUE DATE FEB 21 1985

1. TO: (NAME, OFFICE, LOCATION)

Steve Smallwood

BAOM

DATE
INITIAL
DATE
INITIAL
DATE
INITIAL
DATE

Permit # AC 05-097-961

To Jim Steve Smallwood

Date 2-20 Time 5pm

WHILE YOU WERE OUT

M. Bud Sherstein ^{got miss 230} _{called 945}

of ASAC at 340 _{el set}

Phone 904/739-1311
 Area Code Number Extension

<input checked="" type="checkbox"/> TELEPHONED	<input type="checkbox"/> PLEASE CALL
<input type="checkbox"/> CALLED TO SEE YOU	<input type="checkbox"/> WILL CALL AGAIN
<input type="checkbox"/> WANTS TO SEE YOU	<input type="checkbox"/> URGENT
<input type="checkbox"/> RETURNED YOUR CALL	

Message he called for Vicki.
Could you see if this
is someone she needs to call
from New York; if it can
wait until next week, or
if some one else can help.

He wants to be sure that both sides get info back & forth quickly.

Belva

INFORMATION	
<input type="checkbox"/> REVIEW & RETURN	
<input type="checkbox"/> REVIEW & FILE	
<input type="checkbox"/> INITIAL & FORWARD	
DISPOSITION	
<input type="checkbox"/> REVIEW & RESPOND	
<input type="checkbox"/> PREPARE RESPONSE	
<input type="checkbox"/> FOR MY SIGNATURE	
<input type="checkbox"/> FOR YOUR SIGNATURE	
<input type="checkbox"/> LET'S DISCUSS	
<input type="checkbox"/> SET UP MEETING	
<input type="checkbox"/> INVESTIGATE & REPT	
<input type="checkbox"/> INITIAL & FORWARD	
<input type="checkbox"/> DISTRIBUTE	
<input type="checkbox"/> CONCURRENCE	
<input type="checkbox"/> FOR PROCESSING	
<input type="checkbox"/> INITIAL & RETURN	

FROM:

DATE

PHONE



CROSS/TESSITORE & ASSOCIATES, P.A.
4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
305/851-1484

February 15, 1985



Mr. Ralph Maloy
FDER-St. Johns River District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Yorke Doliner & Company
AC 05-097961
Letter from C. Fancy 2/6/85

Dear Ralph:

Mr. Fancy has asked (his letter of February 6 enclosed) that we check with you regarding an industrial wastewater permit for subject source. We have enclosed a copy of our air permit applications, which has the water recirculation and make-up system illustrated on the drawings.

There will be no discharge of any wastewater to the waters of the State of Florida. All water is recirculated in the system and make-up water will actually be added because of evaporation in the wet scrubber.

As indicated in the permit, the drained solids, which are non-hazardous, will be disposed of at a sanitary landfill.

We would appreciate your comments at an early date. Thank you very much.

Sincerely,

Frank L. Cross, Jr., P.E.
President

FLC:kim

Enc.a/s

cc: Mr. Dan Smith, YD
Mr. A. T. Sawicki, FDER
Mr. C. H. Fancy, FDER

No. 0158649
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED—
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

SENT TO		Frank L. Cross, Jr.	
STREET AND NO.			
P.O., STATE AND ZIP CODE			
POSTAGE		\$	
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	¢	
	SPECIAL DELIVERY	¢	
	RESTRICTED DELIVERY	¢	
	OPTIONAL SERVICES	SHOW TO WHOM AND DATE DELIVERED	¢
		SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		¢	
RETURN RECEIPT SERVICE	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢	
	TOTAL POSTAGE AND FEES	\$	
POSTMARK OR DATE		2/6/85	

PS Form 3800, Apr. 1976

PS Form 3811, July 1983

DOMESTIC RETURN RECEIPT

SENDER: Complete items 1, 2, 3 and 4.

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


- Show to whom, date and address of delivery.
- Restricted Delivery.

3. Article Addressed to:
 Frank L. Cross, Jr.
 4759 South Conway Road
 Orlando, Florida 32812

4. Type of Service:	Article Number
<input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail	0158649

Always obtain signature of addressee or agent and **DATE DELIVERED.**

- Signature - Addressee
 X *M. Cross*
- Signature - Agent
 X
- Date of Delivery
 2-7-85
- Addressee's Address (ONLY if requested and fee paid)





ROCKLEDGE, FL
FEB 19 1985
PM
32955

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE ROAD
TWIN TOWERS OFFICE BUILDING
TALLAHASSEE, FLORIDA 32301

PRIORITY
FIRST CLASS

TALLAHASSEE
FEB 13 '85
FLA.
U.S. POSTAGE
0.17

3/5/85

P.O. Box 1659

Cocoa, Fl. 32922

RETURNED TO SENDER
REASON CHECKED
Undelivered
All return addresses must be legible
No postage is required on this envelope
No postmark is required on this envelope

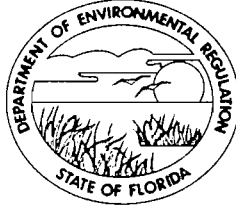
Jeffrey B. Doliner
YORKE DOLINER & COMPANY
Nova Industrial Park
US Highway 1
Rockledge, Florida
32955

William Reed

Protecting Florida and Your Quality of Life

DEPARTMENT OF ENVIRONMENTAL REGULATION

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



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 6, 1985

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Frank L. Cross, Jr.
Cross/Tessitore and Associates
4759 South Conway Road
Orlando, Florida 32812

Dear Mr. Cross:

RE: Permit Application No. AC 05-097961
Yorke Doliner and Company, Auto Metal Shredder

The above application will be processed by our central section. All further communications regarding this permit should be made to the above address.

A review of your application to construct the referenced air pollution source indicates that it is incomplete. The following is required to complete your application.

1. In Section II-A, state whether the project will result in full compliance with existing DER rules.
2. In Section II-B, give actual dates for expected construction start and completion.
3. In Section III-A and V-I, please clarify raw materials processed. Specifically: (1) Have all volatile liquids been removed? (2) Is the interior (vinyl seats, etc.) shredded also? (3) Are batteries removed prior to shredding? (4) Is any of the drive-train removed from auto? (5) Describe: (a) non-ferrous metals (b) trash (c) waste solids; also substantiate percentages of contaminants. (6) Clarify process rate via flow diagram or manufacturers specifications.
4. In Section V-2: Manufacturers information/data on this system should be provided. Specific sketch(s) of process system is to be provided us inclusive of any inhibiting devices (e.g. curtains), which are to be utilized to reduce fugitive emissions from process.

*THIS COPY SENT TWICE
TO OWNER VIA ADDRESS
SHOWN ON APPLICATION, &
SUBSEQUENTLY RETURNED
FOR NO MAIL RECEIPTABLE.
FURTHER MAIL TO:*

*YORKE B. DOLINER & Co.
P.O. BOX 1659
CONWAY, FL. 32922*

Mr. Frank L. Cross, Jr.
Page Two
February 6, 1985

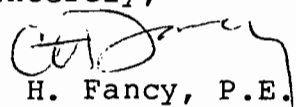
5. In Sections V-4 & 8: Specific cross sections/sketch are required to indicate emissions control: (a) Indicate by means of a cross-section how the level of flooding water will be maintained in the auto shredder (the drainage & circulation system sketch does not indicate the amount of water flow to the primary crusher & water losses from the crusher and magnetic separator). (b) Placement of any other devices to inhibit fugitive airborne particulates (e.g. curtains around inlet & outlet).

Use of water in this shredding operation may require an industrial wastewater permit. Mr. R. Maloy of the St. Johns River District office may be contacted to discuss this.

Upon receipt of your response to the above items, processing of your application will resume. Please refer to this letter in your response.

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

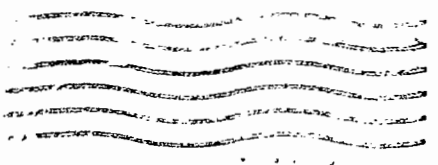
Sincerely,


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

CHF/MP/s

cc: Jeffrey B. Doliner
R. Maloy
A. T. Sawicki

DER
FEB 11 1985
BAQM



STATE OF FLORIDA
 DEPARTMENT OF ENVIRONMENTAL REGULATION
 2600 BLAIR STONE ROAD
 TWIN TOWERS OFFICE BUILDING
 TALLAHASSEE, FLORIDA 32301

DER
 FEB 11 1985
 BAQM



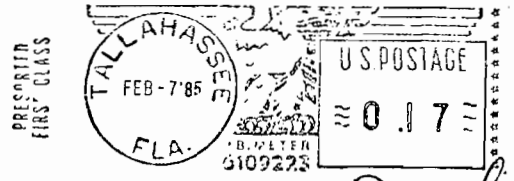
Jeffrey B. Doliner
 Yorke Doliner and Company
 Nova Industrial Park
 Rockledge, Florida
 32955

CORRECTION PREVIOUS

CONTENTS: LETTER OF INFORMATION

DATE: 6 FEB 85

Re-ent 1/12/85



*no mail report
 5/12/85*

ROUTING AND TRANSMITTAL SLIP

ACTION NO
ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)

Mido

Initial

Date

2.

PATTY

Initial

Date

3.

Initial

Date

4.

Initial

Date

REMARKS:

Wonder why this came back?

Do not know.

CHECKED ZIP W/ POST OFFICE (CORRECT). ADDED

A LITTLE MORE TO ADDRESS STATEMENT. SUMMER WAS VERY HELPFUL!

Sept

FIND EMPLOYEE. CORRECT ATTACHED

FROM:

Patty

INFORMATION

Review & Return

Review & File

Initial & Forward

DISPOSITION

Review & Respond

Prepare Response

For My Signature

For Your Signature

Let's Discuss

Set Up Meeting

Investigate & Report

Initial & Forward

Distribute

Concurrence

For Processing

Initial & Return

DATE

PHONE

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION
INTEROFFICE MEMORANDUM

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

FILE COPY

TO: Alex Alexander

THROUGH: Clair Fancy *CSX*
Bill Thomas *BT*

FROM: Mike Phillips

DATE: 5 February 1985

SUBJECT: Possible construction of a source without a permit

On 7 January 1985 the Department received an application to construct an air pollution source (wet process auto shredder) from Yorke Doliner & Co. of Rockledge, Fl., Brevard County. The construction dates therein would indicate that the source was near completion; start date: June 1984, with completion noted as February 1985.

If construction has begun then an enforcement action would be justified. Please help us to clarify this point. Thank you for your assistance in this matter.

MP/mcgwpp

cc: Dan Thompson, OGC
Bill Blommel, BAQM

APPLICATION TRACKING SYSTEM

01/08/85

APPL NO:097961

APPL RECVD:01/07/85 TYPE CODE:AC SUBCODE:99 LAST UPDATE:01/08/85

DER OFFICE RECVD:ORL DER OFFICE TRANSFER TO:___ APPLICATION COMPLETES:___/___/___

DER PROCESSOR:S CHANDNANI

APPL STATUS:AC DATE:01/07/85 (ACTIVE/DENIED/WITHDRAWN/EXEMPT/ISSUED/GENERAL)

RELIEF:___ (SSAC/EXEMPTIONS/VARIANCE)

(Y/N) N MANUAL TRACKING DISTRICT:30 COUNTY:05
(Y/N) N DNR REVIEW REQD? LAT/LONG:28.16.15/80.42.08
(Y/N) N PUBLIC NOTICE REQD? BASIN-SEGMENT:___
(Y/N) N GOV BODY LOCAL APPROVAL REQD? COE #:___
(Y/N) Y LETTER OF INTENT REQD? (I/ISSUE D/DENY) ALT#:___

PROJECT SOURCE NAME:YORKE DOLINER/METAL SHREDDER

STREET:NOVA CITY:ROCKLEDGE

STATE:FL ZIP:___ PHONE:___

APPLICATION NAME:YORK DOLINER & COMPANY

STREET:US HIGHWAY 1 CITY:ROCKLEDGE

STATE:FL ZIP:___ PHONE:904-255-1453

AGENT NAME:CROSS/TESSITORE & ASSOCIATE

STREET:4759 SOUTH CONWAY ROAD CITY:ORLANDO

STATE:FL ZIP:32812 PHONE:305-851-1484

FEE #1 DATE PAID:01/07/85 AMOUNT PAID:0100 RECEIPT NUMBER:00087685

B DATE APPLICANT INFORMED OF NEED FOR PUBLIC NOTICE - - - ___/___/___
C DATE DER SENT DNR APPLICATION/SENT DNR INTENT - - - ___/___/___
D DATE DER REQ. COMMENTS FROM GOV. BODY FOR LOCAL APP. - - - ___/___/___
E DATE #1 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - ___/___/___
E DATE #2 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - ___/___/___
E DATE #3 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - ___/___/___
E DATE #4 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - ___/___/___
E DATE #5 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - ___/___/___
E DATE #6 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - ___/___/___
F DATE GOVERNING BODY REQUESTED SURVEY RESULTS/REPORTS - - - ___/___/___
G DATE FIELD REPORT WAS REQ--REC - - - ___/___/___
H DATE DNR REVIEW WAS COMPLETED - - - ___/___/___
I DATE APPLICATION WAS COMPLETE - - - ___/___/___
J DATE GOVERNING BODY PROVIDED COMMENTS OR OBJECTIONS - - - ___/___/___
K DATE NOTICE OF INTENT WAS SENT--REC TO APPLICANT - - - ___/___/___
L DATE PUBLIC NOTICE WAS SENT TO APPLICANT - - - ___/___/___
M DATE PROOF OF PUBLICATION OF PUBLIC NOTICE RECEIVED - - - ___/___/___
N WAIVER DATE BEGIN--END (DAY 90) - - - ___/___/___

COMMENTS:

DER
JAN 24 1985
BAQM

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)

Bill Thomas / Tally

Initial

Date

2.

Initial

Date

3.

Initial

Date

4.

Initial

Date

REMARKS:

Attached is the construction permit application & draft letter & computations we discussed relative to Yoke Doliner.

INFORMATION

Review & Return

Review & File

Initial & Forward

DISPOSITION

Review & Respond

Prepare Response

For My Signature

For Your Signature

Let's Discuss

Set Up Meeting

Investigate & Report

Initial & Forward

Distribute

Concurrence

For Processing

Initial & Return

FROM:

Tom Sawicki

DATE

1/23/85

PHONE

5C 393-1150

Yorke Doliner

Permits

6.72

JMC
1/18/85

source name

Permit #

Actual emissions in TPY

Potential uncontrolled emissions TPY

(1) Zinc Smelter / Atm.

A005-39565

3.95 - Partic - 34.2

6.3 - SO2 - 6.3

(2) Existing Auto shredder

A005-32516

4.3 - Part - 4.3

(55 T/hr capacity) dry crushing

(3) New Auto Shredder

A005-27961

2.0 - Part - 67.2

(72.8 T/hr capacity) with wet crushing

(new appl.)

The above figures for new auto shredded are based on my estimate. The figures in application are not realistic.

Total Particulates = 10.25 TPY = 144.4 TPY (uncontrolled)

" SO2 = 6.3 TPY = 6.3 TPY

This facility is not subject to a PSD Review because potential emissions (as defined in 17-2, FAC) are less than 100 tons per year.

Also, the Zinc Smelter / At. smelter and Auto shredder facilities belong to different Major Groups of SIC code

Secondary Zinc Smelter fall under Group 33

Conclusion: & Auto shredders would fall under 35

Therefore, this facility would not be subject to a PSD Review

Since this will be a minor facility, with actual emissions = 10.25 TPY of Particulates and 6.3 TPY of SO_2 , it is not likely to threaten the ambient air quality standard of $60 \mu\text{g}/\text{m}^3$ (annual mean) for Particulates and for SO_2 .

Note:

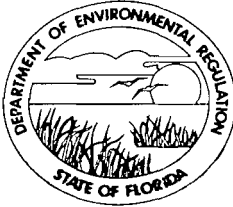
The previous modelling has been based on 'allowable emissions' and not on the basis of 'potential emissions' which are much lower. I disagree with this approach. Rules 17-2.500(2)(d)2 .a & b imply that potential emissions should be used in determining the applicability of PSD review.

Since potential emissions are much lower than allowable emissions (for particulates) for all the sources at this facility, the actual concentrations (24 hour average) will be much lower than ambient air quality standard of $150 \mu\text{g}/\text{m}^3$ for particulates (annual geometric mean) = $60 \mu\text{g}/\text{m}^3$ standard.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

A. ALEXANDER
DISTRICT MANAGER

January 16, 1985

Frank L. Cross, Jr.
Cross/Tessitore and
Associates
4759 South Conway Road
Orlando, Florida 32812

OSJ-AP-85-0019

Dear Mr. Cross:

Brevard County - AP
Yorke Doliner and Company
Auto Metal Shredder
Permit Application #AC05-097961

A review of your application to construct the referenced air pollution source indicates that it is incomplete. The following is required to complete your application:

1. In Section II-A, state whether the project will result in full compliance with existing DER rules.
2. In Section II-B, change the date entered for start of construction. As per Rule 17-2.210(1), Air Construction permits are to be obtained prior to "beginning construction".
3. In Section III-B and in Section V-1 "Supplemental Requirements", the process input rate is based on a car weight of 2240 lbs. Information substantiating this average weight should be submitted. If a different average weight is found, correct the emission calculations using the revised average weight of each car as the basis.
4. In Sections III-C and V-3, using the emission factors for Stone Quarrying and and Processing (AP-42 Table 8-20-1) to calculate potential emissions, is not likely to provide a realistic estimate because of significant differences between rock and sheet metal. More realistic potential emissions for the new auto shredder can be calculated by using the stack test data of the existing dry auto shredder system, and the appropriate efficiency factor, such as perhaps 97%, for Grinding under wet conditions. The entries in Section III-C and the emission calculations should be changed if you agree with this alternate method.

Frank L. Cross, Jr.
Page Two
OSJ-AP-85-0019
January 16, 1985

5. In Section V-4, indicate precisely by means of a cross-section sketch, how the level of flooding water will be maintained in the auto shredder. The drainage and water recirculation system sketch does not indicate the amount of water flow to the primary crusher and the water losses from the crusher and magnetic separator.

Use of water in the shredding operation may require an industrial wastewater permit application. Mr. R. Maloy, Industrial Wastewater Permitting Engineer, of our office may be contacted if you have any questions.

Pursuant to Section 120.60(2) Florida Statutes, the department may deny a permit application if the applicant, after receiving timely notice, fails to correct errors, omissions, or supply additional information within a reasonable period of time.

Upon receipt of your response to the above items processing of your application will continue. Please refer to this letter in your response.

If there are any questions, please call Suresh Chandnani at 305/894-7555 or write me at the above address.

Sincerely,

A. T. Sawicki

A. T. Sawicki, P.E.
Air Engineering

cm
ATS:sce

cc: Jeffrey B. Doliner
R. Maloy

Enclosures: 3 copies of returned application.

*This letter
was withheld
as Permit Appln.
file was transferred
to Tally*

Suresh

INTEROFFICE MEMORANDUM

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

TO: Charles Collins
THRU: Clair Fancy *CF*
THRU: Larry George *LG*
FROM: Tom Rogers *TR*
DATE: September 15, 1981
SUBJ: Modeling Request, WWG Asphalt

I have modeled the WWG asphalt plant both by itself and in combination with the Yorke Doliner facility. The CRSTER dispersion model was used with all facilities running on a ten hour day. Orlando (surface) and Tampa (upper air) meteorological data for 1964 was used. The receptor grid resolution was 0.2 kilometers. The results are as follows:

Max. annual g.l.c.¹ of WWG @ 28.3 lb/hr: 2.9 ug/m³.
Max. 24-hour g.l.c. of WWG @ 28.3 lb/hr: 38.2 ug/m³
Max. 24-hour g.l.c. of WWG @ 37.24 lb/hr: 50.3 ug/m³
Max. annual g.l.c. of WWG (@ 28.3 lb/hr) + Yorke: 5.3 ug/m³
Max. 24-hour g.l.c. of WWG (@ 28.3 lb/hr) + Yorke: 66.5 ug/m³

If you have any questions on the modeling, please call.
1 g.l.c. - ground level concentration.

TR:caa

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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

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

C.M.C.

M. C. Collins

To: C. M. Collins

Through: W. J. Blommel

From: L. A. George

Date: June 21, 1979

Subject: P. S. D. Review - Yorke Doliner Zn/Pb Smelter



We have reviewed the PSD analysis for the subject facility as submitted to your office by the consulting firm of Frank Cross, P.E., P.A.. The assessment of annual incremental impact of the facility is not valid, because incorrect emissions data were used. The method of assessment of 24-hour impact, i.e. statistical conversion of 24-hour averages, is not acceptable; neither is the use of monitoring data alone an acceptable means of assessing PSD increment consumption. The proper use of monitoring data is simply to identify local areas where ambient standards are threatened and full PSD increments may not be available.

Despite these problems with the analysis, we have determined that the facility is approvable with two conditions: (1) that the existing aluminum reclamation furnace at the site (AO-05-6694) be permanently shut down, and (2) that the normal operating hours of the new facility be limited to 8 hours per day. This determination is based on CESTER model results (attached) which show that, while the new facility alone would have a maximum 8-hour impact of 161 ug/m³ (54 ug/m³, 24-hour average), the net impact of the new facility (subtracting the impact of the existing furnace) would be 15 ug/m³, 8-hour average or 5 ug/m³, 24-hour average, i.e. insignificant.

The above results were obtained using the projected allowable emissions of the smelter (6.34 lb/hr) and the current allowable emissions of the furnace (4.43 lb/hr). This is an example of a PSD offset which results in no significant increase in "permitted" ambient concentrations. Since the allowable emissions of the furnace are larger than its actual emissions, there will, however, be an increase in actual ambient concentrations. Our final CESTER run predicts a maximum permitted 8-hour concentration of 200 ug/m³ (67 ug/m³, 24-hour average) resulting from the projected allowable emissions of the smelter and the current allowable emissions of the automobile shredder at the site.

WJB/LC/ht

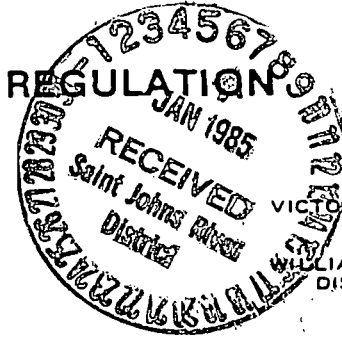
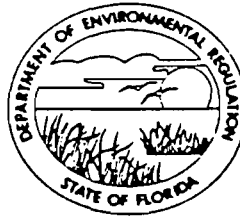
18 - Dec 7/79

cc: J. P. Subramani

67 AVE ? STD 12 60

AC 05-097961

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
WILLIAM K. HENNESSEY
DISTRICT MANAGER

SIC #5093
SEC # 3-14-011-02 (Secondary)

SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610

100
JAN 07 1985

SAINT JOHNS APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE: ~~RIVER DISTRICT~~ Metal Shredder New¹ [] Existing¹

APPLICATION TYPE: Construction [] Operation [] Modification

COMPANY NAME: Yorke Doliner & Company COUNTY: Brevard

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) fugitive

SOURCE LOCATION: Street Nova City Rock Ledge

UTM: East 7530059 North 3126584

Latitude 28 ° 16 ' 15 "N Longitude 80 ° 42 ' 8 "W

APPLICANT NAME AND TITLE: Yorke Doliner & Company

APPLICANT ADDRESS: Nova Industrial Park, U. S. Highway 1, Rock Ledge, Florida

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Yorke Doliner & Co.

I certify that the statements made in this application for a metal shredder 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: Jeffrey B. Doliner
Jeffrey B. Doliner, ^{Vice-}President
Name and Title (Please Type)

Date: 12/31/84 Telephone No. 904-255-1453

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

¹ See Florida Administrative Code Rule 17-2.100(57) and (104)

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 *Frank L. Cross, Jr.*
 Frank L. Cross, Jr.

Name (Please Type)
 Cross/Tessitore & Associates, P.A.
 Company Name (Please Type)
 4759 South Conway Road, Orlando, FL 32812
 Mailing Address (Please Type)

Florida Registration No. 7916 Date: 12/31/84 Telephone No. 305-851-1484

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.

To install a new metal shredder on a property approximately 2600' south and 900' east of its present facility. This is an entirely wet system and does not require any air pollution control equipment.

B. Schedule of project covered in this application (Construction Permit Application Only)
 Start of Construction June 1984 Completion of Construction February 1985

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.)

Shredder, conveyors, etc. (equipment) -	\$800,000.00
Erection Costs	<u>200,000.00</u>
Total	\$1,000,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.
 None

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		
Auto bodies and other scrap metal (A)	ferrous metal	75.4	109,760	product B
	non-ferrous metal	4.6	6,720	
	trash	18.0	26,208	waste D
	waste solids	2.0	2,912	
			29,208 lbs/hr 14.6 lbs/hr	E

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

- Total Process Input Rate (lbs/hr): 145,600
- Product Weight (lbs/hr): 116,480 (Fe + non Fe)

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission ¹		Allowed Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	hr	
Particulates	0.73	0.76	17-2.610 (b)	34.4	7.3	7.6	A

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4) NOT APPLICABLE

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels NOT APPLICABLE

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: NOT APPLICABLE

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

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

SEE ATTACHMENT

NOT APPLICABLE

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

Stack Height: _____ ft. Stack Diameter: _____ ft.
Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.
Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____
Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____
Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr.
Manufacturer _____
Date Constructed _____ Model No. _____

	Volume (ft) ³	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.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
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, design pressure drop, 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 8 1/2" 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 8 1/2" 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 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. 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

NOT APPLICABLE

- 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

- 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

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

- | | |
|---------------------------|--------------------------|
| 1. Control Device/System: | 2. Operating Principles: |
| 3. Efficiency:* | 4. Capital Costs: |

*Explain method of determining

- 5. Useful Life:
- 7. Energy:
- 9. Emissions:

- 6. Operating Costs:
- 8. Maintenance Cost:

Contaminant	Rate or Concentration

10. Stack Parameters

- a. Height: ft. b. Diameter: ft.
- c. Flow Rate: ACFM d. Temperature: °F.
- e. Velocity: FPS

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

1.

- a. Control Device: b. Operating Principles:
- c. Efficiency:¹ d. Capital Cost:
- e. Useful Life: f. Operating Cost:
- g. Energy:² 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:

2.

- a. Control Device: b. Operating Principles:
- c. Efficiency:¹ d. Capital Cost:
- e. Useful Life: f. Operating Cost:
- g. Energy:² h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

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:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:²

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:

1. Control Device:

2. Efficiency:¹

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:²

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

(8) Process Rate:¹

b. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

(8) Process Rate:¹

10. Reason for selection and description of systems:

¹Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

NOT APPLICABLE

A. Company Monitored Data

1. _____ no. sites _____ TSP _____ () SO₂ _____ Wind spd/dir

Period of Monitoring _____ / _____ / _____ to _____ / _____ / _____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

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

2. Instrumentation, Field and Laboratory

- a. Was instrumentation EPA referenced or its equivalent? Yes No
- b. Was instrumentation calibrated in accordance with Department procedures?
 Yes No Unknown

B. Meteorological Data Used for Air Quality Modeling

- 1. _____ Year(s) of data from _____ / _____ / _____ to _____ / _____ / _____
month day year month day year
- 2. Surface data obtained from (location) _____
- 3. Upper air (mixing height) data obtained from (location) _____
- 4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

- 1. _____ Modified? If yes, attach description.
- 2. _____ Modified? If yes, attach description.
- 3. _____ 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO ²	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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.

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.

SECTION V SUPPLEMENTAL REQUIREMENTS

1. Total process input rate (see flow diagram)

<u>Material</u>	<u>lbs/hr</u>	<u>TPH</u>	<u>Cars/hr</u>
Auto bodies and scrap metal	145,600	65	65

Note: 1 car \approx 2,240 lbs, 1 ton \approx 2,240 lbs

Product Rate

<u>Material</u>	<u>lbs/hr</u>	<u>TPH</u>
Ferrous Metal	109,760	49
Non-Ferrous Metal	6,720	<u>3</u>
Total		52

Waste Rate

<u>Material</u>	<u>lbs/hr</u>	<u>TPH</u>
Trash	26,208	11.7
Solids	2,912	<u>1.3</u>
Total		13.0

2. Controlled Emission Estimate - Particulates

Water is added to the shredder (see water balance) so that the fragmentizing of the metal, etc., is done wet. All of the material is handled wet and water is added at the magnetic separator and at the rising current separator. The only potential emissions are from the inlet and outlet of the wet shredder. (See shredder sketch).

As the shredder generates large quantities of heat, steam and water vapor are forced from the inlet and outlet of the system. These emissions may have a small quantity of particulates and be a minor source of fugitive emissions. At present there is no test data on the fugitive emissions from the units of this type that have been installed by Texas Shredder Parts, Inc. We are suggesting that the unit be installed and then inspected by FDER prior to issuing an operating permit to evaluate the fugitive emissions to determine an opacity limit consistent with the operation.

To estimate fugitive emissions from the crusher, we have applied a 90% removal efficiency for a wet scrubber, as the crusher will be flooded with water at all times.

∴ controlled emissions

= uncontrolled emissions x 0.1 (90% efficiency)

= 7.3 lbs/hr x 0.1 = 0.73 lbs/hr x 2080 $\frac{\text{hrs}}{\text{yr}}$ x $\frac{1}{2000}$ $\frac{\text{ton}}{\text{lb}}$

= 0.76 TPY

3. Basis of Potential Emission

There are no data for car crusher emissions. To estimate the emissions, we have used a primary crusher for a stone quarrying operation and applied a wet scrubber factor of 90% efficiency.

emission factor (suspended emission) = 0.1 lbs/ton

(AP 42 Part B, 3rd edition pg 8.20-1, Table 8.20-1)

72.8 (65 TPH) x 0.1 lb/ton = 7.3 lb/hr x 2080 $\frac{\text{hrs}}{\text{yr}}$ x $\frac{1}{2000}$ $\frac{\text{ton}}{\text{lb}}$

= 7.6 TPY

4. Allowable Emission Rate

(Based on Chapter 17-2)

$E = 17.31 P^{0.16}$ (over 30 TPH)

$E = 17.31 (72.8)^{0.16}$

$E = 34.4$ lbs/hr

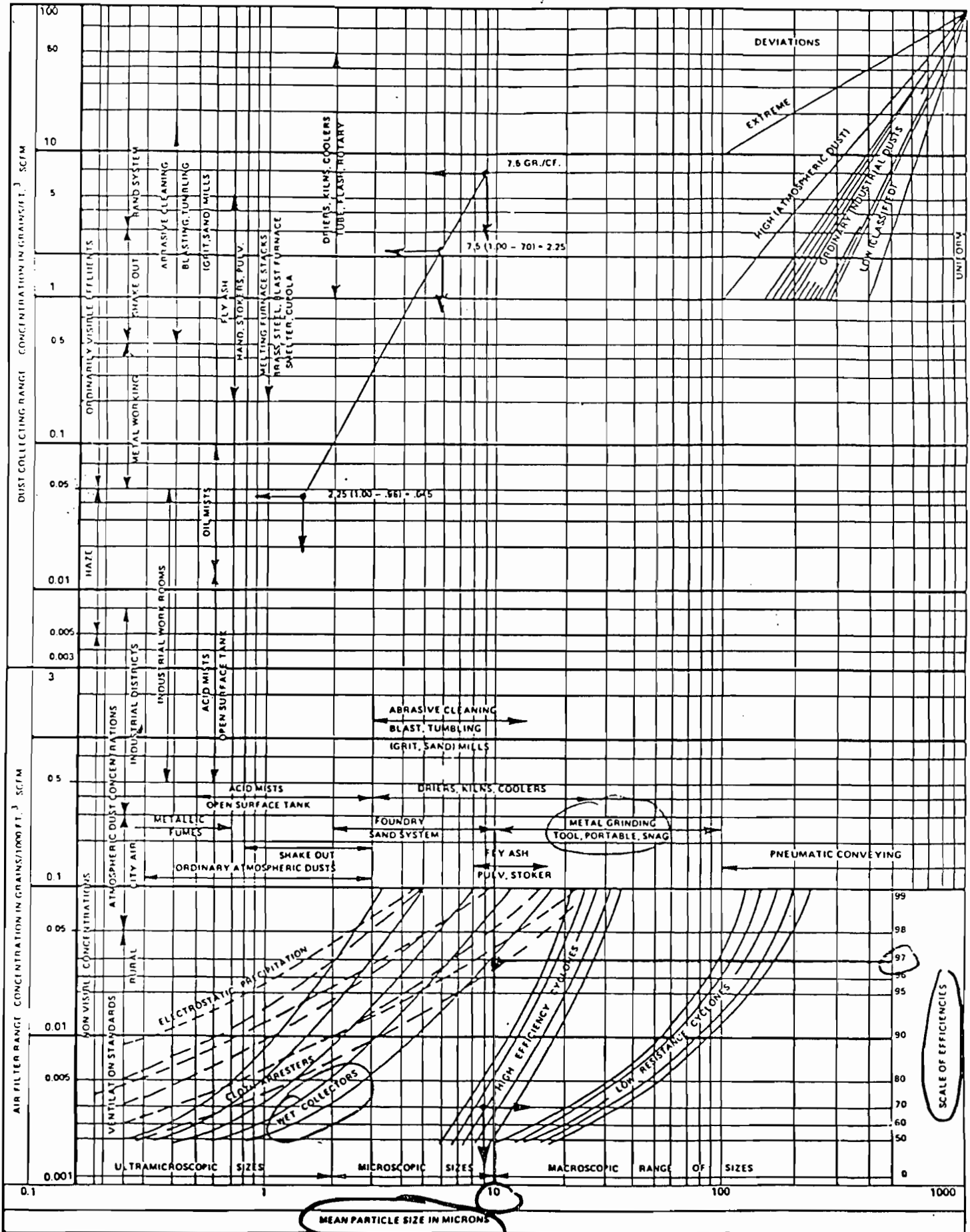
5. Derivation of Control Device Efficiency

As there are no data on a wet scrubber, we have used the Sylvan chart for our estimate. The low end (smaller, more restrictive size) of the metal grinding operations indicates a particle size of 10 μ . A low efficiency wet scrubber (lower curve) indicates an efficiency of 97%. An efficiency of only 90% has been used for our calculations.

6. Diagram attached.

7. Diagram attached.

8. Diagram attached.



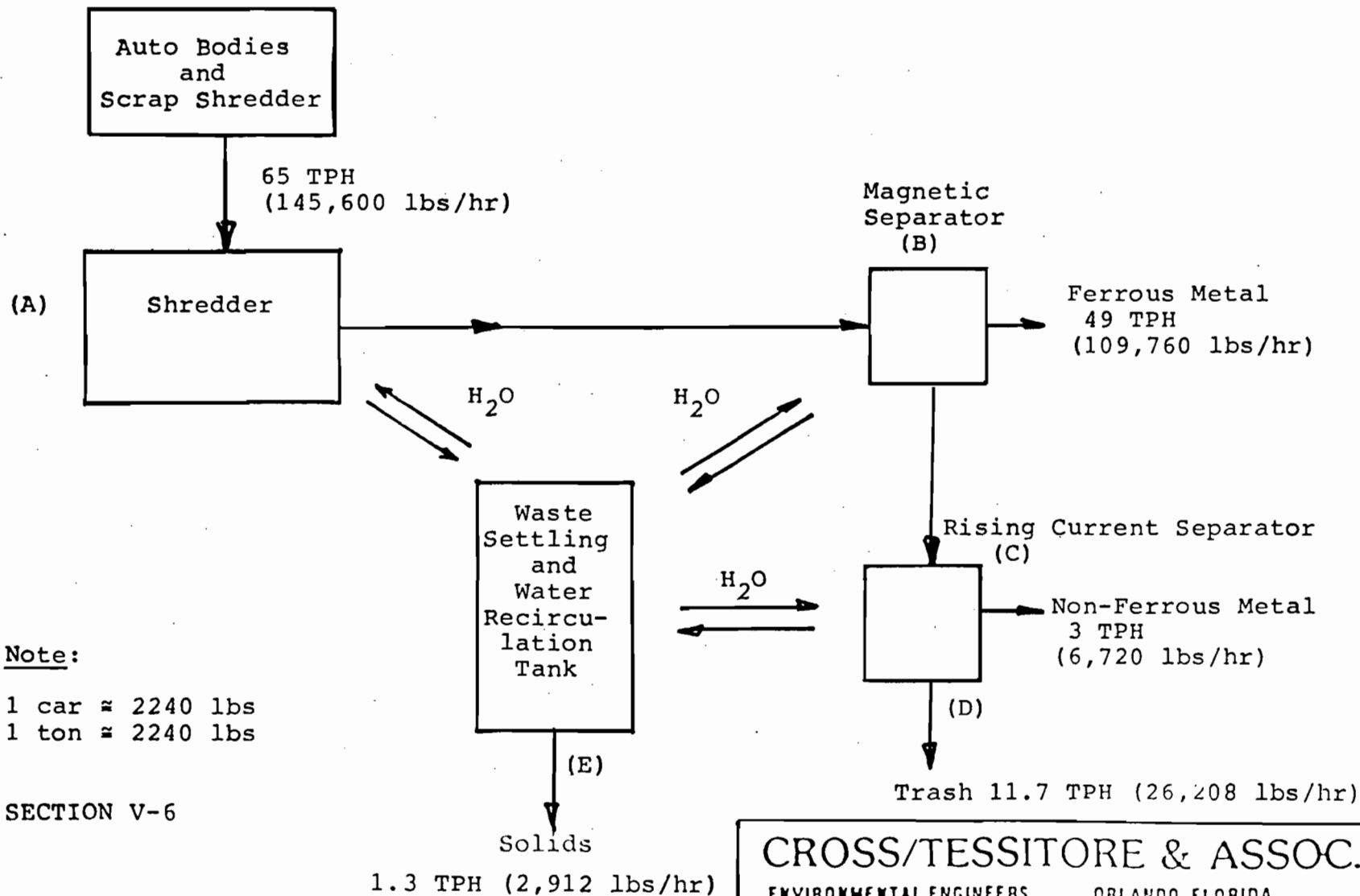
RANGE OF PARTICLE SIZES, CONCENTRATION, & COLLECTOR PERFORMANCE

COMPILED BY S. SYLVAN APRIL 1952: COPYRIGHT 1952 AMERICAN AIR FILTER CO. INC.

ACKNOWLEDGEMENTS OF PARTIAL SOURCES OF DATA REPORTED:

FLOW DIAGRAM

METAL SHREDDER SYSTEM



Note:

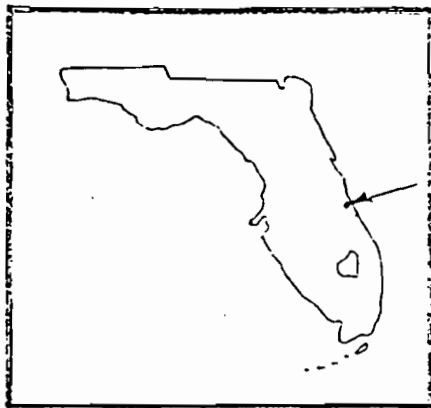
1 car ≈ 2240 lbs
 1 ton ≈ 2240 lbs

SECTION V-6

CROSS/TESSITORE & ASSOC., P.A.
 ENVIRONMENTAL ENGINEERS ORLANDO, FLORIDA

SECTION V-7

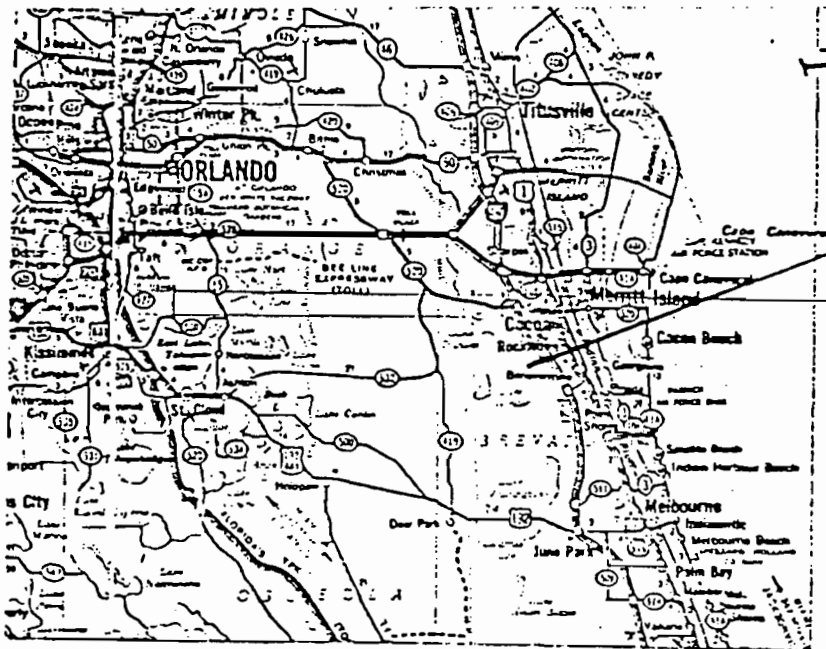
STATE LOCATION



SITE LOCATION

YORKE DOLINER & COMPANY
ROCKLEDGE, FLORIDA

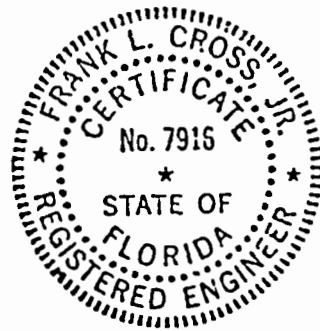
AREA LOCATION

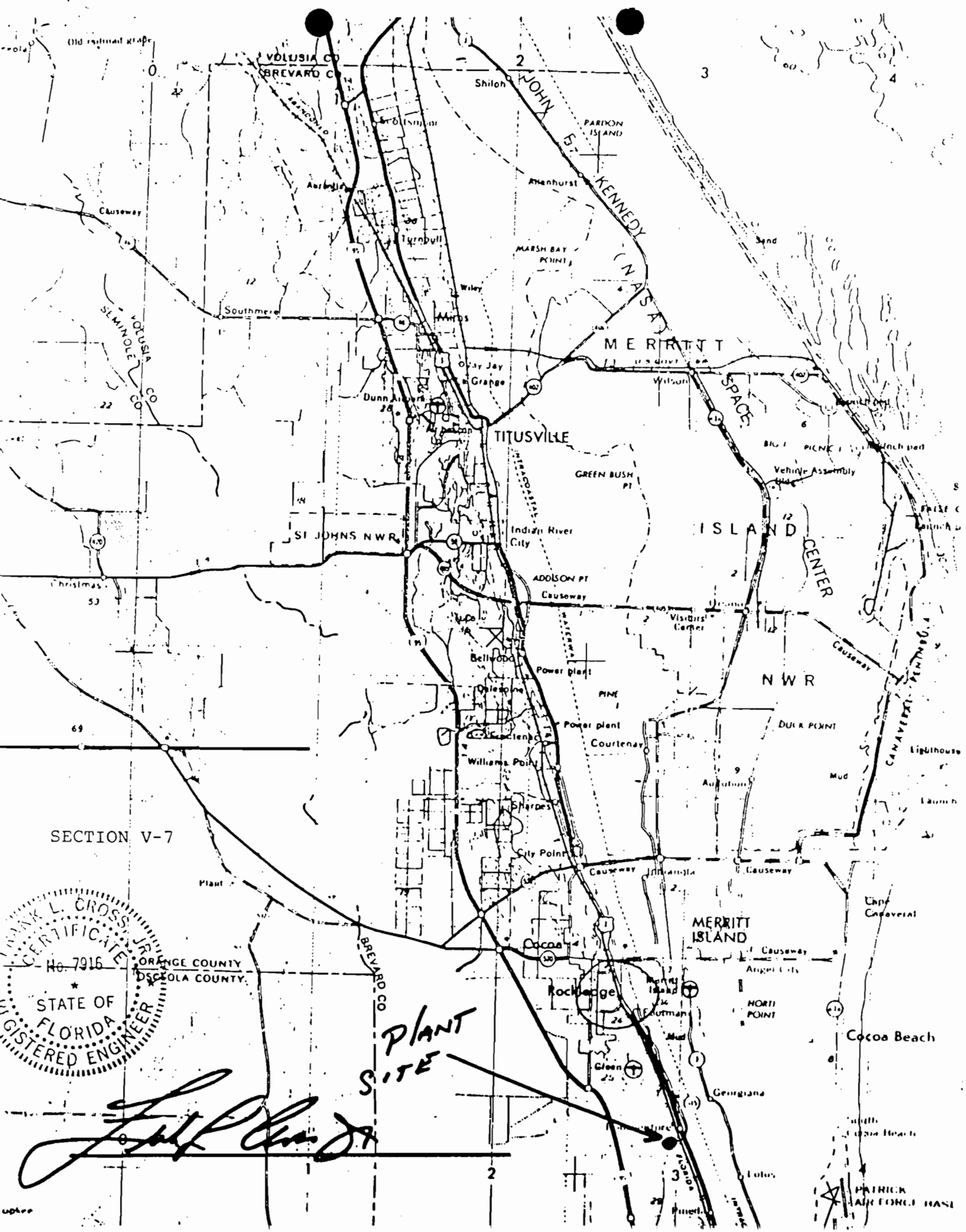


SITE LOCATION

A handwritten signature in cursive script, which appears to read 'Frank L. Cross, Jr.'.

Frank L. Cross, Jr.
Registration No. 7916





SECTION V-7

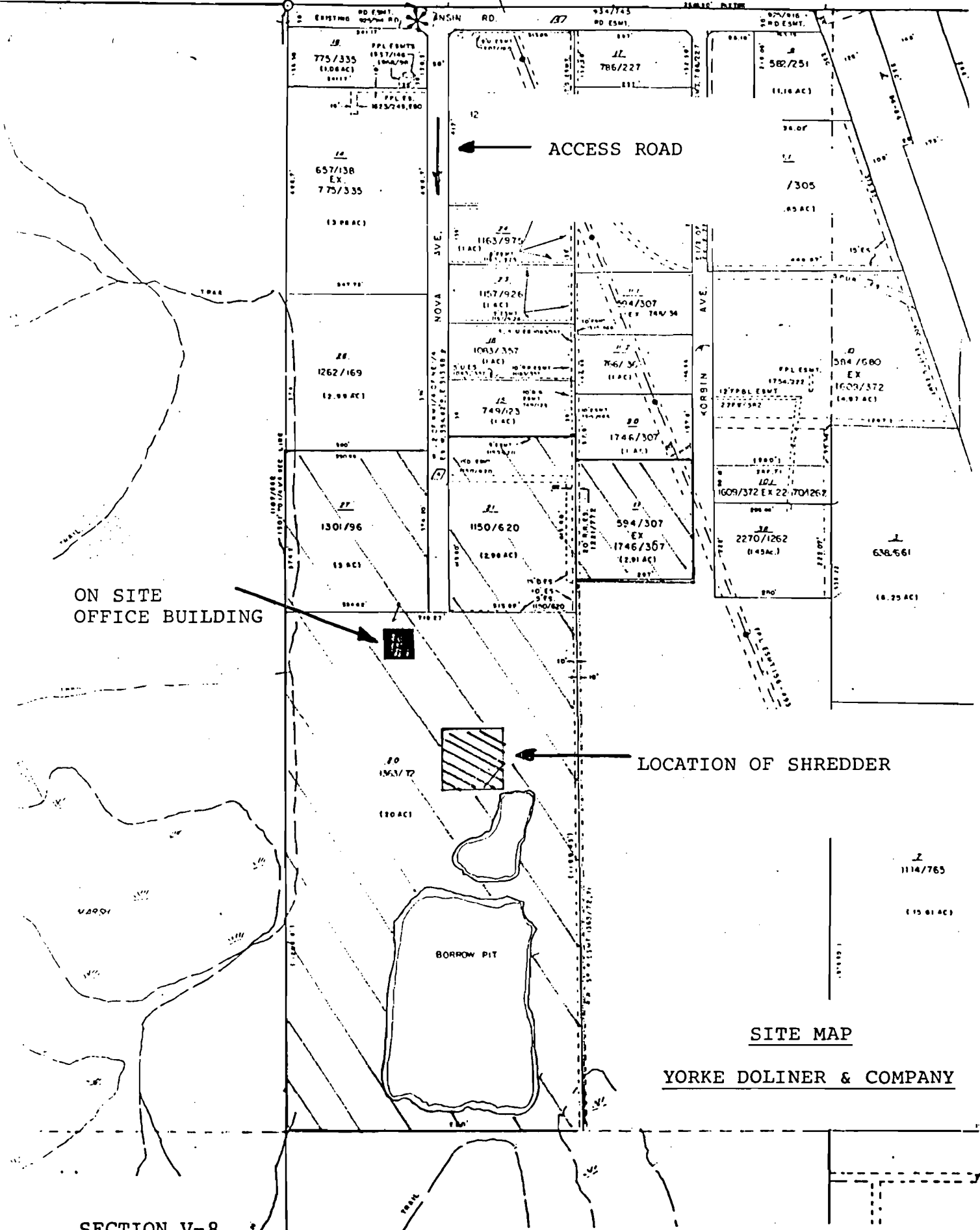
WILLIAM L. CROSS, JR.
CERTIFICATE
No. 7916
STATE OF
FLORIDA
REGISTERED ENGINEER

ORANGE COUNTY
OSCEOLA COUNTY

*PLANT
SITE*

[Handwritten signature]

PATRICK
LAW FIRM, P.A.



SITE MAP

YORKE DOLINER & COMPANY

ATTACHMENT

Section III(F) Liquid and Solid Wastes Generated

SOLID WASTES

Solid wastes consist of trash (11.7 tph) and waste solids (1.3 tph) or a total of 13 tph (29,120 lbs/hr \approx 14.6 tph).

This material is not considered hazardous. See attached memo from the Institute of Scrap Iron and Steel, Inc. (ISISI) to its members. This material will be disposed of at a sanitary landfill.

LIQUID WASTES

Water/waste water used in the system is completely recirculated. There is no runoff or discharge to the waters of the State of Florida from this operation. See attached drawing.



Institute of Scrap Iron
and Steel, Inc.

established 1928
1627 K street n.w.
Washington, D. C. 20006
202 • 466-4050

MEMORANDUM TO ISIS MEMBERS
OPERATING SCRUBBER-TYPE SHREDDERS

In the summer issue of Review & Outlook, ISIS advised members that, in conjunction with the Institute's EPA-approved program for industry-wide analysis of wastes from shredders, shears, and balers, sludge generated by shredder scrubbers also would be evaluated at the request of the membership. On August 13, ISIS further advised members that preliminary analyses indicated that shredder scrubber sludge probably was hazardous due to excessive concentrations of certain heavy metal contaminants. That advice was based upon the preliminary evaluation of a limited number of shredder scrubber sludges which the Institute's consultant, Clayton Environmental Consultants, Inc., had been able to complete at that time. Accordingly, ISIS advised operators of shredder scrubbers to notify EPA on or before August 18, 1980, that they are generators of a hazardous waste, i.e., scrubber sludge. Such facilities were also advised to notify, where appropriate, that they treat, store or dispose of a hazardous waste.

CEC has now completed its study of scrap processing waste, including scrubber sludge, and has formally reported its findings to ISIS. CEC had determined, based upon analysis of complete samples of scrubber sludge and further statistical evaluation, that such sludge is not hazardous. (This finding, like CEC's findings that wastes from shredders, shears, and balers are not hazardous, is applicable only to processes which, in terms of inputs, are not atypical of the processes sampled by CEC.)

In view of CEC's findings that scrubber sludge from typical operations is not hazardous, upon the advice of counsel we would advise that you consider withdrawing any hazardous waste notification which you may have filed with EPA for your scrubber sludge. A form letter for that purpose is attached. The letter should be addressed to the EPA regional office where you submitted your notification form. You will need to fill in identifying information as indicated.

Do not hesitate to contact the Institute if you have questions regarding this de-notification process.

(EPA Regional Notification Contact --
Person to whom original notification
submitted)

RE: Notification of Hazardous Waste Activity
(EPA Form 8700-12) filed by (your company
name)

On August __, 1980, we notified your office that our installa-
tion located at (street address, city, state, zip code) is a
generator of (and treats/stores/disposes of) hazardous wastes
characterized by EP Toxicity. (The installation's EPA I.D.
No. is _____.)

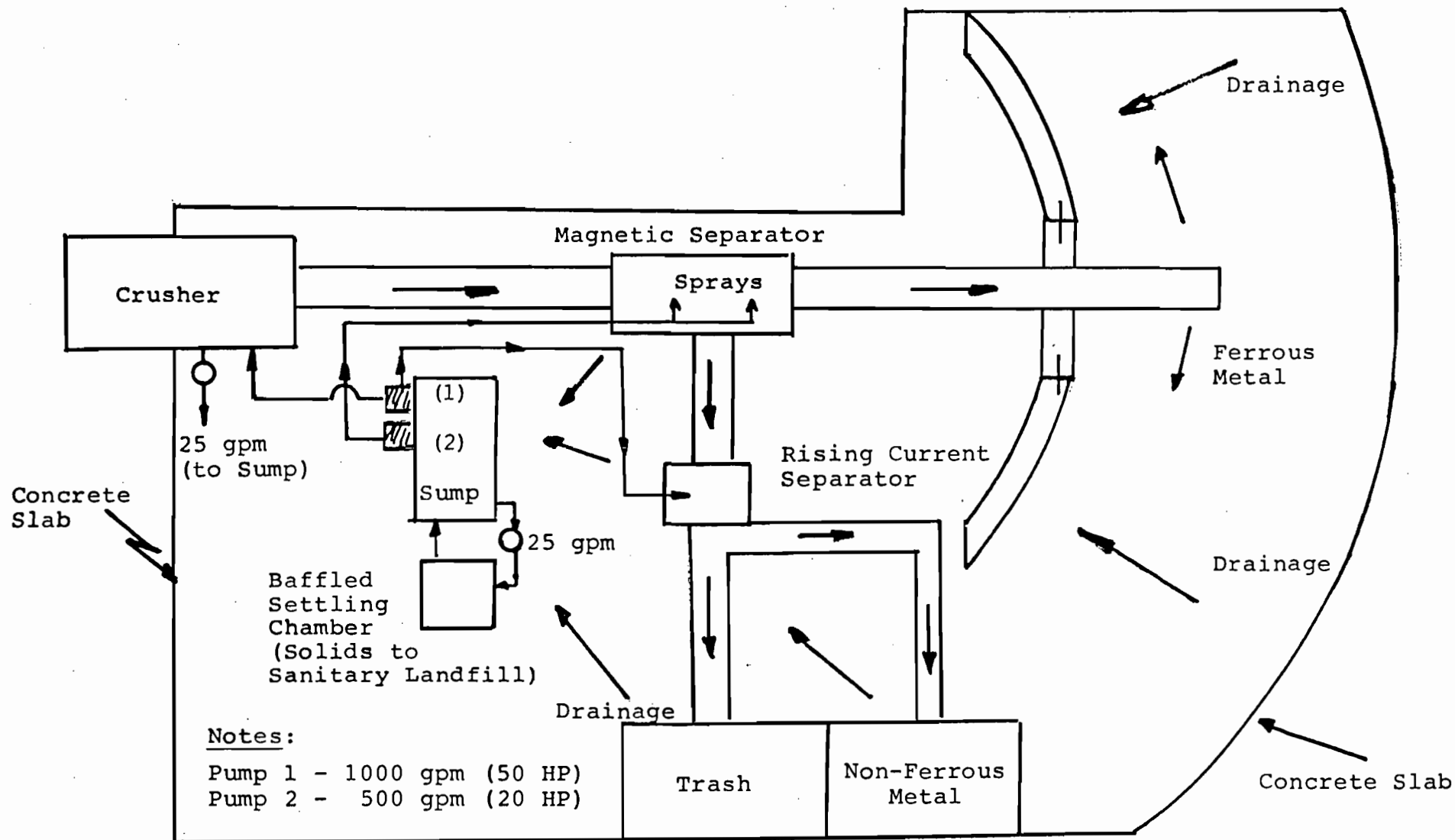
We notified as a hazardous waste facility because we were
unable to complete our evaluation of the facility's wastes,
prior to the August 18, 1980, notification deadline. However,
it has been established that the installation does not generate
any hazardous waste within the meaning of EPA's Subtitle C
regulations. Accordingly, we hereby rescind and withdraw the
above-referenced hazardous waste notification.

Sincerely yours,

(signature of company official
who signed original notification
form)

WET METAL CRUSHER

DRAINAGE AND WATER RECIRCULATION SYSTEM SKETCH



NOT TO SCALE

CROSS/TESSITORE & ASSOC., P.A.

ENVIRONMENTAL ENGINEERS

ORLANDO, FLORIDA

METAL SHREDDER (WET SYSTEM)

YORKE DOLINER & COMPANY

98104 TBD SHREDDER WITH 30° FEEDING DEVICE

FEED ROLLERS

APP. 20'

ENTRANCE
PLATFORM

60'x16' UNDER-MILL
OSCILLATOR

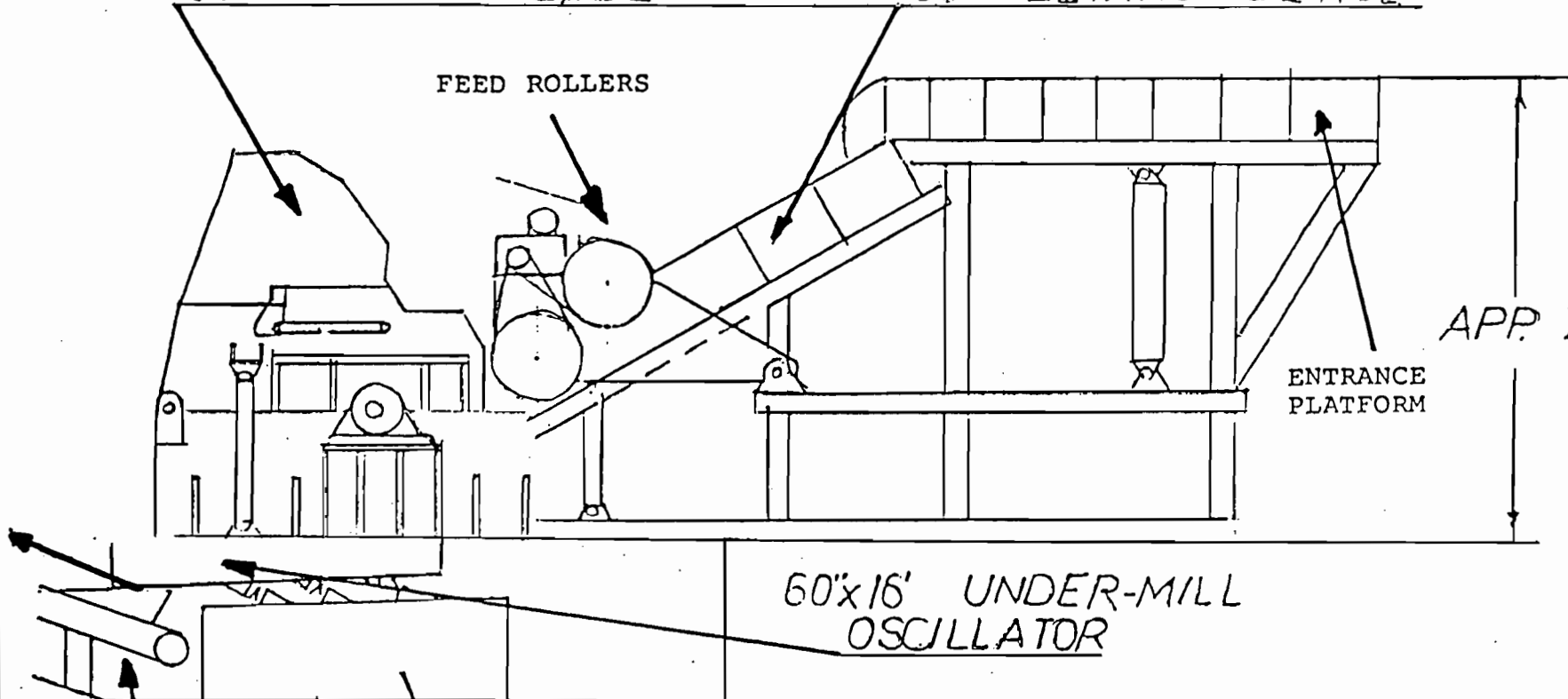
SHREDDED METAL
ELEVATOR

25 GPM RETURN TO
WASTE WATER SUMP

CROSS/TESSITORE & ASSOC., P.A.

ENVIRONMENTAL ENGINEERS

ORLANDO, FLORIDA



CROSS / TESSITARE : (305) 851-1484

Ralph Maloy : Suncom: 393-1148

1985

NOTES

1450 26 Feb Called C/T / Assoc PUT ON HOLD - DISCONNECTED

1500 26 Feb Called Ralph Maloy (STJRD - INDUSTRIAL WASTEWATER). LEFT MESSAGE ASKING TO RETURN CALL. (SECTION U-8 OR PERMIT APPLICATION*)

0820 27 Feb Cldth Joe Riley (EPA) ASKED HIM TO CLBK.

0850 27 Feb Ralph Maloy RETURNED CALL

- HAS NOT SEEN FRANK CROSS LETTER & APPLICATION OF 2/15/85.
- REFERRED ME TO JOHN McMANAMY Sun 393-1160
OR ROGER CALDWELL " 393-1177

1020 5 MAR - TELEPHONE CONVERSATION w/ JOHN McMANAMY

- SAID HE HAD NOT VISITED SITE IN OVER A YR
- LAST USE OF BORROW PIT KNOWN WAS TO FIGHT FIRES
- HE WOULD CHECK ON SITE ON 2 PTS W/IN WEEK~~WEEK~~
 - 1) CONSTRUCTION OF SHEDDOR
 - 2) USE OF BORROW PIT (ANY DISCHARGE SEEN OR CONTEMPLATED).

5 MAR 1040 Cld Joe Riley - PHONE PROBLEMS - ASKED FOR CLBK.

5 MAR 1015 TELEPHONE CONVERSATION w/ JOE RILEY

- ASKED ~ ANY THOUGHTS ON EMISSION STDS
- Will ✓ f CLBK.

5 MAR 1335 Kay Wolfe of Cross / TESSITARE INC. INQUIRED AS TO PROGRESS OF PERMIT

- RECD ADDRESS OF YORKE B. DOLIVER
P.O. Box 1659, Cocca, 32922
- TOLD HER BY 8 FEB WE WOULD HV AN ANSWER.

7 MARCH

QUESTIONS:

- INCOMPLETENESS LETTERS
- DOES NOT GIVE MANUFACTURERS SPECIFICATIONS
ie. # OF CARS / HR, EMISSIONS EXPECTED, DUTY CYCLE
(US/HR?)
- DOES HV BLUE PRINT;
- WHERE IS $\text{P}10$ (SETTLING POND)? IS WATER PONDED AT ALL?
- IS CONCRETE APRON \neq BERM SUFFICIENT?
- CONCERNED ABOUT ASBESTOS (~1 lb / TON PROCESSED)
HEAVY METALS ETC WHICH MAY BE LOST W/ STEAM IN
CONDENSING ITSELF OR COLLECTED AS WASTES.
- IS ANY WASTEWATER IMPOUNDED?

13 MARCH

0820 RETURNED CALL OF 11 MARCH BY FRANK CROSS LEFT WORD ON ANSWERING MACHINE

0830 RETURNED CALL OF 11 MARCH BY JOE RILEY (EPA) \neq LEFT WORD TO ASK HIM TO CALL BACK.

0833 MARGARET OF C/T \neq ASKED CALLS TO CHECK UP ON PROGRESS

0852 FRANK CROSS OF C/T \neq ASKED. NOT TAKEN

0918 RETURNED ASKED CALL. HE WILL CALL BK.

0922 FRANK CROSS RETURNED CALL.

- VERY POLITE

- WILL SEND MANUFACTURERS SPEC FOR CAPACITY \neq RATE OF SHREDDER SOONEST

- RALPH MALOY IS ASKING FOR INDUSTRIAL WASTEWATER PERMIT

- DOLLNER IS V. ANXIOUS

14 MARCH

0825 CALLED JOE RILEY (EPA) - NO STOPS FOR AUTO INVOICERS CONTEMPLATED

NOTES

14 MARCH

0930

BILL THOMAS ADVISES IF INFO. REQUESTED BY PHONE FROM FRANK CROSS (13/3/85), THAT SUCH BE DONE VIA REGISTERED LETTERS, IF NOT IN HAND BY DAY 30 (27/3/85)

23 MARCH

SENT LETTER OF COMPLETENESS SENT OUT.

23 APRIL

MICKEY OF C/T & ASSOC HAS CALLED MANY TIMES FOR 2 DAYS RET CALL & SHE SAID YOLKE WAS CALLING NBL 5X/DAY. TOLD NBL NO PROBLEMS FORESEEN APPLICATION IN PROCESS.

12 JUNE

MICKEY OF C/T & ASSOC INQUIRES AS TO 90 DAY APPLICABILITY & NBL / WHEN INFO & 90 DAY CLOCK ON YOLKE IS.