P 408 533 619

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. J. M. Murphy	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 10/4/85	

PS Form 3800, Feb. 1982

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:
Mr. J. M. Murphy
Drum Service Co. of Florida
Post Office Box 278
Zellwood, FL 32798

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail	P 408 533 619

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X Glenn Giddens

7. Date of Delivery
10 - 7 - 85

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

October 1, 1985

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. J. M. Murphy
Vice President
Drum Service Company of Florida
Post Office Box 278
Orlando, Florida 32798

Dear Mr. Murphy:

Attached is one copy of the Technical Evaluation and Preliminary Determination, and proposed permit to construct six paint spray booths, baking ovens, and a thermal oxidizer at your existing facility in Zellwood, Orange 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 Orange 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: Joseph L. Tessitore, P.E.
Charles Collins
Bill Voshell

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 Drum Service Company of Florida for the construction of six spray paint booths, baking ovens, and a thermal oxidizer (incinerator) at the applicant's existing facility in Zellwood, Orange 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.

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of an Application for Permit by:	)	
Drum Service Co. of Florida Post Office Box 278 Zellwood, Florida 32798	)	DER File No. AC 48-105517

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, Drum Services Company of Florida, applied on June 12, 1985 to DER for a permit to construct an incinerator to control emissions from a spray painting operation at the applicant's facility in Zellwood, Orange 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 2 day of OCTOBER, 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:

Mr. J. M. Murphy
Vice President
Drum Service Company of Florida
Post Office Box 278
Zellwood, Florida 32798

Mr. Joseph L. Tessitore, P.E.
Cross/Tessitore & Associates, P.A.
4759 S. Conway Road
Orlando, Flordia 32812

Mr. Charles Collins
DER St. Johns River District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

Mr. Bill Voshell
U.E. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

CERTIFICATION

This is to certify that the foregoing Intent to Issue and all copies were mailed before the close of business on 4 Oct., 1985 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

Oct. 4, 1985
Date

Technical Evaluation

and

Preliminary Determination

Drum Service Company of Florida

Orange County

Zellwood, Florida

Thermal Oxidizer, Paint Spray Booths

and Baking Ovens

Permit Number:

AC 48-105517

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

September 23, 1985

I. Project Description

A. Applicant

Drum Service Company of Florida
P.O. Box 278
Zellwood, Florida 32798

B. Project and Location

The applicant proposes to construct an incinerator to control the emissions from a spray painting operation at their drum reclamation plant. The project will be located at the applicant's existing facility at 803 Jones Avenue, Orange County, Zellwood, Florida. The universal transverse mercator (UTM) coordinates of the source are: Zone 17, 439.9 km East and 3178.1 km North.

C. Sources Reviewed

This application has been submitted for the following sources:

Source	Permit Number
Drum Spray Booths, Baking Ovens, and Thermal Oxidizer	AC48-105517

D. Standard Industrial Classification Code (SIC)

The facility is classified as:

Major Group No. 34 - Fabricated Metal Products, Except Machinery and Transportation Equipment

Industry No. 341 - Metal Cans and Shipping Containers

E. Facility Category

Drum Service Company of Florida is classified as a major emitting facility for the air pollutant volatile organic compounds.

F. Application Completeness Date

Application Received: June 12, 1985
Application Deemed Complete: July 29, 1985

G. Process and Controls

Drum Service Company of Florida reconditions steel drums. The operation addressed in this permit is the coating phase of

the process. The coating operation consists of the following emissions points:

1. Tight head drum exterior paint booth
2. Open head drum exterior paint booth
3. Open head drum interior lining booth
4. Open head covers exterior paint booth
5. Open head covers interior lining booth
6. Tight head drum drying oven
7. Open head drum lining drying oven
8. Open head cover lining drying oven

The applicant proposes to collect and destroy the volatile organic compound (VOC) emissions from the internal lining spray booth and drying oven. The remaining spray booths and drying ovens will have no add on pollution control equipment.

The proposed control device is a Spencer Boiler and Engineering Thermal Oxidizer (incinerator). The applicant estimates that 90% of the VOC will be captured and the incinerator will have an efficiency of 95% destruction of the VOC. After incineration, the gases will be routed through a waste heat recovery boiler before being discharged to the atmosphere.

Any particulate matter generated from paint overspray will be controlled by dry filters, except for the open head drum exterior booth which utilizes a Binks water wash filter.

Propane is proposed to be used as the fuel for the afterburner and the drying ovens.

II. Rule Applicability

The existing facility is major for the pollutant VOC, FAC Rule 17-2.100(98). The facility is located in an area designated as nonattainment for the pollutant ozone, FAC Rule 17-2.410(1)(d), VOC's are precursors to ozone.

The spray booths and drying ovens are existing sources of VOC in an area designated as nonattainment for ozone and are subject to review under FAC Rule 17-2.650, Reasonably Available Control Technology. The spray booths and drying ovens are subject to the control technology and provisions of FAC Rule 17-2.650(1)(f)14, Surface Coating of Miscellaneous Metal Parts and Products.

The VOC emissions from the open head cover interior and drum interior lining booths and drying ovens shall be limited to 4.3 pounds per gallon of coating, excluding water, delivered to the coating applicator, FAC Rule 17-2.650 (1)(f) 14.6.(i)(A). The VOC emissions from the exterior drum and cover spray booths

and drying oven shall be limited to 3.5 pounds per gallon of coating, excluding water, delivered to the coating applicators, FAC Rule 17-2.650(1)(f)14.b.(i)(B) and(C).

All VOC emissions from solvent washings will be considered in the emissions limitations in FAC Rule 17-2.650(1)(f)14.b.(i), unless the solvent is directed into containers that prevent evaporation into the atmosphere, FAC Rule 17-2.650(1)(f)14.b.(iii).

When incineration is used to meet the emissions limits, the incinerators must oxidize 90% of the volatile organic compounds to carbon dioxide and water, FAC Rule 17-2.650(1)(f)14.c.

A compliance test will be required to ascertain the actual overall collection and destruction efficiencies of the retrofitted VOC control system and will be accomplished by the following:

- The destruction efficiency of the catalytic incinerator of the pollutant vapors delivered to it shall be determined by establishing and comparing the inlet and outlet concentrations using EPA Method 25, which is the test method required of sources with add-on destructive control devices.

- Since there is no official EPA test method for measuring capture and transport efficiency, the following methodology will be utilized:

  -the determination of the volatile organic matter content and the density of the printing inks shall be in accordance with 40 CFR 60, Appendix A, Method 24 and as provided from the vendor(s).
  -a 24-hour testing cycle is to be used and is to represent a typical operating cycle.
  -capture and transport efficiency is to be assessed using the July 7, 1980 EPA memorandum entitled "Determination of Capture Efficiency", from James Berry to Doug Cook.
  -all fugitive VOC emissions are to be accounted for: clean-up solvents, make-up solvents (solvents used to maintain coating viscosity), and solvent spillage make up the majority of the fugitive VOC emissions.

The source is subject to the provision of FAC Rule 17-2.620(1)(a), which states that no person shall store, pump, handle, process, load, unload, or use in any process or installation volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. Therefore, some in-house preventive maintenance procedures shall be required.

The source is subject to the provisions of FAC Rule 17-2.620(2), which states that no person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. Therefore, objectionable odors shall not be allowed on off-plant property.

The source is subject to the provisions of FAC Rule 17-2.240, which states that no person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. Therefore, an electrical interlock shall be installed such that the spray booth is prevented from operating without the associated vapor control system.

The source is subject to the provisions of FAC Rule 17-2.250(1), (4), (5), and (6), Excess Emissions. Whenever a report of excess emissions is required, notify the DER's St. Johns River District office. File all written reports with the same office.

III. Summary of Emissions and Air Quality Analysis

A. Emissions Limitations

The maximum annual production of reconditioned drums is projected to be 650,000, with a maximum production rate of 550 drums per hour. Using these production figures, the maximum usage of coatings and solvents are as follows:

	Maximum Gallons per hour	Annual Gallons per year
Exterior Paints	34.3	40,492
Linings	10.6	13,852
MEK	1.4	1,890
Diacetone	0.9	1,170
Toluol	0.5	604

The applicant proposes to control emissions of VOC from the open head drum lining operation by incineration (90% capture and 95% destruction). When the amounts of coating and solvents listed in the above chart are used, VOC emissions are estimated as follows:

	Maximum Pounds per hour	Tons per year
Exterior Coatings	146.9	86.8
Lid Lining	9.3	6.1
Drum Interior Lining	8.3	5.5
Total		98.4

Note: Uncontrolled emissions from the drum interior lining operation are 57.2 pounds per hour.

B. Air Quality Analysis

An air quality analysis is not required.

IV. CONCLUSION

The emission limits that will be imposed have been determined to be in compliance with all applicable requirements of FAC Rule 17-2. The permitted maximum allowable emisssion limits should not cause any violation of Florida's ambient air quality standards.

The general and specific conditions listed in the proposed construction permit (attached) will assure compliance with all applicable requirements of FAC Rule 17-2.

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:
Drum Service Company of Florida
803 Jones Avenue
Zellwood, Florida 32798

Permit Number: AC48-105517
Expiration Date: June 30, 1987
County: Orange
Latitude/Longitude: 28° 43' 55"N/
81° 36' 45"W
Project: Thermal Oxidizer, Paint Spray Booths, and Baking Ovens

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 six spray paint booths, baking ovens, and a thermal oxidizer (incinerator).

The construction/installation shall be in accordance with the permit application and plans, documents, amendments, and drawings, except as otherwise noted on pages 5, 6, and 7 of the "Specific Conditions".

Attachments:

1. Application to construct Air Pollution Sources, DER Form 17-1.202(1).
2. C. H. Fancy's letter dated June 24, 1985.
3. J. L. Tessitore's letter dated July 25, 1985
4. J. Berry's memorandum to D. Cook dated July 7, 1985

PERMITTEE:
Drum Service Company of Florida

Permit Number: AC48-105517
Expiration Date: June 30, 1987

GENERAL CONDITIONS:

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

13. This permit also constitutes:

( ) 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.

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 hours of operations for each spray paint booth shall not exceed 2,000 hours per year.

2. Total out-put of all spray booths shall not exceed 550 drums per hour or 650,000 drums per year.

PERMITTEE:
Drum Service Company
Florida

Permit Number: AC48-105517
Expiration Date: June 30, 1987

SPECIFIC CONDITIONS:

3. Use of coatings or solvents shall not exceed the following gallons per hour or gallons per year.

	Gallons per hour	Gallons per year
Exterior Paints	34.3	40,492
Linings	10.6	13,852
MEK	1.4	1,890
Diacetone	0.9	1,170
Toluol	0.5	604

4. The total emissions of volatile organic compounds (VOC) shall not exceed 98.4 tons per year.

5. Emissions of VOC from the closed head drum spray booth, shall not exceed 3.5 pounds per gallon of coating, excluding water, delivered to the coating applicator. Compliance with this limit must be demonstrated on a 24 hour basis.

6. Emissions of VOC from the open head drum exterior spray booth shall not exceed 3.5 pounds per gallon of coating, excluding water, delivered to the coating applicator. Compliance with this limit must be demonstrated on a 24 hour basis.

7. Emissions of VOC from the open head lid exterior spray booth shall not exceed 3.5 pounds per gallon of coating, excluding water, delivered to the coating applicator. Compliance with this limit must be demonstrated on a 24 hour basis.

8. Emissions of VOC from the open head lid interior spray booth shall not exceed 4.3 pounds per gallon of coating, excluding water, delivered to the coating applicator. Compliance with this limit must be demonstrated on a 24 hour basis.

SPECIFIC CONDITIONS:

9. The open head drum interior spray booth shall demonstrate a 90% overall capture and transport efficiency of the VOC delivered to the substrate and 95% total destruction of all VOC delivered to the inlet of the incinerator.

10. Capture efficiency shall be demonstrated using the procedures specified in the July 7, 1980 EPA memorandum entitled "Determinationd of Capture Efficiency", from James Berry to Doug Cook (attached).

11. Destruction efficiency of the incinerator shall be demonstrated by determining the inlet and outlet VOC emissions using EPA Method 25. Dividing the outlet concentration by the inlet concentration will provide the penetration. Destruction Efficiency = 1 - Penetration.

12. Determination of the VOC content and the density of the coatings as applied shall be demonstrated by EPA Method 24 and as provided by the vendor(s).

13. Compliance tests shall be performed at maximum operating conditions. 95% total destruction of all VOC delivered to the inlet of the incinerator shall be demonstrated by these compliance tests.

14. The Department and EPA shall be notified, in writing, 15 days in advance of the EPA Method 25 and Method 24 compliance tests.

15. The use of all coatings and solvents shall be recorded daily and shall be submitted quarterly to DER's St. Johns River District office.

16. The construction shall reasonably conform to the plans and schedule submitted in the application. If the applicant is unable to complete construction on schedule, he must notify the Department in writing 60 days prior to the expiration of the construction permit and submit a new schedule and request for an extension of the construction permit. (Rule 17-4.09 Florida Administrative Code)

Permittee:
Drum Service Company of Florida

Permit Number: AC48-105517
Expiration Date: June 30, 1987

SPECIFIC CONDITIONS:

17. To obtain a permit to operate, the applicant must demonstrate compliance with the conditions of the construction permit and submit a complete application for an operating permit, including the application fee, along with compliance test results and Certificate of Completion, to the Department's St. Johns River District office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date. Operation beyond the construction permit expiration date requires a valid permit to operate. (Rule 17-4.22 and 17-4.23 Florida Administrative Code.)

18. If the construction permit expires prior to the applicant requesting an extension or obtaining a permit to operate, then all activities at the project must cease and the applicant must apply for a new permit to construct which can take up to 90 days to process a complete application.(Rule 17-4.10 Florida Administrative Code)

Issued this____day of _____, 1985

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

_____
VICTORIA J. TSCHINKEL, Secretary

-TP 4/15

Check Sheet

Company Name: Drum Services Company of Florida
Permit Number: AC 48-105517
PSD Number:
County:
Permit Engineer:
Others involved:

Application:

- [x] Initial Application
- [x] Incompleteness Letters
- [x] Responses
- [ ] Final Application (if applicable)
- [ ] Waiver of Department Action
- [ ] Department Response

Intent:

- [x] Intent to Issue
- [x] Notice to Public
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit

Attachments:

- [ ]
- [ ]
- [ ]

- [ ] Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] County
  - [ ] Other
- [x] Proof of Publication
- [ ] Petitions - (Related to extensions, hearings, etc.)

Final Determination:

- [ ] Final Determination
- [ ] Signed Permit
- [ ] BACT Determination

Post Permit Correspondence:

- [ ] Extensions
- [ ] Amendments/Modifications
- [ ] Response from EPA
- [ ] Response from County
- [ ] Response from Park Services

In the folder labeled as follows there are documents, listed below, which were not reproduced in this electronic file. Those documents can be found in the supplementary documents file drawer. Folders in that drawer are arranged alphabetically, then by permit number.

Folder Name: Drum Service Company of Florida
Permit(s) numbered: AC 48-105517

Period During Which DOCUMENT WAS SUBMITTED (APPLICATION, PD & TE, FINAL DETERMINATION, POST PERMIT)	Detailed Description
APP	1. 2 - 24"x36" BLUEPRINTS PRELIMINARY LAYOUT DWG. NO. D-01 & D-02

DRUM SERVICE CO. OF FLORIDA

POST OFFICE BOX 278
ZELLWOOD, FLORIDA 32798
PHONE AREA 305 — 889-2581

October 11, 1985

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

Dear Sir:

Enclosed is a Proof of Publication of the Department's Notice of Proposed Agency Action in connection with DER File No. AC 48-105517.

Very truly yours,

J. M. Murphy

vg
Enc.
cc: Roger D. Schwenke, Esq.
Cross/Tessitore & Associates

DER

OCT 14 1985

BAQM

The Apopka Chief

APOPKA, FLORIDA

PUBLISHER'S AFFIDAVIT OF PUBLICATION

STATE OF FLORIDA
COUNTY OF ORANGE

Before the undersigned personally appeared John E. Ricketson who on oath says he is Publisher of THE APOPKA CHIEF, a weekly newspaper published at Apopka, in Orange County, Florida, that the attached copy of advertisement was published in said newspaper in the issues of: October 11, 1985

Affiant further says that the said APOPKA CHIEF is a newspaper published in said Orange County, Florida, and that said newspaper has heretofore been continuously published in said Orange County, Florida, each week and has been entered as second class mail matter at the post office in Apopka, in said Orange County, Florida for a period of one year next preceeding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any discount, rebate commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

John E. Ricketson

Sworn and subscribed before me this 11 day of October, 19 85

Faith E. Shaw
Notary Public, State of Florida

(SEAL)
My commission expires on the 18 day of Feb 19 87.

Notary Public, State of Florida at Large
My Commission Expires Feb. 18, 1987

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 Drum Service Company of Florida for the construction of six spray paint booths, baking ovens, and a thermal oxidizer (incinerator) at the applicant's existing facility in Zellwood, Orange 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 the:

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

and

Department 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.

October 11, 1985

DRUM SERVICE CO. OF FLORIDA

POST OFFICE BOX 278
ZELLWOOD, FLORIDA 32798
PHONE AREA 305 — 889-2581

March 1, 1986

Gentlemen:

This letter presents our policies which cover the pickup, transportation, acceptance and purchase of used empty steel and plastic drums.

These policies reflect the current status of applicable regulations published by the U.S. Department of Transportation (DOT) and Environmental Protection Agency (EPA). Please note that some of these regulations prescribe severe penalties (including criminal sanctions) for violations; we hope you will understand why we must observe these policies without exception.

1. DRUMS MUST BE EMPTY

We will accept no drums that are not empty. We understand that some minor residue of the drum's prior contents will remain after normal emptying; to decide how much is allowable, we use the EPA's definition of an "empty" container (40 CFR 261.7). This regulation says: first, that the drum is as empty as it can be gotten using "...the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping..."; but second, that in no event may there be more than one inch (or 3 percent by weight) of residue left in the drum.

Note that different types of products require different degrees of emptying (solvents vs. viscous paints, for example). Note also that the "one-inch" rule applies only as an outside limit; it does not authorize all drums to have one inch of residue. The first part of the regulation must be met: the drums must be as empty as they can be gotten using normal emptying methods. With all but a very few products (like tars, etc.), this will result in far less than one inch of residue.

A full copy of the regulation is attached as Exhibit 1.

2. DRUMS MUST NOT HAVE CONTAINED "ACUTELY HAZARDOUS" CHEMICALS

The EPA has published (at 40 CFR 261.33(e)) a list of chemicals considered to be "acutely hazardous." A copy of the list is attached as Exhibit 2.

We will not pick up any drums which contained any of the products on the EPA's 261.33(e) list. Note that this is

true even if the drums have been "triple rinsed" in accordance with 40 CFR 261.33(c). If you find you have any of these drums, please contact us and we will recommend a proper disposition.

3. DRUMS MUST BE PROPERLY PREPARED FOR TRANSPORTATION

The DOT requires that an uncleaned empty drum must be shipped:

a. With "all openings including removable heads and filling and vent holes tightly closed..."; and

b. With the original label (describing the drum residue) legibly in place (49 CFR 173.29(a)).

Our drivers carry extra drum plugs on their trucks and will replace plugs, if necessary, to enable pickup. Costs for such plugs are published in Exhibit 3.

There is no DOT placarding requirement for vehicles transporting empty drums and, because all drums picked up by our company are destined for reconditioning and reuse, there are no DOT shipping paper requirements.

4. CERTIFICATION OF THE REQUIREMENTS BY SHIPPER

We can pick up drums only after the shipper (on every load) certifies compliance with the above requirements. This certification appears on our drum Receiving Tickets (a copy of which - signed also by our driver - is left with you after pickup). A sample is enclosed as Exhibit 4.

5. INSPECTION

Drums are inspected at our receiving yard. Drums vary considerably in their reuse value due to many factors. Some major ones are:

(1) gauge of metal of construction;

(2) DOT specification status;

(3) nature of previous contents, difficulty of removal, and steps necessary to safely handle and dispose;

(4) interiors lined or unlined; and

(5) degree of damage and overall condition.

Some drums have no value and must be disposed of. Because of strict environmental regulation, these drums must first be cleaned before the drum carcass may be sent to a steel scrap recycler. For this reason charges will be made for drum disposal.

6. LOADING

Our drivers will stack and load drums in their trailers. Our offer to pick up drums is based on suppliers placing the drums "on the tailgate." In cases where a trailer is "dropped" at a supplier's plant, all loading will be done by the supplier's personnel.

7. PRICES

Prices paid for good, reusable drums and prices charged for replacement bungs and drum disposal charges are published in Exhibit 3.

Very truly yours,

DRUM SERVICE CO. OF FLORIDA

J. M. Murphy

fp
Encs.

EXHIBIT 1

Section 261.7 Residues of hazardous waste in empty containers.

(a)(1) Any hazardous waste remaining in either (i) an empty container or (ii) an inner liner removed from an empty container as defined in paragraph (b) of this section is not subject to regulation under Parts 261 through 265, or Part 122 or 124 of this chapter or to the notification requirements of Section 3010 of RCRA.

(2) Any hazardous waste in either (i) a container that is not empty or (ii) an inner liner removed from a container that is not empty, as defined in paragraph (b) of this section, is subject to regulation under Parts 261 through 265, and Parts 122 and 124 of this chapter and to the notification requirements of Section 3010 of RCRA.

(b)(1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified in Section 261.33(c) of this chapter, is empty if

(i) all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g. pouring, pumping, and aspirating and

(ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner, or

(iii)(A) No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner of the container is less than or equal to 110 gallons in size, or

(B) No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gallons in size.

(2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.

(3) A container or an inner liner removed from a container that has held a hazardous waste identified in Section 261.33(c) of this chapter is empty if

(i) the container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate.

(ii) the container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(iii) in the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

Acute hazardous waste subject to the small quantity generator exclusion (1 kg/month (Absence of a hazard code letter indicates the compound is listed only for acute toxicity.)

Waste ID Number	Substance
P023	Acetaldehyde, chloro-
P002	Acetamide, N-(aminothioxomethyl)-
P057	Acetamide, 2-fluoro-
P058	Acetic acid, fluoro-, sodium salt
P066	Acetimidic acid, N-[(methylcarbamoyl)oxy]thiomethyl ester
P001	3-(alpha-acetonylbenzyl)-4-hydroxycoumarin and salts, when present at concentrations greater than 0.3%.
[P001 amended by 49 FR 19923, May 10, 1984]	
P002	1-Acetyl-2-thiourea
P003	Acrolein
P070	Aldicarb
P004	Aldrin
P005	Allyl alcohol
P006	Aluminum phosphide
P007	5-(Aminomethyl)-3-isoxazolol
P008	4-aAminopyridine
P009	Ammonium picrate (R)
P119	Ammonium vanadate
P010	Arsenic acid
P012	Arsenic (III) oxide
P011	Arsenic (V) oxide
P011	Arsenic pentoxide
P012	Arsenic trioxide
P038	Arsine, diethyl-
P054	Aziridine
P013	Barium cyanide
P024	Benzenamine, 4-chloro-
P077	Benzenamine, 4-nitro
P028	Benzene, (chloromethyl)-
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methyl-amino) ethyl]-
P014	Benzenethiol
P028	Benzyl chloride
P015	Beryllium dust
P016	Bis(chloromethyl)ether
P017	Bromoacetone
P018	Brucine
P021	Calcium cyanide
P123	Camphene, octachloro-
P103	Carbamimidoselenoic acid
P022	Carbon bisulfide
P022	Carbon disulfide
P095	Carbonyl chloride
P033	Chlorine cyanide
P023	Chloroacetaldehyde

P024	p-Chloroaniline
P026	1-(o-Chlorophenyl)thiourea
P027	3-Chloropropionitrile
P029	Copper cyanides
P030	Cyanides (soluble cyanide salts), not elsewhere specified
P031	Cyanogen
P033	Cyanogen chloride
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P039	O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate
P041	Diethyl-p-nitrophenyl phosphate
P040	O,O-Diethyl 0-pyrazinyl phosphorothioate
P043	Diisopropyl fluorophosphate
P044	Dimethoate
P045	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl] oxime
P071	O,O-Dimethyl O-p-nitrophenyl phosphorothioate
P082	Dimethylnitrosamine
P046	alpha, alpha-Dimethylphenethylamine
P047	4,6-Dinitro-o-cresol and salts
P034	4,6-Dinitro-o-cyclohexylphenol
P048	2,4-Dinitrophenol
P020	Dinoseb
P085	Diphosphoramide, octamethyl-
P039	Disulfoton
P049	2,4-Dithiobiuret
P109	Dithiopyrophosphoric acid, tetraethyl ester
P050	Endosulfan
P088	Endothall
P051	Endrin
P042	Epinephrine
P046	Ethanamine, l,l-dimethyl-2-phenyl-
P084	Ethenamine, N-methyl-N-nitroso-
P101	Ethyl cyanide
P054	Ethylenimine
P097	Famphur
P056	Fluorine
P057	Fluoroacetamide
P058	Fluoroacetic acid, sodium salt
P065	Fulminic acid, mercury(II) salt (R, T)
P059	Heptachlor
P051	1,2,3,4,10,10-Hexachloro-6,7-epoxy-l,4,4a,5,6,7,8,8a-octahydro-endo, endo-1,4:5,8-dimethanonaphthalene

P037 1,2,3,4,10,10-Hexachloro-6, 7-epoxy-1,4,4a,5,6,7,8, 8a-octahydro-endo, exo-1,4:5,8-dimethanonaphthalene

P060 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, endo-dimethanonaphthalene

P004 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, exo-dimethanonaphthalene

P060 Hexachlorohexahydro-exo, exo-dimethanonaphthalene

P062 Hexaethyl tetraphosphate

P116 Hydrazinecarbothioamide

P068 Hydrazine, methyl-

P063 Hydrocyanic acid

P063 Hydrogen cyanide

P096 Hydrogen phosphide

P064 Isocyanic acid, methyl ester

P007 3(2H)-Isoxazolone, 5-(aminomethyl)-

P092 Mercury, (acetato-O)phenyl-

P065 Mercury fulminate (R, T)

P016 Methane, oxybis(chloro-)

P112 Methane, tetranitro (R)

P118 Methanethiol, trichloro-

P059 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-

P066 Methomyl

P067 2-Methylaziridine

P068 Methyl hydrazine

P064 Methyl isocyanate

P069 2-Methyllactonitrile

P071 Methyl parathion

P072 alpha-Naphthylthiourea

P073 Nickel carbonyl

P074 Nickel cyanide

P074 Nickel(II) cyanide

P073 Nickel tetracarbonyl

P075 Nicotine and salts

P076 Nitric oxide

P077 p-Nitroaniline

P078 Nitrogen dioxide

P076 Nitrogen(II) oxide

P078 Nitrogen(IV) oxide

P081 Nitroglycerine (R)

P082 N-Nitrosodimethylamine

P084 N-Nitrosomethylvinylamine

P050 5-Norborene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite

P085 Octamethylpyrophosphoramide

P087 Osmium oxide

P087 Osmium tetroxide

P088 7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid

P089 Parathion

P034 Phenol, 2-cyclohexyl-4,6-dinitro-

P048 Phenol, 2,4-dinitro-

P047 Phenol, 2,4-dinitro-6-methyl-

P020 Phenol, 2,4-dinitro-6-(1-methylpropyl)-

P009 Phenol, 2,4,6-trinitro-, ammonium salt (R)

P036 Phenyl dichloroarsine

P092 Phenylmercuric acetate

P093 N-Phenylthiourea

P094 Phorate

P095 Phosgene

P096 Phosphine

P041 Phosphoric acid, diethyl p-nitrophenyl ester

P044 Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl]ester

P043 Phosphorofluoric acid, bis(1-methylethyl)-ester

P094 Phosphorothioic acid, O,O-diethyl S-(ethylthio) methyl ester

P089 Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl)ester

P040 Phosphorothioc acid, O,O-diethyl opyrazinyl ester

P097 Phosphorothioic acid, O,O-dimethyl 0-[p-((dimethylamino)-sulfonyl)phenyl]ester

P110 Plumbane, tetraethyl-

P098 Potassium cyanide

P099 Potassium silver cyanide

P070 Propanol, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime

P101 Propanenitrile

P027 Propanenitrile, 3-chloro-

P069 Propanenitrile, 2-hydroxy-2-methyl-

P081 1,2,3-Propanetriol, trinitrate (R)

P017 2-Propanone, 1-bromo-

P102 Propargyl alcohol

P003 2-Propenal

P005 2-Propen-1-ol

P067 1,2-Propylenimine

P102 2-Propyn-1-ol

P008 4-Pyridinamine

P075 Pydridine, (S)-3-(1-methyl-2-pyrrolidinyl)- and salts

P111 Pyrophosphoric acid, tetraethyl ester

P103 Selenourea

P104 Silver cyanide

P105 Sodium azide

P106 Sodium cyanide

P107 Strontium sulfide

P108 Strychnidin-10-one, and salts

P018 Strychnidin-10-one, 2,3-dimethoxy-

P108 Strychnine and salts

P115 Sulfuric acid, thallium(I) salt

P109 Tetraethyldithiopyrophosphate

P110 Tetraethyl lead

P111 Tetraethylpyrophosphate

P112 Tetranitromethane (R)

P062 Tetraphosphoric acid, hexaethyl ester

P113 Thallic oxide

P113 Thallium(III) oxide

P114 Thallium(I) selenite

P115 Thallium(I) sulfate

P045 Thiofanox

P049 Thioimidodicarbonic diamide

P014 Thiophenol

P116 Thiosemicarbazide

P026 Thiourea, (2-chlorophenyl)-

P072 Thiourea, 1-naphthalenyl-

P093 Thiourea, phenyl-

P123 Toxaphene

P118 Trichloromethanethiol

P119 Vanadic acid, ammonium salt

P120 Vanadium pentoxide

P120 Vanadium(V) oxide

P001 Warfarin, when present at concentrations greater than 0.3%

[P001 amended by 49 FR 19923, May 10, 1984]

P121 Zinc cyanide

P122 Zinc phosphide, when present at concentrations greater than 10%

[P122 amended by 49 FR 19923, May 10, 1984]

DRUM SERVICE COMPANY OF FLORIDA

P. O. BOX 278 - 803 JONES AVENUE
ZELLWOOD, FLORIDA 32798
PHONE 305/889-2581

EXHIBIT 4
10/1/85

NATIONAL BARREL AND DRUM ASSOCIATION INCORPORATED APPROVED N.B.A.D.A. MEMBER

RECEIVING TICKET 59929

RECEIVED FROM: _____

C/O: _____ DATE: _____

ADDRESS: _____ TRAILER/ CAR NO.: _____

CITY & STATE _____ RECEIVED BY: _____

	55 GALLON EMPTY OPEN HEAD DRUMS	LIDS	RINGS	BUNGS FURNISHED BY DRUM SERVICE CO. OF FLORIDA
	55 GALLON EMPTY BUNG TYPE DRUMS			
				2" _____
	EMPTY JUNK DRUMS			¾" _____
	TOTAL EMPTY DRUMS			

1. This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the DEPARTMENT OF TRANSPORTATION. (49 CFR 172.204) 2. It is further certified that all containers are empty; that all plugs, lids and rings are securely in place. (49 CFR 173.29) 3. It is further certified that all containers are properly classified, described, and offered for shipment according to the applicable regulations of the ENVIRONMENTAL PROTECTION AGENCY (40 CFR Parts 260-263), and that they are EMPTY as defined in 40 CFR 261.7, and have not contained "acutely hazardous waste," as listed in 40 CFR 261.33 (e).

SHIPPER: _____ BY: _____

DRUMS SUBJECT TO COUNT AND INSPECTION AT DRUM SERVICE COMPANY YARD. OUR DRIVERS ARE NOT INSPECTORS. THEY MAY PICK UP SOME DRUMS WHICH HAVE NO VALUE TO US OR DRUMS FOR WHICH WE MUST CHARGE A FEE FOR PROPER DISPOSAL. CHARGES, WHERE APPLICABLE, WILL BE MADE IN ACCORDANCE WITH OUR CURRENT PUBLISHED SCHEDULE OF DISPOSAL CHARGES.

THIS IS YOUR RECEIPT FOR EMPTY DRUMS PICKED UP. PLEASE REFERENCE ALL INQUIRIES TO THE TICKET NUMBER SHOWN ABOVE. PLEASE MAKE ANY INQUIRIES WITHIN FIVE DAYS FROM THE PICKUP DATE.

DRUMS ARE PICKED UP SUBJECT TO DRUM SERVICE COMPANY'S WRITTEN POLICY. IF YOU DO NOT HAVE A COPY OF THIS POLICY, PLEASE CALL FOR ONE.

THANK YOU FOR YOUR BUSINESS

CUSTOMER COPY
LEAVE WITH CUSTOMER

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

July 25, 1985

Mr. C. H. Fancy, P.E.
Deputy Chief BAQM
State of Florida DER
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

SUBJECT: Construction Permit Application
AC48-015517, Drum Service Co. of Florida

Dear Mr. Fancy:

In response to your request for information of June 24, 1985, concerning the subject application, the following information is submitted:

(1) The manufacturers' guarantee for VOC and particulate destructed is included in the attached letter from Mr. Frank L. Reed of Spencer Boiler and Engineering Company. It should be noted that the manufacturer guarantees a temperature of 1500°F with a retention time greater than 0.5 seconds. These design constraints will insure minimum VOC destruction efficiency of 95% and a minimum particulate destruction efficiency of 93%.

(2) In response to this item, Mr. Reed's letter states the following:

(a) The primary furnace conveyor cannot be operated unless the system fan, combustion blower, spray booth fan, and afterburner are functional and operating.

(b) If the afterburner temperature drops below 1500°F, the audible and visual alarm will function for a 2-3 minute time period. If the situation is not remedied, the drum reclamation furnace will terminate operation.

(3) The waste heat boiler will operate only when the afterburner is in operation. When the afterburner is not in operation, the drum reclamation furnace and spray booths do not operate and there are no emissions from the waste heat boiler.

(4) and (5)

The maximum VOC emissions and coating consumption have been developed for two limiting cases:

(a) Maximum Annnual Production - 650,000 drums per year,

(b) Maximum Hourly Production - 550 drums per hour.

The assumptions, calculations, coating consumption and VOC emissions for each case are presented in Appendices A and B respectively.

Tables 1 through 4, summarized the emissions and coating consumptions for the above limiting cases.

If you have any questions, and/or require any additional data, please do not hesitate to call upon me.

Sincerely,

Joseph L. Tessitore

Joseph L. Tessitore, P.E.
Vice President

JLT:kim
Attachments

TABLE 1

MAXIMUM ANNUAL EMISSIONS

POLLUTANT	EMISSION RATE (TONS/YEAR)
Particulate	7.2
VOC	98.4
SO_2	1.7
CO	1.1
NO_x	4.4

TABLE 2

MAXIMUM ANNUAL COATING CONSUMPTION

COATING	CONSUMPTION RATE (GAL/YR)
Exterior Paint	40,492
Lining	13,852
MEK	1,890
Diacetone	1,170
Toluol	604

TABLE 3

MAXIMUM HOURLY CONTROLLED VOC EMISSIONS

PAINT SPRAY BOOTH/OVEN	EMISSIONS (LB/HR)
A1, A2, A4/B1	146.9
A3/B2	9.3
A5/B3	8.3
Total	164.5

TABLE 4

MAXIMUM HOURLY COATING CONSUMPTION

COATING	CONSUMPTION RATE (GAL/HR)
Exterior Paint	34.3
Lining	10.6
MEK	1.4
Diacetone	0.9
Toluol	0.5

SPENCER BOILER & ENGINEERING INC.

NEW & RECONDITIONED BOILERS, AIR POLLUTION CONTROL & HEAT RECOVERY SYSTEMS
DISTRIBUTOR FOR: ABCO IND. - BOILERS,

CRANE COCHRANE ENVIRONMENTAL SYSTEMS

GENERAL OFFICES AND FACTORY
P. O. BOX 2355
12106 S. CENTER STREET
SOUTH GATE, CALIF. 90280
(213) 636-0216
(213) 630-1102

FRESNO BRANCH
2141 S. VAN NESS
FRESNO, CALIF. 93721
(209) 237-6951

July 1, 1985

Mr. Joe Tessitore
4759 So. Conway Rd.
Orlando, Fla. 32812

Attention: Mr. Joe Tessitore

Subject: Quotation #2603 - Thermal Oxidizer (Afterburner) & Waste Heat Boiler.

Dear Mr. Tessitore:

Confirming our discussion regarding the efficiency of the subject system.

The Thermal Oxidizer (Afterburner) will be designed in accordance with U.S. E.P.A. AP-40 to raise the effluent from the spray booth and drum furnace from an average temperature of 750°F to a minimum temperature of 1500°F with a retention time of not less than .5 seconds. This will result in a 95% reduction of VOC'S and a 93% reduction of particulate. Please see the enclosed specifications.

The control panel will be a NEMA 12 panel complete with a Fireye Factory Mutual and UL approved flame safeguard system, Eclipse digital readout modulating temperature control, Eclipse high temperature limit, manual over ride, alarm, alarm silence and indicating lights.

The control system will be equipped with the following interlocks:

- System fan air flow.
- Combustion blower air flow.
- Spray booth fan air flow.
- Conveyor on.
- Afterburner on (prior to furnace ignition).

In addition to the above, should the afterburner temperature drop below 1500°F when drums are being processed an alarm will sound and

an indicator light lit. If this condition cannot be corrected within a specified period of time (suggest 3 minutes) the furnace conveyor, burners and combustion air blower will be shut down.

Should you have any further questions please contact the undersigned.

Very truly yours,

SPENCER BOILER & ENGINEERING INC.

Frank L. Reed
President

FLR/amd
Enc.

APPENDICES

A MAXIMUM ANNUAL PRODUCTION

B MAXIMUM HOURLY PRODUCTION

APPENDIX A

MAXIMUM ANNUAL PRODUCTION

Calculation of Drum Surface Areas

Drum Height = 35 in. = 2.917 feet

Drum Diameter = 23.5 in. = 1.958 feet

Exterior Surface Area

Tight Head Drum = $(2)\ \frac{\pi}{4}\ (1.958^2) + \pi\ (1.958)(2.917)$

$= (2)(3.01) + 17.94 = 23.96\ ft^2$

Open Head Drum = $3.01 + 17.94 = 20.95\ ft^2$

Open Head Covers = $3.01\ ft^2$

Interior Surface Area

Open Head Drum = $3.01 + 17.94 = 20.95\ ft^2$

Open Head Covers = $3.01\ ft^2$

Average Drum Production For 1983-1984

Booth	Application	Quantity (Drums/Year)
A1	Tight Head/Ext.	175, 245
A2	Open Head/Ext.	268, 685
A3	Open Head/Int.	247, 202
A4	Open Head Covers/Ext.	268, 685
A5	Open Head Covers/Int.	247, 202

Total Drums Painted = 175, 245 + 268, 685 = 443,930

% Tight Head Drums = 39.5%

% Open Head Drums = 60.5%

% Open Head Drum Interiors = $\frac{247,202}{268,685} = .92 \times 100 = 92\%$

of Open Head Drum Exteriors

Paint Consumption Factors For 1983-1984

Consumption (gal/yr)

Coating Type	1983	1984	Average
Exterior Paint	29,455	25,896	27,676
Lining	11,855	7,081	9,468
MEK	1,265	1,320	1,293
Diacetone	883	715	799
Toluol	495	330	413

Exterior Paint

Booth	Application	Quantity (drums/yr)	Area (ft^2/drum)	Total Area (ft^2)
A1	Tight Head/Ext.	175,245	23.96	4,198,870
A2	Open Head/Ext.	268,685	20.95	5,628,951
A4	Open Head Covers/Ext.	268,685	3.01	808,742
				10,636,563

$$\text{Paint Consumption Factor} = \frac{27,656}{10,636,563} \frac{\text{gals}}{ft^2} = 0.00260 \frac{\text{gal}}{ft^2}$$

or 384.62 ft^2/gal

Lining

Booth	Application	Quantity	Area (ft^2/drum)	Total Area (ft^2)
A3	Open Head/Int.	247,202	20.95	5,178,882
A5	Open Head Covers/Int.	247,202	3.01	744,078
				5,922,960

$$\text{Lining Consumption Factor} = \frac{9,468}{5,922,960} \frac{\text{gal}}{ft^2} = 0.001598 \frac{\text{gal}}{ft^2}$$

or 625.58 ft^2/gal

MEK

Used for lining thinning only

$$\text{MEK Consumption Factor} = \frac{1,293}{5,922,960} \frac{\text{gal}}{ft^2} = 0.000218 \text{ or } 4580.8 \frac{ft^2}{\text{gal}}$$

Diacetone

Same as above (MEK)

$$\text{Diacetone Consumption Factor} = \frac{799 \text{ gal}}{5{,}922{,}960 \text{ ft}^2} = 0.000135 \text{ or } 7412.9 \text{ ft}^2/\text{gal}$$

Toluol

Toluol used for thinning external paints only

$$\text{Toluol Consumption Factor} = \frac{413 \text{ gal}}{10{,}636{,}563 \text{ ft}^2} = 0.0000388$$

or 25,754 ft^2/gal

Drum Service of Fl.
A4 JW, 7-23-85

Maximum Annual Production (650,000 Drums/Year)

Booth	Application	Quantity (Drums/Year)
A1	Tight Head Drum/Ext.	256,750
A2	Open Head Drum/Ext.	393,250
A3	Open Head Drum/Int.	361,790
A4	Open Head Covers/Ext.	393,250
A5	Open Head Covers/Int.	361,790

Exterior Paint Consumption

Booth	Drums/year	Area (ft^2/drum)	Total Area
A1	256,750	23.96	6,151,730.0
A2	393,250	20.95	8,238,587.5
A4	393,250	3.01	1,183,682.5
			15,574,000.0

15,574,000 ft^2/yr x 0.00260 gal/ft^2 = 40,492 gals/year

Lining Consumption

A3	361,790	20.95	7,579,500.5
A5	361,790	3.01	1,088,987.9
			8,668,488.4

$$8{,}668{,}488.4 \frac{ft^2}{yr} \times 0.001598 \frac{gal}{ft^2} = 13{,}852 \text{ gals/year}$$

MEK Consumption

8,668,488 ft^2/yr x 0.000218 gal/ft^2 = 1,890 gals/year

Diacetone Consumption

8,688,488 ft^2/ yr x 0.000135 gal/ft^2 = 1,170 gals/year

Toluol Consumption

15,574,000 ft^2/yr x 0.0000388 gal/ft^2 = 604 gal/year

TABLE A-1

COATINGS	GALS/YR
Exterior Paint	40,492
Lining	13,852
MEK	1,890
Diacetone	1,170
Toluol	604

Maximum Annual Emissions (VOC)

A1, A2, A4 Exterior Paint

$$VOC_{max} = \frac{Area_{max}}{Area\ Avg} \cdot VOC_{Avg} = \frac{15,574,000}{10,636,563} (59.3) = 86.8 \text{ tons/year}$$

A5 Exterior Covers

$$VOC_{max} = \frac{1,088,987.9}{744,078.0} (4.2) = 6.1 \text{ tons/year}$$

A3 Open Head Interiors

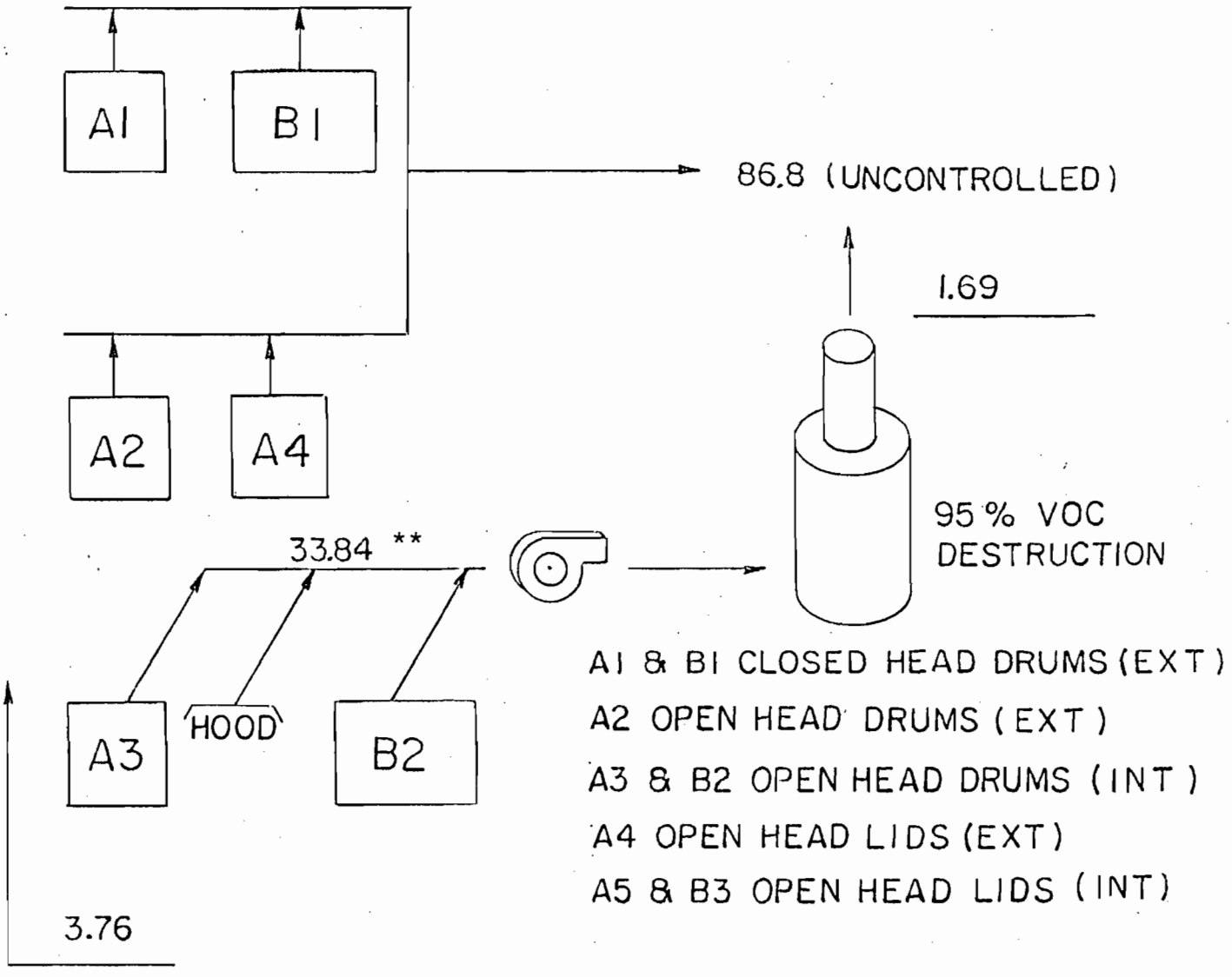
$$VOC_{max} = \frac{7,579,500.5}{5,178,882.0} (25.7) = 37.6 \text{ tons/year}$$

90% capture =>

3.76 uncontrolled

$VOC_{emitted\ afterburner} = 33.84\ (1.-0.95) = 1.69$ tons/year

PROJECTED MAXIMUM VOC EMISSION POINT SUMMARY (TONS/YEAR)*



* VOC EMISSIONS FROM COATING OPERATIONS (DOES NOT INCLUDE PROPANE COMBUSTION)

** ASSUMES 90% VOC CAPTURE EFFICIENCY

PROJECTED ANNUAL EMISSIONS=98,35 TONS/Y
ASSUMING 650,000 DRUMS/YEAR

FIGURE A-1

TABLE A-2

SUMMARY OF MAXIMUM ANNUAL EMISSIONS (TONS/YEAR)

(Production Rate of 650,000 Drums/Year)

POLLUTANT	EMISSION RATE (TONS/YR)	COMMENTS
Particulate	7.17	*Based on Production Factor
VOC	98.35	**Based on Coating Consumption
SO_2	1.72	*Based on Production Factor
CO	1.10	*Based on Production Factor
NO_X	4.35	*Based on Production Factor

*Production Correction Factor = $\frac{650,000}{443,930}$ = 1.462

Maximum Production = 650,000 Drums/Year

Average Production for Permit Emissions = 443,930 Drums/Year

**Maximum VOC Emissions based on Figure A-1 and Production Factor for oven (B1 and B3) combustion.

APPENDIX B

MAXIMUM HOURLY PRODUCTION

MAXIMUM HOURLY COATING CONSUMPTION AND EMISSIONS

Maximum Hourly Production

Booth	Application	Quantity (drums/hr)
A1	Tight Head Drum/Ext.	250
A2	Open Head Drum/Ext.	300
A3	Open Head Drum/Int.	276
A4	Open Head Cover/Ext.	300
A5	Open Head Cover/Int.	276

Exterior Paint Consumption (A1, A2, A4)

$$= \frac{[(250)(23.96) + (300)(20.95) + (300)(3.01)]\ ft^2}{hr}$$

$$\times\ 0.00260\ \frac{gal}{ft^2}$$

$$= [5990 + 6285 + 903](0.00260) = 34.3\ gal/hour$$

Lining Consumption (A3, A5)

$$= [(276)(20.95) + (276)(3.01)]\ \frac{ft^2}{hr} \times 0.001598\ \frac{gal}{ft^2}$$

$$= 10.56\ gal/hour$$

MEK Consumption

$$6{,}613\frac{ft^2}{hr} \times 0.000218\ \frac{gal}{ft^2} = 1.44\ gal/hour$$

Diacetone Consumption

$$6{,}613\frac{ft^2}{hr} \times 0.000135\ \frac{gal}{ft^2} = 0.89\ gal/hour$$

Toluol Consumption

$$13{,}178\ \frac{ft^2}{hr} \times 0.0000388\ \frac{gal}{ft^2} = 0.51\ gal/hour$$

TABLE B-1

MAXIMUM HOURLY COATING CONSUMPTION

COATING	GALS/HOUR
Exterior Paint	34.30
Lining	10.60
MEK	1.44
Diacetone	0.89
Toluol	0.51

TABLE B-2

MAXIMUM HOURLY VOC EMISSIONS (UNCONTROLLED)

BOOTH	AVERAGE PRODUCTION Drums/Hour	MAXIMUM PRODUCTION Drums/Hour	AVERAGE EMISSIONS (lbs/hr)	MAXIMUM EMISSIONS (lbs/hr)
A1	88	250	59.3	146.9
A2	134	300		
A3	124	276	25.7	57.2
A4	134	300	Included in A1 & A2	Included in A1 & A2
A5	124	276	4.2	9.3

TABLE B-3

MAXIMUM HOURLY VOC EMISSIONS CONTROLLED

BOOTHS	E M I S S I O N S		
	UNCONTROLLED	CONTROLLED	TOTAL
A1, A2, A4	146.9	0	146.9
A5	9.30	0	9.30
A3	5.72	2.57	8.29
			164.49 LBS/HR

ATTACHMENT 4

Drum Service Co

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: JUL 07 1980

SUBJECT: Determination of Capture Efficiency

FROM: James Berry, Chief
Chemical Applications Section, CPB (MD-13)

TO: Doug Cook
EPA Region IV

This is in response to your telephone call requesting an acceptable technique to measure the capture efficiency of hoods used in the control of surface coating operations. As you are aware, there is no official EPA test method for measuring capture efficiency. In fact we have gotten somewhat poor results when we have tried to measure this in actual plant tests. We have asked EPA's Office of Research and Development to develop a test method for this. Even though a standardized test method does not now exist, the technique outlined below will theoretically give an acceptable measure of capture efficiency.

A technique for measuring capture efficiency is needed because the VOC that is not captured by the hoods can represent a significant portion of the total VOC emitted to the atmosphere. The VOC not captured by the hoods could, in some cases, exceed the allowable emission rate established in the SIP's, even assuming 100 percent of the VOC which is captured by the hoods and directed to the control device is destroyed or recovered.

When carbon adsorbers are used, it is not necessary to determine capture efficiency since the VOC recovered can be compared directly to the emission standard. Our estimates for capture capability for web processes used in the CTG reports have been reinforced by observations by our engineers of overall control levels as high as 90-94 percent when carbon adsorbers are used. Since overall control is the product of the capture efficiency and the control device efficiency, even if we assume the carbon adsorbers are 100 percent efficient (which they're not), hood capture efficiencies of greater than 90 percent are demonstrated.

When incinerators are used, determination of compliance is more involved. A general procedure would be as follows. An example is provided as an attachment.

1. Calculate a potential emission rate in mass/time based on VOC content of the coating and amount of coating used.

2. Calculate an allowable emission rate in mass/time based on the SIP standard. (This can be tricky; less volume of coating is required since the solids content is greater.)

3. Determine the required reduction in VOC.

4. Measure the inlet concentration and flow rate to the incinerator and calculate the inlet emission rate in mass/time. If this is less than the required reduction, obviously the source is in violation, since enough emissions will not be destroyed in the incinerator to give the required reduction. This will result if an undesirably large portion of the emissions are emitted as fugitives.

5. If the inlet VOC mass flow rate is greater than the required reduction, measure the outlet concentration and flow rate for the incinerator and calculate the outlet emission rate in mass/time.

6. By difference, determine if the required reduction is achieved.

To measure the VOC concentration before and after the incinerator, two approaches are available: (1) FID; or (2) Reference Method 25.

If the FID is used, it must be calibrated with the solvent in the coating. This calibration will provide a good measure on the inlet to the incinerator, but it will not be accurate for the outlet. The outlet of an incinerator contains oxygenated compounds which have a depressed response in the FID. Therefore, outlet readings will be low compared to absolute values. An FID might be used for an easy to make measurement to check for non-compliance. If the FID shows the source to be in violation then, it undoubtedly will be in violation. If the FID shows that the incinerator outlet emissions are equal to or slightly less than the allowable emission level, the results will be somewhat in doubt. Method 25 may be resorted to in this case. An advantage of the FID is that measurements are easy to make and can be taken over a period of time, perhaps leading to a better measure of average emission rates compared to the short-term sampling with Reference Method 25.

If Reference Method 25 is used, VOC concentrations are made in terms of mass of carbon atoms (C). To compare the measured values with the allowable emission rates, the measured values must be corrected to mass VOC or the other terms must be corrected to mass C. This is done by obtaining formulation data for the solvents and calculating a mass VOC to C ratio. If the solvent formula is C_4H_8O, for example, the mass VOC to mass C ratio is 72/48 or 1.5. The major advantage of Reference Method 25 over the FID is that Reference Method 25 gives an accurate reading on the incinerator outlet. The need for this accuracy depends on incinerator efficiency and how close the emissions are to the standard. With low incinerator efficiency, an accurate measure of outlet emissions is more important than with a high incinerator efficiency.

Remember, however, that even a high efficiency control device would be ineffective if the capture device were very inefficient. The effectiveness of the control system is equally dependent on its two components, the capture and control devices. Because of the large number of sources which must come into compliance with a variety of State regulations in the near future, it probably is more realistic for a State to initially plan on determining compliance with the capture requirements of their regulations on the basis of engineering judgment. Recognizing that 90% capture means that almost all emissions must be contained and delivered to

the control device, it should be possible for an enforcement official to make some judgment that a system does or does not approach perfect capture. It would be well to train each enforcement person by having him inspect a web process that uses a carbon adsorber control device for which the overall recovery has actually been measured and found to be high. Its associated capture system would obviously have to be good. Ultimately, however, the enforcer and industry must recognize that achievement of emission limits based on 90% capture requires almost total containment of the emissions. Very little can be permitted to escape the control system.

Attachment

cc: CAS
Dave Patrick
Barry Perlmutter, Region V
Tom Williams

ATTACHMENT

DETERMINATION OF COMPLIANCE BY A COATING OPERATION
WHICH CONTROLS EMISSIONS WITH AN AFTERBURNER

Step 1. Determine the VOC emission rate from the process based on the VOC content of the coating and the rate of coating usage. (VOC content can be taken from the coating manufacturer's formulation or it can be determined by EPA Method 24.) Then calculate the solids content of the coating.

Coating Feed Rate	x	Factor to Convert Waterborne Coatings to Solvent Borne Equivalent	x	Coating Solvent Content	=	Actual Solvent Emission Rate	(Eq. 1)
$\frac{\text{Gal Coating}}{\text{hr}}$	x	$\frac{\text{Gal Coating less } H_2O}{\text{Gal coating}}$	x	$\frac{\text{\# VOC}}{\text{Gal Coating less } H_2O}$	=	$\frac{\text{\# VOC}}{\text{hr}}$	

As an example, consider the case of a coater using 100 gal/hr of a conventional solvent borne coating containing 5 pounds VOC per gallon of coating. Since a solvent borne coating contains no measurable amount of water, the units "gal coating less H_2O" and "gal coating" are synonymous and equation 1 becomes:

$$\frac{100 \text{ gal coating}}{\text{hr}} \times \frac{5\# \text{ VOC}}{\text{gal coating}} = \frac{500\# \text{ VOC}}{\text{hr}} \qquad \text{(Eq. 2)}$$

The solids content of this coating is then calculated by difference: (Assume the density of the solvent is 7.36 #/gal.)

$$\frac{5\# \text{ VOC}}{\text{gal coating}} \times \frac{1 \text{ gal VOC}}{7.36\# \text{ VOC}} = \frac{.68 \text{ gal VOC}}{\text{gal coating}} \qquad \text{(Eq. 3)}$$

1 gal coating - 0.68 gal VOC = 0.32 gal solids (Eq. 4)

Step 2. Determine the allowable exhaust rate based on use of a complying coating and calculate its solids content. Assume the regulation contains an emission limitation of 2.5 #VOC/gal coating less H_2O which, if we use the same solvent density, is equivalent to:

$$\frac{2.5\# \text{ VOC}}{\text{gal coating}} \times \frac{1 \text{ gal VOC}}{7.36\# \text{ VOC}} = \frac{0.34 \text{ gal VOC}}{\text{gal coating}} \qquad \text{(Eq. 5)}$$

The solids content is again calculated by difference.

1 gal coating - 0.34 gal VOC = .66 gal solids (Eq. 6)

If the facility used a complying coating with 66% solids instead of 32%, far fewer gallons of coating would be required to coat a specified article. Assuming both coatings are applied at the same transfer efficiency, the volume of complying coating required to coat at the same production rate would be:

$$\frac{100 \text{ gal noncomplying coating}}{\text{hr}} \times \frac{.32}{.66} = \frac{49 \text{ gal complying coating}}{\text{hr}} \quad \text{(Eq.}$$

Therefore, the allowable emission rate is:

$$\frac{49 \text{ gallons complying coating}}{\text{hr}} \times \frac{2.5\# \text{ VOC}}{\text{gal complying coating}} = \frac{121\# \text{ VOC}}{\text{hr}} \quad \text{(Eq.}$$

Step 3. Determine the required VOC reduction.

Actual emission rate - allowable rate = reduction required

$$500 \frac{\# \text{ VOC}}{\text{hr}} - 121 \frac{\# \text{ VOC}}{\text{hr}} = 379 \text{ lbs VOC/hr} \quad \text{(Eq.}$$

Step 4. Measure the mass flow rate of VOC to the incinerator using a flame ionization detector calibrated with the solvent in the coating feed to the coating line. If the measured VOC mass flow rate is less than or equal to 379 pounds per hour, the capture system is deficient and the source is not in compliance. (This presumes the control device could never achieve perfect control.)

Step 5. If the mass flow rate of VOC to the incinerator is greater than 379 pounds per hour, the destruction efficiency of the incinerator should be determined using the Total Gaseous Non-Methane Organics detector (Reference Method 25). The incinerator must be efficient enough to destroy no less than 379 pounds per hour of VOC in order for the coater to be in compliance.

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(209) 237-6951

July 1, 1985

Mr. Joe Tessitore
4759 So. Conway Rd.
Orlando, Fla. 32812

Attention: Mr. Joe Tessitore

Subject: Quotation #2603 - Thermal Oxidizer (Afterburner) & Waste Heat Boiler.

Dear Mr. Tessitore:

Confirming our discussion regarding the efficiency of the subject system.

The Thermal Oxidizer (Afterburner) will be designed in accordance with U.S. E.P.A. AP-40 to raise the effluent from the spray booth and drum furnace from an average temperature of 750°F to a minimum temperature of 1500°F with a retention time of not less than .5 seconds. This will result in a 95% reduction of VOC'S and a 93% reduction of particulate. Please see the enclosed specifications.

The control panel will be a NEMA 12 panel complete with a Fireye Factory Mutual and UL approved flame safeguard system, Eclipse digital readout modulating temperature control, Eclipse high temperature limit, manual over ride, alarm, alarm silence and indicating lights.

The control system will be equipped with the following interlocks:

- System fan air flow.
- Combustion blower air flow.
- Spray booth fan air flow.
- Conveyor on.
- Afterburner on (prior to furnace ignition).

In addition to the above, should the afterburner temperature drop below 1500°F when drums are being processed an alarm will sound and

an indicator light lit. If this condition cannot be corrected within a specified period of time (suggest 3 minutes) the furnace conveyor, burners and combustion air blower will be shut down.

Should you have any further questions please contact the undersigned.

Very truly yours,

SPENCER BOILER & ENGINEERING INC.

Frank L. Reed
President

FLR/amd
Enc.

No. 0158699

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO
Mr. J. M. Murphy

STREET AND NO.

P.O., STATE AND ZIP CODE

POSTAGE		$
CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES	CERTIFIED FEE	¢
	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
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	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$

POSTMARK OR DATE

6/27/85

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:

Mr. J. M. Murphy
Drum Service Company of Fla.
P. O. Box 278
Zellwood, Florida 32798

4. Type of Service:

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number: 0158699

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
6-29-85

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

June 24, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. J. M. Murphy, Vice President
Drum Service Company of Florida
P. O. Box 278
Zellwood, Florida 32798

Dear Mr. Murphy:

Re: Construction Permit Application AC 48-105517

The Bureau of Air Quality Management has received your application to construct an incinerator system to control the emissions from your spray painting operation. After reviewing the application, we have determined the application to be incomplete for the following reasons:

1. Control efficiency is claimed to be 95% for VOC and 93% for particulate matter. Provide a statement from the manufacturer of the control device guaranteeing the efficiencies.

2. Describe the safety systems which will be installed on the control device and how a shut down of the control device will effect plant operation.

3. If the waste heat boiler operates when the control device is not needed for the drum incinerator and the spray booth, provide an estimation of all emissions and all calculations.

4. Does 67.21 pounds per hour represent the maximum VOC emissions when the highest VOC coatings are being applied at all the spray booths? If not, provide this maximum and show all calculations.

5. Will the average paint and solvent volumes presented in the application be acceptable as a permit specific condition? If not, provide these volumes and all necessary emission calculations.

When all the requested information is received, we will resume processing your application. If you have any questions, please write to me at the above address or call Edward Svec, Review Engineer, at (904)488-1344.

Sincerely

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

CHF/ks

cc: J. Tessitore
T. Sawicki
J. Show
B. Voshell

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

June 11, 1985

Mr. William Thomas
DER-Air
2562 Executive Center Circle East
Koger Center Montgomery Bldg.
Tallahassee, Florida 32301

Subject: Drum Service Company of Florida Air Pollution Construction Permit Application

Dear Bill:

As decided in our meeting of May 7, 1985, in Tallahassee, we have submitted a new application for the Drum Service Company of Florida Air Pollution Source Construction Permit. If you have any questions, please do not hesitate to call upon me.

I have also included a check for $500.00 for the permit fee, since I do not know the status of the original permit fee.

Sincerely,

Joseph L. Tessitore

Joseph L. Tessitore, P.E.
Vice President

FLT:kbw

STATE OF FLORIDA AC 48-105517

DEPARTMENT OF ENVIRONMENTAL REGULATION

BOB GRAHAM
GOVERNOR

DER VICTORIA J. TSCHINKEL
SECRETARY

JUN 12 1985

BAQM

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: DRUM RECLAMATION PLANT [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [X] Modification

COMPANY NAME: DRUM SERVICE CO. OF FLORIDA COUNTY: ORANGE

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) Thermal Oxidizer, Paint Spray Booths and Baking Ovens

SOURCE LOCATION: Street 803 Jones Ave. City Zellwood

UTM: East 17-439904 North 3178077

Latitude 28 ° 43 ' 55 "N Longitude 81 ° 36 ' 45 "W

APPLICANT NAME AND TITLE: J.M. Murphy, Vice President

APPLICANT ADDRESS: P.O. Box 278, Zellwood, Florida 32798

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Drum Service Co. of FL

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

*Attach letter of authorization

Signed:

J.M. Murphy, Vice President
Name and Title (Please Type)

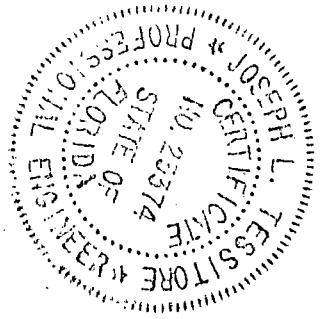
Date: 6/5/85 Telephone No. 305/889-2581

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 Joseph L. Tessitore

Joseph L. Tessitore, P. E.
Name (Please Type)

Cross/Tessitore & Associates, P.A.
Company Name (Please Type)

4759 S. Conway Rd., Orlando, FL 32812
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 6/5/85 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.

This is an Application to Construct a system to collect and render harmless (incinerate) vapors from paint spraying operations to the extent that emissions are within the limiting standards of 17-2.650 (1)(e) and 17-2.650 (1)(f) 14(i)(B), see Exhibits 1 thru 12. See attached Exhibit 1 for complete description.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction 120 days after approval* Completion of Construction 12 to 18 months after start

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.)

Afterburner	$77,300.00
Ducts, Fan, and Collection Hoods	5,000.00
Foundation, Roof, Wiring, Labor	17,500.00
TOTAL	99,800.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

AO 48-49657 issued 2/19/82 to expire 1/30/86;

No previous VOC Permits; Warning Notice OWN-84-034 and OWN-85-133

*120 days estimated as necessary to obtain financing and finalize agreements w/Contractors

E. Requested permitted equipment operating time: hrs/day 8 ; days/wk 5 ; wks/yr 50 ; if power plant, hrs/yr _____ ; if seasonal, describe: Operating time is not seasonal, but may vary with demands of the trade.

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? Yes

   a. If yes, for what pollutants? VOC

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

See attached Exhibits #1 thru 12 for data relating to Rule 17-2.650.

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

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

Description	Contaminants Type	Contaminants % Wt	Utilization Rate - lbs/hr	Relate to Flow Diagram
Exterior Coatings	VOC	See Exhibit 2	106.9	See Drawing #110-7-VOC2
Linings	VOC	See Exhibit 3	40.0	"
Solvents	VOC	100%	7.5	"
Used Steel Drums	Particulate	Variable	17,200	"

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

1. Total Process Input Rate (lbs/hr): 17,200*

2. Product Weight (lbs/hr): 16,100*

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] Maximum lbs/hr	Emission[1] Actual T/yr	Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission lbs/hr	Potential[4] Emission T/yr	Relate to Flow Diagram
VOC	67.21	67.21	See Exhibit 9	74.0	89.24	89.24	
Particulate	4.92	4.92	17-2.04(1)(b)	13.63	76.10	76.10	
CO	0.75	0.75	N/A	N/A	0.75	0.75	
SO_2	1.91	1.91	"	"	1.91	1.91	
NO_x	2.98	2.98	"	"	2.98	2.98	

[1]See Section V, Item 2.

[2]Reference 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)

[3]Calculated from operating rate and applicable standard.

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

*Applies to Used Steel Drum input rate

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Spencer Boiler and	VOC	95%	N.A.	EPA study -
Engineering Co. Afterburner Model DSF-002	PARTICULATES	93%	1 to 50 microns	See Exhibit 11

E. Fuels SEE EXHIBIT 11

Type (Be Specific)	Consumption* avg/hr	Consumption* max./hr	Maximum Heat Input (MMBTU/hr)
Propane (Afterburner)	96.0 gal/hr	96.0 gal/hr	8.8
No.2 (Drum Reclamation Furnace)	67.2 gal/hr	67.2 gal/hr	9.0
Propane (Ovens B1,B2,&B3)	90.6 gal/hr	90.6 gal/hr	8.3

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

Fuel Analysis: Propane/No.2

Percent Sulfur: Nil/0.2 Percent Ash: Nil/0.1

Density: 4.23/7.0 lbs/gal Typical Percent Nitrogen: 0.0045/1.0

Heat Capacity: 21,660/19,114 BTU/lb 91,620/134,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

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

Annual Average _____ Maximum _____

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

None

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

Stack Height: 20 ft. Stack Diameter: Square 24" x 24" ftx

Gas Flow Rate: 15,425 ACFM 8500 DSCFM Gas Exit Temperature: 450 ** °F.

Water Vapor Content: 3 % Velocity: 64 FPS

SECTION IV: INCINERATOR INFORMATION

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 Diamter: _____ 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) _____

**Incinerated vapors and products of combustion pass through a waste heat boiler before discharge to atmosphere.

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SHEET NO. 1 OF
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Section V; Supplemental Requirements

1.) Total Process Input Rate and Product Weight

Drum Reclamation Furnace

Input Rate: 300 steel drums per hour

$$\Rightarrow (300)\ \frac{\text{drums}}{\text{hr}} \times (57.33)\ \text{lbs/drum} = 17,200\ \text{lbs/hr}$$

This input rate includes drum weight plus approximately 1100 lbs/hr* of waste contents in drum. This waste contains is removed in the reclamation process.

Product Weight: 300 drums per hour (without waste contents)

$$\Rightarrow (17,200 - 1100) = \underline{16,100}\ \text{lbs/hr}$$

* AP-40, 2nd Edition, pp. 507

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Paint Spray Booths and Baking Ovens

Based on coating and solvent consumption for the calander years of 1983 and 1984 from Exhibit 4, the following mass flow summaries were obtained:

	1983 (lbs)	1984 (lbs)	Avg (lbs)
Exterior Coatings	227,540	200,073	213,806
Linings	99,914	60,132	80,023
Solvents	15,368	14,447	14,908

Based on 2000 operating hours per year, the hourly consumption rates are as follows:

Exterior Coatings	=	106.9	lbs/hr
Linings	=	40.0	lbs/hr
Solvents	=	7.5	lbs/hr

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2.) Actual Emissions

The actual emissions for this proposed application are presented in Table V-2-1. The basis for the actual emissions is as follows:

Particulate Emissions

Potential Emissions = Potential Emissions from the Drum Reclamation Furnace + Baking Oven B2 + Paint Spray Booth A3 = 66.0 + 0.024 + 0.830 = 66.85 lbs/hr

Actual Emissions = $(1 - \eta_a)$ Potential Emissions

η_a = 93% (Particulate removal for afterburner)

Actual Emissions = (1 - 0.93)(66.85) = 4.68 lb/hr

VOC Emissions

Actual Emissions for VOC from the Drum Reclamation Furnace, Baking Oven B2, and Paint Spray Booth A3 were obtained by using

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the potential VOC emissions from Table V-3-1 and assuming 95% VOC reduction in the afterburner. For other sources, uncontrolled VOC's were assumed.

Actual VOC Emissions = (1 - 0.95) VOC Potential Emissions for Furnace, B2, and A3 + Uncontrolled VOC's

$$= (23.1 + 0.014 + 0.013)^{*}(0.05)$$

$$+ \quad 0.007 + 0.002 + [4.2 + 2.6 + 59.3]^{*}$$

$$= 1.10 + 0.009 + 66.1 = 67.209 \text{ lbs/hr}$$

SO_2, CO, NO_x Emissions

SO_2, CO, and NO_x emissions are uncontrolled and equal to potential emissions in Table V-3-1

* See Exhibits 9 and 10

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Allowable Emissions

Particulate Emissions

Process Rate = 17,200 lbs/hr = 8.6 tons/hr

E = Allowable = $3.59\ P^{0.62}$ = $(3.59)(8.6)^{0.62}$

= 13.63 lbs/hr

VOC Allowables

See Calculation in Exhibit 9

Allowable = 74.0 lbs/hr

3) Potential Emissions

Particulate Emissions

Paint Spray Booths : See Exhibit 12

Baking Ovens : See Table V-3-1

Drum Reclamation Furnace :

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Residue material in drums is removed the following processes and mechanisms:

Drainage and emptying	19 %
Melting and coagulation	30 %
Clinker Formation	36 %
Combustion	6 %
Shot blast cleaning	9 %
	100 %

From above, combustible fraction is 6%, and therefore for a residue rate of 1100 lbs/hr, the potential emission is $1100 \times 0.06 = 66$ lbs/hr

VOC Emissions

Drum Reclamation Furnace: Table V-3-1
Baking Ovens 1, 2 & 3 (combustion): Table V-3-2
Baking Oven 1, 2, 3 (coating): Exhibits 9 & 10
Paint Spray Booths: Exhibits 9 & 10

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4.) Air Pollution Control System Design Details

See Exhibits 5 and 12 and attached drawings

5.) Control System Efficiency

See Exhibit 5 and 12

6) Flow Diagram

See Exhibit 7 and Exhibit 9

7.) Location Map (attached)

8) Plot Plant (See Exhibit 6)

TABLE V-2-1

Maximum Actual Emissions Summary (lbs/hr)

SOURCE	Particulate	VOC	SO_2	CO	NO_x
Drum Reclamation Furnace	*	*	*	*	*
Baking Ovens[1]					
B1	0.012	0.007	none	0.085	0.340
B2	*	*	*	*	*
B3	0.004	0.002	*	0.027	0.108
Paint Spray Booths[2]					
A1	0.125	↑	none	none	none
A2	0.009		none	none	none
A3	*	66.1	none	none	none
A4	0.060		none	none	none
A5	0.027	↓	none	none	none
Afterburner	4.68	1.10	1.91	0.640	2.53
TOTAL	4.907	67.209	1.91	0.752	2.978

*Emissions for these sources included in afterburner emission summary.

[2]Baking oven VOC includes only combustion contribution. Coating operation VOC's included in paint spray booths.

[3]Paint spray booth includes VOC's from baking ovens due to coating operation. See Exhibit 9 for VOC's and Exhibit 12 for particulates.

TABLE V-3-1

Maximum Potential Emissions Summary (lbs/hr)

SOURCE	Particulate	VOC	SO_2	CO	NO_x
Drum Reclamation Furnace	66.00	0.013	1.91	0.340	1.34
Baking Ovens[1]					
B1	0.012	0.007	neg.	0.085	0.340
B2	0.024	0.014	neg.	0.170	0.680
B3	0.004	0.002	neg.	0.027	0.108
Paint Spray Booths[2]					
A1	2.970	↑	none	none	none
A2	4.163	|	none	none	none
A3	0.830	89.20	none	none	none
A4	1.432	|	none	none	none
A5	0.645	↓	none	none	none
TOTAL	76.08	89.24	1.91	0.62	2.47

[1] Baking oven VOC includes only combustion contribution. Coating operation VOC's included in paint spray booths.

[2] Paint spray booth includes VOC's from baking ovens due to coating operation. See Exhibit 9 for VOC's and Exhibit 12 for particulates.

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Table V-3-2

Potential Emissions From Propane Combustion Sources *

Ovens	max. Rating (BTU/hr)	(Btu/gal)	Propane consumption (gal/hr)	Particulates		Nitrogen oxide		Carbon monoxide		Volatile organic (non methane)	
				Emission Rate (lb/10^3 gal)	Emission (lb/hr)	Emission Rate (lb/10^3gal)	Emission (lb/hr)	Emission Rate (lb/10^3gal)	Emission (lb/hr)	Emission Rate (lb/10^3gal)	Emission (lb/hr)
B_1	2.5×10^6	91,620	27.3	0.9–0.44	.025–.012	12.4	0.34	3.1	0.085	0.25	0.007
B_2	5.0×10^6	91,620	54.6	"	0.05–0.024	"	0.68	"	0.17	"	0.014
B_3	0.8×10^6	91,620	8.73	"	0.008–0.004	"	0.108	"	0.027	"	0.002
Afterburner	8.8×10^6	91,620	96.05	"	0.09–0.42	"	1.19	"	0.30	"	0.024

* Emission factors based on attached AP-42 Table 1.5-1

TABLE 1.5-1. EMISSION FACTORS FOR LPG COMBUSTION[a]
EMISSION FACTOR RATING: C

Furnace Type and Fuel	Particulates		Sulfur Oxides[b]		Nitrogen Oxides[c]		Carbon Monoxide		Volatile Organics Nonmethane		Methane	
	kg/10^3l	lb/10^3gal	kg/10^3l	lb/10^3gal	kg/10^3l	lb/10^3gal	kg/10^3l	lb/10^3gal	kg/10^3l	lb/10^3gal	kg/10^3l	lb/10^3gal
Industrial												
Butane	0.01-0.06	0.10-0.47	0.01S	0.09S	1.58	13.2	0.4	3.3	0.03	0.26	0.03	0.23
Propane	0.01-0.05	0.09-0.44	0.01S	0.09S	1.49	12.4	0.37	3.1	0.03	0.25	0.03	0.27
Domestic/ commercial												
Butane	0.01-0.06	0.10-0.47	0.01S	0.09S	1.13	9.4	0.23	1.9	0.06	0.5	0.03	0.25
Propane	0.01-0.05	0.09-0.44	0.01S	0.09S	1.05	8.8	0.22	1.8	0.06	0.47	0.03	0.24

[a] Assumes emissions (except sulfur oxides) are the same, on a heat input basis, as for natural gas combustion.
[b] Expressed as SO_2. S equals the sulfur content expressed in g/100 m^3 gas vapor. For example, if sulfur content is 0.366 g/100m^3 (0.16 gr/100ft^3) vapor, the SO_2 emission factor would be 0.01 x 0.366 or 0.0037 kg $SO_2/10^3$ liters (0.09 x 0.16 or 0.014 lb of SO_2/1000 gal) butane burned.
[c] Expressed as NO_2.

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Table V-3-3

Potential Emissions From No.2 Fuel Combustion Sources

Source	max. Rating (Btu/hr)	(Btu/gal)	Distillate oil used (gal/hr)	Particulates		Sulfur Dioxide		Carbon monoxide		Nitrogen Oxide		Volatile organic (nonmethane)	
				Emission Rate ($lb/10^3$ gal)	Emission (lb/hr)	Emission Rate ($lb/10^3$ gal)	Emission (lb/hr)	Emission Rate ($lb/10^3$ gal)	Emission (lb/hr)	Emission Rate ($lb/10^3$ gal)	Emission (lb/hr)	Emission rate ($lb/10^3$ gal)	Emission (lb/hr)
Drum Reclamation Furnace	9.0×10^6	134,000	67.20	2	0.134	142 [S]*	1.91	5	0.34	20	1.34	0.20	0.013

* (S) indicates the % weight of Sulfur in the oil.

TABLE 1.3-1. UNCONTROLLED EMISSION FACTORS FOR FUEL OIL COMBUSTION

EMISSION FACTOR RATING: A

Boiler Type[a]	Particulate Matter[b]		Sulfur Dioxide[c]		Sulfur Trioxide		Carbon Monoxide[d]		Nitrogen Oxide[e]		Volatile Organics[f] Nonmethane		Methane	
	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal
Utility Boilers														
Residual Oil	g	g	19S	157S	0.34S[h]	2.9S[h]	0.6	5	8.0 (12.6)(5)[i]	67 (105)(42)[i]	0.09	0.76	0.03	0.28
Industrial Boilers														
Residual Oil	g	g	19S	157S	0.24S	2S	0.6	5	6.6[j]	55[j]	0.034	0.28	0.12	1.0
Distillate Oil	0.24	2	17S	142S	0.24S	2S	0.6	5	2.4	20	0.024	0.2	0.006	0.052
Commercial Boilers														
Residual Oil	g	g	19S	157S	0.24S	2S	0.6	5	6.6	55	0.14	1.13	0.057	0.475
Distillate Oil	0.24	2	17S	142S	0.24S	2S	0.6	5	2.4	20	0.04	0.34	0.026	0.216
Residential Furnaces														
Distillate Oil	0.3	2.5	17S	142S	0.24S	2S	0.6	5	2.2	18	0.085	0.713	0.214	1.78

[a] Boilers can be approximately classified according to their gross (higher) heat rate as shown below:
Utility (power plant) boilers: $>106 \times 10^9$ J/hr ($>100 \times 10^6$ Btu/hr)
Industrial boilers: 10.6×10^9 to 106×10^9 J/hr (10×10^6 to 100×10^6 Btu/hr)
Commercial boilers: 0.5×10^9 to 10.6×10^9 J/hr (0.5×10^6 to 10×10^6 Btu/hr)
Residential furnaces: $<0.5 \times 10^9$ J/hr ($<0.5 \times 10^6$ Btu/hr)

[b] References 3-7 and 24-25. Particulate matter is defined in this section as that material collected by EPA Method 5 (front half catch).

[c] References 1-5. S indicates that the weight % of sulfur in the oil should be multiplied by the value given.

[d] References 3-5 and 8-10. Carbon monoxide emissions may increase by factors of 10 to 100 if the unit is improperly operated or not well maintained.

[e] Expressed as NO_2. References 1-5, 8-11, 17 and 26. Test results indicate that at least 95% by weight of NO_x is NO for all boiler types except residential furnaces, where about 75% is NO.

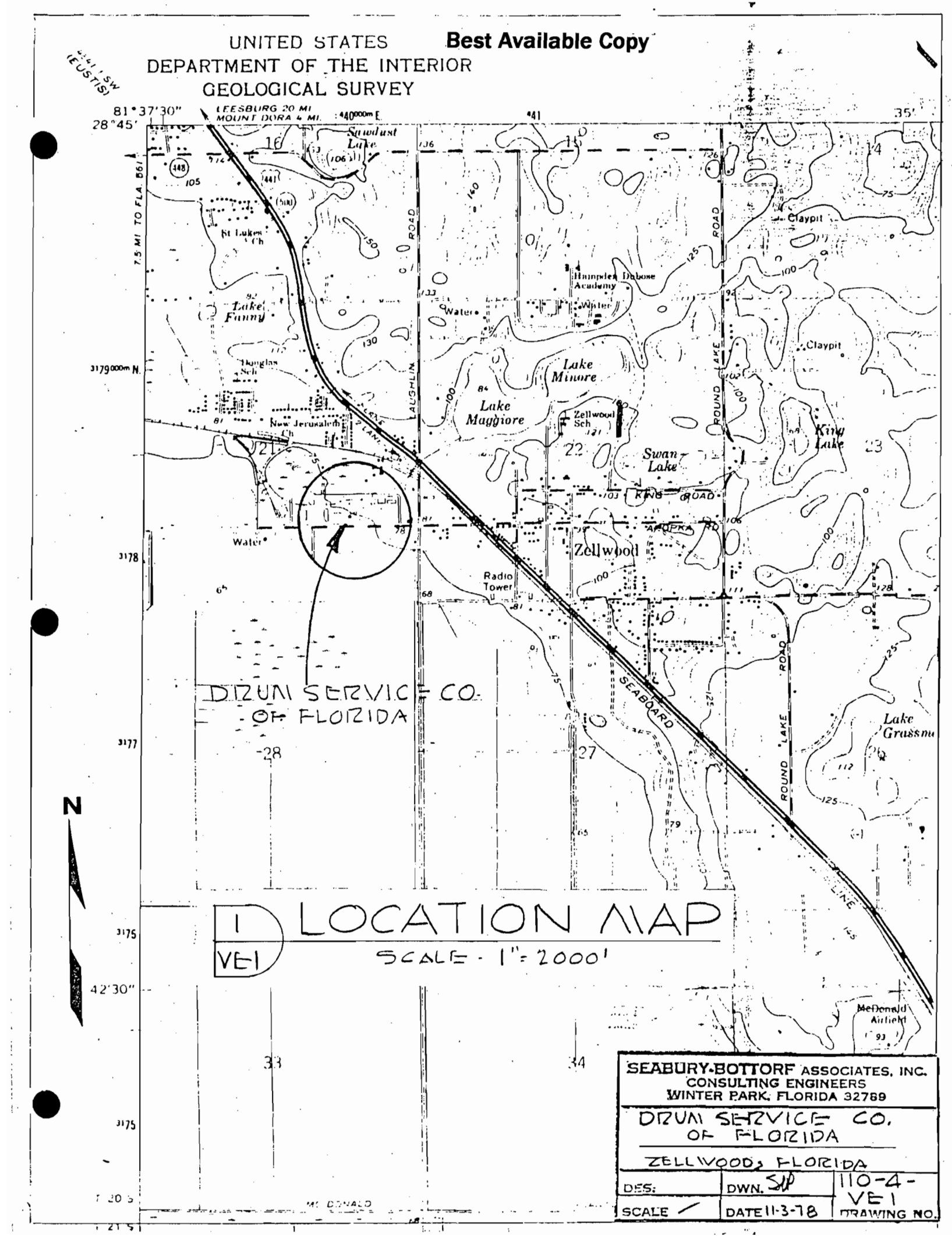
[f] References 18-21. Volatile organic compound emissions are generally negligible unless boiler is improperly operated or not well maintained, in which case emissions may increase by several orders of magnitude.

[g] Particulate emission factors for residual oil combustion are, on average, a function of fuel oil grade and sulfur content:
Grade 6 oil: $1.25(S) + 0.38$ $kg/10^3$ liter [$10(S) + 3$ $lb/10^3$ gal] where S is the weight % of sulfur in the oil. This relationship is based on 81 individual tests and has a correlation coefficient of 0.65.
Grade 5 oil: 1.25 $kg/10^3$ liter (10 $lb/10^3$ gal)
Grade 4 oil: 0.88 $kg/10^3$ liter (7 $lb/10^3$ gal)

[h] Reference 25.

[i] Use 5 $kg/10^3$ liters (42 $lb/10^3$ gal) for tangentially fired boilers, 12.6 $kg/10^3$ liters (105 $lb/10^3$gal) for vertical fired boilers, and 8.0 $kg/10^3$ liters (67 $lb/10^3$ gal) for all others, at full load and normal (>15%) excess air. Several combustion modifications can be employed for NO_x reduction: (1) limited excess air can reduce NO_x emissions 5-20%, (2) staged combustion 20-40%, (3) using low NO_x burners 20-50%, and (4) ammonia injection can reduce NO_x emissions 40-70% but may increase emissions of ammonia. Combinations of these modifications have been employed for further reductions in certain boilers. See Reference 23 for a discussion of these and other NO_x reducing techniques and their operational and environmental impacts.

[j] Nitrogen oxides emissions from residual oil combustion in industrial and commercial boilers are strongly related to fuel nitrogen content, estimated more accurately by the empirical relationship:
$kg\ NO_2/10^3$ liters $= 2.75 + 50(N)^2$ [$lb\ NO_2/10^3$gal $= 22 + 400(N)^2$] where N is the weight % of nitrogen in the oil. For residual oils having high (>0.5 weight %) nitrogen content, use 15 $kg\ NO_2/10^3$ liter (120 $lb\ NO_2/10^3$gal) as an emission factor.



SEABURY-BOTTORF ASSOCIATES, INC. CONSULTING ENGINEERS WINTER PARK, FLORIDA 32789	
DRUM SERVICE CO. OF FLORIDA	
ZELLWOOD, FLORIDA	
DES:	DWN. SLP
SCALE —	DATE 11-3-78
	110-4-VE1 DRAWING NO.

ADDITIONAL INFORMATION DESCRIBING
THE NATURE AND EXTENT OF THE PROJECT

EXHIBIT 1	GENERAL DESCRIPTION
EXHIBIT 2	COATING SUPPLIER PRODUCT DATA MOBIL (26 PAGES)
EXHIBIT 3	COATING SUPPLIER PRODUCT DATA KNS (2 PAGES)
EXHIBIT 4	COATING/SOLVENT CONSUMPTION DATA
EXHIBIT 5	DESIGN DATA FOR INCINERATION OF VOC VAPORS
EXHIBIT 6	PLANT LAYOUT DRAWING #110-7-VOC1
EXHIBIT 7	SCHEMATIC FLOW DIAGRAM DRAWING #110-7-VOC2
EXHIBIT 8	COLLECTION SYSTEM AND DUCTWORK DRAWING NO. 110-7-VOC3
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EXHIBIT 12	PARTICULATE CONTROL

Exhibit 1

GENERAL DESCRIPTION

The Drum Service Co. of Florida is a supplier of reconditioned steel drums to a variety of corporations and individuals who use such containers as a means of packaging lubricants, foods, and other liquid products.

Chief competitor of the reconditioned drum is the new drum, which sets a standard of appearance and cleanliness which must be equaled or exceeded to offset the stigma of being secondhand.

A leading factor in establishing and maintaining a favorable image of appearance and cleanliness is the quality of surface coating applied to the straightened, sanitized, reconditioned item.

The coating must not only give a fresh and unblemished appearance, but must resist heat, cold, sun, and rain, as well as a broad spectrum of commonly encountered mild corrosive agents within the bounds of reasonable cost and mass production drying and curing limitations.

It is within the realm of possibility that American ingenuity will, in the not too distant future, develop a coating for metal surfaces which will be sufficiently attractive and durable to satisfy the foregoing requirements without use of the conventional and time honored solvents which have lately been limited for environmental reasons. Please refer to letter of June 13, 1984, from Mr. S. R. Persak to Mr. J. M. Murphy which describes the present status of solvent/coating technology. (Letter attached to Exhibit 2).

In the meantime, and until suitable coatings of low solvent content become available, it is the intention of the Drum Service Co. of Florida to comply with both the letter and spirit of the law by abating the emissions of volatile organic compounds by incineration to the extent that resultant emisssions are equal to or lower than emission limiting standards as contained in Chapter 17-2.650(f)14,b,(B); namely 3.5 lbs/gallon of coating or less.

Because of severe practical problems to be faced in drum reconditioning where two types of drums must be painted in three separate spray booths, internally lined in two separate spray booths, oven-dried in three separate heated enclosures, or air-dried in two separate areas, with application of 57 different coatings, all depending upon the end use of the drums, it was deemed impractical to apply a mixture of controls to the widely separated and dissimilar parts of the system.

It is proposed to incinerate and totally destroy all collectible VOC emissions from the single largest source most likely to resist scientific advance in water base or low solvent technology, i.e. the internal lining spray booth and drying oven where the most severe service conditions require a coating of superior chemical resistance.

The proposed control system consists of a Spencer Boiler and Engineering Thermal Oxidizer (Afterburner) whose design details are presented in Exhibit 5. This afterburner has been designed to collect the exhaust gases and vapors from the existing Drum Reclamation Furnace, and from Paint Booth A3 and Oven B2 (see Figure 1-1). The exhaust gases will be raised to a minimum of 1500°F with a minimum retention time of 0.5 seconds. This combination of temperature and retention will achieve 95% VOC destruction and 93% particulate destruction efficiency.

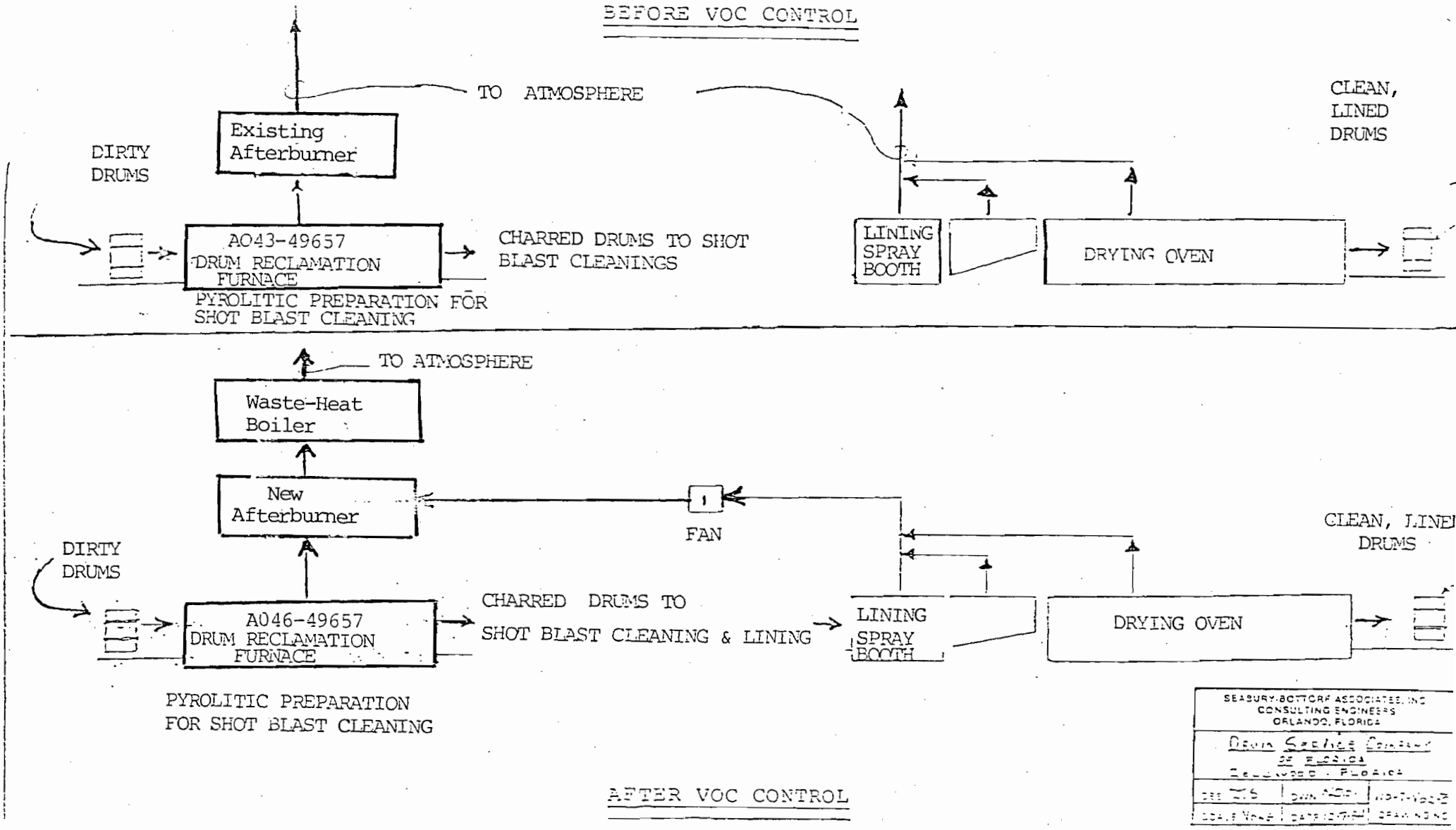
The proposed afternburner which has a heat input capacity of 8.8×10^6 BTU/hr replaces the existing afterburner which has a heat input capacity of only 1.5×10^6 BTU/hr. The new afterburner should also have increased combustion efficiency since the proposed configuration offers better mixing conditions and increased retention time.

The exhaust gases from the afterburner also will be passed through a waste heat boiler prior to discharge. This will allow the recovery of considerable energy which can be used in the drum reclamation process.

The following exhibits numbered 2 through 12 contain calculations, diagrams, and other supporting data to allow evaluation of a control system which will reduce annual emissions to a level of 3.39 lbs of VOC per gallon of coating applied as per the latest figures for the years 1983 and 1984.

Figure 1-1

SCHEMATIC FLOW DIAGRAM



SEABURY-BOTTORF ASSOCIATES, INC.
CONSULTING ENGINEERS
ORLANDO, FLORIDA

Drum Service Company of Florida
Tallahassee, Florida

EXHIBIT 2

Mobil Chemical Company

MAINTENANCE, TRANSPORTATION AND
STEEL CONTAINER COATINGS DEPARTME

P.O. BOX 250
EDISON, NEW JERSEY 08817
TELEPHONE (201) 321-6000

June 13, 1984

1-800-526-7575

REC'D

JUN 18 1984

SEABURY-BOTTORF
ASSOCIATES INC.

Mr. J. M. Murphy
Drum Service Co. of Florida
P. O. Box 278
Zellwood, Florida 32798

Dear Mike:

The USEPA had issued Volume VI: Coatings of Miscellaneous Metal Parts and Products in the Guideline Series on control of volatile organic emissions. This had been further clarified to indicate that interior steel container linings, both clear and pigmented, would purportedly be governed by the clear coat category which permits a VOC of 4.3 lbs./gallon.

At that time, we reported that the industrially acceptable linings had a VOC of 5 to 5.5 lbs./gallon and that a presumptive norm of 4.3 lbs./gallon was beyond RACT (Reasonble Available Control Technology). Also, that no promising developing technology was impending which would permit compliance in the foreseeable future.

Our present position, unfortunately, has not changed in that even after expending considerable laboratory effort, we still cannot offer the industry any low VOC lining material which will provide a degree of chemical resistance equivalent to that of any of the coatings historically supplied to the industry.

Fortunately, our vehicle suppliers have heeded our pleas for assistance and are assisting us in attempting to develop resins which will increase the solids content of these linings.

The breakthrough, however, remains in the undefined future. As soon as we have a candidate product considered suitable for this demanding application, we will offer it for your evaluation.

Very truly yours,

Stan Persak

S. R. Persak
Manager, Steel Containers

SRP/ny

Mobil Chemical Company

MAINTENANCE TRANSPORTATION AND
STEEL CONTAINER COATINGS DEPARTME

P.O. BOX 250
EDISON, NEW JERSEY 08817
TELEPHONE (201) 321-6000

June 13, 1984

Mr. J. M. Murphy
Drum Service Co. of Florida
P. O. Box 278
Zellwood, Florida 32798

Dear Mike:

You recently questioned the theoretical square feet of coverage in a gallon coating. The volume solids of a coating determines the coverage and will vary depending on the color of the coating.

Theoretically, a gallon of coating at 100% solids will cover 1600 square feet at a film thickness of 1.0 mil dry. This assumes 100% transfer efficiency which, of course, is not available. The efficiency percentage of drum spraying equipment will vary from 40% to 80% depending upon the degree of sophistication of the equipment.

We attach a list of our coatings which you are currently using or have used in the past. On this list we show the theoretical coverage if applied at 1.0 mil dry with 100% efficiency. You can determine your own approximate percent of spray efficiency with the following example.

Consider our 210-J-20 Black Enamel, which is a volume color in your plant. A 55 gal. drum has 23 sq. ft. of steel to be painted. This includes the shell and both heads. At 100% efficiency and painting the entire drum black, you would coat twenty-four drums per gallon at 1.0 mil dry. At 0.6 mil dry, still at 100% efficiency, you would coat forty drums per gallon. Your actual paint mileage compared to the theoretical mileage will give you the spray efficiency. You may consider each head to be 3 sq. ft., and the shell to be 17 sq. ft. These constants will enable you to determine paint mileage on multi-colored drums.

We hope these explanations have answered your questions; please let us know if you need more information.

Very truly yours,

S. R. Persak
Manager, Steel Containers

SRP/ny

Att.

Mobil

THEORETICAL SQUARE FOOT COVERAGE OF PAINTS

210-B-23	578 sq. ft./gal.	210-Y-48	594 sq. ft./gal.
210-B-54	674 " "	86-F-20	561 " "
210-B-72	561 " "	86-R-14	561 " "
210-B-74	561 " "	286-B-50	642 " "
210-B-77	578 " "	286-B-77	513 " "
210-B-78	578 " "	286-B-78	658 " "
210-D-9	594 " "	286-B-82	545 " "
210-F-16	706 " "	286-B-107	594 " "
210-F-22	561 " "	286-F-41	561 " "
210-F-23	578 " "	286-D-18	642 " "
210-G-40	561 " "	286-G-39	626 " "
210-G-42	545 " "	286-G-81	545 " "
210-J-20	545 " "	286-R-48	594 " "
10-R-12	610 " "	286-W-57	610 " "
210-R-26	561 " "	286-Y-53	578 " "
210-W-12	578 " "	286-Y-54	545 " "
210-W-24	610 " "	286-Y-71	578 " "
210-Y-47	578 " "	285-R-9	545 " "

Mobil

Product		V.O.C.
210-B-23	P. & G. Light Blue	4.1
210-B-54	Amoco Blue	3.8
210-B-72	Chevron Blue	4.2
210-B-74	Gulf Blue	4.1
210-B-77	Fina Blue	4.1
210-B-78	New Chevron 370 Blue	4.1
210-D-9	Stevens Brown	4.1
210-F-16	High Gloss Texaco Gray	3.6
210-F-22	Texaco Gray	4.2
210-F-23	Semi-Gloss Texaco Gray	4.1
210-G-40	Texaco Green	4.2
210-G-42	Semi-Gloss Texaco Green	4.1
210-J-20	Black	4.3
10-R-12	Mobil Red	4.2
210-R-26	Shell Red	4.2
210-W-12	White	4.3
210-W-24	White	4.0
210-Y-47	Shell Yellow	4.1
210-Y-48	Gulf Orange	4.0
285-R-9	Citrus Drum Lining	4.5
86-F-20	Mobil Beige	4.2
86-R-14	Mobil Red	4.2

Mobil

Product		V.O.C.
286-B-50	Cal Oil Blue	3.8
286-B-77	Gulf Blue	4.3
286-B-78	Amoco Blue	3.8
286-B-82	Chevron Blue	4.2
286-B-107	Fina Blue	4.1
286-F-41	Semi-Gloss Texaco Gray	4.2
286-D-18	Stevens Brown	4.0
286-G-39	Texaco Green	3.9
286-G-81	Semi-Gloss Texaco Green	4.2
286-R-48	Shell Red	4.1
286-W-57	White	4.1
286-Y-53	Shell Yellow	4.3
286-Y-54	Gulf Orange	4.1
286-Y-71	B. P. Yellow	4.1

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-23

NAME Drum Enamel P&G Light Blue

COLOR Blue TYPE Mod. Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 45 - 55 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 8.26 ± .15 Lbs. Pigment 15.3 % By Weight

SOLIDS 50 ± 1 % By Weight 36 % By Volume

THEORETICAL COVERAGE 585 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30 - 33" #2 Zahn

FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10' @ 275 °F. Peak Metal Temp. °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Toluene

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.1 lbs/gallon
Conforms with Rule 66
This product will air dry to handle in 15 minutes and is hard overnight.

EVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 10/7/83

Ref. No. 1550

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-54

NAME Air-Dry Drum Enamel Amoco Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-50 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.35 ± .15 Lbs. Pigment ____ % By Weight SOLIDS 54.0 ± 1 % By Weight 42.0 ± 1 % By Volume THEORETICAL COVERAGE ~ 55 Sq. Ft. @ Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Oil Free
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn Cup FILM THICKNESS ____ Mils (Wet) .7-1.0 Mils (Dry) BAKE ____ @ ____ °F. Peak Metal Temp. ____ °F. REDUCE 8-1 With Xylol OTHER Clean up solvent(s) Xylol
PROPERTIES	GLOSS ____ @ ____ Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	V.O.C. = 3.74 Air-dry tack free 1 hour, overnight - hard. Rule 66

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 5-30-84
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-72

NAME Drum Enamel Chevron Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE

- [X] EXTERIOR Drum Enamel
- [ ] INTERIOR

CONSTANTS

VISCOSITY 30 - 35 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.88 ± .15 Lbs. Pigment 9.8 % By Weight

SOLIDS 47 ± 1 % By Weight 35 ± 1 % By Volume

THEORETICAL COVERAGE 565 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE Steel Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free from surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" Zahn 2 Cup

FILM THICKNESS Mils (Wet) 0.7 - 1.0 Mils (Dry)

BAKE 5-10' @ °F. Peak Metal Temp. 275 °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

Rule 66 met

VOC = 4.16 lbs/gallon

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 7/27/83

Ref. No. WO 1511

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-74

NAME Drum Enamel Gulf Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 35-50 Sec. # 4 Ford Cup @ 80°F.

_____ Sec. # _____ Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.6 ± .1 Lbs. Pigment 5.2 % By Weight

SOLIDS 45 ± 1 % By Weight 35 ± 1 % By Volume

THEORETICAL COVERAGE 571 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With _____

GAUGE _____ Reverse Side _____

CHEMICAL TREATMENT Free from all Surface Contaminants

APPLICATION

METHOD Spray Applied Viscosity 30 - 35 Sec. #2 Zahn Cup

FILM THICKNESS _____ Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10 min. @ _____ °F. Peak Metal Temp. 275 °F.

REDUCE 10:1 With Naphtha

OTHER Clean up solvent(s) Naphtha or Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant _____

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.13 lbs/gallon
Conforms to Rule 66

DEVELOPED FOR

_____

_____

_____

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 8/19/83

Ref. No. 1520

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-77

NAME Drum Enamel Fina Blue

COLOR Blue TYPE Mod. Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 40 - 50 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.75 ± .1 Lbs. Pigment 6.6 % By Weight

SOLIDS 47 ± 1 % By Weight 36 % By Volume

THEORETICAL COVERAGE 589 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD spray Applied Viscosity 30-35" #2 Zahn

FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10' @ 275 °F. Peak Metal Temp. °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.1 lbs/gallon
Conforms to Rule 66.
This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 10/4/83

Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-78

NAME Drum Enamel Chevron 370 Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE

☒ EXTERIOR Drum Enamel

☐ INTERIOR

CONSTANTS

VISCOSITY 35-50 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.89 ± .15 Lbs. Pigment 10 % By Weight

SOLIDS 47 ± 1 % By Weight 36 % By Volume

THEORETICAL COVERAGE 570 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" #2 Zahn

FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5' @ °F. Peak Metal Temp. 275 °F.

REDUCE 10-1 With Naphtha

OTHER Clean up solvent(s) Aromatic or naphtha

PROPERTIES

GLOSS 85+ @ 60 Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

Meets rule 66

VOC = 4.1 lbs/gallon

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

" Laboratory

Date 3/9/84

Ref. No. 1610

Mobil Chemical. product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-D-9

NAME Drum Enamel Brown

COLOR Brown TYPE Mod. Alkyd

SUGGESTED USE

☒ EXTERIOR Drum Enamel

☐ INTERIOR

CONSTANTS

VISCOSITY 40-50 Sec. # 4 Ford Cup @ 80°F.

_____ Sec. # _____ Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.95 ± .1 Lbs. Pigment 10.6 % By Weight

SOLIDS 49 ± 1 % By Weight 37 % By Volume

THEORETICAL COVERAGE 594 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With _____

GAUGE _____ Reverse Side _____

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" #2 Zahn

FILM THICKNESS _____ Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10' @ 275 °F. Peak Metal Temp. _____ °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant _____

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.1 lbs/gal.
Conforms to Rule 66
This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 10/4/83

Ref. No.

CO-1811 C 18-701

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-F-16

NAME Air-Dry Drum Enamel Texas Gray

COLOR Gray TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 50-60 Sec. = 4 Ford Cup @ 80°F. — Sec. = — Zahn Cup @ 80°F. WEIGHT PER GALLON 8.8 ± .15 Lbs. Pigment — % By Weight SOLIDS 59 ± 1 % By Weight 44 ± 1 % By Volume THEORETICAL COVERAGE 454 Sq. Ft. @ Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With — GAUGE — Reverse Side — CHEMICAL TREATMENT Oil Free
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn Cup FILM THICKNESS — Mils (Wet) .7-1.0 Mils (Dry) BAKE — @ — °F. Peak Metal Temp. — °F. REDUCE 8-1 With Xylol OTHER Clean up solvent(s) Xylol
PROPERTIES	GLOSS — @ — Angle Contains Lubricant — PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	V.O.C. = 3.56 Air-dry tack free 1 hour, overnight - hard.

DEVELOPED FOR	SUBMITTED BY	Salesman Laboratory Date 5-30-84 Ref. No.
Attn.		

The technical information and suggestions for use and application presented herein represent the best information available to us and are believed to be reliable. They should not, however, be construed as controlling suggestions, and there is no warranty of performance of our materials either express or implied. We urge that users of our materials conduct confirmatory tests to determine final suitability for their specific end uses.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-F-22

NAME Drum Enamel Texaco Gray

COLOR Gray TYPE Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F.

_____ Sec. # _____ Zahn Cup @ 80°F.

WEIGHT PER GALLON 8.09±.15 Lbs. Pigment 12.0 % By Weight

SOLIDS 48±1 % By Weight 35±1 % By Volume

THEORETICAL COVERAGE 563 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With _____

GAUGE _____ Reverse Side _____

CHEMICAL TREATMENT Free from surface contaminants

APPLICATION

METHOD Spray Applied Viscosity as required

FILM THICKNESS _____ Mils (Wet) 0.7-1.0 Mils (Dry)

BAKE 5-10 @ 300 °F. Peak Metal Temp. _____ °F.

REDUCE 10-1 With Naphtha

OTHER Clean up solvent(s) Aromatic or Naphtha

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant _____

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

Meets Rule 66

VOC = 4.2 lbs. per gallon

'ELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 3/29/83

Ref. No.

Mobil Chemical. product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-F-23

NAME Semi-Gloss Texaco Gray Enamel

COLOR Gray TYPE Mod. Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-55 Sec. # 4 Ford Cup @ 80°F. Sec. # Zahn Cup @ 80°F. WEIGHT PER GALLON 8.28 ± .15 Lbs. Pigment 15.5 % By Weight SOLIDS 50 ± 1 % By Weight 36 % By Volume THEORETICAL COVERAGE 581 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With GAUGE Reverse Side CHEMICAL TREATMENT Free of all surface contaminants
APPLICATION	METHOD Spray Applied Viscosity 30-33" #2 Zahn FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. °F. REDUCE 10 - 1 With Naphtha OTHER Clean up solvent(s) Aromatic
PROPERTIES	GLOSS 50-60 @ 60° Angle Contains Lubricant PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.1 lbs/gallon Conforms with Rule 66 This product will air dry to handle in 15 minutes and is hard overnight.
DEVELOPED FOR	Attn.
SUBMITTED BY	Salesman Laboratory Date 10/7/83 Ref. No. 1550

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-G-40

NAME Drum Enamel Texaco Green

COLOR Green TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30 - 35 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 7.89 ± .15 Lbs. Pigment 9 % By Weight SOLIDS 46.5±1 % By Weight 34.5 % By Volume THEORETICAL COVERAGE 554 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free of oil and water soluble salts.
APPLICATION	METHOD Spray Applied Viscosity as required FILM THICKNESS _____ Mils (Wet) 1 Mils (Dry) BAKE 5-10' @ 300 °F. Peak Metal Temp. _____ °F. REDUCE 10-1 With VM&P Naphtha OTHER Clean up solvent(s) Naphtha or aromatic
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Rule 66 complying VOC = 4.2 lbs/gal.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 3/23/83
	Attn.		Ref. No.

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-G-42

NAME Semi-Gloss Texaco Green Enamel

COLOR Green

TYPE Mod. Alkyd

SUGGESTED USE	[x] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-55 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.07 + .15 Lbs. Pigment 12.3 % By Weight SOLIDS 48 ± 1 % By Weight 35 % By Volume THEORETICAL COVERAGE 569 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free of all surface contaminants.
APPLICATION	METHOD Spray Applied Viscosity 30-33" #2 Zahn FILM THICKNESS _____ Mils (Wet) .7 - 1 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. _____ °F. REDUCE 10 - 1 With Naphtha OTHER Clean up solvent(s) Aromatic
PROPERTIES	GLOSS 50-60 @ 60° Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC - 4.1 lbs/gallon Conforms with Rule 66 This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR		SUBMITTED BY
		Salesman
		Laboratory
		Date 10/7/83
	Attn.	Ref. No. 1550

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210 J 20

NAME Drum Enamel Black

COLOR Black

TYPE Modified Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-50 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 7.35±.1 Lbs. Pigment 2.7 % By Weight SOLIDS 42±1 % By Weight 34±1 % By Volume THEORETICAL COVERAGE 602 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Oil free
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn FILM THICKNESS ____ Mils (Wet) .7-1 Mils (Dry) BAKE 5-10' @ 275-300 °F. Peak Metal Temp. ____ °F. REDUCE 8-1 With Naphtha OTHER Clean up solvent(s) Naphtha or Toluene
PROPERTIES	GLOSS 85+ @ 60 Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Conforms to Rule 66
DEVELOPED FOR	Attn.
SUBMITTED BY	Salesman Laboratory Date Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 10-R-12

NAME Mobil Drum Red Enamel

COLOR Red TYPE Mod. Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 40 - 50 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 8.66 ± .15 Lbs. Pigment 18 % By Weight

SOLIDS 53 ± 1 % By Weight 38 % By Volume

THEORETICAL COVERAGE 608 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 28 - 33" #2 Zahn Cup

FILM THICKNESS Mils (Wet) 1 Mils (Dry)

BAKE 5-10' @ 275 °F. Peak Metal Temp. °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.0 lbs/gal.
Conforms to Rule 66.

This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 2-28-83

Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-R-26

NAME Drum Enamel Shell Red

COLOR Red TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.1 ± .1 Lbs. Pigment 11.5 % By Weight SOLIDS 48 ± 1 % By Weight 35 ± 1 % By Volume THEORETICAL COVERAGE 559 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free from surface contaminants
APPLICATION	METHOD Spray Applied Viscosity as required FILM THICKNESS _____ Mils (Wet) .7 - 1.0 Mils (Dry) BAKE 5-10 min @ 300 °F. Peak Metal Temp. _____ °F. REDUCE as required With Naphtha OTHER Clean up solvent(s) Aromatic or Naphtha
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant Yes PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Conforms with the requirements of Rule 66 VOC = 4.18 lbs. per gallon
VELOPED FOR	SUBMITTED BY: Salesman; Laboratory; Date 4/11/83; Attn.; Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210 W 12

NAME Air Dry Drum En. Mobil White

COLOR White TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY _____ Sec. @ _____ Ford Cup @ 80°F. 40-60 Sec. @ 2 Zahn Cup @ 80°F. WEIGHT PER GALLON 9.15±.15 Lbs. Pigment 22. % By Weight SOLIDS 53 ± 1 % By Weight 36 % By Volume THEORETICAL COVERAGE 583 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE Steel Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Oil Free
APPLICATION	METHOD Spray Applied Viscosity 30-35 2 Zahn Cup FILM THICKNESS _____ Mils (Wet) .7-1 Mils (Dry) Air dry to handle 15 min. overnight hard BAKE _____ @ _____ °F. Peak Metal Temp. _____ °F. REDUCE as required With Naphtha OTHER Clean up solvent(s) Toluene
PROPERTIES	GLOSS 85+ @ 60 Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Conforms to Rule 66

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-W-24

NAME Drum Enamel SSCI #41 White

COLOR White TYPE Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 9.4 ± .15 Lbs. Pigment 29.0 % By Weight

SOLIDS 57±1 % By Weight 38±1 % By Volume

THEORETICAL COVERAGE 606 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free from surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" #2 Zahn Cup

FILM THICKNESS Mils (Wet) 0.7 - 1.0 Mils (Dry)

BAKE 5-10' @ 300 °F. Peak Metal Temp. °F.

REDUCE 10-1 With Naphtha

OTHER Clean up solvent(s) Naphtha or toluene

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 3.99 lbs/gallon
Meets Rule 66.

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 4/19/83

Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
DISON, NEW JERSEY 08817

CODE 210-Y-47

NAME Drum Enamel Shell Yellow

COLOR Yellow TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 9.17 ± .15 Lbs. Pigment 24 % By Weight SOLIDS 55 ± 1 % By Weight 36 ±1 % By Volume THEORETICAL COVERAGE 575 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Free from surface contaminants
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn FILM THICKNESS ____ Mils (Wet) 0.7 - 1.0 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. 275 °F. REDUCE 10-1 With Naphtha OTHER Clean up solvent(s) Naphtha or Toluene
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.12 lbs/gallon Meets Rule 66

ELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 4/14/83
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-Y-48

NAME Drum Enamel Gulf Orange

COLOR Orange TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 35 - 50 Sec. # 4 Ford Cup @ 80°F. Sec. # Zahn Cup @ 80°F. WEIGHT PER GALLON 8.3 ± .1 Lbs. Pigment 13.2 % By Weight SOLIDS 51 ± 1 % By Weight 37 ± 1 % By Volume THEORETICAL COVERAGE 592 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With GAUGE Reverse Side CHEMICAL TREATMENT Free from all Surface Contaminants
APPLICATION	METHOD Spray Applied Viscosity 30-35 Sec. #2 Zahn Cup FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry) BAKE 5-10 min. @ °F. Peak Metal Temp. 275 °F. REDUCE 10:1 With Naptha OTHER Clean up solvent(s) Naphtha or Aromatic
PROPERTIES	GLOSS 85 + @ 60° Angle Contains Lubricant PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.04 lbs/gallon Conforms to Rule 66

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 8/10/83
	Attn.		Ref. No. 1520

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 285-R-9

NAME Drum Lining Red

COLOR Red

TYPE Alkyd-Amine

SUGGESTED USE	☐ EXTERIOR Special Purpose Drum Lining ☒ INTERIOR
CONSTANTS	VISCOSITY 20-30 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.2 ± 1 Lbs. Pigment 12.0 % By Weight SOLIDS 45.2 ± 1 % By Weight 33.9 % By Volume THEORETICAL COVERAGE 545 Sq. Ft. @ Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE Steel Primed With -- GAUGE Varied Reverse Side -- CHEMICAL TREATMENT Free from all surface contaminants.
APPLICATION	METHOD Spray Applied Viscosity ____ FILM THICKNESS - Mils (Wet) .5 - .7 Mils (Dry) BAKE 10 @ 300 - 400°F.* Peak Metal Temp. ____ °F. REDUCE As required With Toluol OTHER Clean up solvent(s) Toluol
PROPERTIES	GLOSS ____ @ ____ Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	* Bake temperature dependent upon end use of package. Note: When lining is to hold shortening, pure foods, and edible oils, the final bake must be 10 minutes at 400°F.

DEVELOPED FOR	Attn.	SUBMITTED BY	Salesman Laboratory Date Ref. No.

EXHIBIT 3

KNS Companies, Inc.
475 RANDY ROAD, P. O. BOX 962
CAROL STREAM, ILLINOIS 60187
Telephone: Area 312/665-9010

kerpro

May 22, 1984

Mr. J. M. Murphy
Drum Service Co. of Florida
803 Jones Ave.
Zellwood, Fla. 32798

Dear Mr. Murphy:

KNS lining L-15 (407-30-J76) has a V.O.C. content of 4.84 pounds per gallon. The following lists the percentage of volatiles.

Xylol	8.0%
Ketones, exempt	8.54
Ketones, non-exempt	11.26
Alcohols, exempt	62.94
Esters	9.27
	100.01%

Please let me know if any additional information is needed.

Very truly yours,
KNS COMPANIES, INC.

John M. Browning
General Manager

JMB/jd

L-15
57% SP/Liter

500 Vista [illegible]
ADDISON, ILLINOIS 60101
Telephones: Area 312/543-2020

® Area Code 312/ 543-

CONTAINER LININGS
PROPERTIES & APPLICATION DATA

CODE NO. 407-30B-J76

DESIGNATION Kerpro Lo-Cure L-15 Dark Brown Pigmented, Ready to Spray.

DESCRIPTION

Epoxy modified phenolic resin base, pigmented with inert pigments.

TYPICAL PROPERTIES

VISCOSITY #4FC @ 70°F., SECS	26 ± 1	DENSITY @ 70°F., LBS./GALS	8.8 ± 1
RESIN SOLIDS % BY WEIGHT	26 ± 1	TOTAL SOLIDS % BY WEIGHT	40 ± 2
PIGMENT SOLIDS % BY WEIGHT	14 ± 1	TOTAL SOLIDS % BY VOLUME	28 ± 2
COLOR, WET	Dark Brown	GLOSS GARDNER 60°	40 ± 10
COLOR, BAKED	Dark Brown	HIDING POWER SQ. FT./GAL.	650 @ 0.7 mils D[illegible]

APPLICATION DATA

FOR REDUCTION USE: No reduction required

\- PARTS (VOLUME) KERPRO - PARTS (VOLUME) SOL

APPLY BY Spray as is.

APPLY 2.5 - MILS WET TO OBTAIN 0.7 - 0.8 MILS

FORCE DRY 5 MINUTES AT 250 °F.*

BAKE 10 MINUTES AT 350 °F.*

CLEAN UP SOLVENT MEK

*METAL TEMPERATURE

NOTES

SUMMARY OF INVOICES FOR

EXTERIOR COATING, LINING, AND SOLVENT

PURCHASES FOR CALENDAR YEARS

1983 and 1984

1983 For Paints

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Vendor	Invoice #	Name of Paint	quantity (gal)	V.O.C (lbs/gal)	V.O.C (lbs)
Dixie Laboratories	5959	White Dir Dry Enamel	(7.15) 275	4.3	1183
Dobson & King	3611	Dixon Black Enamel	(7.35) 450	4.3	193
	"	" " "	(7.35) 35	4.3	151
	4684	Dixon Black Enamel	(7.35) 250	4.3	107
	"	Dixon Cal oil Blue	150	3.8	57
Mobile	204360	Dixon Enamel Black AL	(7.35) 550	4.3	236
	292790	Spray Enamel Arctic Blue	110	3.8	41
	"	Dixon Enamel Black AL	(7.35) 550	4.3	256
	"	Dixon EN PC Light Blue	(8.26) 50	4.1	205
	"	" " " "	(8.26) 45	4.1	185
	"	Texas Gray Enamel AL	(8.09) 275	3.6	990
	"	Dixon Enamel ESSO RED AL	55	4.1	226
	"	Spray EN SSCT #41 AL	(9.4) 110	4.1	455
	"	Shell Yellow EN AL	(9.17) 55	4.3	236
	"	Cal Oil Blue Black ENL	165	3.8	627
	"	Spray EN Tex Blue	(7.75) 40	4.1	164
	260610	Dixon Enamel Black AL	(7.35) 550	4.3	2365
	346100	Dixon Enamel Black AL	(7.35) 550	4.3	2365
	"	DIX ENL Dixon Blue	(7.68) 215	4.2	1153
	"	SCT L GL Tex Green EN	(8.07) 110	4.2	462
	"	SPRAY EN SSCT #41 AL	(9.4) 55	4.1	226
	195590	Dixon Enamel Black AL	(7.35) 550	4.3	2365
	"	DR EN Mid Chrom Blue	(7.68) 275	4.2	1155
	"	Spray EN SSCT #41 AL	(9.4) 55	4.1	226
	"	Scott Gld Texas gray EN	(8.20) 110	4.2	462

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (lbs/gal)	V.O.C
	220730	Drum Enamel Blk KL (7.35)	55	4.3	237
	244500	" " " " (7.35)	550	4.3	2365
	244570	Drum EN Brown (7.75)	55	4.0	220
	222560	Spray EN Fire Blue (3.75)	55	4.1	226
	"	Drum Gray Enamel KL (6.00)	110	3.6	396
	"	Drum Enamel Esso Red KL	110	4.1	451
	"	Drum Enamel Black KL (7.35)	220	4.3	946
	204290	Drum EN Brown (7.75)	55	4.0	220
	303390	Drum Enamel Black KL (7.35)	550	4.3	2365
	"	DR EN New Chevron Blue (7.69)	220	4.2	924
	"	SEMI GLO Tobacco Grey EN (6.26)	40	4.2	168
	"	Drum EN Brown (7.75)	50	4.0	200
	284040	Spray EN Fire Blue (7.75)	55	4.1	226
	"	Drum EN Texas Green KL (7.27)	110	3.9	429
	303380	DR EN New Chevron Blue	220	4.2	924
	231260	Spray EN Metallic Beige KL	55	4.2	231
	236610	DR EN New Chevron Blue	55	4.2	231
	237600	Drum Enamel Black KL.	550	4.3	2365
	"	DR EN New Chevron Blue	220	4.2	924
	"	Drum EN Brown	50	4.0	200
	317060	Spray EN SSCI #41 KL	275	4.1	1127
	"	Drum Enamel Esso Red KL	55	4.1	226
	"	Spray EN Fire Blue	55	4.1	226
	300150	Drum DAL Chevron Blue	550	4.2	2310
	334130	DR Enamel Black KL	275	4.3	1183
	284060	DR EN New Chevron Blue	220	4.2	924
	317360	Spray EN Fire Blue	55	4.1	226
	237600	Drum EN Black KL.	55	4.1	226
	"	Spray EN SSCI #41	40	4.1	164

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Vendor	Invoice #	Name of Paint	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Frost [illegible] EN White	165	4.1	[illegible]
	271610	Drum Enamel Black RL	825	4.3	[illegible]
	"	DR EN New Chevron Blue	220	4.2	[illegible]
	"	SEMI Glo Texaco Gray EN	110	4.2	1/62
	"	Drum EN [illegible] Light Blue	55	4.1	226
	314390	" " " "	110	4.1	451
	"	Cal Oil Blue [illegible] ENL	110	3.8	418
	"	Drum Enamel Esso Red RL	55	4.1	[illegible]
	"	DR EN New Chevron Blue	330	4.2	1386
	"	SEMI GL Tex green EN	110	4.2	[illegible]
	"	SEMI Glo Texaco Gray EN	110	4.2	[illegible]
	327460	Drum Enamel Black RL	275	4.3	1183
	334140	" " "	550	4.3	2365
	"	SEMI GLO Texaco Gray EN	55	4.2	231
	"	" " " "	30	4.2	126
	222550	Drum Enamel Black RL	550	4.3	2365
	"	Drum Enamel Esso Red RL	110	4.1	451
	209430	Drum Enamel Black RL.	550	4.3	2365
	"	Dr EN New Chevron Blue	165	4.2	693
	"	Spray EN [illegible] Blue	55	4.1	226
	"	Frost Brake EN White	110	4.1	451
	278290	Drum EN [illegible]	55	4.0	220
	"	DR EN New Chevron Blue	275	4.2	1155
	326230	Drum Enamel Black RL	275	4.3	1183
	"	Spray EN [illegible] Blue	55	4.1	226
	318510	Drum Enamel Black RL.	550	4.3	2365
	"	Spray Enamel Amoco Blue	55	3.8	209

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (lbs/Gal)	VOC Lbs
Mobile	233990	Drum Enamel Black RL	550	4.3	2365
	"	Spray Enamel Arroco Blue	55	3.8	209
	"	Drum EN PG Light Blue	55	4.1	226
	"	Spray EN 5561 #41	110	4.1	451
	225930	Drum Enamel Black RL	550	4.3	2365
		DR EN New Chevron Blue	275	4.2	1155
		Fast Drie EN White	110	4.1	451
	216250	Drum Enamel Black RL	550	4.3	2365
	"	Spray Enamel Arroco Blue	55	3.8	209
	"	Drum EN PG Light Blue	55	4.1	226
	"	DR EN New Chevron Blue	275	4.2	1155
	"	Drum Enamel Esso Red RL	55	4.1	226
	"	SPRAY EN 5561 #41	110	4.1	451
	222560	Spray EN Fire Blue	55	4.1	226
	"	Drum Enamel RL	110	3.6	396
	"	Drum Enamel Esso Red RL	110	4.1	451
	"	Drum Enamel Black RL	220	4.3	946
	279080	Spray EN Fire Blue	55	4.1	226
	"	Drum Enamel Esso Red RL	55	4.1	226
	279090	DEMI Glo Texaco Grey EN	110	4.2	462
	272781	DR EN New Chevron Blue	220	4.2	924
	105000	" " "	110	4.2	462
	301620	Mobile DR Red ENL	110	3.6	396
	303950	Texaco Grey Enamel RL	110	4.2	462
	272780	Drum EN Brown	55	4.0	220
	251460	Drum Enamel Black RL	550	4.3	2365
	249340	DR EN New Chevron Blue	220	4.2	924
	"	Demi Glo Texaco Grey EN	110	4.2	462

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Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	V.O.C lbs
Mobile	267820	Mobile DR Red ENL	55	4.2	231
	267770	Drum Enamel Black RL	550	4.3	[illegible]
	"	Drum Enamel C650 Red RL	55	4.1	226
	"	DR EN New Chevron Blue	220	4.2	924
	264310	Spray EN [illegible] White	55	4.1	226
	"	Drum Enamel C650 Red	55	4.1	226
	265870	Drum Enamel Black RL	550	4.3	[illegible]
	264700	Semi Glo Texaco Gray EN	55	4.2	231
	"	Drum Enamel Black RL	550	4.3	[illegible]
	"	Drum Enamel C650 Red RL	110	4.1	451
	"	DR EN New Chevron Blue	220	4.2	924
	264710	Spray EN SSCI #41	55	4.1	226
	"	Fast Bake EN White	110	4.1	451
	"	Semi Glo Texaco Gray EN	55	4.2	231
	"	Texaco Gray Enamel RL	110	3.6	396
	242640	Mobile Red ENL NO2.	55	4.2	231
	254240	DR EN New Chevron Blue	220	4.2	924
	"	Spray Enamel [illegible] Blue	55	3.8	209
	"	SEMI GL TEX Green EN	55	4.2	231
	"	" " " "	40	4.2	168
	253430	Mobile Red ENL NO2	55	4.2	231
	244510	Drum Enamel Black RL	825	4.3	3548
	"	Fast Bake EN White	110	4.1	451
	"	Spray EN [illegible] Blue	55	4.1	226
	"	SEMI GL Tex Green EN	110	4.2	462
	333970	EN Mobile Drum Red Spray	12	4.2	50
	346070	DRM ENL SHL Red	165	4.2	693
		Drum Enamel Black RL	275	4.3	1183
		SEMI GL Tex Green EN	53	4.2	223

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	V.O.C #/L
Mobil	342950	Cal oil Blue Bak ENL	165	3.8	627
	341060	Dimm EN PG Light Blue	55	4.1	226
	339500	DM ENL Tex Gy	55	4.2	231
	"	Spray EN SSC1 #41	165	4.1	677
	"	Dimm EN Brown	110	4.0	440
	338200	Dimm EN Orange RL	55	4.1	226
	"	DM ENL Gulf Blue	55	4.1	226
	284040	Bake EN Texas Green RL	110	3.9	429
	335530	Mobil DM Red ENL	110	4.2	462
	"	Spray EN Dimm Blue	55	4.1	226
	"	Dimm ENL SHL Red	220	4.2	924
	340410	Dimm EN [illegible] Red RL	55	4.1	226
	300750	Dimm EN Dimm Blue	110	4.2	462
	"	DM ENL Tex Gy	110	4.2	462
	"	" " Green	110	4.2	462
	"	DM ENL SHL RED	55	4.2	231
	"	" " Yellow	55	4.1	226
	"	AD Dimm EN Mobil White	55	4.3	237
	297420	Mobil Red ENL #2	55	4.2	231
	"	Spray EN Mobil Red	55	4.2	231
	"	Semi Gloss Texaco Gray	110	4.2	462
	"	Dimm EN Blue	55	4.3	237
	"	DR EN Med Dimm Blue	110	4.2	462
	271260	Dimm EN Blue	55	4.3	237
	330330	DM ENL Tex Gy	55	4.2	231
	337500	Mobil DM Red ENL	55	4.2	231

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Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
Mon. Coating Enc.	230121	Black Drum Enamel	110	4.3	473
	231220	Texaco Green Drum EN	55	4.2	231
	"	Amoco Blue Drum EN	55	3.8	209
	"	Black Drum EN	275	4.3	1183
	"	QD Enamel chevron blue	55	4.2	231
	228913	Black Drum Enamel	110	4.3	473
			29,455		123,921 lbs

62 Tons

average weight of paint 7.725 lb/gal

7.725 lb/gal x 29,455 gal = 227,539.88 lbs

Year 1984 For Paints

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (#/gal)	V.O.C (lbs)
Alla Laboratories	4138	White Air Dry Enamel	110	4.3	473
Sears & Roy	10169	Brown Col Oil Blue	100	3.8	380
	"	Brown Green Black	150	4.3	645
	10754	" Black EN	250	4.3	1075
	10818	" Col Oil Blue	100	3.8	380
	11963	" " " "	100	3.8	380
	12264	" " " "	150	3.8	570
	14243	" " " "	100	3.8	380
	14245	" " " "	150	3.8	570
	15618	" " " "	200	3.8	760
Product Coating	44112	Texaco Green Drum EN	110	4.2	[illegible]
	"	" " "	5	4.2	21
Southern Coating	232660	Black Brown Enamel	550	4.3	2365
	232746	Texaco Green Oil Enamel	165	4.2	693
	"	" " " "	51	4.2	214
	232837	Shell Red Brown EN4	165	4.1	677
	233204	QD Epoxy Oil Int. Universal #613	110	4.2	[illegible]
	234315	Black Brown EN	275	4.3	1183
	235558	" " "	220	4.3	946
	235675	" " "	55	4.3	237
	236774	Shell Red Brown EN3	165	4.2	693
Stevens Paint Col.	71612	H.B. Black	55	4.3	237
	"	#4172 White	55	4.0	220

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (lb/gal)	V.O.C lb
A-bil	350490	DRM ENL Red shell	53	4.2	1 33
	"	DM " " Yellow	110	4.1	451
	344010	DM ENL Tex Gy	110	4.2	462
	"	DM EN Shell Red	165	4.2	693
	345850	" " " "	330	4.2	1386
	"	" " Tex GRN	55	4.2	231
	"	Spray EN SSC1 # 41	55	4.1	226
	350470	Drum EN Black RL	550	4.3	2365
	"	" " Chevron BL.	275	4.2	1155
	355790	Drum EN Black RL	550	4.3	2365
	"	" " Chevron Blue	275	4.2	1155
	"	Drum EN Brown	110	4.1	451
	359860	Drum ENL Black RL	275	4.3	1183
	"	DM EN PG light Blue	110	4.1	451
	356370	DM ENL TEX GY	110	4.2	462
	"	" " " "	34	4.2	143
	"	Spray EN Fire Blue	55	4.1	226
	359870	DM EN Black RL	275	4.3	1183
	"	DM EN PG light Blue	110	4.1	451
	367020	DM EN Black RL	275	4.3	1183
	367030	DM EN Chevron Blue	110	4.2	462
	367040	" " "	110	4.2	462
	"	Epoxy Base EN White	55	4.1	226
	"	DM EN Black RL	275	4.3	1183
	367050	" " " "	550	4.3	2365
		DM EN Chevron Blue	55	4.2	231
		" " Fire Blue	110	4.1	451
		SEMI Gloss Tex GRN ENL	110	4.1	451

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	(lb)
mbl	371670	DM EN Black RL	275	4.3	1183
	"	Fast Dry EN White	55	4.1	226
	"	DM EN Dragon Blue	165	4.2	693
	367810	Fast Dry EN White	110	4.1	451
	370880	" " " "	55	4.1	226
	"	DM EN SSC1 #41 White	55	4.0	220
	378330	DM EN Black RL	220	4.3	946
	"	" " " "	45	4.3	194
	"	DM EN PG Light Blue	55	4.1	226
	"	" " Black	55	4.1	226
	"	SEMI Gloss TEK GRY ENL	55	4.1	226
	"	" " " "	43	4.1	176
	"	DM EN Dragon Blue	220	4.2	924
		" " " "	45	4.2	189
	378320	DM EN Black	550	4.3	2365
	"	" " Shell Yellow	55	4.1	226
	"	" " PG Light Blue	55	4.1	226
	"	Spray EN Hi Gloss Blue	55	3.8	209
	373440	DM EN SSC1 #41 White	165	4.0	660
	381740	Spray EN " " RL	110	4.0	440
	382140	DM EN Dragon Blue	165	4.2	693
	384090	DM EN Black RL	440	4.3	1892
	"	DM EN Dragon Blue	165	4.2	693
	384100	SEMI Gloss TEK GRY ENL	110	4.1	451
	388080	DM EN Black RL	275	4.3	1183
	"	DM EN Bandit	55	4.1	226
	"	" " Fire Blue	110	4.1	451
	"	" " PG Light Blue	55	4.1	226

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal	VOC (lb)
Mobil	388010	DH EN Black	275	4.3	1183
"	"	Sem Gloss Tex Gen EN	110	4.1	451
"	"	DH EN Chevron Blue	110	4.2	[illegible]
"	"	" " " "	34	4.2	143
394030	DH EN Black		165	4.3	710
"	" " Brown		55	4.1	226
"	" " Chevron Blue		165	4.2	693
388770	A Amoco Blue EN EL		55	3.8	209
"	DH EN Gulf Blue		55	4.1	[illegible]
391170	Spray EN SSCI #41 EL		55	4.1	226
397020	DH EN Black		550	4.3	[illegible]
"	DH EN PG light blue		55	4.1	226
"	DH EN Shell Red		110	4.2	[illegible]
"	Sem Gloss Tex SSCI EN		110	4.1	[illegible]
"	DH EN Chevron Blue		165	4.2	[illegible]
402820	DH EN Shell Red		165	4.2	693
"	DH EN PG light blue		110	4.1	451
"	DH EN Chevron Blue		220	4.2	924
394560	DH EN Gulf ORG		110	4.0	440
"	" " " Blue		110	4.1	451
"	Spray EN SSCI #41		110	4.1	45
396160	" " " "		165	4.1	677
402830	DH EN Black EL		550	4.3	2365
402840	" " "		275	4.3	1183
"	" " Chevron Blue		275	4.2	1155
400220	A Amoco Blue EN EL		110	3.8	418
"	" " " "		110	3.8	418
"	" " " "		110	3.8	418

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (lb/gal)	V.O.C (lb)
Mobil	409070	DH EN Black KL	550	4.3	2365
	"	" " Chevron Blue	55	4.2	231
	"	DK EN New Chevron Blue	275	4.2	1155
	413800	DH EN Black KL	275	4.3	1183
	"	" " Fina Blue	110	4.1	451
	418940	SEMI Gloss TEX GRN EN	110	4.1	451
	"	DH EN Gulf Blue	110	4.1	451
	"	DH EN Black KL	275	4.3	1183
	418970	DN Chevron 370 Blue	275	4.1	1128
	"	Spray EN SSC1 #41	165	4.1	677
	"	DH EN SSC1 #41 White	110	4.0	440
	"	" " " "	41	4.0	164
	424020	DH EN Black KL	55	4.3	237
	422470	" " " "	275	4.3	1183
	424050	DN Chevron 370 Blue	275	4.1	1129
	424100	DH EN Black KL	275	4.3	1183
	"	" " PG Light Blue	55	4.1	226
	"	" " Gulf Blue	55	4.1	226
	"	SEMI Gloss TEX GRN EN	110	4.1	451
	"	" " " GRN "	50	4.1	205
	433110	DH EN Black KL	110	4.3	473
	433100	" " "	550	4.3	2365
	454580	DH EN Gulf Blue	55	4.1	226
	"	" " " ORG	55	4.0	200
	"	DEN Chevron 370 Blue	275	4.1	1129
	"	DH EN Chevron YEL	55	4.1	226
	"	AMOCO Blue EN KL	110	3.8	418
	433580	DEN Chevron 370 Blue	330	4.1	1353
	426520	" " " "	275	4.1	1129

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lb)
Mobil	444470	DM EN PG Light Blue	45	4.1	185
	"	" " Gulf OKG	55	4.0	220
	"	" " Black RL	110	4.3	473
	454570	" " " "	165	4.3	710
	454620	SEMI Gloss TEX GRY EN	110	4.1	451
	454560	DEN Chevron 370 Blue	275	4.1	1128
	"	DM EN Fina Blue	110	4.1	451
	456360	DM EN IE Light Blue	110	4.1	451
	451700	SEMI Gloss TEX GRY EN	220	4.1	902
	4610006	Chevron BL	550	4.1	2255
	4610007	DII Black	220	4.3	946
	"	SSCL 41 White	55	4.0	220
	4610005	SG TEX GRY	45	4.1	185
	"	" " "	110	4.1	451
	4610004	EN Brown	110	4.1	451
	4610010	Chevron BL	550	4.1	2255
	"	PG LT BL	110	4.1	451
	"	Shell Red	110	4.2	462
	"	AD Amoco BL	110	3.8	418
	"	Drum Black	275	4.3	1183
	4066874	Texaco GRY	220	4.2	924
			25,896 gal		107,993 lbs

Average Weight 7.762 lb/gal

7.762 lb/gal X 25,896 gal = 200072.5 lbs

54 Tons

Year 1983 For Liquid

...idon	Invoice #	Name of Liner	Quantity (gal)	V.O.C (lb/gal)	V.O.C ...
Della Laboratories	3959	Clear Soluble Liner	55	4.84	266
Dozier & Gray	3883	Brown Citrus Red	500	4.84	2420
	5486	Brown Citrus Liner	450	4.5	2025
	"	" " "	30	4.5	135
	3166	Brown Liner Red	450	4.84	2178
	"	" " "	40	4.84	194
	2666	Citrus Brown Lining	500	4.5	2250
	3611	" " "	450	4.5	2025
	"	" " "	30	4.5	135
	4684	Brown Liner Red	450	4.84	2178
	9058	Citrus Brown Lining	500	4.5	2250
K.M.S. Companies	5476	L-15 DK. Brown Rhom/Co	275	4.84	1331
	5368	" " "	220	4.84	1065
	5601	" " "	220	4.84	1065
	5670	" " "	220	4.84	1065
	5702	" " "	165	4.84	799
	"	" " "	55	4.84	266
	5766	" " "	330	4.84	1597
	5428	" " "	220	4.84	1065
	5421	" " "	220	4.84	1065
	5332	" " "	220	4.84	1065
	5316	" " "	275	4.84	1331
	5324	" " "	220	4.84	1065
	5262	" " "	220	4.84	1065
	5210	" " "	220	4.84	1065

Vendor	Invoice #	Name of Liner	Qty	Price	(lb)
K.V.S. Corp.	5159	L-15 Dk. Brown Plain Liner	220	4.84	1065
	5100	" " " "	220	4.84	1065
	5140	" " " "	220	4.84	1065
Mobil Chem. Co.	195590	Brown Liner Lid	550	4.84	2662
	346120	" " "	275	4.84	1331
	260610	" " "	550	4.84	2662
	334150	" " "	550	4.84	2662
	292790	" " "	275	4.84	1331
	204360	" " "	550	4.84	2662
Southern Containers	230121	Red Brown Liner	275	4.84	1331
	232233	" " "	275	4.84	1331
	228338	" " "	275	4.84	1331
	228878	" " "	275	4.84	1331
	229218	" " "	275	4.84	1331
	229595	" " "	275	4.84	1331
	231810	" " "	220	4.84	1065
	"	" " "	40	4.84	194
			11,855		56,705

Vendor	Invoice #	Name of Lining	(Bbl)	($/Bbl)	($)
D'Ia Pa.L.	4138	Clear Soluble Liner	55	4.84	266
Dozier & Co.	10196	Citrus Liner Red	250	4.5	1125
K.M.S. Corp.	5797	L-15 DK. Brown Plas/Co.	275	4.84	1331
	5864	" "	275	4.84	1331
	5913	" "	275	4.84	1331
	5952	" "	275	4.84	1331
	5996	" "	275	4.84	1331
	6044	" "	275	4.84	1331
	6080	" "	220	4.84	1065
	6081	" "	55	4.84	266
	6146	" "	275	4.84	1331
	6240	" "	275	4.84	1331
	6300	" "	275	4.84	1331
	6333	" "	550	4.84	2662
Mobil Compa	355990	Drum Liner Red	550	4.84	2662
	350460	" " "	275	4.84	1331
	378330	" " "	275	4.84	1331
	384090	" " "	110	4.84	532
	384100	" " "	165	4.84	799
	388090	" " "	275	4.84	1331
	402820	" " "	275	4.84	1331
	402840	" " "	220	4.84	1065
	"	" " "	20	4.84	97
Southern Oil Co.	232660	Red Drum Liner	275	4.84	1331

Vendor	Invoice #	Name & Lines	Qty	V.O.C (lb/gal)	V.O.C (lbs)
Southern Coating	232979	Red Brown Lines	165	4.84	799
	231088	" " "	275	4.84	1331
	234917	" " "	220	4.84	1065
	"	" " "	46	4.84	223
	236772	" " "	330	4.84	1597
			7081		34,857

Vendor	Invoice #	D. A (gal)	M.C.K (gal)
Industrial	28526	55	220
Chemical	26514	55	220
	35144	110	220
	32166	110	—
	35046	—	220
	32443	55	—
	31002	110	—
	30556	55	165
	29606	110	220
	30076	110	—
	28465	55	—
	27150	55	—

For 1984 Solvents

Appalachian chemicals	227119	—	165
Industrial chem	35236	110	220
	35430	55	110
	39411	55	—
	39461	110	—
	39476	55	—
	41521	55	165
	41796	110	165
	43578	165	—
	43639	—	165
	48128	—	165
	48259	—	165

FON

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Isopropyl Alcohol

Vendor	Invoice #	Quantity (gal)	V.O.C (lbs/gal)	V.O.C (lbs)
[redacted] Chemical	28526	55	7.82	430
	26514	55	7.82	430
	35144	110	7.82	860
	32166	110	7.82	860
	32443	55	7.82	430
	31002	110	7.82	860
	30556	55	7.82	430
	29606	110	7.82	860
	30076	110	7.82	860
	28465	55	7.82	430
	27150	55	7.82	430
		880 (gallons)		6880 (lbs)

Methyl Ethyl Ketone

Vendor	Invoice #	Quantity (gal)	V.O.C (lbs/gal)	V.O.C (lbs)
Industrial Chemical	28526	220	6.73	1480
	26514	220	6.73	1480
	35144	220	6.73	1480
	35046	220	6.73	1480
	30556	165	6.73	1110
	29606	220	6.73	1480
		1265 (gal)		8510 (lbs)

Diacetone Alcohol

Vendor	Invoice #	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
[redacted] Chemical	35236	110	7.82	860
	35430	55	7.82	430
	39411	55	7.82	430
	39461	110	7.82	860
	39476	55	7.82	430
	41521	55	7.82	430
	41796	110	7.82	860
	43588	165	7.82	1290
		715		5590 (lbs)

Methyl Ethyl Ketone

Vendor	Invoice #	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
[redacted] Chemical	227119	165	6.73	1110
Industrial Chemical	35236	220	6.73	1480
	35430	110	6.73	740
	41521	165	6.73	1110
	41796	165	6.73	1110
	43639	165	6.73	1110
	48128	165	6.73	1110
	48259	165	6.73	1110
		1320		8880 (lbs)

DRUM SERVICE CO. OF FLORIDA
P.O. BOX 278
ZELLWOOD, FLORIDA

EQUIPMENT SPECIFICATION
THERMAL OXIDIZER (AFTERBURNER)/WASTE HEAT BOILER

A. GENERAL SYSTEM DESCRIPTION

Propane fired thermal oxidizer with a waste heat boiler, fan, refractory lined transition ducting, control panel and support platform.

B. THERMAL OXIDIZER (AFTERBURNER)

Performance: Raise 8500 SCFM of effluent from approximately 850°F to 1500°F.

Retention Time: .5 seconds.

Burner: 4 Eclipse NM128, 2.2 million BTU each at 14" W.C. with combustion air blower.

Construction: ASTM A-36 all welded 3/16 HRP shell lined with 5" thick litecrete 90 castable refractory secured with stainless steel anchors and complete with access doors, sight ports and test ports.

Gas Train: Pilot and main trains in accordance with Factory Mutual insurance requirements including:

- Modulating gas control valve
- Hydromotor gas valve with proof of closure switch
- High and low gas pressure switches
- Pilot regulator and solenoid valve
- Main gas pressure regulator
- Pressure gauge

C. FAN

Twin Cities Model 914RBO radial blade, self cleaning class III, rated at 8000 SCFM at 8" static complete with 50 H.P., 3 Ph., 230/460 VAC motor with belt drive, OSHA approved guard and high temperature limit.

D. TRANSITION DUCTING

Furnace-to-afterburner and afterburner-to-Waste Heat Boiler:

ASTM A-36 shell lined with 4" litecrete 90 castable refractory secured with stainless steel anchors.

E. CONTROL PANEL

Nema 12 enclosure with Fireye flame safeguard system, modulating temperature controller, high limit temperature control, manual over ride, alarm silence, indicating lights and switches.

F. SUPPORT STRUCTURE

Designed to requirements of local Building & Safety Code.

G. WASTE HEAT BOILER

Eclipse 7HR 250 H.P. (Max. 400 H.P.), 250 PSI waste heat boiler complete with all equipment necessary for its operation including:

. Low water cutoff and pump control.

. Low-low water cutoff.

. Safety valves.

. Blow down valves.

. Steam stop valves.

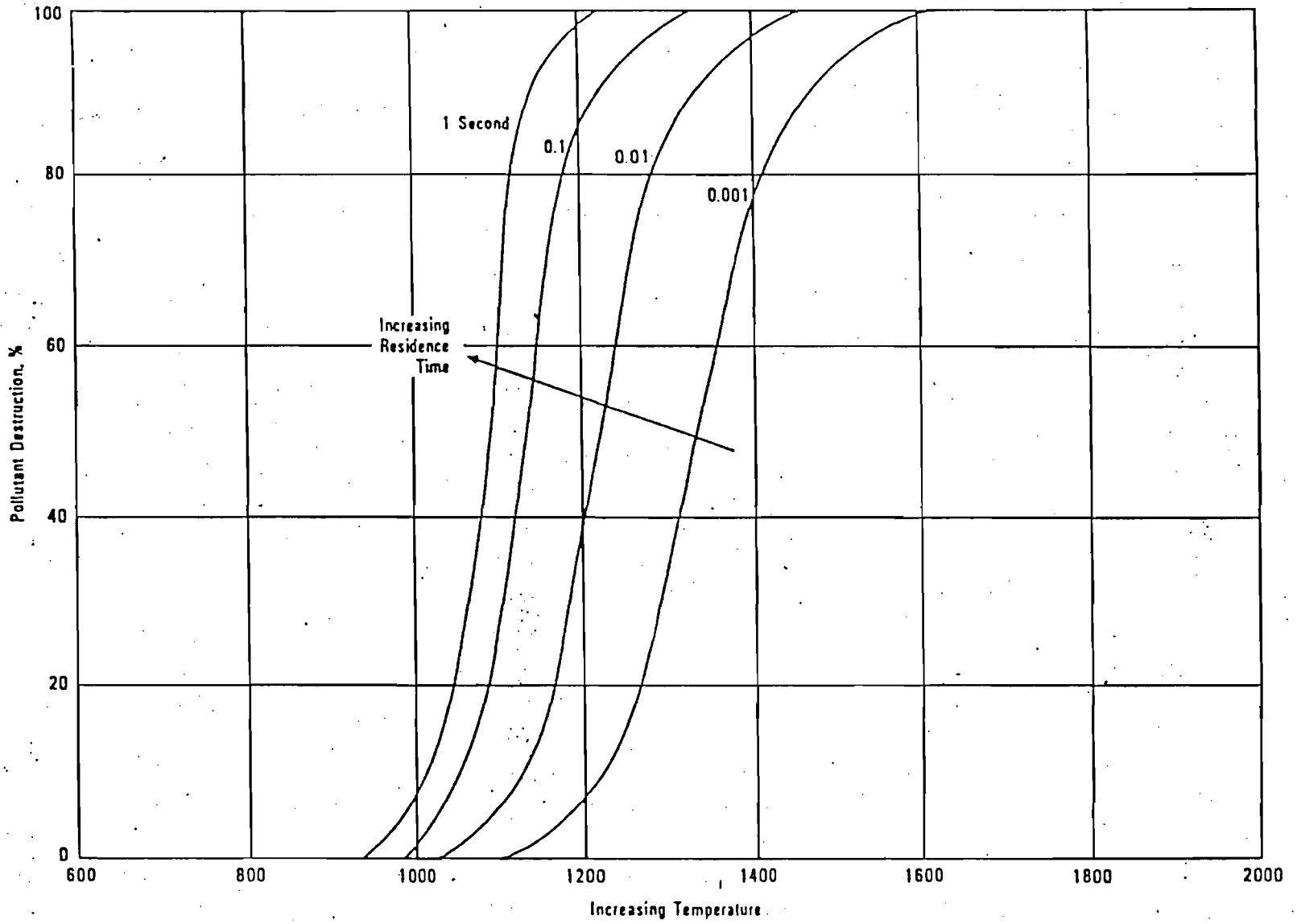
. Make up tank with feed pumps.

. Blow down tank.

. Temperature gauge.

. Superior water softener, dual system with automatic regeneration.

. Hays-Republic steam flow meter complete with orifice flanges and recorder.



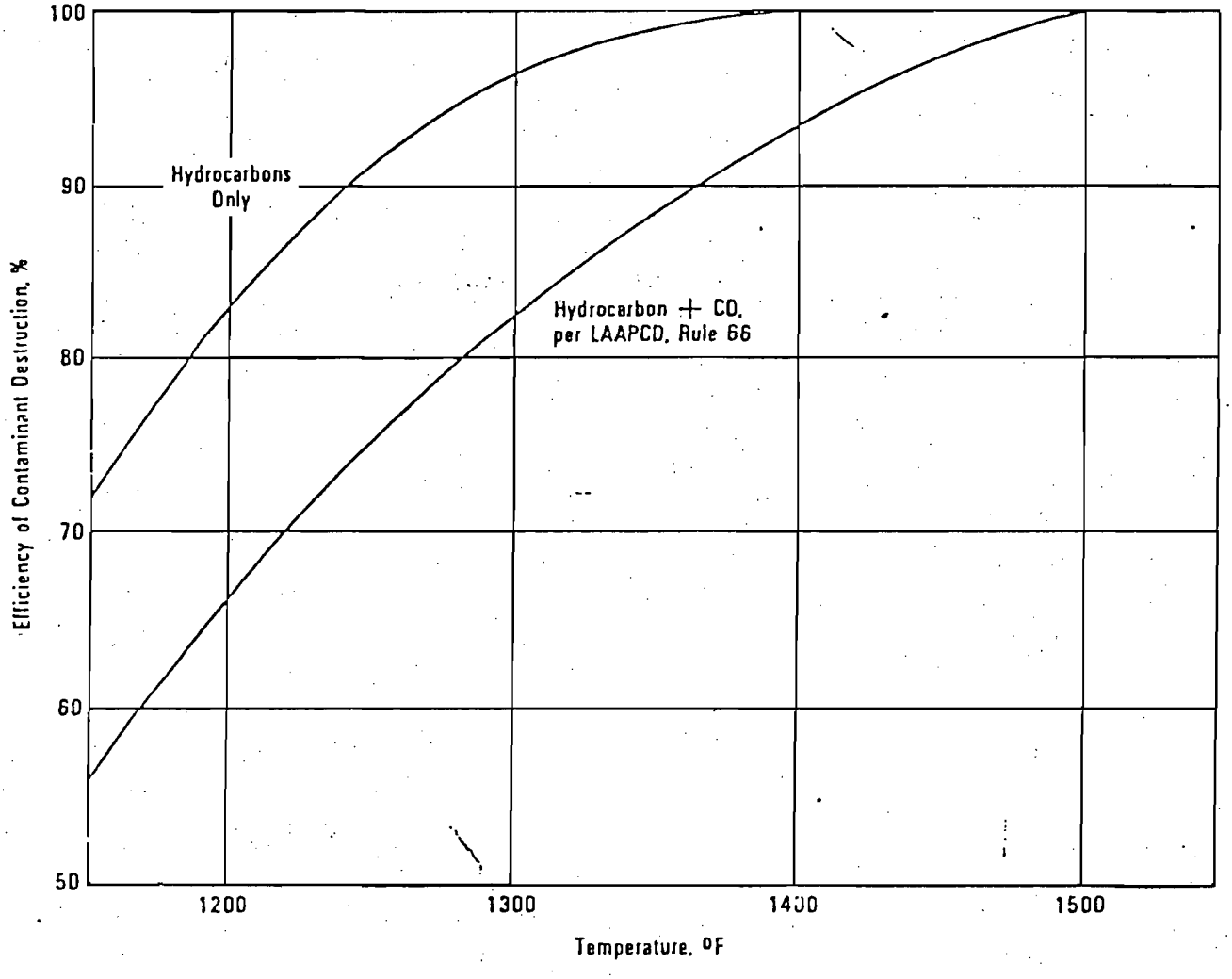
Source: *Afterburner Systems Study*, Shell Development Company, 1972.

Figure 1. Coupled Effects of Temperature and Time on Rate of Pollutant Oxidation

FROM: CONTROLLING POLLUTION FROM THE MANUFACTURING AND COATING OF METAL PRODUCTS. I. METAL COATING AIR POLLUTION CONTROL.

In cases where c on monoxide formation in the inc. ator is deducted from the unit's efficiency, such as under Rule 66 of the Southern California Air Pollution Control District referred to earlier, significantly higher time/temperature units are required to achieve a given efficiency. This principle is illustrated in Figure 2. The combustion of organic carbon to carbon dioxide is a two-stage reaction: the first stage of oxidation to CO involves a relatively high-heat release and proceeds rapidly. The second stage, further oxidation to CO_2, gives off less heat and is therefore an inherently slower reaction.

The zone of combustion consists of a region of rising temperature followed by a dwell region with an essentially constant temperature. The design residence time of 0.3 or more seconds should apply to the reaction zone only, with additional volume provided for initial combustion and mixing. Insufficient combustion chamber volume is probably the most significant design flaw in units that fail to meet performance expectations.



Source: *Afterburner Systems Study*, Shell Development Company, 1972.

Figure 2. Typical Effect of Operating Temperature on Effectiveness of Thermal Afterburner for Destruction of Hydrocarbons and CO

DRUM SERVICE
OF FLORIDA

DIRECT FLAME THERMAL OXIDIZER
DESIGN CALCULATIONS

GIVEN:

1. Source of contaminates - drum furnace & spray booth.
2. Effluent air volume - 8500 SCFM.
3. Effluent air temperature at thermal oxidizer inlet - 800°F.

PROBLEM:

Determine thermal oxidizer dimensions, burner type, burner input, and operating temperature in accordance with requirements of EPA, AP-40.

1. Burner selection:
   Four Eclipse 128NM burners.
2. Temperature selection:
   Given 1500°F.
3. Burner capacity:
   (a) Net heat required to raise the effluent to 1500°F.
   Assumed properties of air
   Enthalpy @ 1500°F = 28.4 BTU/SCF
   Enthalpy @ 800°F = 14.07 BTU/SCF
   Net enthalpy = 14.33

   $Q = W\Delta H$
   $= 8500 \times 60 \times 14.33$
   $= 7{,}308{,}300$ BTU/Hr.

   (b) Propane input required:
   $$\frac{7{,}308{,}300}{2316 \text{ BTU/Ft}^3} = 3099 \text{ Ft}^3\text{/Hr.}$$
4. Combustion chamber size:
   Volume of gases in afterburner = 8500 SCFM
   Volume of gases @ 1500°F (1960R)
   $$\frac{(8500)\ (1960)}{(60)\ (520)} = 534 \text{ CFS}$$

(a) Diameter of afterburner:

Assume velocity @ fps

Afterburner cross section $= \frac{534}{30} = 17.8\ Ft^2$

Diameter $= \sqrt{\frac{17.8}{.785}} = 4.76' = 57"$ Dia.

5. Combustion chamber length:

Assume .5 sec. retention

Length = .5 x 30 = 15' min.

DESIGN SUMMARY

Burner type - Four Eclipse 128NM (Capacity 2.2 million BTU/Burner)

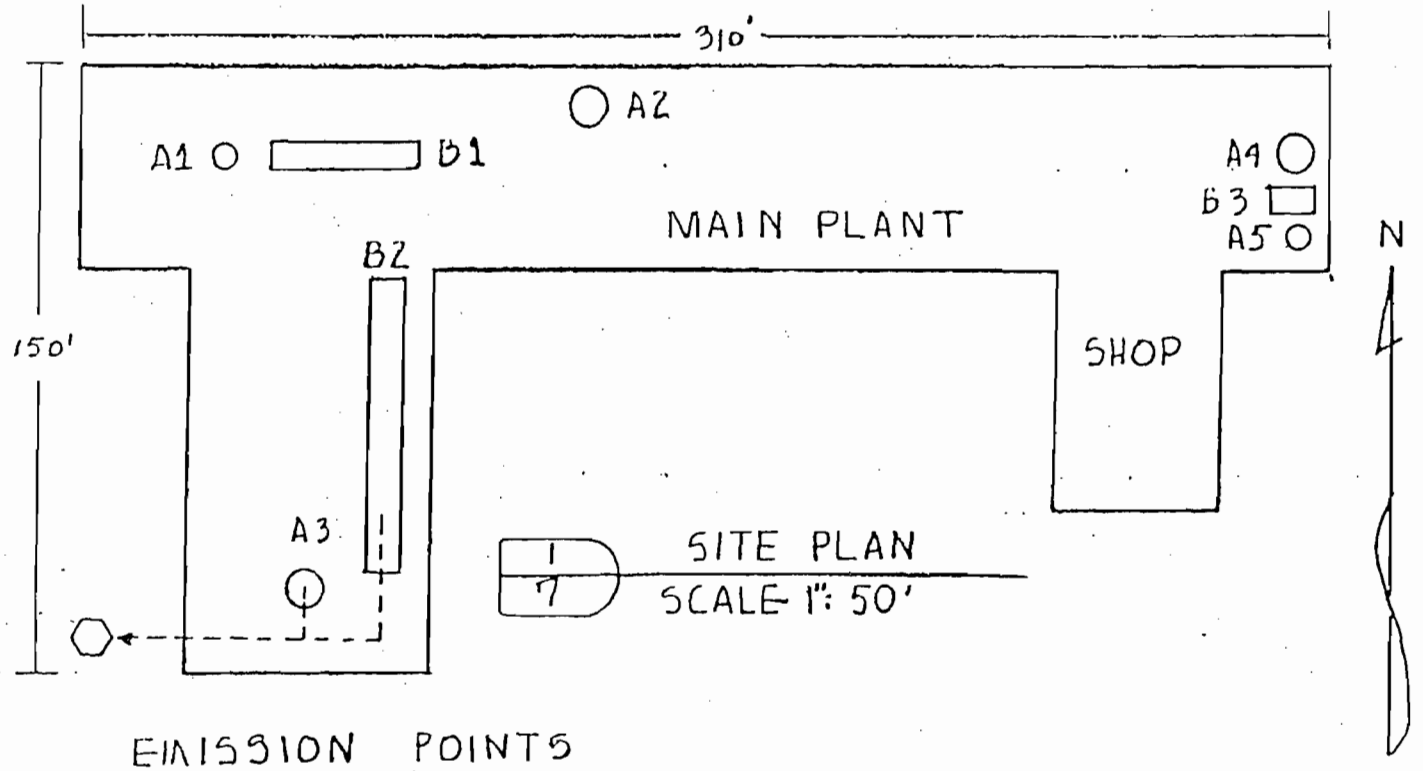
Afterburner Temp. - 1500°F

Burner Input - 7,308,300 BTU/Hr.

Afterburner Dia. - 57'

Afterburner Length - 15'

EXHIBIT 6



EMISSION POINTS

"A" APPLICATION POINTS

1. TIGHT HEAD DRUM EXTERIOR PAINT BOOTH
2. OPEN HEAD DRUM EXTERIOR PAINT BOOTH
3. OPEN HEAD DRUM INTERIOR LINING BOOTH
4. OPEN HEAD COVERS EXTERIOR PAINT BOOTH
5. OPEN HEAD COVERS INTERIOR LINING BOOTH

"B" OVENS

1. TIGHT HEAD DRUM DRYING OVEN
2. OPEN HEAD DRUM LINING DRYING OVEN
3. OPEN COVER LINING DRYING OVEN

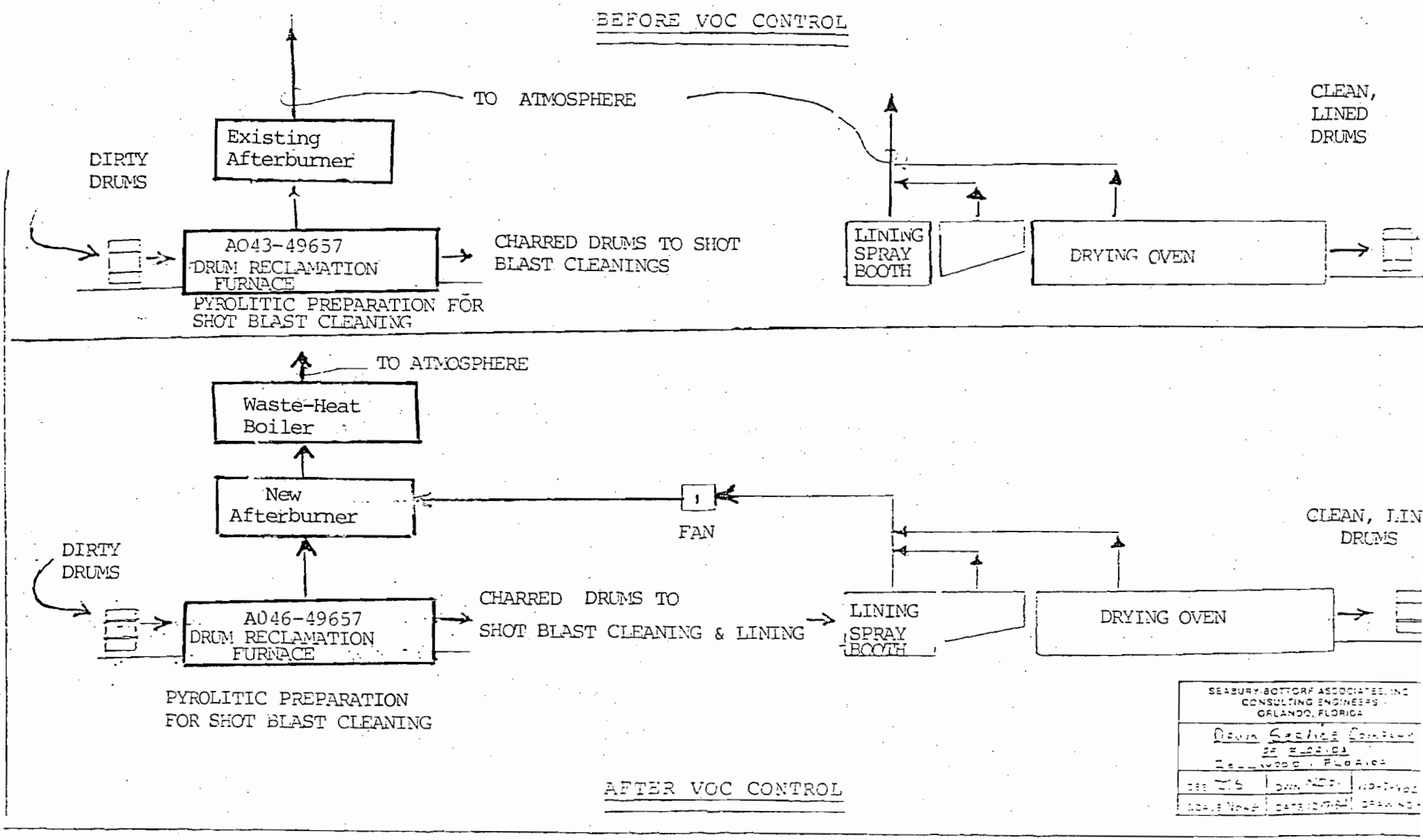
⬡ DENOTES PROPOSED INCINERATOR LOCATION

PLANT LAYOUT

SEABURY-BOTTORF ASSOCIATES, INC. CONSULTING ENGINEERS ORLANDO, FLORIDA	
DRUM SERVICE CO. OF FLORIDA ZELLWOOD, FLORIDA	
DES. JWS	DWN. NDS
SCALE NOTED	DATE 7-3-84
DRAWING NO. 110-7-VOC 1	

Figure 1-1

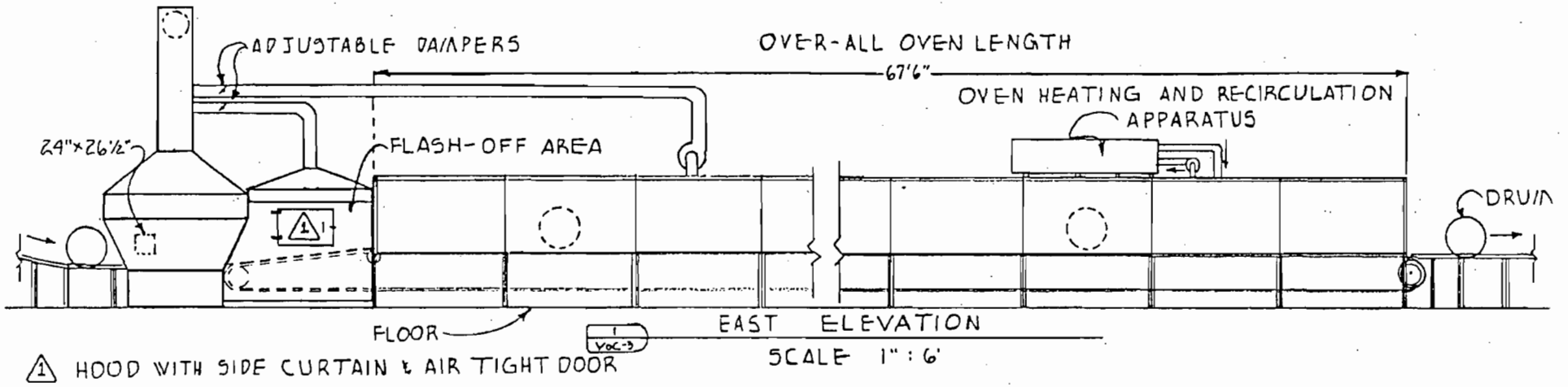
SCHEMATIC FLOW DIAGRAM



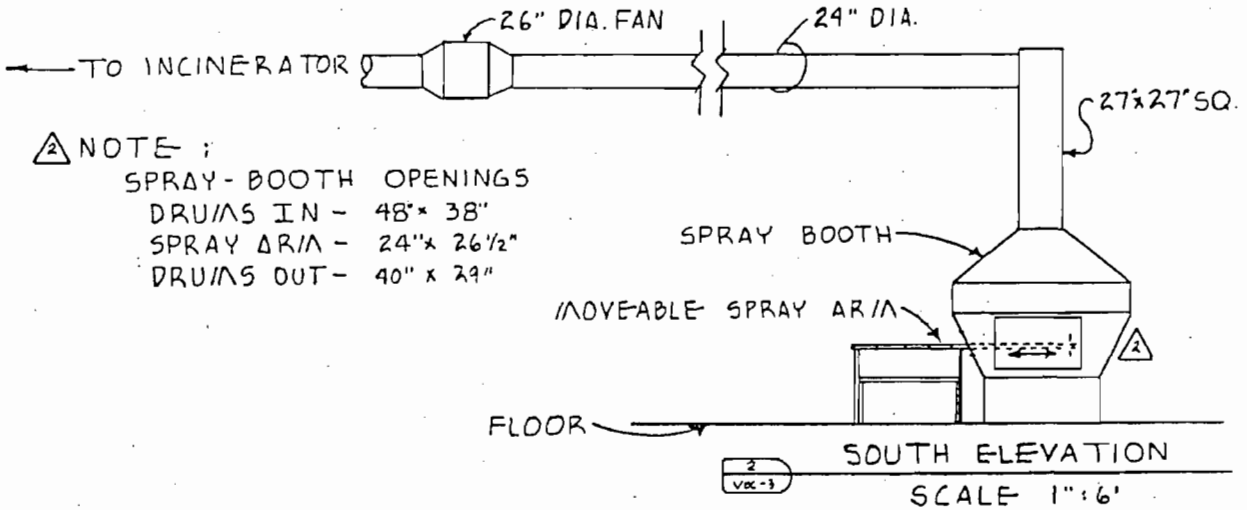
SEABURY-BOTTORF ASSOCIATES, INC.
CONSULTING ENGINEERS
ORLANDO, FLORIDA

Design Service Company
of Florida
Hollywood, Florida

EXHIBIT 8



1 HOOD WITH SIDE CURTAIN & AIR TIGHT DOOR



2 NOTE :
SPRAY-BOOTH OPENINGS
DRUMS IN - 48" x 38"
SPRAY ARM - 24" x 26½"
DRUMS OUT - 40" x 29"

COLLECTION SYSTEM AND DUCTWORK

SEABURY-BOTTORF ASSOCIATES, INC.
CONSULTING ENGINEERS
ORLANDO, FLORIDA

DRUM SERVICE CO. OF FLORIDA
ZELLWOOD, FLORIDA

DES. J.W.S.	DWN. N.P.S.	110-7 VOC-3
SCALE 1" : 6"	DATE 7-3-89	DRAWING NO

DRUM SERVICE CO. OF FLORIDA

POST OFFICE BOX 278
ZELLWOOD, FLORIDA 32798
PHONE AREA 305 — 889-2581

April 9, 1985

Frank Cross, P.E.
Cross-Tessitore, Inc.
4759 S. Conway Road
Orlando, FL 32812

Dear Frank:

Pursuant to your request, I am enclosing copies of paint, lining, and solvent invoices representing purchases made over the two year calendar period, 1983-1984. Total gallons purchased for the two years are as follows:

		Solvents	
Paint	Lining	MEK & Diacetone Alcohol	Toluol
55,135	18,936	4,180	825

Production figures for the same period are as follows (Note: these follow the same format and assumptions as in Exhibit 4, Part II of our initial application):

Booth	Application	Quantity	Notes
A.1.	Tight Head Drum Exteriors	350,489	(1)
A.2.	Open Head Drum Exteriors	537,396	(1)
A.3.	Open Head Drum Interiors	494,404	(2)
A.4.	Open Head Covers Exteriors	537,396	(1)
A.5.	Open Head Covers Interiors	494,404	(2)

Notes:

(1) Represents 100% of production.

(2) Not all drums run on open head line are lined internally; some are shipped unlined. Calendar year 1983-84 production estimated at 92% lined, 8% unlined.

Per our discussion, please note that these two years' purchases and production figures are calendar years; our original application covered one fiscal year (11/1/82 - 10/31/83). A calendar year summary of purchases was much easier since our bills are kept by calendar year. Both of us may have overlooked the difference at our meeting, but I am trusting it will create no problems for the approach to DER you described to me. Also, by using these calendar years, we an get the most recent year's activity (1984) into our figures.

Note also that there are other paint and lining suppliers shown besides Mobil and KNS (the only two shown on the application). In all cases, the VOC characteristics of substitute paint and lining products from other suppliers should be similar to those reported by Mobil and KNS. John and I felt it would be sufficient to use Mobil and KNS data for the full range of products we purchase since we had product data sheets for these. More data sheets (from substitute suppliers) seemed to entail unnecessary extra work. Also, note that Mobil Chemical was acquired by and became part of Valspar Corporation in 1984.

The solvent purchases are broken down into two categories: "MEK and Diacetone Alcohol", and "Toluol". This is necessary because of the way we reported the VOC characteristics of "#1 Lining" (L-15, supplied by KNS). This requires a bit of explanation:

My letter of December 13, 1984 to C. H. Fancy of DER (answer #2, page 3) reported:

> Coatings are received in ready-to-spray condition and are used directly from the drum except for #1 lining and in very cold weather when a small but indeterminate amount of diacetone alcohol or toluol is added for reduction (viscosity control) purposes.

Note:

1. This paragraph was poorly written. In fact, there are two reductions involved, for different purposes; we tried to cover both in one sentence. It isn't clear from the whole paragraph that:

   a. Diacetone alcohol is added to #1 lining because it is not bought in "ready-to-spray" condition (rather, we purchase it in "concentrated" form); and

   b. Toluol is added to exterior paints in cold weather when viscosities become a problem.

2. In addition to diacetone alcohol, MEK is used to prepare concentrated #1 lining to ready-to-spray condition. We overlooked this in the letter; both solvents are needed to prepare concentrated L-15.

The Product Data Sheet used in the application (Exhibit 3) for KNS L-15 #1 lining is for a "ready-to-spray" material. I felt it would be misleading to send in a data sheet for the concentrated product we bought, since so much solvent is added to it (unless, of course, I went back through all the files and dragged out solvent purchases, which work I had hoped to avoid). Since our approach in the original application was to deal with the emissions from the products as applied at the spray booth, the emissions data (VOC content) of the reported L-15 #1 lining was correct, since those are the parameters to which we reduce the concentrated product purchased when preparing it for spraying. However, as I understand your approach to DER, you should not count the diacetone alcohol and MEK purchases since the reported data on the KNS lining (i.e., ready-to-spray) already includes them.

I haven't had time to get a new data sheet for concentrated L-15, but if you must have it you can probably get the information over the phone by calling John Browning of KNS at 312-665-9010. Naturally, a data sheet for concentrated L-15 along with our actual MEK and diacetone alcohol purchases, should theoretically yield the same VOC data as the ready-to-spray L-15 data sheet submitted.

My final note is an enormous caveat about the value of the paint, lining and solvent purchases here recorded. Again I wish to list several severe qualifications to any correlation with any VOC emissions data calculated from these figures.

1. At the beginning of the period, a certain amount of paint was on hand in the form of inventory, which obviously got used up during the year. We don't have exact counts of this.

2. The same is obviously true at the end of the period: much of the paint purchased during the last several weeks of the year would not have been used by the end of the year, but was still on hand, unopened, and therefore should not properly be counted in consumption figures for that year.

3. From time to time, colors are discontinued and the paint, if not suitable for rework into other colors, is discarded. There is no data at all on the volumes involved here, only estimates, but these can be substantial.

4. The same is true on bad paint: for a variety of reasons, paint gets stale and unusable, and is discarded. There is no exact data for this, but we had an especially difficult year with bad paint in 1983.

5. We have certain non-application usages for paint, primarily supplying "touch-up paint" to customers who use it to cover small scratches in the drums due to transportation marring. Likewise, we have no figures on this.

6. Paint is not purchased in an even, "one-to-one" ratio with drum production. To reduce freight costs and achieve lowest possible per gallon prices, orders are sometimes bunched into very large quantities on a single order at one time. Thus there is no meaningful ratio that can be established between monthly purchases and monthly production.

7. Not all paint and lining is emptied from each container. (The fact that there is some residue in every "empty" drum is the raison d'etre for the whole drum reconditioning industry.) As you know, an "empty" drum can have up to 1" of residue; this is approximately 2.9% of the contents. Actually, we make every effort to truly empty the drum, and our experience is nowhere near one inch, but there is still some residue which must be subtracted from every 55 gallons purchased.

Please contact us after you have formulated an approach to Mr. Thomas at DER.

Very truly yours,

DRUM SERVICE CO. OF FLORIDA

J. M. Murphy

cc: Roger D. Schwenke, Esq.

DRUM SERVICE COMPANY OF FLORIDA

VOC EMISSION INVENTORY STUDY

MAY 7, 1985

CROSS/TESSITORE & ASSOCIATES, P.A.
4759 SOUTH CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812

(305) 851-1484

DRUM SERVICE COMPANY OF FLORIDA

VOC Emissions Inventory, and Study Assumptions and Guidelines

(1) All VOC potential emissions based on actual purchase for calendar years 1983 and 1984. Purchases include all paints, liners, thinners, and solvents for the above years.

(2) VOC potential emissions based on manufacturer's data and/or product sheet for each individual type of product.

Example: Drum Enamel Shell Red VOC = 4.18 lb/gal.

Drum Enamel Texaco Green VOC = 4.20 lb/gal.

(3) All Toluol is used to thin external coating paints.

(4) All MEK and Diacetone is used to thin L-15 concentrated lining.

(5) All emissions uncontrolled except for Open Head Drum Interior Line (A3, B2).

(6) Above controlled emissions based on 90% VOC capture efficiency and 95% thermal destruction @1500°F.

Drum Service, Inc.

Potential Emissions

Coating Type	1983		1984	
	Gal/Yr	VOC Lb/Yr	Gal/Yr	VOC Lb/Yr
Exterior Paints	29,455	123,924	25,896	107,993
Lining	11,855	56,705	7,081	32,857
MEK	1,265	8,510	1,320	8,880
Diacetone	883	6,880	715	5,590
Toluol	495	3,208	330	2,138
Total		199,227		157,458

Average 178,343 Lb/Yr

89.2 Ton/Yr

Calculation of Allowable Emissions

Exterior Paints

(29,455 + 25,896)(gal/yr) x (3.5 lb VOC/gal) = 193,729 lb.

Toluol (Used only in Exterior Paints)

(495 + 330)(gal/yr) x (3.5 lb VOC/gal) = 2,888 lb.

Lining

(11,855 + 7081)(gal/yr) x (4.3 lb VOC/gal) = 81,425 lb.

Solvents (Used in Lining)

(2148 + 2035)(gal/yr) x (4.3 lb VOC/gal) = 17,987 lb.

Total 296,029 lb

Average (1983 and 1984) = 148,015 lb/yr

74.0 Ton/yr

Actual Emissions

Exterior Paint and Toluol (Emission Points, A1, B1, A2, and A4)

(123,924 + 3,208 + 107,993 + 2,138) = 237,263 lbs.

Lining, MEK, and Diacetone

(56,705 + 8,510 + 6,880 + 32,857 + 8,880 + 5,590)

= 119,422 lbs.

*14% VOC Uncontrolled (Emission Points

A5, B3) = 16,719 lbs.

86% VOC Controlled (Emission Points A3, B2)

Assume 90% Capture (119,422-16,719)

x(0.10) = 10,270 lbs.

For VOC captured, assume 95% destruction

(119,422-16,719-10,270)(0.05) = 4,622 lbs.

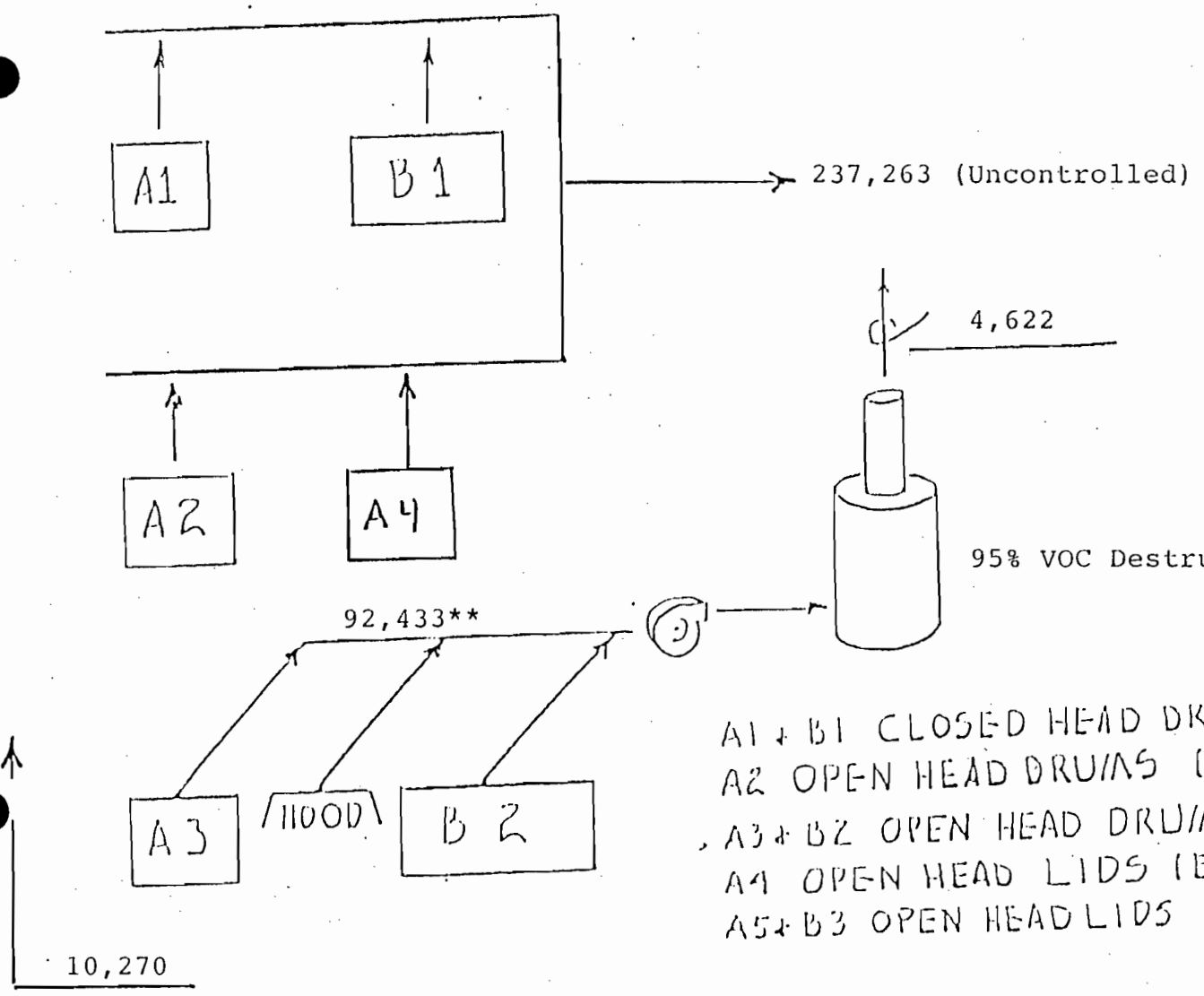
Total Emissions = 268,875 lbs.

Average Emissions = 134,437 lb/yr

67.2 Tons/yr

*Lid lining only and lids are 14% of drum interior area.

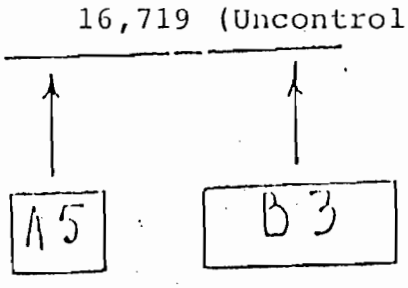
VOC EMISSION POINT SUMMARY (LBS)*



**Assumes 90% VOC Capture Efficiency

*Total Emission for 1983 and 1984

Average Annual Emissions = 67.2 Tons/Yr

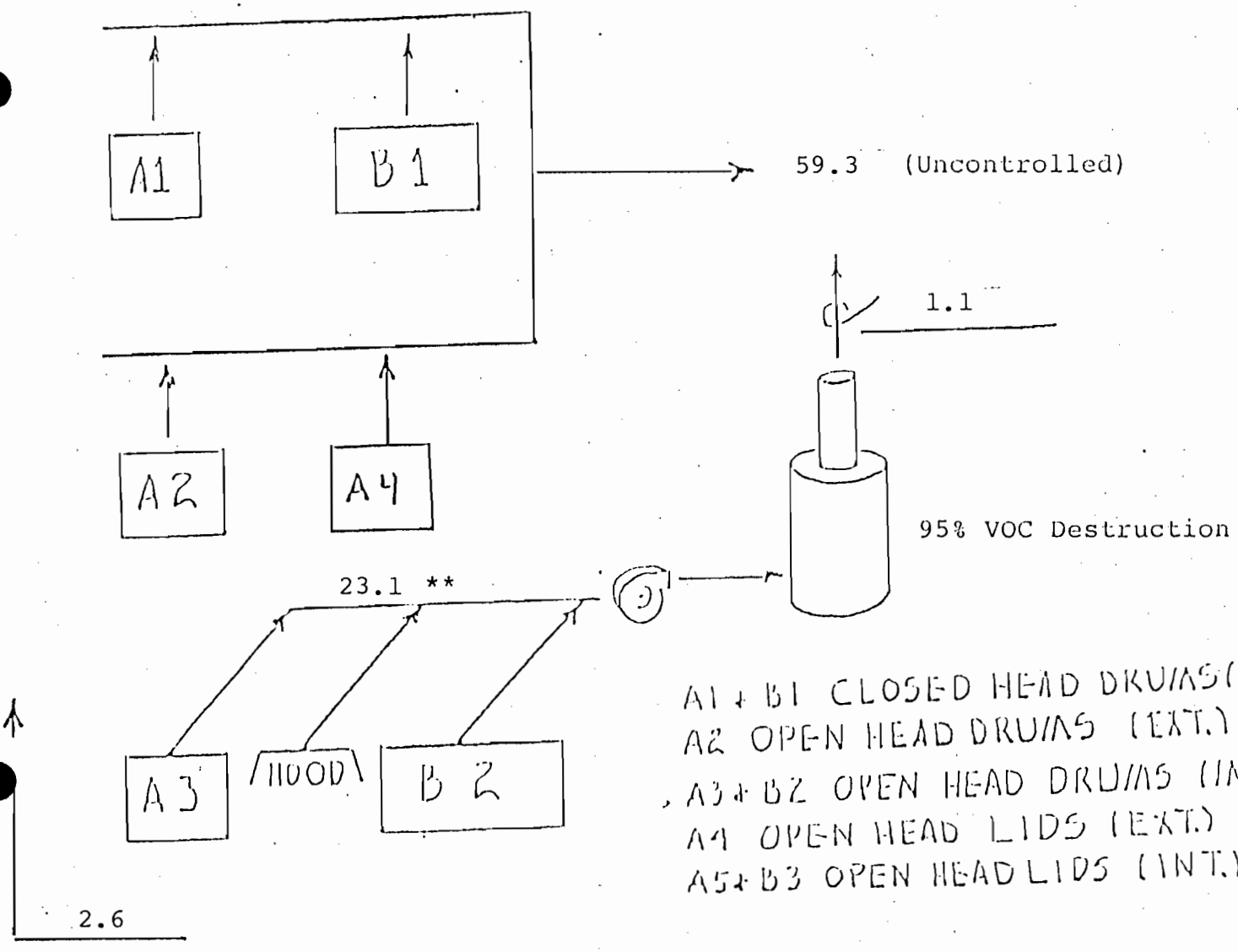


VOC Emission Inventory Summary*

	Tons/Year
Potential Emissions	89.2
Allowable Emissions	74.0
Actual Emissions	67.2

*Based on paint, liner, thinner, and solvent purchases for calendar years 1983 and 1984.

ACTUAL VOC EMISSION POINT SUMMARY (lbs/hr)*



A1 + B1 CLOSED HEAD DRUMS (EXT.)
A2 OPEN HEAD DRUMS (EXT.)
A3 + B2 OPEN HEAD DRUMS (INT.)
A4 OPEN HEAD LIDS (EXT.)
A5 + B3 OPEN HEAD LIDS (INT.)

*VOC Emissions from Coating Operations (Does not include propane combustion)

**Assumes 90% VOC Capture Efficiency

Average Annual Emissions = 67.2 Tons/Yr

EXHIBIT 11

EXHIBIT 11

VERIFICATION OF CONTROLLED VS. UNCONTROLLED VOC EMISSION RATIO - INVENTORY CONTROL

In order for the Florida Department of Environmental Regulation to have assurance that overall emissions remain within proposed/allowable limits, it will be necessary to demonstrate on a continuing basis the use and disposition of all VOC material received.

To this end a complete inventory and reporting system is proposed to account for each shipment of paint or lining material received, as well as utilization and record of exit.

The inventory system will include coating stock and solvent on hand at beginning and end of each reporting period as well as the amounts of each purchased during the period.

Tally sheets for production foremen will be arranged for easy check-off of each category of utilization with predetermination of emission potential of each category to allow easy summation.

In order to minimize overlap and to promote orderly development of meaningful data, the manner of gathering subtotal information by daily, by weekly, or by individual production runs should be left to the discretion of Drum Service Co. of Florida's Management.

It is a fortunate necessity that drum lining is always prior to exterior coating (to minimize handling damage to finish).

Due to storage limitations inherent to the bulky nature of 55 gallon drums, no significant delays of production are possible between interior lining (controlled emission) and exterior painting (uncontrolled emission). With the exception of in-process malfunctions causing need for repair, retouch, or scrapping, the entire process is on an assembly line basis with only a few minutes between stages.

It would be acceptable to Drum Service Co. of Florida if a permit condition should require that 97% of drums lined be painted within 24 hours.

The following three sample inventory sheets include all basic data necessary to arrive at the appropriate totals from which emissions can be determined.

These sheets should be regarded as outline only; in actual use, multiple entry will be necessary to account for the item to item variation of VOC content.

DRUM SERVICE CO. OF FLORIDA

PAINT AND SOLVENT INVENTORY AND

REPORTING CONTROL

DER PERMIT #_____ VOC CONTROL, PAINT SPRAYING SYSTEM

	EXTERIOR PAINT	INTERIOR LINING	SOLVENTS
I. MATERIAL ON HAND AT BEGINNING OF PERIOD DATE_____			
[NOTE: Same figures as in Item III from previous report]	_____GALLONS	_____GALLONS	_____GALLONS
ADD:			
II. PURCHASES DURING PERIOD:	_____GALLONS	_____GALLONS	_____GALLONS
TOTAL TOTAL	_____GALLONS	_____GALLONS	_____GALLONS
LESS:			
III. MATERIALS ON HAND AT END OF PERIOD DATE_____	_____GALLONS	_____GALLONS	_____GALLONS
MATERIAL TO BE ACCOUNTED FOR:	_____GALLONS	_____GALLONS	_____GALLONS

COMMENTS:

PAINT FOREMAN_____
(Signature)

DRUM SERVICE CO. OF FLORIDA

PAINT AND SOLVENT INVENTORY AND

REPORTING CONTROL

IV. UTILIZATION - COATINGS

CODE "E" LEADS TO VOC EMISSIONS
CODE "NE" LEADS TO NO VOC EMISSIONS

	EXTERIOR PAINT	INTERIOR LININGS
A. SPRAYED IN PRODUCTION	_____ E	_____ NE
B. SOLD DIRECTLY TO CUSTOMERS, OR PROVIDED FREE AS "TOUCH-UP" PAINT	_____ NE	
C. DISCONTINUED PAINT COLORS (To be scrapped)	_____ NE	
D. BAD PAINT		
1. TO BE REPROCESSED	_____ NE	_____ NE
2. TO BE SCRAPPED	_____ NE	_____ NE
E. RECOVERED FROM SOLVENT WASH OF PIPING	_____ NE	_____ NE

COMMENTS

PAINT FOREMAN _____
(Signature)

DRUM SERVICE CO. OF FLORIDA

PAINT AND SOLVENT INVENTORY AND

REPORTING CONTROL

V. UTILIZATION - SOLVENTS

CODE "E" LEADS TO VOC EMISSIONS
CODE "NE" LEADS TO NO VOC EMISSIONS

A.	ADDED TO PAINT - VISCOSITY CONTROL	E
B.	ADDED TO LINING - VISCOSITY CONTROL	NE
C.	CLEAN UP - DISSIPATED	E
D.	CLEAN UP - RECAPTURED AND RECYCLED	NE

VI. DRUM PRODUCTION BY PAINT BOOTH

A1	TIGHT HEAD DRUM EXTERIOR	E
A2	OPEN HEAD DRUM EXTERIOR	E
A3	OPEN HEAD DRUM INTERIOR	NE
A4	OPEN HEAD COVERS EXTERIOR	E
A5	OPEN HEAD COVERS INTERIOR	E

COMMENTS

PAINT FOREMAN _____
(Signature)

EXHIBIT 12

PARTICULATE CONTROL IN EXHAUST FROM BOOTH OVERSPRAY

Control of particulate from overspray is accomplished by high efficiency filters or water wash.

Overspray is drawn by means of spray booth exhaust fans to control/capture devices. A minor portion of overspray falls onto and adheres to booth interior from which it is periodically removed by hand scraper for disposal according to approved RCRA Methods.

Capture efficiency reduces 20,106 Lbs./Yr. sent to control devices to actual emission of 441 Lb./Yr. for an overall efficiency of 97.8%.

For purposes of calculation of particulate emission as follows, the efficiency of filters was taken from data furnished by the manufacturers. This resulted in a higher emission than if efficiency as stated on Page 20 of Controlling Pollution from the Manufacturing and Coating of Metal Products, Vol. I, U.S. EPA, May 1977, i.e. filter pads 98%, water wash 95%.

Even with the lesser efficiency, however, particulate emission amounts to only 441 Lbs./Year.

PARTICULATE CONTROL

PAINT BOOTH OVERSPRAY CONTROL SYSTEMS

BOOTH	SPRAY TYPE	APPLICATION	QUANTITY	CONTROL TYPE
A.1.	Hand	Tight Head drum exteriors	165,502	Dry Filters*
A.2.	Automatic	Open Head drum exteriors	278,259	Water Wash**
A.3.	Automatic	Open Head drum interiors	255,998	Dry Filters*
A.4.	Semi Automatic	Open Head covers exteriors	278,259	Dry Filters*
A.5.	Semi Automatic	Open Head covers interiors	255,998	Dry Filters*

NOTES: *20 x 20 x 2 paint arrestors manufactured by:
Chemco Manufacturing Co., Inc.
7540 N. Linder
Skokie, IL 60077

**Booth manufactured by:
Binks Manufacturing Company
9201 West Belmont Ave.
Franklin Park, IL 60666

PAINT OVERSPRAY CALCULATIONS

FISCAL YEAR ENDING 10/31/83

BOOTH	TOTAL PAINT SPRAYED [NOTE: LBS./YR. SOLIDS ONLY] (NOT GALLONS OF COATINGS)	% OVERSPRAYED Note 1	% OF OVERSPRAY CAPTURED ON BOOTH SURFACES (SCRAPED OFF BY OPERATOR DURING ROUTINE MAINTENANCE AND DISPOSED OF) Note 2	OVERSPRAY TO CONTROL SYSTEM LBS./YR.	CONTROL SYSTEM EFFICIENCY*	EMISSIONS LBS./YR.
A.1.	31,773	25	25	5957	95.8%	250
A.2.	44,406	25	25	8326	99.8%	17
A.3.	33,382	5	N.A.	1669	95.8	Nil**
A.4.	15,287	25	25	2864	95.8	120
A.5.	6,879	25	25	1290	95.8	54
			TOTAL	20,106 Lb./Yr.	TOTAL	441 Lb./Yr.

Note 1: See Exhibit 4

Note 2: Per DSC Operator and Foreman Estimate

*See test reports attached,
Binks Manufacturing Co.
and Chemco Manufacturing Co.

**Theoretically 70 Lb./Yr. will pass to incinerator from which an incalculable minor weight of ash will escape.

Air Filter Testing Laboratories, Inc

4632 Old LaGrange Road • Crestwood, Kentucky 40014 • Phone (502) 222-57

REPORT NO. 3180
TEST NO. 3

PAINT ARRESTOR PAD PERFORMANCE TEST

TEST REQUESTED BY: CHEMCO MANUFACTURING COMPANY, INC.
MANUFACTURER: CHEMCO MANUFACTURING COMPANY, INC
PRODUCT NAME: GREEN/WHITE
HOW LABORATORY PROCURED TEST SAMPLE: FURNISHED BY MANUFACTURER
MODEL NO.: GREEN/WHITE DIMENSIONS: 20IN. H 20IN. W 2IN. L
PRODUCT DESCRIPTION: GLASS FIBER

TEST CONDITIONS:
TEST AIR FLOW RATE 200 FPM
PAINT APPLICATION RATE 0.5 QT./20 MIN.
DESCRIPTION OF PAINT USED SYNTHETIC ENAMEL LIMCO

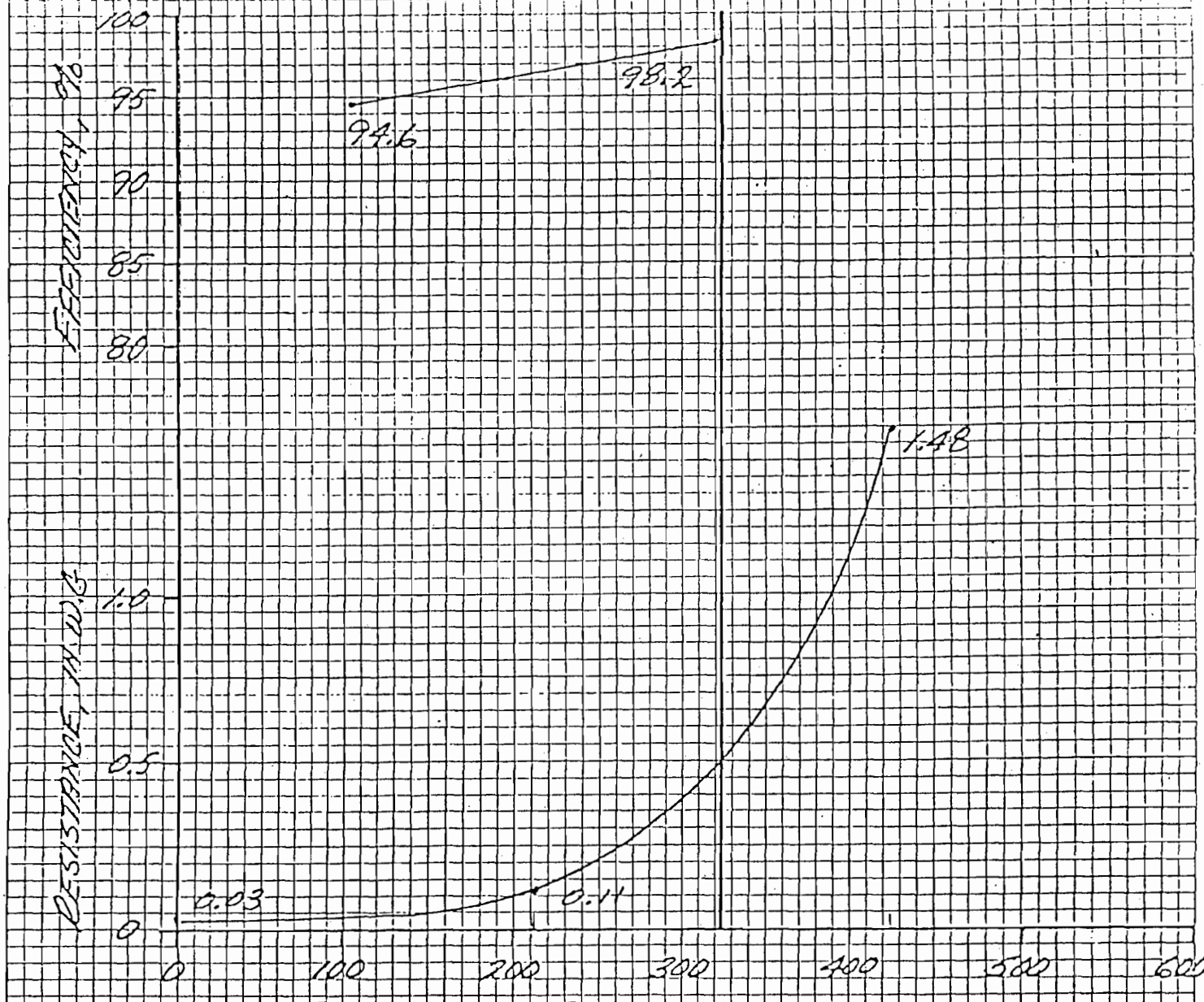
RESULTS:
WEIGHT GAIN PAINT ARRESTOR PAD 410.0 GM.
FINAL ARRESTANCE FILTERS WEIGHT GAIN 15.3 GM.
TOTAL WEIGHT PAINT FED (DRY BASES) 425.3 GM.
FINAL RESISTANCE PAINT LOADED FILTER 1.48 IN. W.G.
PERFORMANCE TO CHANGE OUT RESISTANCE 0.50 IN. W.G.
AVERAGE PAINT REMOVAL EFFICIENCY 95.8 %
PAINT HOLDING CAPACITY 309 GM. OR 0.68 LBS.

DATE 2-3-1984

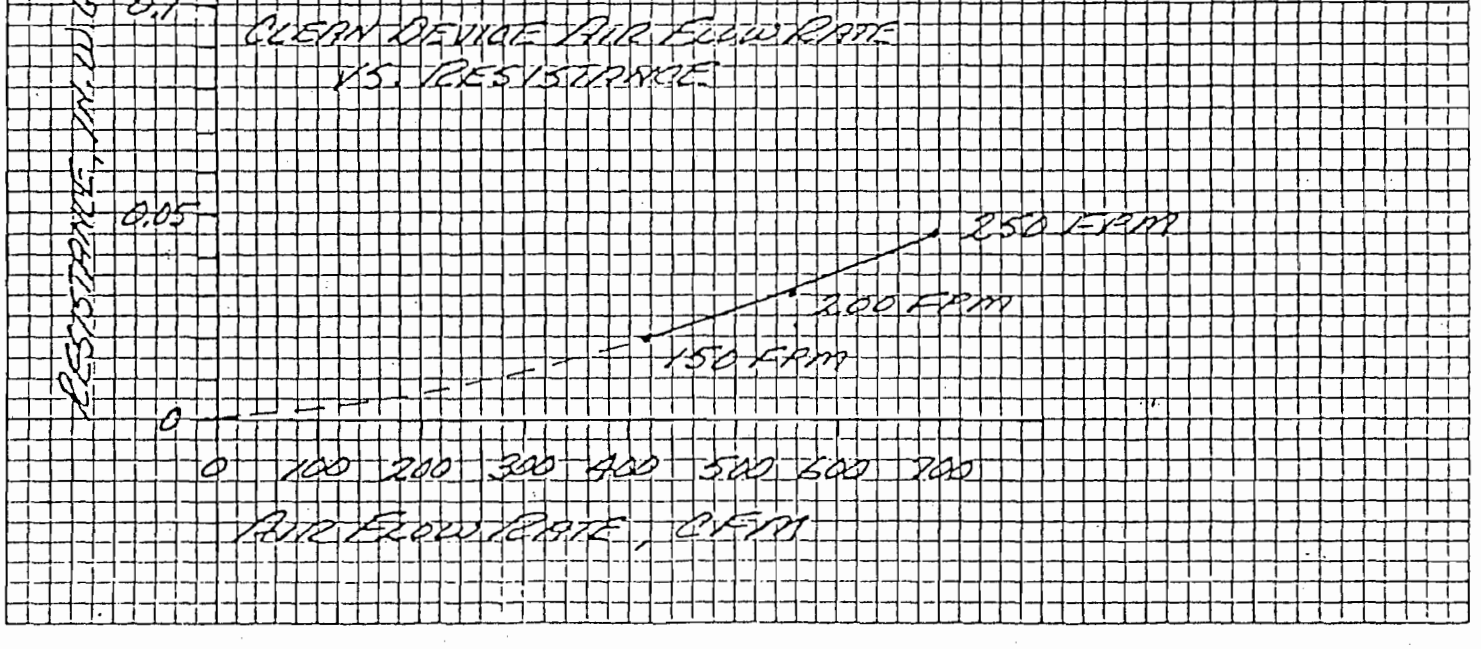
ENGINEERING APPROVAL David J. Murphy Jr.

STATE OF KENTUCKY
DAVID J. MURPHY JR.
6035
REGISTERED
PROFESSIONAL ENGINEER

REPORT NO. 3150
TEST NO. 3



CLEAN DEVICE AIR FLOW RATE VS. RESISTANCE



BINKS MANUFACTURING COMPANY
4301 RISING SUN AVENUE, PHILADELPHIA, PENNSYLVANIA 19140
MAILING ADDRESS:
P.O. BOX 46008, PHILADELPHIA, PENNSYLVANIA
19160-6008
PHONE: 215/329-7800
TELEX: 834222
OFFICES IN ALL PRINCIPAL CITIES

BINKS

October 17, 1984

Mr. Mike Murphy
Drum Service Co.
803 Jones Avenue
Zellwood, FL 32798

Subject: Binks No-Pump Spray Booth
Model CNPB 10-7T
Invoice #38147

Dear Mr. Murphy:

In accordance with your request regarding the efficiency of Binks No-Pump Spray Booths, a test was conducted by an Independent Consulting Engineering Service Co. in 1966. The booth design has not been changed and the results remain to date, as follows:

TEST RESULTS: (Paint used for testing has a weight of 2.25 lbs/qt.)

Test No. 1
Material Usage: 20 gals/hr. x 4 qts. x 2.25 lbs/qt.= 180 lbs/hr.

Grain Loading: 4.68 gr/1000 CF

Material Injection:

$$\frac{180 \text{ lbs/hr.} \times 7000 \text{ gr.} \times 1000 \text{ CF}}{9017 \text{ CFM} \times 60 \text{ mins.}} = 2328.93 \text{ grains}$$

Efficiency:

$$\text{Efficiency} = \frac{2328.93 - 4.68 \times 100}{2328.93}$$

Efficiency = 99.799%

Emission Rate (lbs/hr.)

$$E = \frac{9017 \times 60 \times 4.68}{1000} = \frac{2531.9}{7000}$$

E = 0.361 lbs/hr.

Test No. 2

Material Usage: 21 gals/hr. x 4 qts. x 2.25 lbs/qt = 189 lbs/hr.

Grain Loading: 4.99 gr/1000 CF

Material Injection:

$$\frac{189 \times 7000 \times 1000}{9017 \times 60} = 2445.38 \text{ grains}$$

Efficiency:

$$\text{Efficiency} = \frac{2445.38 - 4.99 \times 100}{2445.38}$$

Efficiency = 99.795'

Emmission Rate (lbs/hr.)

$$E = \frac{9017 \times 60 \times 4.99}{1000} = 7000$$

E = 0.385 lbs/hr.

Allowable Emission (0.62 lbs/hr.)

E = 3.59 (P)

E = 0.83 lbs/hr. for 189 lbs. material/hr.

Binks Spray Booths conform with O.S.H.A. and E.P.A. regulations. However, this equipment is designed expressly for the removal of particulate matter only. Reduction of "Volatile Organic Compunds" requires either coating reformulation or optional additional equipment.

If you have any questions or need additional information please feel free to contact this office.

Very truly yours,

BINKS MANUFACTURING COMPANY

Ben Mallen

Ben Mallen
Resident Engineer
Philadelphia Branch

BM:ds

cc: R. Kradoska
L. Gonzales

CROSS/TESSITORE & ASSOCIATES, P.A. 10-84
4759 S. CONWAY RD., SUITE D PH. 305-851-1484
ORLANDO, FL 32812

592

June 11, 19 85 [redacted]

Pay to the order of Florida Department of Environmental Regulation $ 500.00

Five Hundred and 00/100---------- Dollars

THE FIRST, F.A.
Orlando, Florida 32801
A Federal Association

For Const. Appl Fee, Drum Services

Joseph L. Tessitore

Margaret F. Cross

[redacted]

DELUXE-CP

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

No. 76078

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Cross / Sessitore & Associates, P.A. Date June 14, 1985

Address 4759 S. Conway Rd. Suite D, Orlando FL 32812 Dollars $ 500.00

Applicant Name & Address Drum Services Company of Fla.
P.O. Box 378 Jellwood, FLA. 32746

Source of Revenue

Revenue Code 001031 Application Number AC 48-105517

By Patricia G. Adams

CROSS/TESSITORE & ASSOCIATES, P.A.

REGISTERED PROFESSIONAL ENGINEERS

ENVIRONMENTAL ENGINEERS

CROSS / TESSITORE & ASSOCIATES, P.A.

4759 S. CONWAY ROAD

ORLANDO, FLORIDA 32812

DRUM SERVICES COMPANY OF FLORIDA

CONSTRUCTION/MODIFICATION

PERMIT APPLICATION FOR THERMAL OXIDIZER, PAINT SPRAY BOOTHS AND PAINT BAKE OVENS

June 10, 1985

CROSS/TESSITORE & ASSOCIATES, P.A.
4759 S. CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812
(305) 859-2488

STATE OF FLORIDA AC 48-105517

DEPARTMENT OF ENVIRONMENTAL REGULATION

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

DER

JUN 12 1985

BAQM

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: DRUM RECLAMATION PLANT [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [X] Modification

COMPANY NAME: DRUM SERVICE CO. OF FLORIDA COUNTY: ORANGE

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) Thermal Oxidizer, Paint Spray Booths, and Baking Ovens

SOURCE LOCATION: Street 803 Jones Ave. City Zellwood

UTM: East 17-439904 North 3178077

Latitude 28 ° 43 ' 55 "N Longitude 81 ° 36 ' 45 "W

APPLICANT NAME AND TITLE: J.M. Murphy, Vice President

APPLICANT ADDRESS: P.O. Box 278, Zellwood, Florida 32798

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Drum Service Co. of FL

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

*Attach letter of authorization

Signed:

J.M. Murphy, Vice President
Name and Title (Please Type)

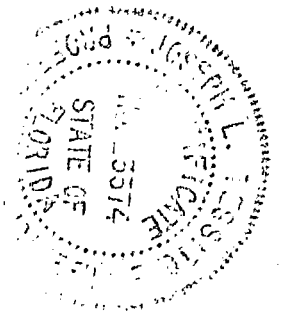
Date: 6/5/85 Telephone No. 305/889-2581

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 Joseph L. Tessitore

Joseph L. Tessitore, P. E.
Name (Please Type)

Cross/Tessitore & Associates, P.A.
Company Name (Please Type)

4759 S. Conway Rd., Orlando, FL 32812
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 6/5/85 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.

This is an Application to Construct a system to collect and render harmless (incinerate) vapors from paint spraying operations to the extent that emissions are within the limiting standards of 17-2.650 (1)(e) and 17-2.650 (1)(f) 14(i)(B), see Exhibits 1 thru 12. See attached Exhibit 1 for complete description.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction 120 days after approval* Completion of Construction 12 to 18 months after start

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.)

Afterburner	$77,300.00
Ducts, Fan, and Collection Hoods	5,000.00
Foundation, Roof, Wiring, Labor	17,500.00
TOTAL	99,800.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

AO 48-49657 issued 2/19/82 to expire 1/30/86;

No previous VOC Permits; Warning Notice OWN-84-034 and OWN-85-133

*120 days estimated as necessary to obtain financing and finalize agreements w/Contractors.

E. Requested permitted equipment operating time: hrs/day 8 ; days/wk 5 ; wks/yr 50 ; if power plant, hrs/yr _____ ; if seasonal, describe: Operating time is not seasonal, but may vary with demands of the trade.

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? Yes

   a. If yes, for what pollutants? VOC

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

See attached Exhibits #1 thru 12 for data relating to Rule 17-2.650.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Exterior Coatings	VOC	See Exhibit 2	106.9	See Drawing #110-7-VOC2
Linings	VOC	See Exhibit 3	40.0	"
Solvents	VOC	100%	7.5	"
Used Steel Drums	Particulate	Variable	17,200	"

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

1. Total Process Input Rate (lbs/hr): 17,200*

2. Product Weight (lbs/hr): 16,100*

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[2] 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/hr	T/yr	
VOC	67.21	67.21	See Exhibit 9	74.0	89.24	89.24	
Particulate	4.92	4.92	17-2.04(1)(b)	13.63	76.10	76.10	
CO	0.75	0.75	N/A	N/A	0.75	0.75	
SO_2	1.91	1.91	"	"	1.91	1.91	
NO_x	2.98	2.98	"	"	2.98	2.98	

[1]See Section V, Item 2.

[2]Reference 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)

[3]Calculated from operating rate and applicable standard.

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

*Applies to Used Steel Drum input rate

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Spencer Boiler and	VOC	95%	N.A.	EPA study -
Engineering Co. Afterburner Model	PARTICULATES	93%	1 to 50 microns	See Exhibit
DSF-002				11

E. Fuels SEE EXHIBIT 11

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Propane (Afterburner)	96.0 gal/hr	96.0 gal/hr	8.8
No.2 (Drum Reclamation Furnace)	67.2 gal/hr	67.2 gal/hr	9.0
Propane (Ovens B1,B2,&B3)	90.6 gal/hr	90.6 gal/hr	8.3

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

Fuel Analysis: Propane/No.2

Percent Sulfur: Nil/0.2 Percent Ash: Nil/0.1

Density: 4.23/7.0 lbs/gal Typical Percent Nitrogen: 0.0045/1.0

Heat Capacity: 21,660/19,114 BTU/lb 91,620/134,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

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

Annual Average _____ Maximum _____

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

None

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

Stack Height: 20 ft. Stack Diameter: Square 24" x 24" ftx

Gas Flow Rate: 15,425 ACFM 8500 DSCFM Gas Exit Temperature: 450 ** °F.

Water Vapor Content: 3 % Velocity: 64 FPS

SECTION IV: INCINERATOR INFORMATION

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 Diamter: _____ 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) _____

**Incinerated vapors and products of combustion pass through a waste heat boiler before discharge to atmosphere.

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Section V; Supplemental Requirements

1.) Total Process Input Rate and Product Weight

Drum Reclamation Furnace

Input Rate: 300 steel drums per hour

$$\Rightarrow (300)\ \frac{\text{drums}}{\text{hr}} \times (57.33)\ \text{lbs/drum} = 17,200\ \text{lbs/hr}$$

This input rate includes drum weight plus approximately 1100 lbs/hr* of waste contents in drum. This waste contains is removed in the reclamation process.

Product Weight: 300 drums per hour (without waste contents)

$$\Rightarrow (17,200 - 1100) = \underline{16,100}\ \text{lbs/hr}$$

* AP-40, 2nd Edition, pp. 507

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Paint Spray Booths and Baking Ovens

Based on coating and solvent consumption for the calander years of 1983 and 1984 from Exhibit 4, the following mass flow summaries were obtained:

	1983 (lbs)	1984 (lbs)	Avg (lbs)
Exterior Coatings	227,540	200,073	213,806
Linings	99,914	60,132	80,023
Solvents	15,368	14,447	14,908

Based on 2000 operating hours per year, the hourly consumption rates are as follows:

Exterior Coatings	=	106.9	lbs/hr
Linings	=	40.0	lbs/hr
Solvents	=	7.5	lbs/hr

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2.) Actual Emissions

The actual emissions for this proposed application are presented in Table V-2-1. The basis for the actual emissions is as follows:

Particulate Emissions

Potential Emissions = Potential Emissions from the Drum Reclamation Furnace + Baking Oven B2 + Paint Spray Booth A3 = 66.0 + 0.024 + 0.830 = 66.85 lbs/hr

Actual Emissions = $(1 - \eta_a)$ Potential Emissions

η_a = 93% (Particulate removal for afterburner)

Actual Emissions = (1 - 0.93)(66.85) = 4.68 lb/hr

VOC Emissions

Actual Emissions for VOC from the Drum Reclamation Furnace, Baking Oven B2, and Paint Spray Booth A3 were obtained by using

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the potential VOC emissions from Table V-3-1 and assuming 95% VOC reduction in the afterburner. For other sources, uncontrolled VOC's were assumed.

Actual VOC Emissions = (1 - 0.95) VOC Potential Emissions for Furnace, B2, and A3 + Uncontrolled VOC's

$$= (23.1 + 0.014 + 0.013)^{*}(0.05)$$

$$+ \quad 0.007 + 0.002 + [4.2 + 2.6 + 55.3]^{*}$$

$$= 1.10 + 0.009 + 66.1 = 67.209 \text{ lbs/hr}$$

SO_2, CO, NO_X Emissions

SO_2, CO, and NO_X emissions are uncontrolled and equal to potential emissions in Table V-3-1

* See Exhibits 9 and 10

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Allowable Emissions

Particulate Emissions

Process Rate = 17,200 lbs/hr = 8.6 tons/hr

E = Allowable = $3.59\ P^{0.62} = (3.59)(8.6)^{0.62}$

= 13.63 lbs/hr

VOC Allowables

See Calculation in Exhibit 9

Allowable = 74.0 lbs/hr

3) Potential Emissions

Particulate Emissions

Paint Spray Booths : See Exhibit 12

Baking Ovens : See Table V-3-1

Drum Reclamation Furnace :

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Residue material in drums is removed the following processes and mechanisms:

Drainage and emptying	19 %
Melting and coagulation	30 %
Clinker Formation	36 %
Combustion	6 %
Shot blast cleaning	9 %
	100 %

From above, combustible fraction is 6%, and therefore for a residue rate of 1100 lbs/hr, the potential emission is $1100 \times 0.06 = 66$ lbs/hr

VOC Emissions

Drum Reclamation Furnace: Table V-3-1
Baking Ovens 1, 2 & 3 (combustion): Table V-3-2
Baking Oven 1, 2, 3 (coating): Exhibits 9 & 10
Paint Spray Booths: Exhibits 9 & 10

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4.) Air Pollution Control System Design Details

See Exhibits 5 and 12 and attached drawings

5.) Control System Efficiency

See Exhibit 5 and 12

6) Flow Diagram

See Exhibit 7 and Exhibit 9

7.) Location Map (attached)

8) Plot Plant (See Exhibit 6)

TABLE V-2-1

Maximum Actual Emissions Summary (lbs/hr)

SOURCE	Particulate	VOC	SO_2	CO	NO_x
Drum Reclamation Furnace	*	*	*	*	*
Baking Ovens[1]					
B1	0.012	0.007	none	0.085	0.340
B2	*	*	*	*	*
B3	0.004	0.002	*	0.027	0.108
Paint Spray Booths[2]					
A1	0.125	↑	none	none	none
A2	0.009	|	none	none	none
A3	*	66.1	none	none	none
A4	0.060	|	none	none	none
A5	0.027	↓	none	none	none
Afterburner	4.68	1.10	1.91	0.640	2.53
TOTAL	4.907	67.209	1.91	0.752	2.978

*Emissions for these sources included in afterburner emission summary.

[2]Baking oven VOC includes only combustion contribution. Coating operation VOC's included in paint spray booths.

[3]Paint spray booth includes VOC's from baking ovens due to coating operation. See Exhibit 9 for VOC's and Exhibit 12 for particulates.

TABLE V-3-1

Maximum Potential Emissions Summary (lbs/hr)

SOURCE	Particulate	VOC	SO_2	CO	NO_x
Drum Reclamation Furnace	66.00	0.013	1.91	0.340	1.34
Baking Ovens[1]					
B1	0.012	0.007	neg.	0.085	0.340
B2	0.024	0.014	neg.	0.170	0.680
B3	0.004	0.002	neg.	0.027	0.108
Paint Spray Booths[2]					
A1	2.970	↑	none	none	none
A2	4.163	|	none	none	none
A3	0.830	89.20	none	none	none
A4	1.432	|	none	none	none
A5	0.645	↓	none	none	none
TOTAL	76.08	89.24	1.91	0.62	2.47

[1] Baking oven VOC includes only combustion contribution. Coating operation VOC's included in paint spray booths.

[2] Paint spray booth includes VOC's from baking ovens due to coating operation. See Exhibit 9 for VOC's and Exhibit 12 for particulates.

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Table V-3-2

Potential Emissions From Propane Combustion Sources *

Ovens	max. Rating (BTU/hr)	(Btu/gal)	Propane Consumption (gal/hr)	Particulates		Nitrogen oxide		Carbon monoxide		Volatile organic (non methane)	
				Emission Rate (lb/10^3 gal)	Emission (lb/hr)	Emission Rate (lb/10^3gal)	Emission (lb/hr)	Emission Rate (lb/10^3gal)	Emission (lb/hr)	Emission Rate (lb/10^3gal)	Emission (lb/hr)
B_1	2.5×10^6	91,620	27.3	0.9–0.44	.025–.012	15.4	0.34	3.1	0.085	0.25	0.007
B_2	5.0×10^6	91,620	54.6	"	0.05–0.024	"	0.68	"	0.17	"	0.014
B_3	0.8×10^6	91,620	8.73	"	0.008–0.004	"	0.108	"	0.027	"	0.002
Afterburner	8.8×10^6	91,620	96.05	"	0.09–0.42	"	1.19	"	0.30	"	0.024

* Emission factors based on attached AP-42 Table 1.5-1

TABLE 1.5-1. EMISSION FACTORS FOR LPG COMBUSTION[a]
EMISSION FACTOR RATING: C

Furnace Type and Fuel	Particulates		Sulfur Oxides[b]		Nitrogen Oxides[c]		Carbon Monoxide		Volatile Organics: Nonmethane		Volatile Organics: Methane	
	kg/10^3 l	lb/10^3 gal	kg/10^3 l	lb/10^3 gal	kg/10^3 l	lb/10^3 gal	kg/10^3 l	lb/10^3 gal	kg/10^3 l	lb/10^3 gal	kg/10^3 l	lb/10^3 gal
Industrial												
Butane	0.01-0.06	0.10-0.47	0.01S	0.09S	1.58	13.2	0.4	3.3	0.03	0.25	0.03	0.28
Propane	0.01-0.05	0.09-0.44	0.01S	0.09S	1.49	12.4	0.37	3.1	0.03	0.25	0.03	0.27
Domestic/ commercial												
Butane	0.01-0.06	0.10-0.47	0.01S	0.09S	1.13	9.4	0.23	1.9	0.06	0.5	0.03	0.25
Propane	0.01-0.05	0.09-0.44	0.01S	0.09S	1.05	8.8	0.22	1.8	0.06	0.47	0.03	0.24

[a] Assumes emissions (except sulfur oxides) are the same, on a heat input basis, as for natural gas combustion.
[b] Expressed as SO_2. S equals the sulfur content expressed in g/100 m^3 gas vapor. For example, if sulfur content is 0.366 g/100m^3 (0.16 gr/100ft^3) vapor, the SO_2 emission factor would be 0.01 x 0.366 or 0.0037 kg SO_2/10^3 liters (0.09 x 0.16 or 0.014 lb of SO_2/1000 gal) butane burned.
[c] Expressed as NO_2.

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Table V-3-3

Potential Emissions From No.2 Fuel Combustion Sources

Source	max. Rating (Btu/hr)	(Btu/gal)	Distillate Oil Used (gal/hr)	Particulates		Sulfur Dioxide		Carbon monoxide		Nitrogen Oxide		Volatile organic (non-methane)	
				Emission Rate (lb/10^3 gal)	Emission (lb/hr)	Emission Rate (lb/10^3 gal)	Emission (lb/hr)	Emission Rate (lb/10^3 gal)	Emission (lb/hr)	Emission Rate (lb/10^3 gal)	Emission (lb/hr)	Emission rate (lb/10^3 gal)	Emission (lb/hr)
Drum Reclamation Furnace	9.0×10^6	134,000	67.20	2	0.134	142 [S]*	1.91	5	0.34	20	1.34	0.20	0.013

* (S) indicates the % weight of Sulfur in the oil

TABLE 1.3-1. UNCONTROLLED EMISSION FACTORS FOR FUEL OIL COMBUSTION

EMISSION FACTOR RATING: A

Boiler Type[a]	Particulate[b] Matter		Sulfur Dioxide[c]		Sulfur Trioxide		Carbon Monoxide[d]		Nitrogen Oxide[e]		Volatile Organics[f] Nonmethane		Methane	
	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal
Utility Boilers														
Residual Oil	g	g	19S	157S	0.34S[h]	2.9S[h]	0.6	5	8.0 (12.6)(5)[i]	67 (105)(42)[i]	0.09	0.76	0.03	0.28
Industrial Boilers														
Residual Oil	g	g	19S	157S	0.24S	2S	0.6	5	6.6[j]	55[j]	0.034	0.28	0.12	1.0
Distillate Oil	0.24	2	17S	142S	0.24S	2S	0.6	5	2.4	20	0.024	0.2	0.006	0.052
Commercial Boilers														
Residual Oil	g	g	19S	157S	0.24S	2S	0.6	5	6.6	55	0.14	1.13	0.057	0.475
Distillate Oil	0.24	2	17S	142S	0.24S	2S	0.6	5	2.4	20	0.04	0.34	0.026	0.216
Residential Furnaces														
Distillate Oil	0.3	2.5	17S	142S	0.24S	2S	0.6	5	2.2	18	0.085	0.713	0.214	1.78

[a] Boilers can be approximately classified according to their gross (higher) heat rate as shown below:
Utility (power plant) boilers: >106 x 10^9 J/hr (>100 x 10^6 Btu/hr)
Industrial boilers: 10.6 x 10^9 to 106 x 10^9 J/hr (10 x 10^6 to 100 x 10^6 Btu/hr)
Commercial boilers: 0.5 x 10^9 to 10.6 x 10^9 J/hr (0.5 x 10^6 to 10 x 10^6 Btu/hr)
Residential furnaces: <0.5 x 10^9 J/hr (<0.5 x 10^6 Btu/hr)

[b] References 3-7 and 24-25. Particulate matter is defined in this section as that material collected by EPA Method 5 (front half catch).

[c] References 1-5. S indicates that the weight % of sulfur in the oil should be multiplied by the value given.

[d] References 3-5 and 8-10. Carbon monoxide emissions may increase by factors of 10 to 100 if the unit is improperly operated or not well maintained.

[e] Expressed as NO_2. References 1-5, 8-11, 17 and 26. Test results indicate that at least 95% by weight of NO_x is NO for all boiler types except residential furnaces, where about 75% is NO.

[f] References 18-21. Volatile organic compound emissions are generally negligible unless boiler is improperly operated or not well maintained, in which case emissions may increase by several orders of magnitude.

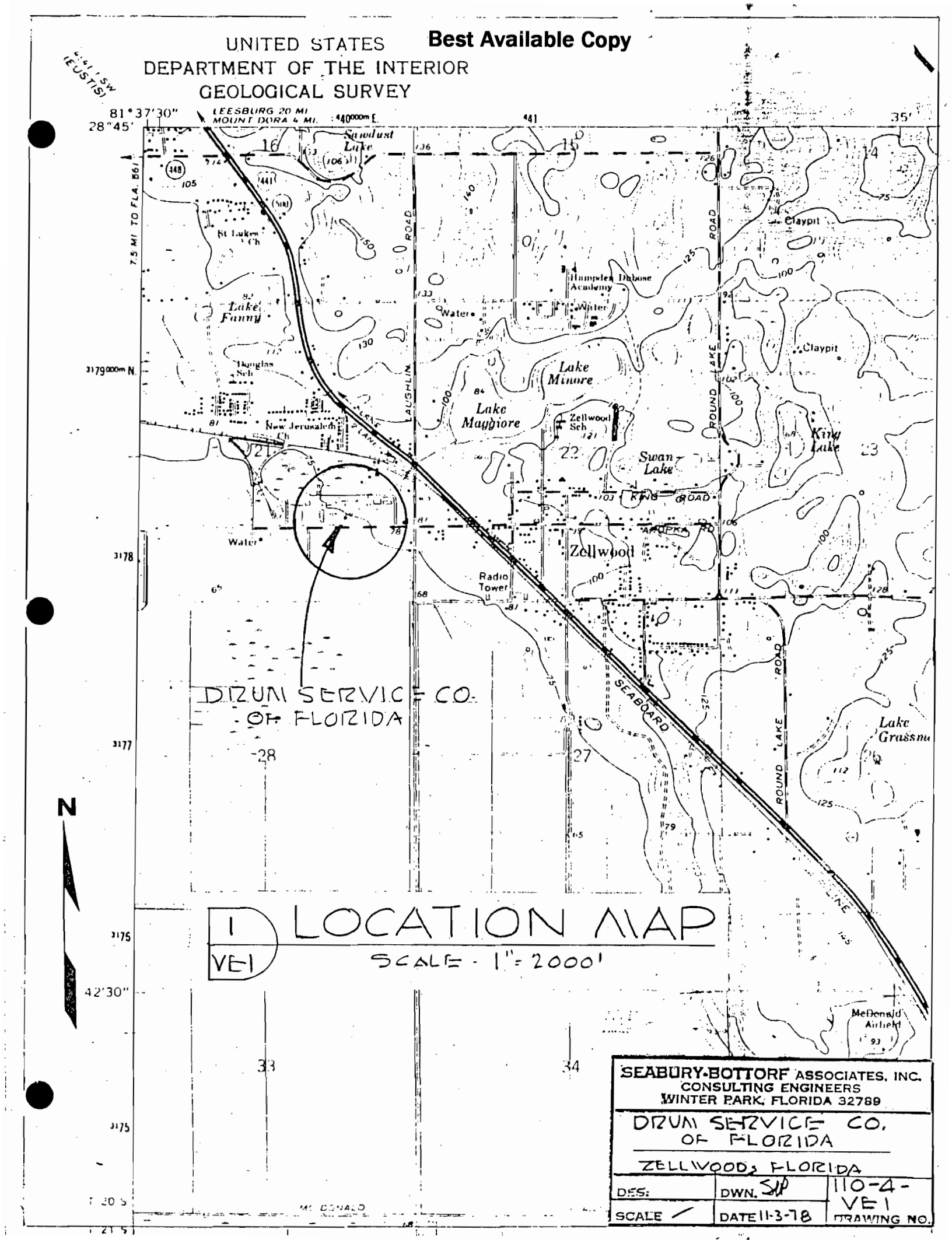
[g] Particulate emission factors for residual oil combustion are, on average, a function of fuel oil grade and sulfur content:
Grade 6 oil: 1.25(S) + 0.38 kg/10^3 liter [10(S) + 3 lb/10^3 gal] where S is the weight % of sulfur in the oil. This relationship is based on 81 individual tests and has a correlation coefficient of 0.65.
Grade 5 oil: 1.25 kg/10^3 liter (10 lb/10^3 gal)
Grade 4 oil: 0.88 kg/10^3 liter (7 lb/10^3 gal)

[h] Reference 25.

[i] Use 5 kg/10^3 liters (42 lb/10^3 gal) for tangentially fired boilers, 12.6 kg/10^3 liters (105 lb/10^3gal) for vertical fired boilers, and 8.0 kg/10^3 liters (67 lb/10^3 gal) for all others, at full load and normal (>15%) excess air. Several combustion modifications can be employed for NO_x reduction: (1) limited excess air can reduce NO_x emissions 5-20%, (2) staged combustion 20-40%, (3) using low NO_x burners 20-50%, and (4) ammonia injection can reduce NO_x emissions 40-70% but may increase emissions of ammonia. Combinations of these modifications have been employed for further reductions in certain boilers. See Reference 23 for a discussion of these and other NO_x reducing techniques and their operational and environmental impacts.

[j] Nitrogen oxides emissions from residual oil combustion in industrial and commercial boilers are strongly related to fuel nitrogen content, estimated more accurately by the empirical relationship:
kg $NO_2/10^3$ liters = 2.75 + 50$(N)^2$ [lb $NO_2/10^3$gal = 22 + 400$(N)^2$] where N is the weight % of nitrogen in the oil. For residual oils having high (>0.5 weight %) nitrogen content, use 15 kg $NO_2/10^3$ liter (120 lb $NO_2/10^3$gal) as an emission factor.

Best Available Copy



SEABURY-BOTTORF ASSOCIATES, INC. CONSULTING ENGINEERS WINTER PARK, FLORIDA 32789	
DRUM SERVICE CO. OF FLORIDA	
ZELLWOOD, FLORIDA	
DES:	DWN. SP
SCALE —	DATE 11-3-78
110-4-VE1 DRAWING NO.	

ADDITIONAL INFORMATION DESCRIBING
THE NATURE AND EXTENT OF THE PROJECT

EXHIBIT 1	GENERAL DESCRIPTION
EXHIBIT 2	COATING SUPPLIER PRODUCT DATA MOBIL (26 PAGES)
EXHIBIT 3	COATING SUPPLIER PRODUCT DATA KNS (2 PAGES)
EXHIBIT 4	COATING/SOLVENT CONSUMPTION DATA
EXHIBIT 5	DESIGN DATA FOR INCINERATION OF VOC VAPORS
EXHIBIT 6	PLANT LAYOUT DRAWING #110-7-VOC1
EXHIBIT 7	SCHEMATIC FLOW DIAGRAM DRAWING #110-7-VOC2
EXHIBIT 8	COLLECTION SYSTEM AND DUCTWORK DRAWING NO. 110-7-VOC3
EXHIBIT 9	COMPARISON OF UNCONTROLLED EMISSIONS, ALLOWABLE EMISSIONS, ACTUAL EMISSIONS
EXHIBIT 10	AIRBORNE CONTAMINANTS EMITTED - VOC EMISSION POINT SUMMARY
EXHIBIT 11	VERIFICATION OF CONTROLLED VS. UNCONTROLLED VOC EMISSION RATIO
EXHIBIT 12	PARTICULATE CONTROL

Exhibit 1

GENERAL DESCRIPTION

The Drum Service Co. of Florida is a supplier of reconditioned steel drums to a variety of corporations and individuals who use such containers as a means of packaging lubricants, foods, and other liquid products.

Chief competitor of the reconditioned drum is the new drum, which sets a standard of appearance and cleanliness which must be equaled or exceeded to offset the stigma of being secondhand.

A leading factor in establishing and maintaining a favorable image of appearance and cleanliness is the quality of surface coating applied to the straightened, sanitized, reconditioned item.

The coating must not only give a fresh and unblemished appearance, but must resist heat, cold, sun, and rain, as well as a broad spectrum of commonly encountered mild corrosive agents within the bounds of reasonable cost and mass production drying and curing limitations.

It is within the realm of possibility that American ingenuity will, in the not too distant future, develop a coating for metal surfaces which will be sufficiently attractive and durable to satisfy the foregoing requirements without use of the conventional and time honored solvents which have lately been limited for environmental reasons. Please refer to letter of June 13, 1984, from Mr. S. R. Persak to Mr. J. M. Murphy which describes the present status of solvent/coating technology. (Letter attached to Exhibit 2).

In the meantime, and until suitable coatings of low solvent content become available, it is the intention of the Drum Service Co. of Florida to comply with both the letter and spirit of the law by abating the emissions of volatile organic compounds by incineration to the extent that resultant emisssions are equal to or lower than emission limiting standards as contained in Chapter 17-2.650(f)14,b,(B); namely 3.5 lbs/gallon of coating or less.

Because of severe practical problems to be faced in drum reconditioning where two types of drums must be painted in three separate spray booths, internally lined in two separate spray booths, oven-dried in three separate heated enclosures, or air-dried in two separate areas, with application of 57 different coatings, all depending upon the end use of the drums, it was deemed impractical to apply a mixture of controls to the widely separated and dissimilar parts of the system.

It is proposed to incinerate and totally destroy all collectible VOC emissions from the single largest source most likely to resist scientific advance in water base or low solvent technology, i.e. the internal lining spray booth and drying oven where the most severe service conditions require a coating of superior chemical resistance.

The proposed control system consists of a Spencer Boiler and Engineering Thermal Oxidizer (Afterburner) whose design details are presented in Exhibit 5. This afterburner has been designed to collect the exhaust gases and vapors from the existing Drum Reclamation Furnace, and from Paint Booth A3 and Oven B2 (see Figure 1-1). The exhaust gases will be raised to a minimum of 1500°F with a minimum retention time of 0.5 seconds. This combination of temperature and retention will achieve 95% VOC destruction and 93% particulate destruction efficiency.

The proposed afternburner which has a heat input capacity of 8.8×10^6 BTU/hr replaces the existing afterburner which has a heat input capacity of only 1.5×10^6 BTU/hr. The new afterburner should also have increased combustion efficiency since the proposed configuration offers better mixing conditions and increased retention time.

The exhaust gases from the afterburner also will be passed through a waste heat boiler prior to discharge. This will allow the recovery of considerable energy which can be used in the drum reclamation process.

The following exhibits numbered 2 through 12 contain calculations, diagrams, and other supporting data to allow evaluation of a control system which will reduce annual emissions to a level of 3.39 lbs of VOC per gallon of coating applied as per the latest figures for the years 1983 and 1984.

Figure 1-1

SCHEMATIC FLOW DIAGRAM

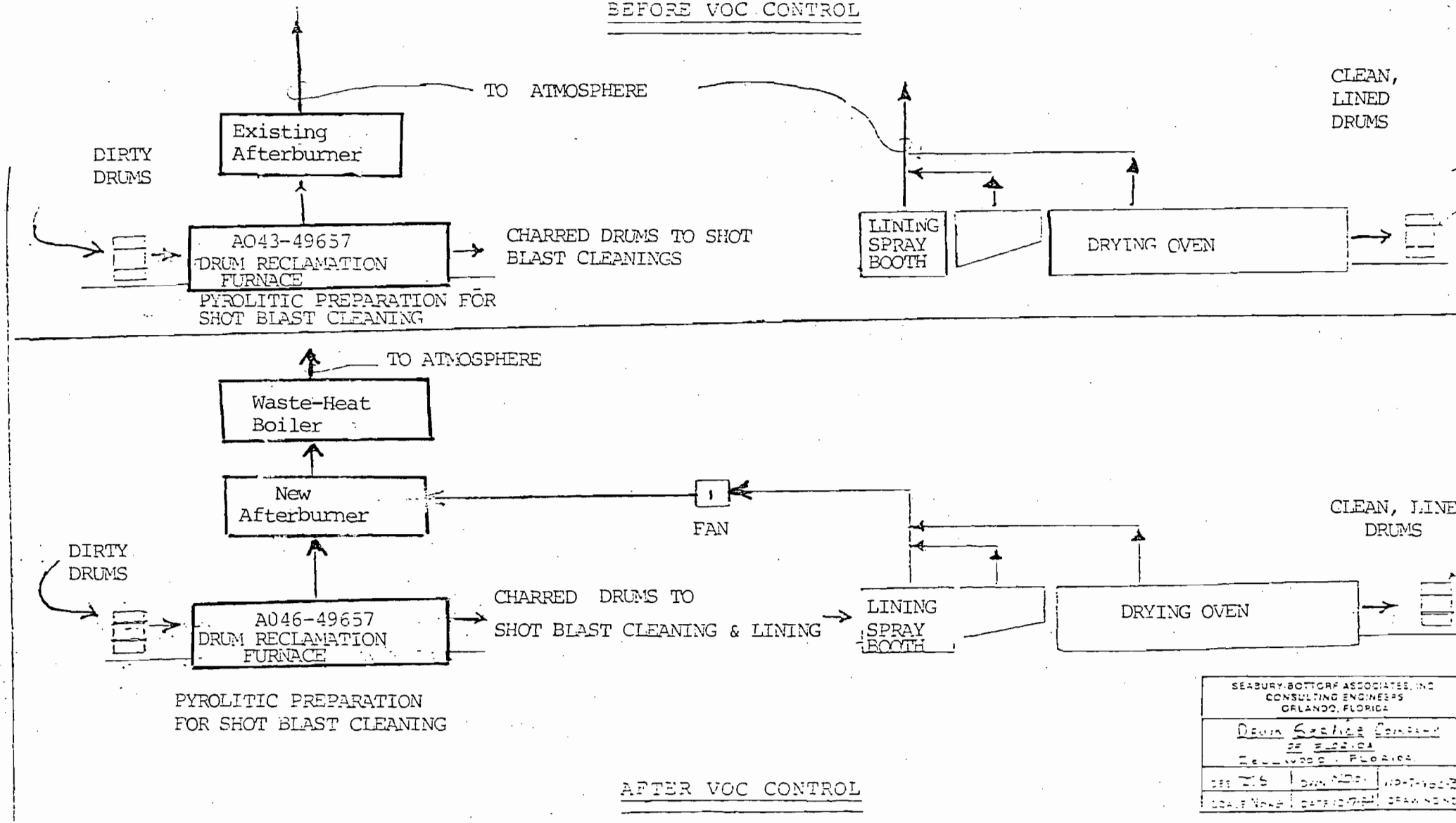


EXHIBIT 2

Mobil Chemical Company

MAINTENANCE, TRANSPORTATION AND
STEEL CONTAINER COATINGS DEPARTME

P.O. BOX 250
EDISON, NEW JERSEY 08817
TELEPHONE (201) 321-6000

June 13, 1984

1-800-526-7575

REC'D

JUN 18 1984

SEABURY-BOTTORF
ASSOCIATES INC.

Mr. J. M. Murphy
Drum Service Co. of Florida
P. O. Box 278
Zellwood, Florida 32798

Dear Mike:

The USEPA had issued Volume VI: Coatings of Miscellaneous Metal Parts and Products in the Guideline Series on control of volatile organic emissions. This had been further clarified to indicate that interior steel container linings, both clear and pigmented, would purportedly be governed by the clear coat category which permits a VOC of 4.3 lbs./gallon.

At that time, we reported that the industrially acceptable linings had a VOC of 5 to 5.5 lbs./gallon and that a presumptive norm of 4.3 lbs./gallon was beyond RACT (Reasonble Available Control Technology). Also, that no promising developing technology was impending which would permit compliance in the foreseeable future.

Our present position, unfortunately, has not changed in that even after expending considerable laboratory effort, we still cannot offer the industry any low VOC lining material which will provide a degree of chemical resistance equivalent to that of any of the coatings historically supplied to the industry.

Fortunately, our vehicle suppliers have heeded our pleas for assistance and are assisting us in attempting to develop resins which will increase the solids content of these linings.

The breakthrough, however, remains in the undefined future. As soon as we have a candidate product considered suitable for this demanding application, we will offer it for your evaluation.

Very truly yours,

Stan Persak

S. R. Persak
Manager, Steel Containers

SRP/ny

Mobil Chemical Company

MAINTENANCE TRANSPORTATION AND
STEEL CONTAINER COATINGS DEPARTME

P.O. BOX 250
EDISON, NEW JERSEY 08817
TELEPHONE (201) 321-6000

June 13, 1984

Mr. J. M. Murphy
Drum Service Co. of Florida
P. O. Box 278
Zellwood, Florida 32798

Dear Mike:

You recently questioned the theoretical square feet of coverage in a gallon coating. The volume solids of a coating determines the coverage and will vary depending on the color of the coating.

Theoretically, a gallon of coating at 100% solids will cover 1600 square feet at a film thickness of 1.0 mil dry. This assumes 100% transfer efficiency which, of course, is not available. The efficiency percentage of drum spraying equipment will vary from 40% to 80% depending upon the degree of sophistication of the equipment.

We attach a list of our coatings which you are currently using or have used in the past. On this list we show the theoretical coverage if applied at 1.0 mil dry with 100% efficiency. You can determine your own approximate percent of spray efficiency with the following example.

Consider our 210-J-20 Black Enamel, which is a volume color in your plant. A 55 gal. drum has 23 sq. ft. of steel to be painted. This includes the shell and both heads. At 100% efficiency and painting the entire drum black, you would coat twenty-four drums per gallon at 1.0 mil dry. At 0.6 mil dry, still at 100% efficiency, you would coat forty drums per gallon. Your actual paint mileage compared to the theoretical mileage will give you the spray efficiency. You may consider each head to be 3 sq. ft., and the shell to be 17 sq. ft. These constants will enable you to determine paint mileage on multi-colored drums.

We hope these explanations have answered your questions; please let us know if you need more information.

Very truly yours,

S. R. Persak
Manager, Steel Containers

SRP/ny

Att.

Mobil

THEORETICAL SQUARE FOOT COVERAGE OF PAINTS

210-B-23	578 sq. ft./gal.	210-Y-48	594 sq. ft./gal.
210-B-54	674 " "	86-F-20	561 " "
210-B-72	561 " "	86-R-14	561 " "
210-B-74	561 " "	286-B-50	642 " "
210-B-77	578 " "	286-B-77	513 " "
210-B-78	578 " "	286-B-78	658 " "
210-D-9	594 " "	286-B-82	545 " "
210-F-16	706 " "	286-B-107	594 " "
210-F-22	561 " "	286-F-41	561 " "
210-F-23	578 " "	286-D-18	642 " "
210-G-40	561 " "	286-G-39	626 " "
210-G-42	545 " "	286-G-81	545 " "
210-J-20	545 " "	286-R-48	594 " "
10-R-12	610 " "	286-W-57	610 " "
210-R-26	561 " "	286-Y-53	578 " "
210-W-12	578 " "	286-Y-54	545 " "
210-W-24	610 " "	286-Y-71	578 " "
210-Y-47	578 " "	285-R-9	545 " "

Mobil

Product		V.O.C.
210-B-23	P. & G. Light Blue	4.1
210-B-54	Amoco Blue	3.8
210-B-72	Chevron Blue	4.2
210-B-74	Gulf Blue	4.1
210-B-77	Fina Blue	4.1
210-B-78	New Chevron 370 Blue	4.1
210-D-9	Stevens Brown	4.1
210-F-16	High Gloss Texaco Gray	3.6
210-F-22	Texaco Gray	4.2
210-F-23	Semi-Gloss Texaco Gray	4.1
210-G-40	Texaco Green	4.2
210-G-42	Semi-Gloss Texaco Green	4.1
210-J-20	Black	4.3
10-R-12	Mobil Red	4.2
210-R-26	Shell Red	4.2
210-W-12	White	4.3
210-W-24	White	4.0
210-Y-47	Shell Yellow	4.1
210-Y-48	Gulf Orange	4.0
285-R-9	Citrus Drum Lining	4.5
86-F-20	Mobil Beige	4.2
86-R-14	Mobil Red	4.2

Mobil

Product		V.O.C.
286-B-50	Cal Oil Blue	3.8
286-B-77	Gulf Blue	4.3
286-B-78	Amoco Blue	3.8
286-B-82	Chevron Blue	4.2
286-B-107	Fina Blue	4.1
286-F-41	Semi-Gloss Texaco Gray	4.2
286-D-18	Stevens Brown	4.0
286-G-39	Texaco Green	3.9
286-G-81	Semi-Gloss Texaco Green	4.2
286-R-48	Shell Red	4.1
286-W-57	White	4.1
286-Y-53	Shell Yellow	4.3
286-Y-54	Gulf Orange	4.1
286-Y-71	B. P. Yellow	4.1

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-23

NAME Drum Enamel P&G Light Blue

COLOR Blue TYPE Mod. Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 45 - 55 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 8.26 ± .15 Lbs. Pigment 15.3 % By Weight

SOLIDS 50 ± 1 % By Weight 36 % By Volume

THEORETICAL COVERAGE 585 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30 - 33" #2 Zahn

FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10' @ 275 °F. Peak Metal Temp. °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Toluene

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.1 lbs/gallon
Conforms with Rule 66
This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 10/7/83

Ref. No. 1550

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-54

NAME Air-Dry Drum Enamel Amoco Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-50 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.35 ± .15 Lbs. Pigment ____ % By Weight SOLIDS 54.0 ± 1 % By Weight 42.0 ± 1 % By Volume THEORETICAL COVERAGE ~ 55 Sq. Ft. @ Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Oil Free
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn Cup FILM THICKNESS ____ Mils (Wet) .7-1.0 Mils (Dry) BAKE ____ @ ____ °F. Peak Metal Temp. ____ °F. REDUCE 8-1 With Xylol OTHER Clean up solvent(s) Xylol
PROPERTIES	GLOSS ____ @ ____ Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	V.O.C. = 3.74 Air-dry tack free 1 hour, overnight - hard. Rule 66

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 5-30-84
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-72

NAME Drum Enamel Chevron Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 30 - 35 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.88 ± .15 Lbs. Pigment 9.8 % By Weight

SOLIDS 47 ± 1 % By Weight 35 ± 1 % By Volume

THEORETICAL COVERAGE 565 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE Steel Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free from surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" Zahn 2 Cup

FILM THICKNESS Mils (Wet) 0.7 - 1.0 Mils (Dry)

BAKE 5-10' @ °F. Peak Metal Temp. 275 °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turqvoise) Solvent Rubs

REMARKS

Rule 66 met

VOC = 4.16 lbs/gallon

ELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 7/27/83

Ref. No. WO 1511

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-74

NAME Drum Enamel Gulf Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 35-50 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.6 ± .1 Lbs. Pigment 5.2 % By Weight

SOLIDS 45 ± 1 % By Weight 35 ± 1 % By Volume

THEORETICAL COVERAGE 571 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free from all Surface Contaminants

APPLICATION

METHOD Spray Applied Viscosity 30 - 35 Sec. #2 Zahn Cup

FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10 min. @ °F. Peak Metal Temp. 275 °F.

REDUCE 10:1 With Naphtha

OTHER Clean up solvent(s) Naphtha or Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.13 lbs/gallon
Conforms to Rule 66

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 8/19/83

Ref. No. 1520

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-77

NAME Drum Enamel Fina Blue

COLOR Blue TYPE Mod. Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40 - 50 Sec. # 4 Ford Cup @ 80°F. Sec. # Zahn Cup @ 80°F. WEIGHT PER GALLON 7.75 ± .1 Lbs. Pigment 6.6 % By Weight SOLIDS 47 ± 1 % By Weight 36 % By Volume THEORETICAL COVERAGE 589 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With GAUGE Reverse Side CHEMICAL TREATMENT Free of all surface contaminants
APPLICATION	METHOD spray Applied Viscosity 30-35" #2 Zahn FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. °F. REDUCE 10 - 1 With Naphtha OTHER Clean up solvent(s) Aromatic
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.1 lbs/gallon Conforms to Rule 66. This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 10/4/83
	Attn.		Ref. No.

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-B-78

NAME Drum Enamel Chevron 370 Blue

COLOR Blue TYPE Alkyd

SUGGESTED USE

☒ EXTERIOR Drum Enamel

☐ INTERIOR

CONSTANTS

VISCOSITY 35-50 Sec. # 4 Ford Cup @ 80°F.

Sec. # Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.89 ± .15 Lbs. Pigment 10 % By Weight

SOLIDS 47 ± 1 % By Weight 36 % By Volume

THEORETICAL COVERAGE 570 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With

GAUGE Reverse Side

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" #2 Zahn

FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5' @ °F. Peak Metal Temp. 275 °F.

REDUCE 10-1 With Naphtha

OTHER Clean up solvent(s) Aromatic or naphtha

PROPERTIES

GLOSS 85+ @ 60 Angle Contains Lubricant

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

Meets rule 66

VOC = 4.1 lbs/gallon

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

" Laboratory

Date 3/9/84

Ref. No. 1610

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-D-9

NAME Drum Enamel Brown

COLOR Brown TYPE Mod. Alkyd

SUGGESTED USE

☒ EXTERIOR Drum Enamel

☐ INTERIOR

CONSTANTS

VISCOSITY 40-50 Sec. # 4 Ford Cup @ 80°F.

_____ Sec. # _____ Zahn Cup @ 80°F.

WEIGHT PER GALLON 7.95 ± .1 Lbs. Pigment 10.6 % By Weight

SOLIDS 49 ± 1 % By Weight 37 % By Volume

THEORETICAL COVERAGE 594 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With _____

GAUGE _____ Reverse Side _____

CHEMICAL TREATMENT Free of all surface contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35" #2 Zahn

FILM THICKNESS _____ Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10' @ 275 °F. Peak Metal Temp. _____ °F.

REDUCE 10 - 1 With Naphtha

OTHER Clean up solvent(s) Aromatic

PROPERTIES

GLOSS 85+ @ 60° Angle Contains Lubricant _____

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.1 lbs/gal.
Conforms to Rule 66
This product will air dry to handle in 15 minutes and is hard overnight.

'ELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 10/4/83

Ref. No.

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-F-16

NAME Air-Dry Drum Enamel Texas Gray

COLOR Gray TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 50-60 Sec. @ 4 Ford Cup @ 80°F. ____ Sec. @ ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.8 ± .15 Lbs. Pigment ____ % By Weight SOLIDS 59 ± 1 % By Weight 44 ± 1 % By Volume THEORETICAL COVERAGE 402 Sq. Ft. @ Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE -- Reverse Side ____ CHEMICAL TREATMENT Oil Free
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn Cup FILM THICKNESS ____ Mils (Wet) .7-1.0 Mils (Dry) BAKE ____ @ ____ °F. Peak Metal Temp. ____ °F. REDUCE 8-1 With Xylol OTHER Clean up solvent(s) Xylol
PROPERTIES	GLOSS ____ @ ____ Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	V.O.C. = 3.56 Air-dry tack free 1 hour, overnight - hard.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 5-30-84
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-F-22

NAME Drum Enamel Texaco Gray

COLOR Gray TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.09±.15 Lbs. Pigment 12.0 % By Weight SOLIDS 48±1 % By Weight 35±1 % By Volume THEORETICAL COVERAGE 563 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free from surface contaminants
APPLICATION	METHOD Spray Applied Viscosity as required FILM THICKNESS _____ Mils (Wet) 0.7-1.0 Mils (Dry) BAKE 5-10 @ 300 °F. Peak Metal Temp. _____ °F. REDUCE 10-1 With Naphtha OTHER Clean up solvent(s) Aromatic or Naphtha
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Meets Rule 66 VOC = 4.2 lbs. per gallon

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 3/29/83
	Attn.		Ref. No.

Mobil Chemical. product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-F-23

NAME Semi-Gloss Texaco Gray Enamel

COLOR Gray TYPE Mod. Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-55 Sec. # 4 Ford Cup @ 80°F. Sec. # Zahn Cup @ 80°F. WEIGHT PER GALLON 8.28 ± .15 Lbs. Pigment 15.5 % By Weight SOLIDS 50 ± 1 % By Weight 36 % By Volume THEORETICAL COVERAGE 581 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With GAUGE Reverse Side CHEMICAL TREATMENT Free of all surface contaminants
APPLICATION	METHOD Spray Applied Viscosity 30-33" #2 Zahn FILM THICKNESS Mils (Wet) .7 - 1 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. °F. REDUCE 10 - 1 With Naphtha OTHER Clean up solvent(s) Aromatic
PROPERTIES	GLOSS 50-60 @ 60° Angle Contains Lubricant PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.1 lbs/gallon Conforms with Rule 66 This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 10/7/83
	Attn.		Ref. No. 1550

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-G-40

NAME Drum Enamel Texaco Green

COLOR Green TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30 - 35 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 7.89 ± .15 Lbs. Pigment 9 % By Weight SOLIDS 46.5±1 % By Weight 34.5 % By Volume THEORETICAL COVERAGE 554 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free of oil and water soluble salts.
APPLICATION	METHOD Spray Applied Viscosity as required FILM THICKNESS _____ Mils (Wet) 1 Mils (Dry) BAKE 5-10' @ 300 °F. Peak Metal Temp. _____ °F. REDUCE 10-1 With VM&P Naphtha OTHER Clean up solvent(s) Naphtha or aromatic
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Rule 66 complying VOC = 4.2 lbs/gal.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 3/23/83
	Attn.		Ref. No.

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-G-42

NAME Semi-Gloss Texaco Green Enamel

COLOR Green TYPE Mod. Alkyd

SUGGESTED USE	[x] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-55 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.07 + .15 Lbs. Pigment 12.3 % By Weight SOLIDS 48 ± 1 % By Weight 35 % By Volume THEORETICAL COVERAGE 569 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free of all surface contaminants.
APPLICATION	METHOD Spray Applied Viscosity 30-33" #2 Zahn FILM THICKNESS _____ Mils (Wet) .7 - 1 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. _____ °F. REDUCE 10 - 1 With Naphtha OTHER Clean up solvent(s) Aromatic
PROPERTIES	GLOSS 50-60 @ 60° Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC - 4.1 lbs/gallon Conforms with Rule 66 This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 10/7/83
	Attn.		Ref. No. 1550

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210 J 20

NAME Drum Enamel Black

COLOR Black

TYPE Modified Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40-50 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 7.35±.1 Lbs. Pigment 2.7 % By Weight SOLIDS 42±1 % By Weight 34±1 % By Volume THEORETICAL COVERAGE 602 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Oil free
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn FILM THICKNESS ____ Mils (Wet) .7-1 Mils (Dry) BAKE 5-10' @ 275-300 °F. Peak Metal Temp. ____ °F. REDUCE 8-1 With Naphtha OTHER Clean up solvent(s) Naphtha or Toluene
PROPERTIES	GLOSS 85+ @ 60 Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Conforms to Rule 66

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date
	Attn.		Ref. No.

Mobil Chemical

product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 10-R-12

NAME Mobil Drum Red Enamel

COLOR Red

TYPE Mod. Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 40 - 50 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.66 ± .15 Lbs. Pigment 18 % By Weight SOLIDS 53 ± 1 % By Weight 38 % By Volume THEORETICAL COVERAGE 608 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Free of all surface contaminants
APPLICATION	METHOD Spray Applied Viscosity 28 - 33" #2 Zahn Cup FILM THICKNESS ____ Mils (Wet) 1 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. ____ °F. REDUCE 10 - 1 With Naphtha OTHER Clean up solvent(s) Aromatic
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.0 lbs/gal. Conforms to Rule 66. This product will air dry to handle in 15 minutes and is hard overnight.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 2-28-83
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-R-26

NAME Drum Enamel Shell Red

COLOR Red TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F. _____ Sec. # _____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.1 ± .1 Lbs. Pigment 11.5 % By Weight SOLIDS 48 ± 1 % By Weight 35 ± 1 % By Volume THEORETICAL COVERAGE 559 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Free from surface contaminants
APPLICATION	METHOD Spray Applied Viscosity as required FILM THICKNESS _____ Mils (Wet) .7 - 1.0 Mils (Dry) BAKE 5-10 min. @ 300 °F. Peak Metal Temp. _____ °F. REDUCE as required With Naphtha OTHER Clean up solvent(s) Aromatic or Naphtha
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant Yes PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Conforms with the requirements of Rule 66 VOC = 4.18 lbs. per gallon
VELOPED FOR	Attn.
SUBMITTED BY	Salesman Laboratory Date 4/11/83 Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210 W 12

NAME Air Dry Drum En. Mobil White

COLOR White TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY _____ Sec. @ _____ Ford Cup @ 80°F. 40-60 Sec. @ 2 Zahn Cup @ 80°F. WEIGHT PER GALLON 9.15±.15 Lbs. Pigment 22. % By Weight SOLIDS 53 ± 1 % By Weight 36 % By Volume THEORETICAL COVERAGE 583 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE Steel Primed With _____ GAUGE _____ Reverse Side _____ CHEMICAL TREATMENT Oil Free
APPLICATION	METHOD Spray Applied Viscosity 30-35 2 Zahn Cup FILM THICKNESS _____ Mils (Wet) .7-1 Mils (Dry) Air dry to handle 15 min. overnight hard BAKE _____ @ _____ °F. Peak Metal Temp. _____ °F. REDUCE as required With Naphtha OTHER Clean up solvent(s) Toluene
PROPERTIES	GLOSS 85+ @ 60 Angle Contains Lubricant _____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	Conforms to Rule 66
DEVELOPED FOR	_____ _____ _____ Attn.
SUBMITTED BY	Salesman Laboratory Date Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-W-24

NAME Drum Enamel SSCI #41 White

COLOR White TYPE Alkyd

SUGGESTED USE	[X] EXTERIOR Drum Enamel [ ] INTERIOR
CONSTANTS	VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 9.4 ± .15 Lbs. Pigment 29.0 % By Weight SOLIDS 57±1 % By Weight 38±1 % By Volume THEORETICAL COVERAGE 606 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With ____ GAUGE ____ Reverse Side ____ CHEMICAL TREATMENT Free from surface contaminants
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn Cup FILM THICKNESS ____ Mils (Wet) 0.7 - 1.0 Mils (Dry) BAKE 5-10' @ 300 °F. Peak Metal Temp. ____ °F. REDUCE 10-1 With Naphtha OTHER Clean up solvent(s) Naphtha or toluene
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 3.99 lbs/gallon Meets Rule 66.

DEVELOPED FOR		SUBMITTED BY	Salesman
			Laboratory
			Date 4/19/83
	Attn.		Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-Y-47

NAME Drum Enamel Shell Yellow

COLOR Yellow TYPE Alkyd

SUGGESTED USE	☒ EXTERIOR Drum Enamel ☐ INTERIOR
CONSTANTS	VISCOSITY 30-35 Sec. # 4 Ford Cup @ 80°F. Sec. # Zahn Cup @ 80°F. WEIGHT PER GALLON 9.17 ± .15 Lbs. Pigment 24 % By Weight SOLIDS 55 ± 1 % By Weight 36 ±1 % By Volume THEORETICAL COVERAGE 575 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE CRS Primed With GAUGE Reverse Side CHEMICAL TREATMENT Free from surface contaminants
APPLICATION	METHOD Spray Applied Viscosity 30-35" #2 Zahn FILM THICKNESS Mils (Wet) 0.7 - 1.0 Mils (Dry) BAKE 5-10' @ 275 °F. Peak Metal Temp. 275 °F. REDUCE 10-1 With Naphtha OTHER Clean up solvent(s) Naphtha or Toluene
PROPERTIES	GLOSS 85+ @ 60° Angle Contains Lubricant PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	VOC = 4.12 lbs/gallon Meets Rule 66
ELOPED FOR	Attn.
SUBMITTED BY	Salesman Laboratory Date 4/14/83 Ref. No.

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 210-Y-48

NAME Drum Enamel Gulf Orange

COLOR Orange TYPE Alkyd

SUGGESTED USE

[X] EXTERIOR Drum Enamel

[ ] INTERIOR

CONSTANTS

VISCOSITY 35 - 50 Sec. # 4 Ford Cup @ 80°F.

_____ Sec. # _____ Zahn Cup @ 80°F.

WEIGHT PER GALLON 8.3 ± .1 Lbs. Pigment 13.2 % By Weight

SOLIDS 51 ± 1 % By Weight 37 ± 1 % By Volume

THEORETICAL COVERAGE 592 Sq. Ft. @ 1 Mil Dry Film (100% Efficiency)

SUBSTRATE

TYPE CRS Primed With _____

GAUGE _____ Reverse Side _____

CHEMICAL TREATMENT Free from all Surface Contaminants

APPLICATION

METHOD Spray Applied Viscosity 30-35 Sec. #2 Zahn Cup

FILM THICKNESS _____ Mils (Wet) .7 - 1 Mils (Dry)

BAKE 5-10 min. @ _____ °F. Peak Metal Temp. 275 °F.

REDUCE 10:1 With Naptha

OTHER Clean up solvent(s) Naphtha or Aromatic

PROPERTIES

GLOSS 85 + @ 60° Angle Contains Lubricant _____

PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs

REMARKS

VOC = 4.04 lbs/gallon
Conforms to Rule 66

DEVELOPED FOR

Attn.

SUBMITTED BY

Salesman

Laboratory

Date 8/10/83

Ref. No. 1520

Mobil Chemical — product data sheet

CHEMICAL COATINGS DIV.
P. O. BOX 250
EDISON, NEW JERSEY 08817

CODE 285-R-9

NAME Drum Lining Red

COLOR Red

TYPE Alkyd-Amine

SUGGESTED USE	☐ EXTERIOR Special Purpose Drum Lining ☒ INTERIOR
CONSTANTS	VISCOSITY 20-30 Sec. # 4 Ford Cup @ 80°F. ____ Sec. # ____ Zahn Cup @ 80°F. WEIGHT PER GALLON 8.2 ± 1 Lbs. Pigment 12.0 % By Weight SOLIDS 45.2 ± 1 % By Weight 33.9 % By Volume THEORETICAL COVERAGE 545 Sq. Ft. @ Mil Dry Film (100% Efficiency)
SUBSTRATE	TYPE Steel Primed With -- GAUGE Varied Reverse Side -- CHEMICAL TREATMENT Free from all surface contaminants.
APPLICATION	METHOD Spray Applied Viscosity ____ FILM THICKNESS - Mils (Wet) .5 - .7 Mils (Dry) BAKE 10 @ 300 - 400 °F.* Peak Metal Temp. ____ °F. REDUCE As required With Toluol OTHER Clean up solvent(s) Toluol
PROPERTIES	GLOSS ____ @ ____ Angle Contains Lubricant ____ PENCIL HARDNESS (Eagle Turquoise) Solvent Rubs
REMARKS	* Bake temperature dependent upon end use of package. Note: When lining is to hold shortening, pure foods, and edible oils, the final bake must be 10 minutes at 400°F.

DEVELOPED FOR	Attn.	SUBMITTED BY	Salesman Laboratory Date Ref. No.

EXHIBIT 3

KNS Companies, Inc.
475 RANDY ROAD, P. O. BOX 962
CAROL STREAM, ILLINOIS 60187
Telephone: Area 312/665-9010

kerpro

May 22, 1984

Mr. J. M. Murphy
Drum Service Co. of Florida
803 Jones Ave.
Zellwood, Fla. 32798

Dear Mr. Murphy:

KNS lining L-15 (407-30-J76) has a V.O.C. content of 4.84 pounds per gallon. The following lists the percentage of volatiles.

Xylol	8.0%
Ketones, exempt	8.54
Ketones, non-exempt	11.26
Alcohols, exempt	62.94
Esters	9.27
	100.01%

Please let me know if any additional information is needed.

Very truly yours,
KNS COMPANIES, INC.

John M. Browning
General Manager

JMB/jd

L-15
57% ss/Lx
4.7 lbs/gallon

500 VISTA [illegible]
ADDISON, ILLINOIS 60101
Telephones: Area 312/543-2020

® Area Code 312/ 543

CONTAINER LININGS
PROPERTIES & APPLICATION DATA

CODE NO. 407-30B-J76

DESIGNATION Kerpro Lo-Cure L-15 Dark Brown Pigmented, Ready to Spray.

DESCRIPTION

Epoxy modified phenolic resin base, pigmented with inert pigments.

TYPICAL PROPERTIES

VISCOSITY #4FC @ 70°F., SECS	26 ± 1	DENSITY @ 70°F., LBS./GALS	8.8 ± 1
RESIN SOLIDS % BY WEIGHT	26 ± 1	TOTAL SOLIDS % BY WEIGHT	40 ± 2
PIGMENT SOLIDS % BY WEIGHT	14 ± 1	TOTAL SOLIDS % BY VOLUME	28 ± 2
COLOR, WET	Dark Brown	GLOSS GARDNER 60°	40 ± 10
COLOR, BAKED	Dark Brown	HIDING POWER SQ. FT./GAL.	650 @ 0.7 mils D[illegible]

APPLICATION DATA

FOR REDUCTION USE: No reduction required

\- PARTS (VOLUME) KERPRO - PARTS (VOLUME) SOL

APPLY BY Spray as is.

APPLY 2.5 - MILS WET TO OBTAIN 0.7 - 0.8 MILS

FORCE DRY 5 MINUTES AT 250 °F.*

BAKE 10 MINUTES AT 350 °F.*

CLEAN UP SOLVENT MEK

*METAL TEMPERATURE

NOTES

SUMMARY OF INVOICES FOR EXTERIOR COATING, LINING, AND SOLVENT PURCHASES FOR CALENDAR YEARS 1983 and 1984

1983 — For Paints

BEST AVAILABLE COPY

Vendor	Invoice #	Name of Paint	quantity (gal)	V.O.C (lbs/gal)	V.O.C (lbs)
Sherwin Williams	3959	White Dir Sig Enamel (7.15)	275	4.3	1183
Dobier & Gray	3611	Drum Black Enamel (7.35)	450	4.3	193
"	" " "	(7.35)	35	4.3	151
	4684	Drum Black Enamel (7.35)	250	4.3	107
	"	Drum Cal. oil Blue	150	3.8	57
Mobile	204360	Drum Enamel Black NL (7.35)	550	4.3	236
	292790	Spray Enamel Aneco Blue	110	3.8	41
	"	Drum Enamel Black NL (7.35)	550	4.3	236
	"	Drum EN PG Light Blue (6.26)	50	4.1	205
	"	" " " " (6.26)	45	4.1	185
	"	Texas Grey Enamel NL (8.09)	275	3.6	990
	"	Drum Enamel Fed Red NL	55	4.1	226
	"	Spray EN SSG #41 NL (9.4)	110	4.1	45
	"	Shell Yellow EN NL (9.17)	55	4.3	237
	"	Cal Oil Blue Back ENL	165	3.8	627
	"	Spray EN Fed Blue (7.79)	40	4.1	164
	260610	Drum Enamel Black NL (7.35)	550	4.3	2365
	346100	Drum Enamel Black NL (7.35)	550	4.3	2365
	"	DRM ENL Chevron Blue (7.68)	275	4.2	1155
	"	SHELL GL Tex Green EN (8.07)	110	4.2	462
	"	SPRAY EN SSG #41 NL (9.4)	55	4.1	226
	195590	Drum Enamel Black NL (7.35)	550	4.3	2365
	"	DR EN New Chevron Blue (7.91)	275	4.3	1183
	"	Spray EN SSG #41 NL (9.4)	55	4.1	226
	"	Shell GLO Texas Grey EN (8.20)	110	4.2	462

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C. (lbs/gal)	V.O.C. (lbs)
	223730	Dram Enamel Blk RL (7.33)	55	4.3	237
	244000	" " " " (7.33)	550	4.3	2365
	244070	Dram EN Brown (7.75)	55	11.0	220
	222560	Spray EN Fire Blue (8.75)	55	4.1	226
	"	Dram. Grey Enamel RL (6.00)	110	3.6	396
	"	Dram Enamel Esso Red RL	110	11.1	1221
	"	Dram Enamel Black RL (7.33)	220	4.3	946
	204290	Dram EN Brown (7.75)	55	11.0	220
	303370	Dram Enamel Black RL (7.33)	550	4.3	2365
	"	DR EN Nat Chevron Blue (7.69)	220	4.2	924
	"	SEMI GLO Tobacco Grey EN (6.26)	40	4.2	168
	"	Dram EN Brown (7.75)	50	4.0	200
	284040	Spray EN Fire Blue (7.75)	55	4.1	226
	"	Gloss EN Tobacco Green RL (7.67)	110	3.9	429
	303380	DR EN Nat Chevron Blue	220	4.2	924
	231260	Spray EN Metallic Beige RL	55	4.2	231
	236410	DR EN Nat Chevron Blue	55	4.2	231
	237600	Dram Enamel Black RL.	550	4.3	2365
	"	DR EN Nat Chevron Blue	220	11.2	924
	"	Dram EN Brown	50	4.0	200
	317060	Spray EN SSCI #41 RL	275	11.1	1221
	"	Dram Enamel Esso Red RL	55	11.1	611
	"	Spray EN Fire Blue	55	11.1	226
	306150	Dram EN Chevron Blue	550	4.2	2310
	334130	Dram Enamel Black RL	275	4.3	1183
	308060	DR EN Nat Chevron Blue	220	4.2	924
	317360	Spray EN Fire Blue	55	4.1	226
	274600	Dram EN Brown RL.	55	4.1	226
	"	Spray EN SSCI #41	40	11.1	444

Vendor	Invoice #	Name of [illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	165	4.1	[illegible]
	271610	Drum Enamel Black RL	825	4.3	3548
	"	DR EN New Devon Blue	220	4.2	1034
	"	SEMI GLO Texaco Grey EN	110	4.2	1162
	"	Drum EN Sea Light Blue	55	4.1	226
	314390	" " " "	110	4.1	451
	"	Cal 0.1 Blue Bulk ENL	110	3.8	418
	"	Drum Enamel Esso Red RL	55	4.1	226
	"	DR EN New Devon Blue	330	4.2	1386
	"	SEMI GL Tex Green EN	110	4.2	462
	"	SEMI GLO Texaco Grey EN	110	4.2	462
	327460	Drum Enamel Black RL	275	4.3	1183
	334140	" " " "	550	4.3	2365
	"	SEMI GLO Texaco Grey EN	55	4.2	231
	"	" " " "	30	4.2	126
	222550	Drum Enamel Black RL	550	4.3	2365
	"	Drum Enamel Esso Red RL	110	4.1	451
	209430	Drum Enamel Black RL	550	4.3	2365
	"	DR EN New Devon Blue	165	4.2	693
	"	Spray EN Rose Blue	55	4.1	226
	"	Foot Brake EN White	110	4.1	451
	278270	Drum EN Brown	55	4.0	220
	"	DR EN New Devon Blue	275	4.2	1155
	326230	Drum Enamel Black RL	275	4.3	1182
	"	Spray EN Rose Blue	55	4.1	226
	318540	Drum Enamel Black RL	550	4.3	2365
	"	Spray Enamel Indico Blue	55	3.8	209

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	VOC lbs
Mobile	233990	Drum Enamel Black RL	550	4.3	2365
	"	Spray Enamel Arroco Blue	55	3.8	209
	"	Drum EN PG Light Blue	55	4.1	226
	"	Spray EN SSCI #41	110	4.1	451
	225930	Drum Enamel Black RL	550	4.3	2365
		DR EN New Devron Blue	275	4.2	1155
		Fast Dry EN White	110	4.1	451
	216250	Drum Enamel Black RL	550	4.3	2365
	"	Spray Enamel Arroco Blue	55	3.8	209
	"	Drum EN PG Light Blue	55	4.1	226
	"	DR EN New Devron Blue	275	4.2	1155
	"	Drum Enamel ESSO Red RL	55	4.1	226
	"	SPray EN SSCI #41	110	4.1	451
	222560	Spray EN Fast Dry	55	4.1	226
	"	Drum Grey Enamel RL	110	3.6	396
	"	Drum Enamel ESSO Red RL	110	4.1	451
	"	Drum Enamel Black RL	220	4.3	946
	279080	Spray EN Fast Blue	55	4.1	226
	"	Drum Enamel ESSO Red RL	55	4.1	226
	279070	DEMI Glo Texaco Grey EN	110	4.2	462
	272781	DR EN New Devron Blue	220	4.2	924
	705000	" " "	110	4.2	462
	301620	Mobile DR Red ENL	110	3.6	396
	303950	Texaco Grey Enamel RL	110	4.2	462
	272780	Drum EN Brown	55	4.0	220
	251460	Drum Enamel Black RL	550	4.3	2365
	249340	DR EN New Devron Blue	220	4.2	924
	"	Demi Glo Texaco Grey EN	110	4.2	462

Best Available Copy

Vendor	Invoice #	Name of Paint	Quantity (gal)	VOC (lbs/gal)	VOC (lbs)
Mobile	267820	Mobile DE Red ENL.	55	4.2	231
	267770	Drum Enamel Black RL	550	4.3	[illegible]
	"	Drum Enamel C550 Red RL	55	4.1	226
	"	DE EN New Chevron Blue	220	4.2	924
	264310	Spray EN [illegible]	55	4.1	[illegible]
	"	Drum Enamel C550 Red.	55	4.1	226
	265830	Drum Enamel Black RL.	550	4.3	[illegible]
	264700	SEMI Glo Texaco Gray EN	55	4.2	231
	"	Drum Enamel Black RL	550	4.3	[illegible]
	"	Drum Enamel C550 Red RL	110	4.1	451
	"	DE EN New Chevron Blue	220	4.2	924
	264710	Spray EN SSCI 441	55	4.1	226
	"	Fast Bake EN White	110	4.1	451
	"	SEMI Glo Texaco Gray EN	55	4.2	231
	"	Texaco Gray Enamel RL	110	3.6	396
	242640	Mobile Red ENL NO2.	55	4.2	231
	254240	DE EN New Chevron Blue	220	4.2	924
	"	Spray Enamel [illegible] Blue	55	3.8	209
	"	SEMI GL TEX Green EN	55	4.2	231
	"	" " "	40	4.2	168
	253430	Mobile Red ENL NO2	55	4.2	231
	244510	Drum Enamel Black RL	825	4.3	3548
	"	Fast Bake EN White	110	4.1	451
	"	Spray EN [illegible] Blue	55	4.1	226
	"	SEMI GL TEX Green EN	110	4.2	462
	333970	EN Mobile Drum Red Spray	12	4.2	50
	346070	DRM ENL SHL Red	165	4.2	693
		Drum Enamel Black RL	275	4.3	1183
		SEMI GL Tex Green EN	53	4.2	223

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lbs/gal)	V.O.C #'s
Mobile	34 2950	Cal oil Blue Bak ENL	165	3.8	627
	341060	Dimm EN PG light Blue	55	4.1	226
	339500	DM ENL TEX GY	55	4.2	231
	"	Spray EN SSC1 #41	165	4.1	677
	"	Dimm EN Black	110	4.0	440
	398200	Dimm EN Orange RL	55	4.1	226
	"	DM ENL Gulf Blue	55	4.1	226
	284040	Bake EN Texas Green RL	110	5.9	649
	335530	Mobil DM Red ENL	110	4.2	462
	"	Spray EN Final Blue	55	4.1	226
	"	Dimm ENL SHL Red	220	4.2	924
	340410	Dimm EN [illegible] EN RL	55	4.1	226
	300750	Dimm EN Chevron Blue	110	4.2	462
	"	DM ENL Tex Gy	110	4.2	462
	"	" " Green	110	4.2	462
	"	DM ENL SHL RED	55	4.2	231
	"	" " Yellow	55	4.1	226
	"	AD Dimm EN Mobil White	55	4.3	237
	297120	Mobil Red ENL # 2	55	4.2	231
	"	Spray EN Mobil Blue	55	4.2	231
	"	Semi Gloss Texaco Gray	110	4.2	462
	"	Dimm EN Blue	55	4.3	237
	"	DR EN Med Chevron Blue	110	4.2	462
	271260	Dimm EN Blue	55	4.3	237
	330330	DM ENL TEX GY	55	4.2	231
	33 7500	Mobil DM Red ENL	55	4.2	231

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
Mon. Coating Enc.	230121	Black Drum Enamel	110	4.3	473
	231220	Texaco Green Drum EN	55	4.2	231
	"	Amoco Blue Drum EN	55	3.8	209
	"	Black Drum EN	275	4.3	1183
	"	QD Enamel chevron blue	55	4.2	231
	228943	Black Drum Enamel	110	4.3	473
			29,455		123,921 lbs

62 Tons

average weight of paint 7.725 lb/gal

7.725 lb/gal X 29,455 gal = 227,539.88 lbs

Year 1984 For Paints

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (#/gal)	V.O.C (lbs)
Ala Laboratories	4138	White Alk Dry Enamel	110	4.3	473
Sears & Roy	10169	Drum Cal Oil Blue	100	3.8	380
"	"	Drum # 1111 Black	150	4.3	645
	10754	" Black EN	250	4.3	1075
	10818	" Cal Oil Blue	100	3.8	380
	11263	" " " "	100	3.8	380
	12264	" " " "	150	3.8	570
	14243	" " " "	100	3.8	380
	14245	" " " "	150	3.8	570
	15618	" " " "	200	3.8	760
Product Coating	44112	Texaco Green Drum EN	110	4.2	462
"	"	" " "	5	4.2	21
Southern Coating	232660	Black Brown Enamel	550	4.3	2365
	232746	Texaco Green Oil Enamel	165	4.2	693
"	"	" " "	51	4.2	214
	232837	Shell Red Brown ENA	165	4.1	677
	233204	QD Epoxy Cl into Inorganic Reds	110	4.2	462
	234315	Black Brown EN	275	4.3	1183
	235558	" " "	220	4.3	946
	235675	" " "	55	4.3	237
	236774	Shell Red Brown ENA	165	4.2	693
Stevens Paint Co.	71612	H.B. Black	55	4.3	237
"	"	#1 4172 White	55	4.0	220

Vendor	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (lb/gal)	V.O.C lb
A-bil	350490	DRM ENL Red shell	53	4.2	1 3 9
	"	DM " " Yellow	110	4.1	4 5 1
	344010	DM ENL Tex Gy	110	4.2	4 6 2
	"	DM EN Shell Red	165	4.2	6 9 3
	345850	" " " "	330	4.2	1 3 8 6
	"	" " Tex GRN	55	4.2	2 3 1
	"	Spray EN 5501 # 41	55	4.1	2 2 6
	350470	Drum EN Black RL	550	4.3	2 3 6 5
	"	" " chevron BL.	275	4.2	1 1 5 5
	355790	Drum EN Black RL	550	4.3	2 3 6 5
	"	" " chevron Blue	275	4.2	1 1 5 5
	"	Drum EN Brown	110	4.1	4 5 1
	359860	Drum ENL Black RL	275	4.3	1 1 8 3
	"	DM EN PG light Blue	110	4.1	4 5 1
	356370	DM ENL Tex Gy	110	4.2	4 6 2
	"	" " " "	34	4.2	1 4 3
	"	Spray EN Fin Blue	55	4.1	2 2 6
	359870	DM EN Black RL	275	4.3	1 1 8 3
	"	DM EN PG light Blue	110	4.1	4 5 1
	367020	DM EN Black RL	275	4.3	1 1 8 3
	367030	DM EN chevron Blue	110	4.2	4 6 2
	367040	" " "	110	4.2	4 6 2
	"	Spot Bake EN White	55	4.1	2 2 6
	"	DM EN Black RL	275	4.3	1 1 8 3
	367050	" " " "	550	4.3	2 3 6 5
		DM EN chevron Blue	55	4.2	2 3 1
		" " Fine Blue	110	4.1	4 5 1
		Semi Gloss Tex GRN ENL	110	4.1	4 5 1

Vendor's	Invoice #	Name of Paint	Quantity (gal)	P.O.C. (%)	(lb)
Mobil	371670	DM LN Black RL	275	4.3	1183
	"	Fast Dry EN White	55	4.1	226
	"	DM EN Chevron Blue	165	4.2	693
	367810	Fast Dry EN White	110	4.1	451
	370880	" " " "	55	4.1	226
	"	DM EN SSC1 #41 White	55	4.0	220
	378330	DM EN Black RL	220	4.3	946
	"	" " " "	45	4.3	194
	"	DM EN PG Light Blue	55	4.1	226
	"	" " Canary	55	4.1	226
	"	SEMI Gloss TEK GRY ENL	55	4.1	226
	"	" " " "	43	4.1	176
	"	DM EN Chevron Blue	220	4.2	924
		" " " "	45	4.2	189
	378320	DM EN Black	550	4.3	2365
	"	" " Shell Yellow	55	4.1	226
	"	" " PG Light Blue	55	4.1	226
	"	Spray EN Amoco Blue	55	3.8	209
	373140	DM EN SSC1 #41 White	165	4.0	660
	381740	Spray EN " " RL	110	4.0	440
	382140	DM EN Chevron Blue	165	4.2	693
	384070	DM EN Black RL	440	4.3	1892
	"	DM EN Chevron Blue	165	4.2	693
	384100	SEMI Gloss TEK GRY ENL	110	4.1	451
	388080	DM EN Black RL	275	4.3	1183
	"	DM EN Canary	55	4.1	226
	"	" " Fast Blue	110	4.1	451
	"	" " PG Light Blue	55	4.1	226

Vendor	Invoice #	Name of Paint	Quantity (gal)	V.O.C (lb/gal)	VOC (lb)
Mobil	388070	DH EN Black	275	4.3	1183
"	"	Sch Class Tex Gen EN	110	4.1	451
"	"	DH EN chevron Blue	110	4.2	462
"	"	" " " "	34	4.2	143
394830	DM EN Black		165	4.3	710
"	" " Brown		55	4.1	226
"	" " chevron Blue		165	4.2	693
388770	A Amoco Blue EN KL		55	3.8	209
"	DH EN Gulf Blue		55	4.1	226
391770	Spray EN 53CI H41 KL		55	4.1	226
397070	DH EN Black		550	4.3	2365
"	DM EN PG light blue		55	4.1	226
"	DM EN Shell KL.		110	4.2	462
"	Sch Class Tex 6001 EN		110	4.1	451
"	DM EN chevron blue		165	4.2	693
402820	DM EN Shell Red		165	4.2	693
"	DH EN PG light blue		110	4.1	451
"	DH EN Chevron blue		220	4.2	924
394560	DM EN Gulf ORG		110	4.0	440
"	" " " Blue		110	4.1	451
"	Spray EN 53CI-H41		110	4.1	451
396960	" " " "		165	4.1	677
402850	DH EN Black KL		550	4.3	2365
402840	" " "		275	4.3	1183
"	" " chevron Blue		275	4.2	1155
400220	A Amoco Blue EN KL		110	3.8	418
"	" " " " "		110	3.8	418
"	" " " " "		110	3.8	418

Vernon	Invoice #	Name of Paint	Quantity (Gal)	V.O.C (lb/gal)	V.O.C (lb)
Mobil	409070	DM EN Black RL	550	4.3	2365
	"	" " Chevron Blue	55	4.2	231
	"	DK EN New Chevron Blue	275	4.2	1155
	413800	DM EN Black RL	275	4.3	1183
	"	" " Fina Blue	110	4.1	451
	418940	SEMI Gloss TCX GRN EN	110	4.1	451
	"	DM EN Gulf Blue	110	4.1	451
	"	DM EN Black RL	275	4.3	1183
	418970	DN Chevron 370 Blue	275	4.1	1128
	"	Primer EN SSC1 #41	165	4.1	677
	"	DM EN SSC1 #41 White	110	4.0	440
	"	" " " "	41	4.0	164
	424020	DM EN Black RL	55	4.3	237
	422470	" " " "	275	4.3	1183
	424050	DN Chevron 370 Blue	275	4.1	1129
	424100	DM EN Black RL	275	4.3	1183
	"	" " PG Light Blue	55	4.1	226
	"	" " Gulf Blue	55	4.1	226
	"	SEMI Gloss TCX GRN EN	110	4.1	451
	"	" " " GRN "	50	4.1	205
	433110	DM EN Black RL	110	4.3	473
	433100	" " "	550	4.3	2365
	454580	DM EN Gulf Blue	55	4.1	226
	"	" " " ORG	55	4.0	200
	"	DEN Chevron 370 Blue	275	4.1	1129
	"	DM EN Chevron YEL	55	4.1	226
	"	AMOCO Blue EN RL	110	3.8	418
	433580	DEN Chevron 370 Blue	330	4.1	1353
	426520	" " " "	275	4.1	1129

Vendor	Invoice #	Name of Paint	Gravity (lbs/gal)	V.O.C (lbs/gal)	V.O.C (lbs)
Mixed	444470	DM EN PG Light Blue	45	4.1	185
"	" " " Gulf ORG		55	4.0	220
"	" " " Black RL		110	4.3	473
454570	" " " "		165	4.3	710
454620	SEMI Gloss TEX GRY EN		110	4.1	451
454560	DEN Chevron 370 Blue		275	4.1	1128
"	DM EN Fan Blue		110	4.1	451
456360	DM EN IB Light Blue		110	4.1	451
451700	SEMI Gloss TEX GRY EN		220	4.1	902
4610006	Chevron BL		550	4.1	2255
4610007	DII Black		220	4.3	946
"	SSCL 41 White		55	4.0	220
4610005	SG TEX GRG		45	4.1	185
"	" " "		110	4.1	451
4610004	EN Brown		110	4.1	451
4610010	Chevron BL		550	4.1	2255
"	PG LT BL		110	4.1	451
"	Shell Red		40	4.2	462
"	AD Amoco BL		110	3.8	418
"	Drum Black		275	4.3	1183
4066874	Texaco GRG		220	4.2	924
			25,896 gal		107,993 lbs

Average weight 7.762 lbs/gal

54 Tons

7.762 lbs/gal X 25,896 gal = 200072.5 lbs

Year 1983 For Liquid

...idor	Invoice #	Name of Color	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
...ella Laboratories	3959	Clear Soluble Liner	55	4.84	266
Dozier & Gray	3883	Dram Liner Red	500	4.84	2420
	5486	Dram Citrus Liner	450	4.5	2025
	"	" " "	30	4.5	135
	3166	Dram Liner Red	450	4.84	2178
	"	" " "	40	4.84	194
	2666	Citrus Dram Lining	500	4.5	2250
	3611	" " "	450	4.5	2025
	"	" " "	30	4.5	135
	4684	Dram Liner Red	450	4.84	2178
	9058	Citrus Dram Lining	500	4.5	2250
K.M.S. Co...	5476	L-15 Dk. Brown Rhm/Co	275	4.84	1331
	5568	" " "	220	4.84	1065
	5601	" " "	220	4.84	1065
	5670	" " "	220	4.84	1065
	5702	" " "	165	4.84	799
	"	" " "	55	4.84	266
	5766	" " "	330	4.84	1597
	5728	" " "	220	4.84	1065
	5421	" " "	220	4.84	1065
	5382	" " "	220	4.84	1065
	5276	" " "	275	4.84	1331
	5324	" " "	220	4.84	1065
	5262	" " "	220	4.84	1065
	5210	" " "	220	4.84	1065

Vendor	Invoice #	Name of Item	Cost		(lb)
U.S. Corp	5159	L-15 Dk. Brown Nomex/cot.	220	4.84	1065
	5100	" " " "	220	4.84	1065
	5140	" " " "	220	4.84	1065
Mobil Chem. Co.	195590	Brown Liner Cord	550	4.84	2662
	346120	" " "	275	4.84	1331
	260610	" " "	550	4.84	2662
	334150	" " "	550	4.84	2662
	292790	" " "	275	4.84	1331
	204360	" " "	550	4.84	2662
Southern Coating	230121	Red Brown Liner	275	4.84	1331
	232233	" " "	275	4.84	1331
	228338	" " "	275	4.84	1331
	228878	" " "	275	4.84	1331
	229218	" " "	275	4.84	1331
	229595	" " "	275	4.84	1331
	231810	" " "	220	4.84	1065
	"	" " "	40	4.84	194
			11,855		56,705

Vendor	Invoice #	Name of Lining	(gal)	($/gal)	($)
D'Ia Pa L.	41135	Clear Soluble Linen	55	4.84	266
Dozier & Co	10196	Citrus Linen Red	250	4.5	1125
K.M.S. Comp	5797	L-15 DK Brown Blue/Grn.	275	4.84	1331
	5864	" "	275	4.84	1331
	5913	" "	275	4.84	1331
	5952	" "	275	4.84	1331
	5996	" "	275	4.84	1331
	6044	" "	275	4.84	1331
	6080	" "	220	4.84	1065
	6081	" "	55	4.84	266
	6146	" "	275	4.84	1331
	6240	" "	275	4.84	1331
	6300	" "	275	4.84	1331
	6333	" "	550	4.84	2662
Mobil Comp	355990	Drum Liner Red	550	4.84	2662
	350460	" " "	275	4.84	1331
	378330	" " "	275	4.84	1331
	384090	" " "	110	4.84	532
	384100	" " "	165	4.84	799
	388090	" " "	275	4.84	1331
	402820	" " "	275	4.84	1331
	402840	" " "	220	4.84	1065
	"	" " "	20	4.84	97
Southern Coating	232660	Red Drum Liner	275	4.84	1331

Vendor	Invoice #	Name & Lines	Weight (gal)	V.O.C (lb/gal)	V.O.C (lb)
S. Thom Coating	232979	Red Oxide Primer	165	4.84	799
	231088	" " "	275	4.84	1331
	234917	" " "	220	4.84	1065
	"	" " "	46	4.84	223
	236772	" " "	330	4.84	1597
			7081		34,857

Vendor	Invoice #	D. A (55)	M.C.K (110)
Industrial	28526	55	220
c[illegible]m/	26514	55	220
	35144	110	220
	32166	110	—
	35046	—	220
	32443	55	—
	31002	110	—
	30556	55	165
	29606	110	220
	30076	110	—
	28468	55	—
	27150	55	—

FOR 1984 Solvents

APPenan chemicals	227119	—	165
industrial chem	35236	110	220
	35430	55	110
	39411	55	—
	39461	110	—
	39476	55	—
	41521	55	165
	41796	110	165
	43578	165	—
	43639	—	165
	48128	—	165
	48259	—	165

Denatured Alcohol

location	Invoice #	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lb)
[redacted]	28526	55	7.82	430
hemical	26514	55	7.82	430
	35144	110	7.82	860
	32166	110	7.82	860
	32443	55	7.82	430
	31002	110	7.82	860
	30556	55	7.82	430
	29606	110	7.82	860
	30076	110	7.82	860
	28465	55	7.82	430
	27150	55	7.82	430
		880 (gallons)		6880 (lbs)

Methyl ethyl ketone

location	Invoice #	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lb)
Industrial	28526	220	6.73	1480
hemical	26514	220	6.73	1480
	35144	220	6.73	1480
	35046	220	6.73	1480
	30556	165	6.73	1110
	29606	220	6.73	1480
		1265 (gal)		8510 (lbs)

Diacetone Alcohol

Vendor	Invoice #	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
[redacted] Chemical	35236	110	7.82	860
	35430	55	7.82	430
	39411	55	7.82	430
	39461	110	7.82	860
	39476	55	7.82	430
	41521	55	7.82	430
	41796	110	7.82	860
	43588	165	7.82	1290
		715		5590 (lbs)

Methyl Ethyl Ketone

Vendor	Invoice #	Quantity (gal)	V.O.C (lb/gal)	V.O.C (lbs)
[redacted] Chemical	227119	165	6.73	1110
Industrial Chemical	35236	220	6.73	1480
	35430	110	6.73	740
	41521	165	6.73	1110
	41796	165	6.73	1110
	43639	165	6.73	1110
	48128	165	6.73	1110
	48259	165	6.73	1110
		1320		8880 (lbs)

DRUM SERVICE CO. OF FLORIDA
P.O. BOX 278
ZELLWOOD, FLORIDA

EQUIPMENT SPECIFICATION
THERMAL OXIDIZER (AFTERBURNER)/WASTE HEAT BOILER

A. GENERAL SYSTEM DESCRIPTION

Propane fired thermal oxidizer with a waste heat boiler, fan, refractory lined transition ducting, control panel and support platform.

B. THERMAL OXIDIZER (AFTERBURNER)

Performance: Raise 8500 SCFM of effluent from approximately 850°F to 1500°F.

Retention Time: .5 seconds.

Burner: 4 Eclipse NM128, 2.2 million BTU each at 14" W.C. with combustion air blower.

Construction: ASTM A-36 all welded 3/16 HRP shell lined with 5" thick litecrete 90 castable refractory secured with stainless steel anchors and complete with access doors, sight ports and test ports.

Gas Train: Pilot and main trains in accordance with Factory Mutual insurance requirements including:

- Modulating gas control valve
- Hydromotor gas valve with proof of closure switch
- High and low gas pressure switches
- Pilot regulator and solenoid valve
- Main gas pressure regulator
- Pressure gauge

C. FAN

Twin Cities Model 914RBO radial blade, self cleaning class III, rated at 8000 SCFM at 8" static complete with 50 H.P., 3 Ph., 230/460 VAC motor with belt drive, OSHA approved guard and high temperature limit.

D. TRANSITION DUCTING

Furnace-to-afterburner and afterburner-to-Waste Heat Boiler:

ASTM A-36 shell lined with 4" litecrete 90 castable refractory secured with stainless steel anchors.

E. CONTROL PANEL

Nema 12 enclosure with Fireye flame safeguard system, modulating temperature controller, high limit temperature control, manual over ride, alarm silence, indicating lights and switches.

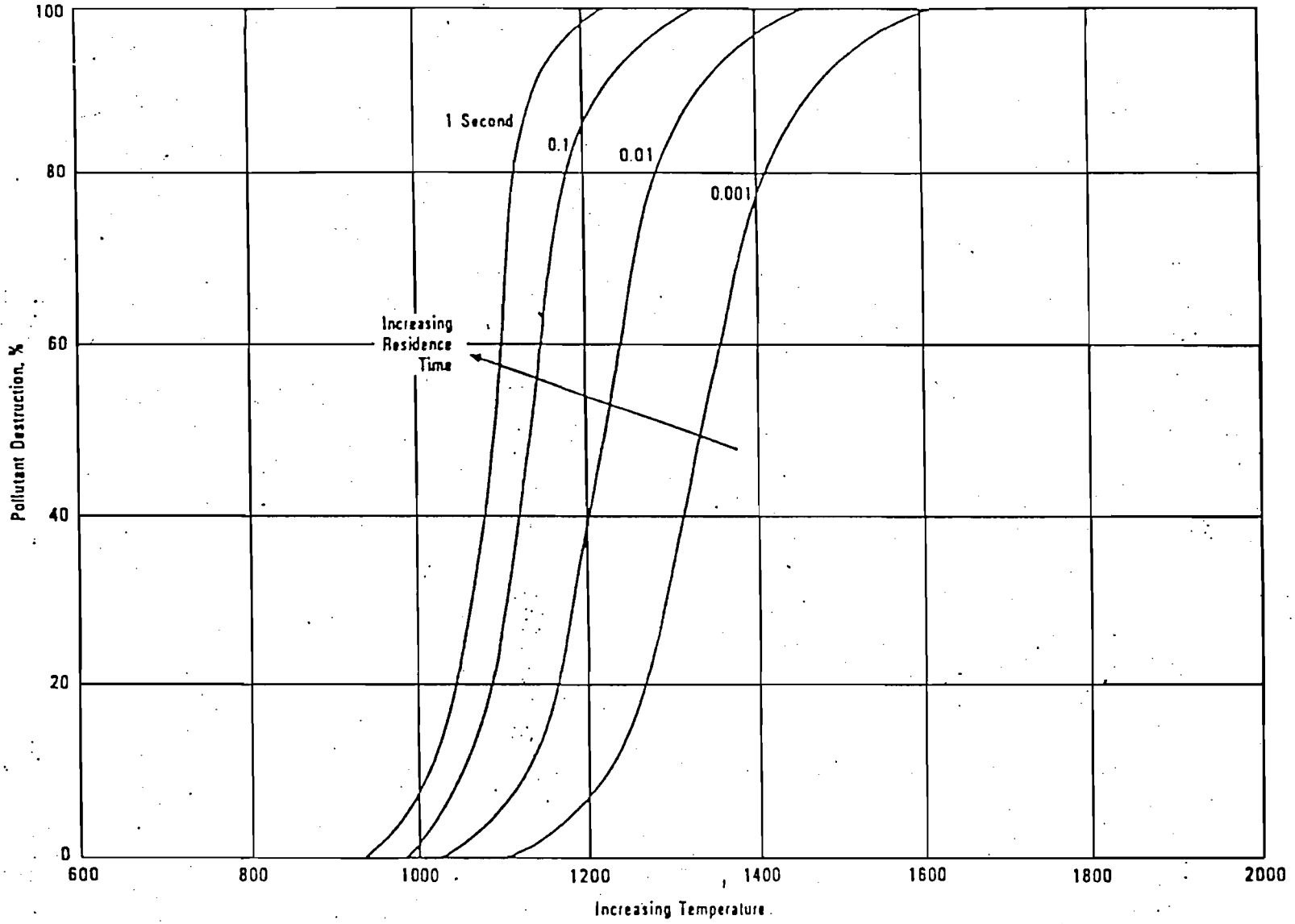
F. SUPPORT STRUCTURE

Designed to requirements of local Building & Safety Code.

G. WASTE HEAT BOILER

Eclipse 7HR 250 H.P. (Max. 400 H.P.), 250 PSI waste heat boiler complete with all equipment necessary for its operation including:

- Low water cutoff and pump control.
- Low-low water cutoff.
- Safety valves.
- Blow down valves.
- Steam stop valves.
- Make up tank with feed pumps.
- Blow down tank.
- Temperature gauge.
- Superior water softener, dual system with automatic regeneration.
- Hays-Republic steam flow meter complete with orifice flanges and recorder.



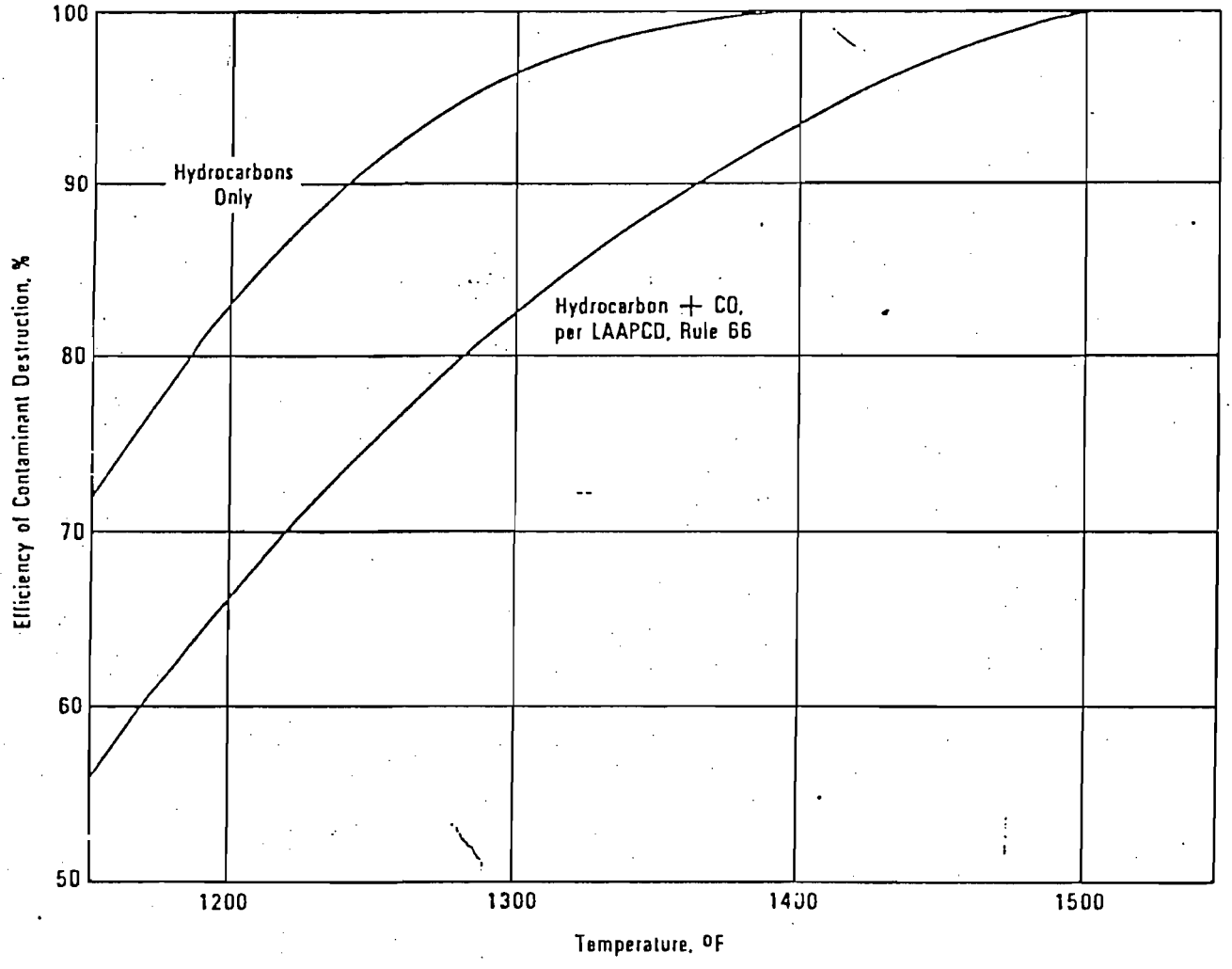
Source: *Afterburner Systems Study*, Shell Development Company, 1972.

Figure 1. Coupled Effects of Temperature and Time on Rate of Pollutant Oxidation

FROM: CONTROLLING POLLUTION FROM THE MANUFACTURING AND COATING OF METAL PRODUCTS. I. METAL COATING AIR POLLUTION CONTROL.

In cases where c on monoxide formation in the inc. ator is deducted from the unit's efficiency, such as under Rule 66 of the Southern California Air Pollution Control District referred to earlier, significantly higher time/temperature units are required to achieve a given efficiency. This principle is illustrated in Figure 2. The combustion of organic carbon to carbon dioxide is a two-stage reaction: the first stage of oxidation to CO involves a relatively high-heat release and proceeds rapidly. The second stage, further oxidation to CO_2, gives off less heat and is therefore an inherently slower reaction.

The zone of combustion consists of a region of rising temperature followed by a dwell region with an essentially constant temperature. The design residence time of 0.3 or more seconds should apply to the reaction zone only, with additional volume provided for initial combustion and mixing. Insufficient combustion chamber volume is probably the most significant design flaw in units that fail to meet performance expectations.



Source: *Afterburner Systems Study*, Shell Development Company, 1972.

Figure 2. Typical Effect of Operating Temperature on Effectiveness of Thermal Afterburner for Destruction of Hydrocarbons and CO

DRUM SERVICE
OF FLORIDA

DIRECT FLAME THERMAL OXIDIZER
DESIGN CALCULATIONS

GIVEN:

1. Source of contaminates - drum furnace & spray booth.
2. Effluent air volume - 8500 SCFM.
3. Effluent air temperature at thermal oxidizer inlet - 800°F.

PROBLEM:

Determine thermal oxidizer dimensions, burner type, burner input, and operating temperature in accordance with requirements of EPA, AP-40.

1. Burner selection:
   Four Eclipse 128NM burners.
2. Temperature selection:
   Given 1500°F.
3. Burner capacity:
   (a) Net heat required to raise the effluent to 1500°F.
   Assumed properties of air
   Enthalpy @ 1500°F = 28.4 BTU/SCF
   Enthalpy @ 800°F = 14.07 BTU/SCF
   Net enthalpy = 14.33

   $Q = W\Delta H$
   $= 8500 \times 60 \times 14.33$
   $= 7{,}308{,}300$ BTU/Hr.

   (b) Propane input required:
   $$\frac{7{,}308{,}300}{2316 \text{ BTU/Ft}^3} = 3099 \text{ Ft}^3/\text{Hr.}$$
4. Combustion chamber size:
   Volume of gases in afterburner = 8500 SCFM
   Volume of gases @ 1500°F (1960R)
   $$\frac{(8500)\ (1960)}{(60)\ (520)} = 534 \text{ CFS}$$

(a) Diameter of afterburner:

Assume velocity @ fps

Afterburner cross section $= \frac{534}{30} = 17.8\ Ft^2$

Diameter $= \sqrt{\frac{17.8}{.785}} = 4.76' = 57"$ Dia.

5. Combustion chamber length:

Assume .5 sec. retention

Length = .5 x 30 = 15' min.

DESIGN SUMMARY

Burner type - Four Eclipse 128NM (Capacity 2.2 million BTU/Burner)

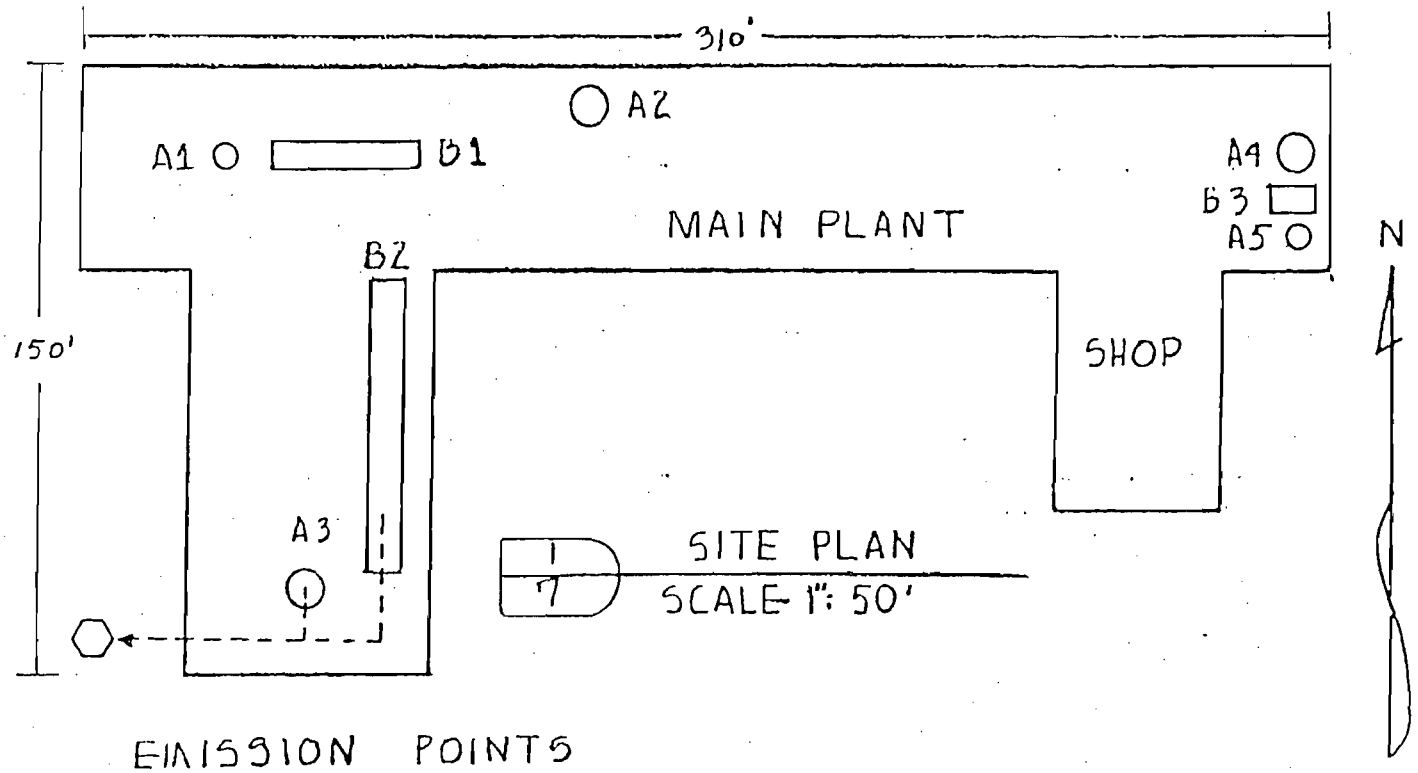
Afterburner Temp. - 1500°F

Burner Input - 7,308,300 BTU/Hr.

Afterburner Dia. - 57'

Afterburner Length - 15'

EXHIBIT 6



EMISSION POINTS

"A" APPLICATION POINTS

1. TIGHT HEAD DRUM EXTERIOR PAINT BOOTH
2. OPEN HEAD DRUM EXTERIOR PAINT BOOTH
3. OPEN HEAD DRUM INTERIOR LINING BOOTH
4. OPEN HEAD COVERS EXTERIOR PAINT BOOTH
5. OPEN HEAD COVERS INTERIOR LINING BOOTH

"B" OVENS

1. TIGHT HEAD DRUM DRYING OVEN
2. OPEN HEAD DRUM LINING DRYING OVEN
3. OPEN COVER LINING DRYING OVEN

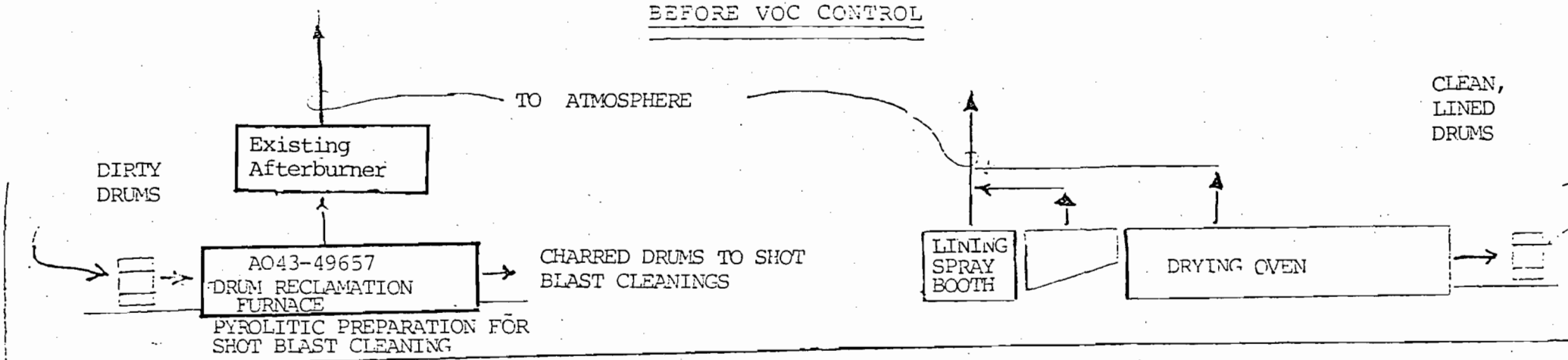
⬡ DENOTES PROPOSED INCINERATOR LOCATION

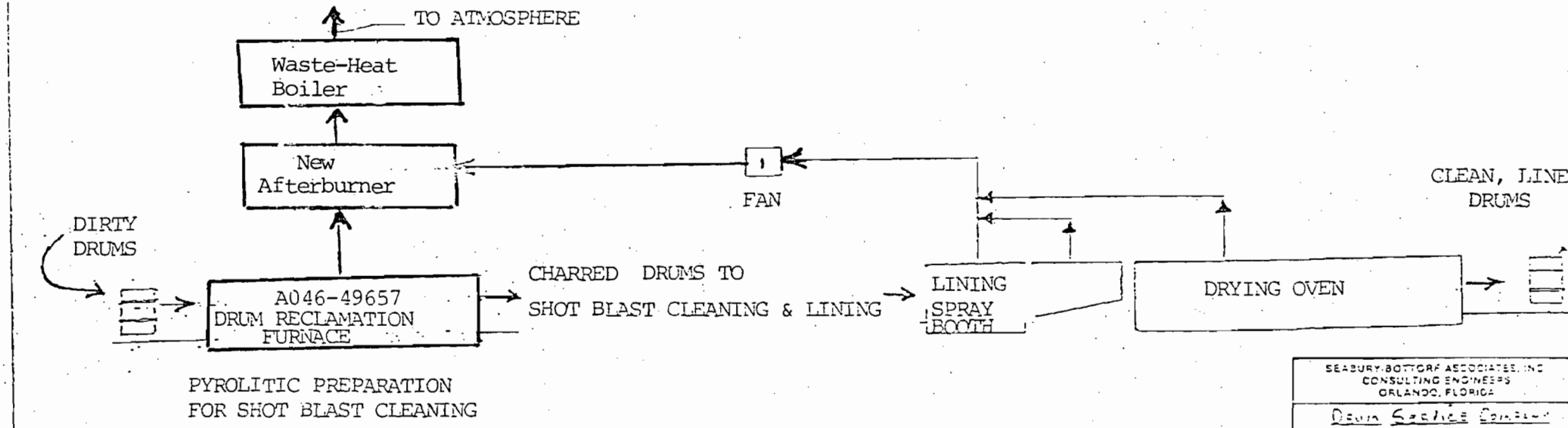
PLANT LAYOUT

SEABURY-BOTTORF ASSOCIATES, INC. CONSULTING ENGINEERS ORLANDO, FLORIDA	
DRUM SERVICE CO. OF FLORIDA ZELLWOOD, FLORIDA	
DES. JWS	DWN. NDS
SCALE NOTED	DATE 7-3-84
110-7-VOC 1 DRAWING NO.	

Figure 1-1

SCHEMATIC FLOW DIAGRAM

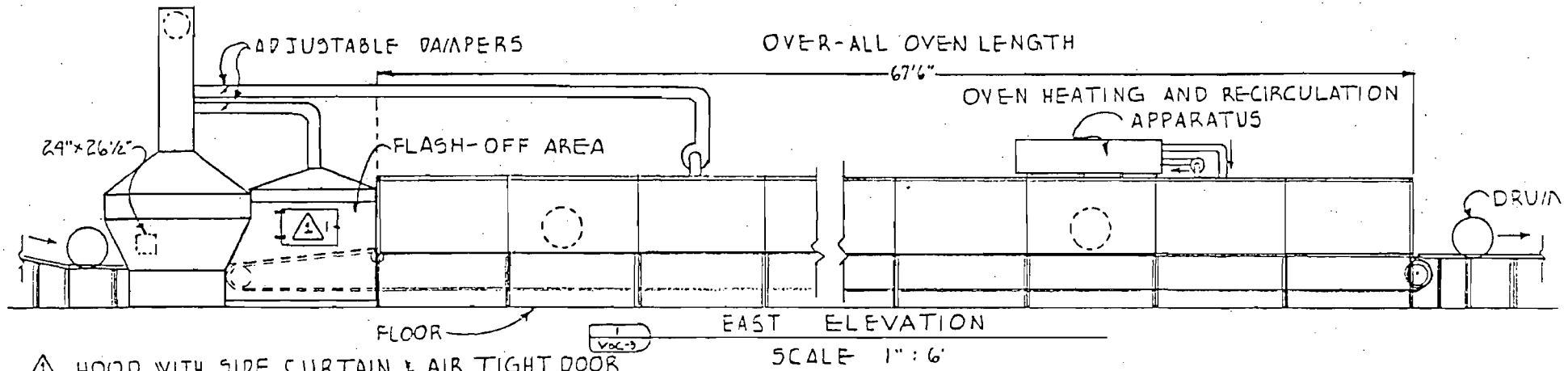




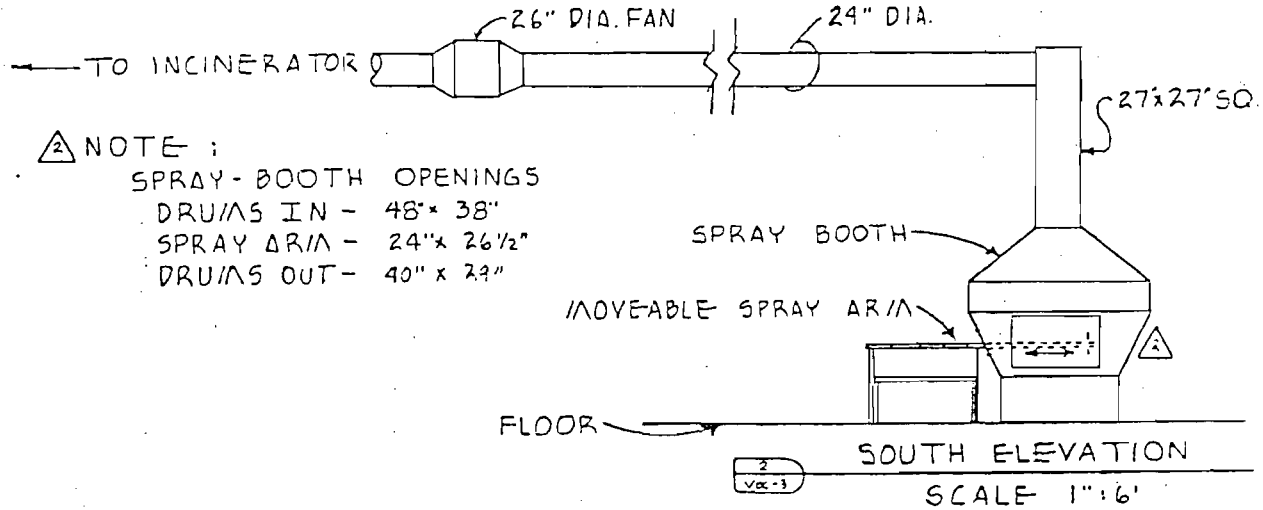
SEABURY-BOTTORF ASSOCIATES, INC
CONSULTING ENGINEERS
ORLANDO, FLORIDA

Drum Service Company of Florida
Bellwood, Florida

EXHIBIT 8



1 HOOD WITH SIDE CURTAIN & AIR TIGHT DOOR



2 NOTE :
SPRAY-BOOTH OPENINGS
DRUMS IN - 48" x 38"
SPRAY ARM - 24" x 26½"
DRUMS OUT - 40" x 29"

COLLECTION SYSTEM AND DUCTWORK

SEABURY-BOTTORF ASSOCIATES, INC.
CONSULTING ENGINEERS
ORLANDO, FLORIDA

DRUM SERVICE CO. of FLORIDA
ZELLWOOD, FLORIDA

DES. JWS	DWN. NRS.	110-7 VOC-3
SCALE 1" : 6"	DATE 7-3-84	DRAWING NO

DRUM SERVICE CO. OF FLORIDA

POST OFFICE BOX 278
ZELLWOOD, FLORIDA 32798
PHONE AREA 305 — 889-2581

April 9, 1985

Frank Cross, P.E.
Cross-Tessitore, Inc.
4759 S. Conway Road
Orlando, FL 32812

Dear Frank:

Pursuant to your request, I am enclosing copies of paint, lining, and solvent invoices representing purchases made over the two year calendar period, 1983-1984. Total gallons purchased for the two years are as follows:

		Solvents	
Paint	Lining	MEK & Diacetone Alcohol	Toluol
55,135	18,936	4,180	825

Production figures for the same period are as follows (Note: these follow the same format and assumptions as in Exhibit 4, Part II of our initial application):

Booth	Application	Quantity	Notes
A.1.	Tight Head Drum Exteriors	350,489	(1)
A.2.	Open Head Drum Exteriors	537,396	(1)
A.3.	Open Head Drum Interiors	494,404	(2)
A.4.	Open Head Covers Exteriors	537,396	(1)
A.5.	Open Head Covers Interiors	494,404	(2)

Notes:

(1) Represents 100% of production.

(2) Not all drums run on open head line are lined internally; some are shipped unlined. Calendar year 1983-84 production estimated at 92% lined, 8% unlined.

Per our discussion, please note that these two years' purchases and production figures are calendar years; our original application covered one fiscal year (11/1/82 - 10/31/83). A calendar year summary of purchases was much easier since our bills are kept by calendar year. Both of us may have overlooked the difference at our meeting, but I am trusting it will create no problems for the approach to DER you described to me. Also, by using these calendar years, we an get the most recent year's activity (1984) into our figures.

Note also that there are other paint and lining suppliers shown besides Mobil and KNS (the only two shown on the application). In all cases, the VOC characteristics of substitute paint and lining products from other suppliers should be similar to those reported by Mobil and KNS. John and I felt it would be sufficient to use Mobil and KNS data for the full range of products we purchase since we had product data sheets for these. More data sheets (from substitute suppliers) seemed to entail unnecessary extra work. Also, note that Mobil Chemical was acquired by and became part of Valspar Corporation in 1984.

The solvent purchases are broken down into two categories: "MEK and Diacetone Alcohol", and "Toluol". This is necessary because of the way we reported the VOC characteristics of "#1 Lining" (L-15, supplied by KNS). This requires a bit of explanation:

My letter of December 13, 1984 to C. H. Fancy of DER (answer #2, page 3) reported:

> Coatings are received in ready-to-spray condition and are used directly from the drum except for #1 lining and in very cold weather when a small but indeterminate amount of diacetone alcohol or toluol is added for reduction (viscosity control) purposes.

Note:

1. This paragraph was poorly written. In fact, there are two reductions involved, for different purposes; we tried to cover both in one sentence. It isn't clear from the whole paragraph that:

   a. Diacetone alcohol is added to #1 lining because it is not bought in "ready-to-spray" condition (rather, we purchase it in "concentrated" form); and

   b. Toluol is added to exterior paints in cold weather when viscosities become a problem.

2. In addition to diacetone alcohol, MEK is used to prepare concentrated #1 lining to ready-to-spray condition. We overlooked this in the letter; both solvents are needed to prepare concentrated L-15.

The Product Data Sheet used in the application (Exhibit 3) for KNS L-15 #1 lining is for a "ready-to-spray" material. I felt it would be misleading to send in a data sheet for the concentrated product we bought, since so much solvent is added to it (unless, of course, I went back through all the files and dragged out solvent purchases, which work I had hoped to avoid). Since our approach in the original application was to deal with the emissions from the products as applied at the spray booth, the emissions data (VOC content) of the reported L-15 #1 lining was correct, since those are the parameters to which we reduce the concentrated product purchased when preparing it for spraying. However, as I understand your approach to DER, you should not count the diacetone alcohol and MEK purchases since the reported data on the KNS lining (i.e., ready-to-spray) already includes them.

I haven't had time to get a new data sheet for concentrated L-15, but if you must have it you can probably get the information over the phone by calling John Browning of KNS at 312-665-9010. Naturally, a data sheet for concentrated L-15 along with our actual MEK and diacetone alcohol purchases, should theoretically yield the same VOC data as the ready-to-spray L-15 data sheet submitted.

My final note is an enormous caveat about the value of the paint, lining and solvent purchases here recorded. Again I wish to list several severe qualifications to any correlation with any VOC emissions data calculated from these figures.

1. At the beginning of the period, a certain amount of paint was on hand in the form of inventory, which obviously got used up during the year. We don't have exact counts of this.

2. The same is obviously true at the end of the period: much of the paint purchased during the last several weeks of the year would not have been used by the end of the year, but was still on hand, unopened, and therefore should not properly be counted in consumption figures for that year.

3. From time to time, colors are discontinued and the paint, if not suitable for rework into other colors, is discarded. There is no data at all on the volumes involved here, only estimates, but these can be substantial.

4. The same is true on bad paint: for a variety of reasons, paint gets stale and unusable, and is discarded. There is no exact data for this, but we had an especially difficult year with bad paint in 1983.

5. We have certain non-application usages for paint, primarily supplying "touch-up paint" to customers who use it to cover small scratches in the drums due to transportation marring. Likewise, we have no figures on this.

6. Paint is not purchased in an even, "one-to-one" ratio with drum production. To reduce freight costs and achieve lowest possible per gallon prices, orders are sometimes bunched into very large quantities on a single order at one time. Thus there is no meaningful ratio that can be established between monthly purchases and monthly production.

7. Not all paint and lining is emptied from each container. (The fact that there is some residue in every "empty" drum is the raison d'etre for the whole drum reconditioning industry.) As you know, an "empty" drum can have up to 1" of residue; this is approximately 2.9% of the contents. Actually, we make every effort to truly empty the drum, and our experience is nowhere near one inch, but there is still some residue which must be subtracted from every 55 gallons purchased.

Please contact us after you have formulated an approach to Mr. Thomas at DER.

Very truly yours,

DRUM SERVICE CO. OF FLORIDA

J. M. Murphy

cc: Roger D. Schwenke, Esq.

DRUM SERVICE COMPANY OF FLORIDA

VOC EMISSION INVENTORY STUDY

MAY 7, 1985

CROSS/TESSITORE & ASSOCIATES, P.A.
4759 SOUTH CONWAY ROAD, SUITE D
ORLANDO, FLORIDA 32812

(305) 851-1484

DRUM SERVICE COMPANY OF FLORIDA

VOC Emissions Inventory, and

Study Assumptions and Guidelines

(1) All VOC potential emissions based on actual purchase for calendar years 1983 and 1984. Purchases include all paints, liners, thinners, and solvents for the above years.

(2) VOC potential emissions based on manufacturer's data and/or product sheet for each individual type of product.

Example: Drum Enamel Shell Red VOC = 4.18 lb/gal.

Drum Enamel Texaco Green VOC = 4.20 lb/gal.

(3) All Toluol is used to thin external coating paints.

(4) All MEK and Diacetone is used to thin L-15 concentrated lining.

(5) All emissions uncontrolled except for Open Head Drum Interior Line (A3, B2).

(6) Above controlled emissions based on 90% VOC capture efficiency and 95% thermal destruction @1500°F.

Potential Emissions

Coating Type	1983		1984	
	Gal/Yr	VOC Lb/Yr	Gal/Yr	VOC Lb/Yr
Exterior Paints	29,455	123,924	25,896	107,993
Lining	11,855	56,705	7,081	32,857
MEK	1,265	8,510	1,320	8,880
Diacetone	883	6,880	715	5,590
Toluol	495	3,208	330	2,138
Total		199,227		157,458

Average 178,343 Lb/Yr

89.2 Ton/Yr

Drum Service, Inc.

Calculation of Allowable Emissions

Exterior Paints

(29,455 + 25,896)(gal/yr) x (3.5 lb VOC/gal) = 193,729 lb.

Toluol (Used only in Exterior Paints)

(495 + 330)(gal/yr) x (3.5 lb VOC/gal) = 2,888 lb.

Lining

(11,855 + 7081)(gal/yr) x (4.3 lb VOC/gal) = 81,425 lb.

Solvents (Used in Lining)

(2148 + 2035)(gal/yr) x (4.3 lb VOC/gal) = 17,987 lb.

Total 296,029 lb

Average (1983 and 1984) = 148,015 lb/yr

74.0 Ton/yr

Actual Emissions

Exterior Paint and Toluol (Emission Points, A1, B1, A2, and A4)

(123,924 + 3,208 + 107,993 + 2,138) = 237,263 lbs.

Lining, MEK, and Diacetone

(56,705 + 8,510 + 6,880 + 32,857 + 8,880 + 5,590)

= 119,422 lbs.

*14% VOC Uncontrolled (Emission Points A5, B3) = 16,719 lbs.

86% VOC Controlled (Emission Points A3, B2)

Assume 90% Capture (119,422-16,719)

x(0.10) = 10,270 lbs.

For VOC captured, assume 95% destruction

(119,422-16,719-10,270)(0.05) = 4,622 lbs.

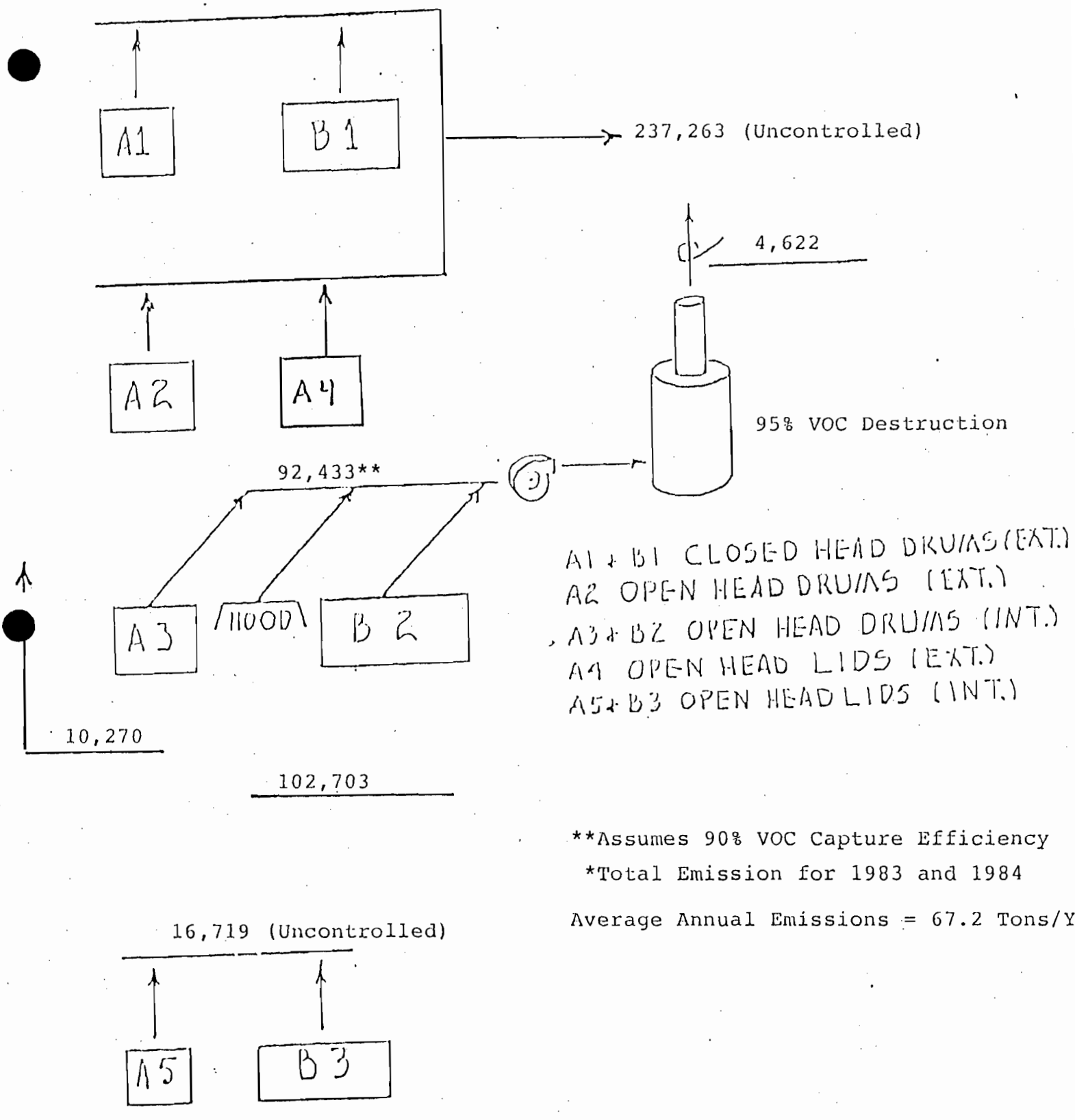
Total Emissions = 268,875 lbs.

Average Emissions = 134,437 lb/yr

67.2 Tons/yr

*Lid lining only and lids are 14% of drum interior area.

VOC EMISSION POINT SUMMARY (LBS)*



**Assumes 90% VOC Capture Efficiency

*Total Emission for 1983 and 1984

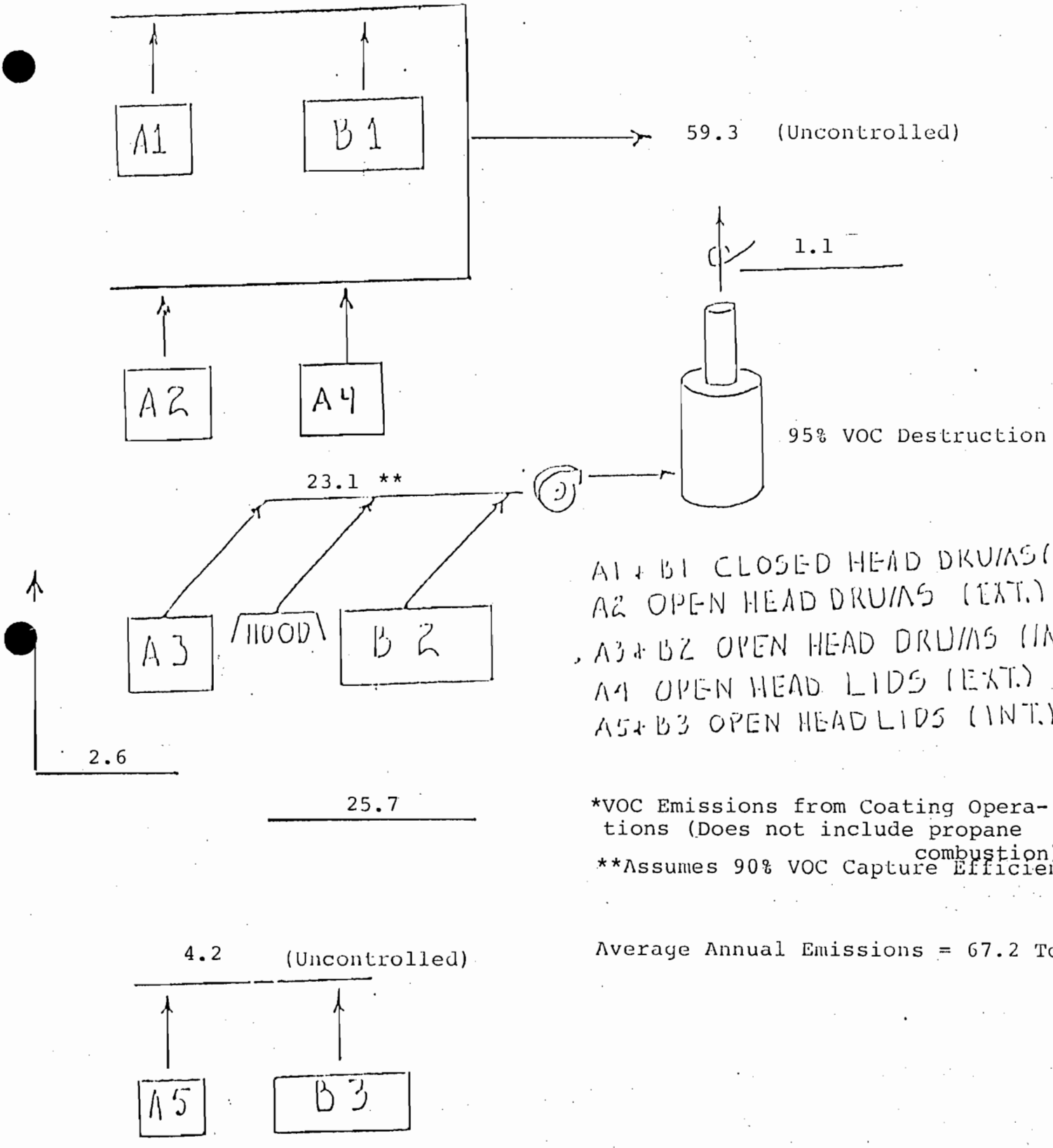
Average Annual Emissions = 67.2 Tons/Y

VOC Emission Inventory Summary*

	Tons/Year
Potential Emissions	89.2
Allowable Emissions	74.0
Actual Emissions	67.2

*Based on paint, liner, thinner, and solvent purchases for calendar years 1983 and 1984.

ACTUAL VOC EMISSION POINT SUMMARY (lbs/hr)*



*VOC Emissions from Coating Operations (Does not include propane combustion)

**Assumes 90% VOC Capture Efficiency

Average Annual Emissions = 67.2 Tons/Y

EXHIBIT 11

EXHIBIT 11

VERIFICATION OF CONTROLLED VS. UNCONTROLLED VOC EMISSION RATIO - INVENTORY CONTROL

In order for the Florida Department of Environmental Regulation to have assurance that overall emissions remain within proposed/allowable limits, it will be necessary to demonstrate on a continuing basis the use and disposition of all VOC material received.

To this end a complete inventory and reporting system is proposed to account for each shipment of paint or lining material received, as well as utilization and record of exit.

The inventory system will include coating stock and solvent on hand at beginning and end of each reporting period as well as the amounts of each purchased during the period.

Tally sheets for production foremen will be arranged for easy check-off of each category of utilization with predetermination of emission potential of each category to allow easy summation.

In order to minimize overlap and to promote orderly development of meaningful data, the manner of gathering subtotal information by daily, by weekly, or by individual production runs should be left to the discretion of Drum Service Co. of Florida's Management.

It is a fortunate necessity that drum lining is always prior to exterior coating (to minimize handling damage to finish).

Due to storage limitations inherent to the bulky nature of 55 gallon drums, no significant delays of production are possible between interior lining (controlled emission) and exterior painting (uncontrolled emission). With the exception of in-process malfunctions causing need for repair, retouch, or scrapping, the entire process is on an assembly line basis with only a few minutes between stages.

It would be acceptable to Drum Service Co. of Florida if a permit condition should require that 97% of drums lined be painted within 24 hours.

The following three sample inventory sheets include all basic data necessary to arrive at the appropriate totals from which emissions can be determined.

These sheets should be regarded as outline only; in actual use, multiple entry will be necessary to account for the item to item variation of VOC content.

DRUM SERVICE CO. OF FLORIDA

PAINT AND SOLVENT INVENTORY AND

REPORTING CONTROL

DER PERMIT #_____ VOC CONTROL, PAINT SPRAYING SYSTEM

	EXTERIOR PAINT	INTERIOR LINING	SOLVENTS
I. MATERIAL ON HAND AT BEGINNING OF PERIOD DATE_____			
[NOTE: Same figures as in Item III from previous report]	_____GALLONS	_____GALLONS	_____GALLONS
ADD:			
II. PURCHASES DURING PERIOD:	_____GALLONS	_____GALLONS	_____GALLONS
TOTAL TOTAL	_____GALLONS	_____GALLONS	_____GALLONS
LESS:			
III. MATERIALS ON HAND AT END OF PERIOD DATE_____	_____GALLONS	_____GALLONS	_____GALLONS
MATERIAL TO BE ACCOUNTED FOR:	_____GALLONS	_____GALLONS	_____GALLONS

COMMENTS:

PAINT FOREMAN_____
(Signature)

DRUM SERVICE CO. OF FLORIDA

PAINT AND SOLVENT INVENTORY AND

REPORTING CONTROL

IV. UTILIZATION - COATINGS

CODE "E" LEADS TO VOC EMISSIONS
CODE "NE" LEADS TO NO VOC EMISSIONS

	EXTERIOR PAINT	INTERIOR LININGS
A. SPRAYED IN PRODUCTION	_____ E	_____ NE
B. SOLD DIRECTLY TO CUSTOMERS, OR PROVIDED FREE AS "TOUCH-UP" PAINT	_____ NE	
C. DISCONTINUED PAINT COLORS (To be scrapped)	_____ NE	
D. BAD PAINT		
1. TO BE REPROCESSED	_____ NE	_____ NE
2. TO BE SCRAPPED	_____ NE	_____ NE
E. RECOVERED FROM SOLVENT WASH OF PIPING	_____ NE	_____ NE

COMMENTS

PAINT FOREMAN _____
(Signature)

DRUM SERVICE CO. OF FLORIDA

PAINT AND SOLVENT INVENTORY AND

REPORTING CONTROL

V. UTILIZATION - SOLVENTS

CODE "E" LEADS TO VOC EMISSIONS
CODE "NE" LEADS TO NO VOC EMISSIONS

A. ADDED TO PAINT - VISCOSITY CONTROL _____ E

B. ADDED TO LINING - VISCOSITY CONTROL _____ NE

C. CLEAN UP - DISSIPATED _____ E

D. CLEAN UP - RECAPTURED AND RECYCLED _____ NE

VI. DRUM PRODUCTION BY PAINT BOOTH

A1 TIGHT HEAD DRUM EXTERIOR _____ E

A2 OPEN HEAD DRUM EXTERIOR _____ E

A3 OPEN HEAD DRUM INTERIOR _____ NE

A4 OPEN HEAD COVERS EXTERIOR _____ E

A5 OPEN HEAD COVERS INTERIOR _____ E

COMMENTS

PAINT FOREMAN _____
(Signature)

EXHIBIT 12

PARTICULATE CONTROL IN EXHAUST FROM BOOTH OVERSPRAY

Control of particulate from overspray is accomplished by high efficiency filters or water wash.

Overspray is drawn by means of spray booth exhaust fans to control/capture devices. A minor portion of overspray falls onto and adheres to booth interior from which it is periodically removed by hand scraper for disposal according to approved RCRA Methods.

Capture efficiency reduces 20,106 Lbs./Yr. sent to control devices to actual emission of 441 Lb./Yr. for an overall efficiency of 97.8%.

For purposes of calculation of particulate emission as follows, the efficiency of filters was taken from data furnished by the manufacturers. This resulted in a higher emission than if efficiency as stated on Page 20 of Controlling Pollution from the Manufacturing and Coating of Metal Products, Vol. I, U.S. EPA, May 1977, i.e. filter pads 98%, water wash 95%.

Even with the lesser efficiency, however, particulate emission amounts to only 441 Lbs./Year.

PARTICULATE CONTROL

PAINT BOOTH OVERSPRAY CONTROL SYSTEMS

BOOTH	SPRAY TYPE	APPLICATION	QUANTITY	CONTROL TYPE
A.1.	Hand	Tight Head drum exteriors	165,502	Dry Filters*
A.2.	Automatic	Open Head drum exteriors	278,259	Water Wash**
A.3.	Automatic	Open Head drum interiors	255,998	Dry Filters*
A.4.	Semi Automatic	Open Head covers exteriors	278,259	Dry Filters*
A.5.	Semi Automatic	Open Head covers interiors	255,998	Dry Filters*

NOTES: *20 x 20 x 2 paint arrestors manufactured by:
Chemco Manufacturing Co., Inc.
7540 N. Linder
Skokie, IL 60077

**Booth manufactured by:
Binks Manufacturing Company
9201 West Belmont Ave.
Franklin Park, IL 60666

PAINT OVERSPRAY CALCULATIONS

FISCAL YEAR ENDING 10/31/83

BOOTH	TOTAL PAINT SPRAYED [NOTE: LBS./YR. SOLIDS ONLY] (NOT GALLONS OF COATINGS)	% OVERSPRAYED Note 1	% OF OVERSPRAY CAPTURED ON BOOTH SURFACES (SCRAPED OFF BY OPERATOR DURING ROUTINE MAINTENANCE AND DISPOSED OF) Note 2	OVERSPRAY TO CONTROL SYSTEM LBS./YR.	CONTROL SYSTEM EFFICIENCY*	EMISSIONS LBS./YR.
A.1.	31,773	25	25	5957	95.8%	250
A.2.	44,406	25	25	8326	99.8%	17
A.3.	33,382	5	N.A.	1669	95.8	Nil**
A.4.	15,287	25	25	2864	95.8	120
A.5.	6,879	25	25	1290	95.8	54
			TOTAL	20,106 Lb./Yr.	TOTAL	441 Lb./Yr.

Note 1: See Exhibit 4

Note 2: Per DSC Operator and Foreman Estimate

*See test reports attached,
Binks Manufacturing Co.
and Chemco Manufacturing Co.

**Theoretically 70 Lb./Yr. will pass to incinerator from which an incalculable minor weight of ash will escape.

Air Filter Testing Laboratories, Inc.
4632 Old LaGrange Road • Crestwood, Kentucky 40014 • Phone (502) 222-57

REPORT NO. 3180
TEST NO. 3

PAINT ARRESTOR PAD PERFORMANCE TEST

TEST REQUESTED BY: CHEMCO MANUFACTURING COMPANY, INC.
MANUFACTURER: CHEMCO MANUFACTURING COMPANY, INC
PRODUCT NAME: GREEN/WHITE
HOW LABORATORY PROCURED TEST SAMPLE: FURNISHED BY MANUFACTURER
MODEL NO.: GREEN/WHITE DIMENSIONS: 20IN. H 20IN. W 2IN. L
PRODUCT DESCRIPTION: GLASS FIBER

TEST CONDITIONS:
TEST AIR FLOW RATE 200 FPM
PAINT APPLICATION RATE 0.5QT./20 MIN.
DESCRIPTION OF PAINT USED SYNTHETIC ENAMEL LIMCO

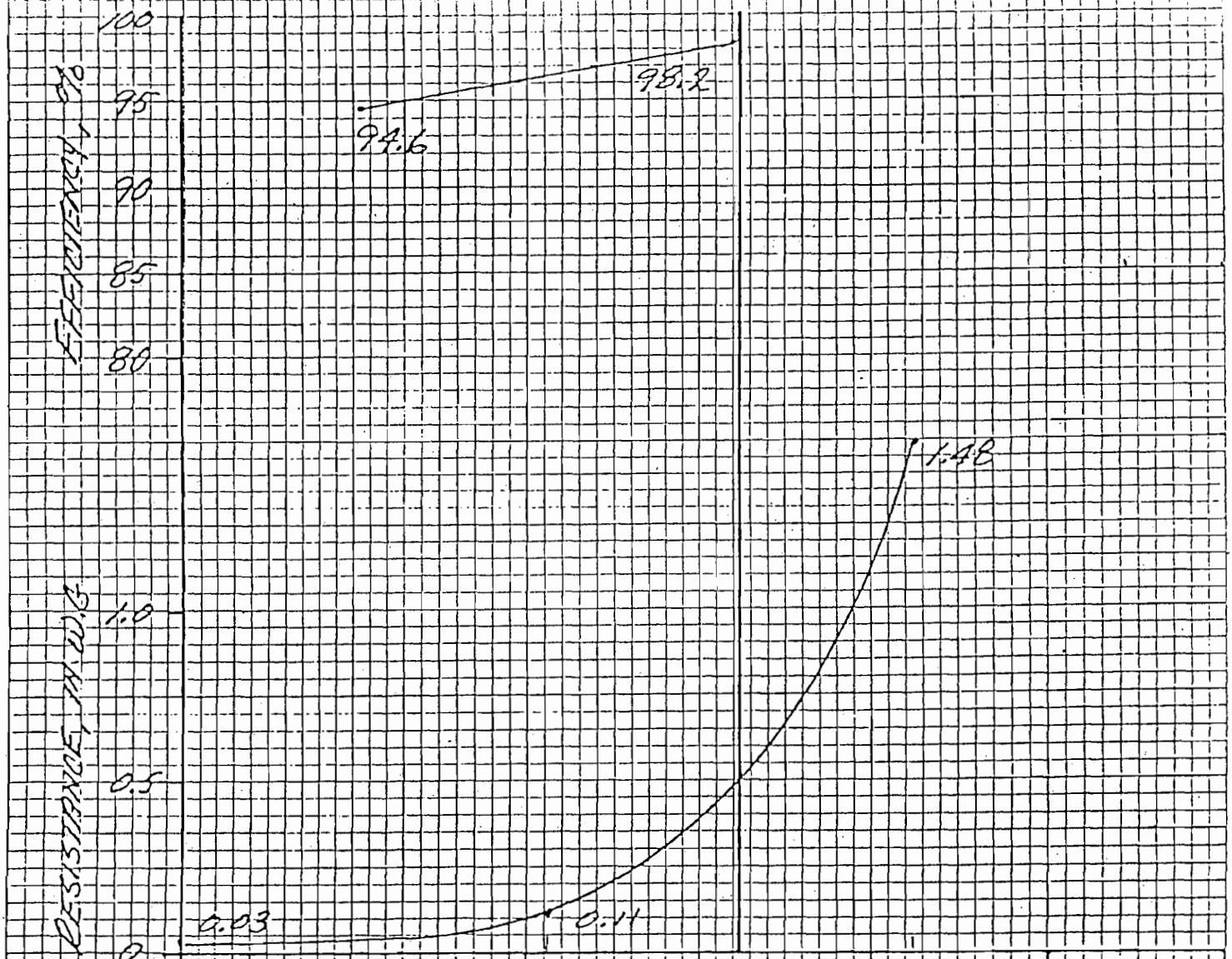
RESULTS:
WEIGHT GAIN PAINT ARRESTOR PAD 410.0 GM.
FINAL ARRESTANCE FILTERS WEIGHT GAIN 15.3 GM.
TOTAL WEIGHT PAINT FED (DRY BASES) 425.3 GM.
FINAL RESISTANCE PAINT LOADED FILTER 1.48 IN. W.G.
PERFORMANCE TO CHANGE OUT RESISTANCE 0.50 IN. W.G.
AVERAGE PAINT REMOVAL EFFICIENCY 95.8 %
PAINT HOLDING CAPACITY 309 GM. OR 0.68 LBS.

DATE 2-3-1984

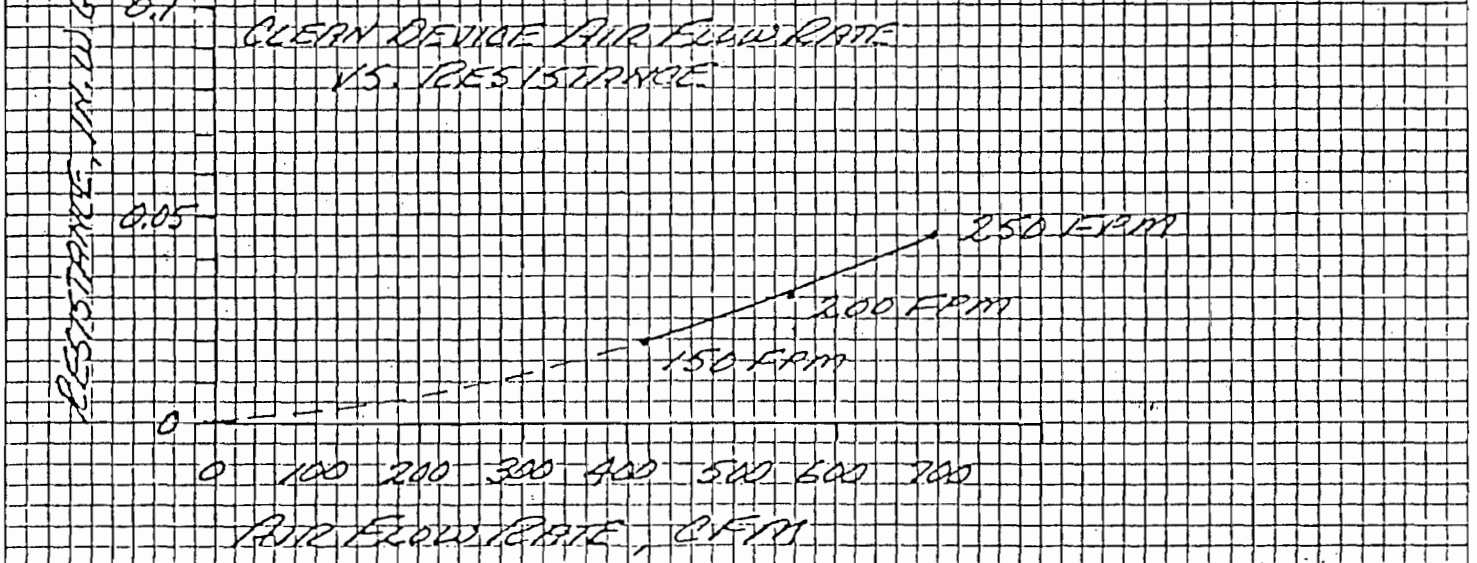
ENGINEERING APPROVAL David J. Murphy Jr.

STATE OF KENTUCKY
DAVID J. MURPHY JR.
6035
REGISTERED
PROFESSIONAL ENGINEER

REPORT NO. 3150
TEST NO. 3



CLEAN DEVICE AIR FLOW RATE VS. RESISTANCE



10 X 10 PER INCH

BINKS MANUFACTURING COMPANY
4360 RISING SUN AVENUE, PHILADELPHIA, PENNSYLVANIA 19140
MAILING ADDRESS:
P O BOX 46008, PHILADELPHIA, PENNSYLVANIA
19160-6008
PHONE 215/329-7800
TELEX 834222
OFFICES IN ALL PRINCIPAL CITIES

BINKS

October 17, 1984

Mr. Mike Murphy
Drum Service Co.
803 Jones Avenue
Zellwood, FL 32798

Subject: Binks No-Pump Spray Booth
Model CNPB 10-7T
Invoice #38147

Dear Mr. Murphy:

In accordance with your request regarding the efficiency of Binks No-Pump Spray Booths, a test was conducted by an Independent Consulting Engineering Service Co. in 1966. The booth design has not been changed and the results remain to date, as follows:

TEST RESULTS: (Paint used for testing has a weight of 2.25 lbs/qt.)

Test No. 1
Material Usage: 20 gals/hr. x 4 qts. x 2.25 lbs/qt.= 180 lbs/hr.

Grain Loading: 4.68 gr/1000 CF

Material Injection:

$$\frac{180 \text{ lbs/hr.} \times 7000 \text{ gr.} \times 1000 \text{ CF}}{9017 \text{ CFM} \times 60 \text{ mins.}} = 2328.93 \text{ grains}$$

Efficiency:

$$\text{Efficiency} = \frac{2328.93 - 4.68 \times 100}{2328.93}$$

Efficiency = 99.799%

Emission Rate (lbs/hr.)

$$E = \frac{9017 \times 60 \times 4.68}{1000} = \frac{2531.9}{7000}$$

E = 0.361 lbs/hr.

Test No. 2

Material Usage: 21 gals/hr. x 4 qts. x 2.25 lbs/qt = 189 lbs/hr.

Grain Loading: 4.99 gr/1000 CF

Material Injection:

$$\frac{189 \times 7000 \times 1000}{9017 \times 60} = 2445.38 \text{ grains}$$

Efficiency:

$$\text{Efficiency} = \frac{2445.38 - 4.99 \times 100}{2445.38}$$

Efficiency = 99.795'

Emmission Rate (lbs/hr.)

$$E = \frac{9017 \times 60 \times 4.99}{1000} = 7000$$

E = 0.385 lbs/hr.

Allowable Emission (0.62 lbs/hr.)

E = 3.59 (P)

E = 0.83 lbs/hr. for 189 lbs. material/hr.

Binks Spray Booths conform with O.S.H.A. and E.P.A. regulations. However, this equipment is designed expressly for the removal of particulate matter only. Reduction of "Volatile Organic Compunds" requires either coating reformulation or optional additional equipment.

If you have any questions or need additional information please feel free to contact this office.

Very truly yours,

BINKS MANUFACTURING COMPANY

Ben Mallen

Ben Mallen
Resident Engineer
Philadelphia Branch

BM:ds

cc: R. Kradoska
L. Gonzales

MAIL NEXT DAY SERVICE

EXTREMELY URGENT

RUSH TO ADDRESSEE

UNITED STATES POSTAL SERVICE ★ U.S.MAIL ★

POST OFFICE TO ADDRESSEE

EXPRESS MAIL NEXT DAY SERVICE

2-POUND

B 15978248

For Postal Use

ORIGIN	Date In	Postage
Post Office ZIP Code 32798	Time In A.M. P.M. 1430	$ 10.75
Initials of Receiving Clerk EA	Weight 2 lbs.	Return Receipt Fee $

ACCEPTANCE

☐ Accepted for next day delivery

☐ Accepted for this destination after deposit deadline for next day delivery, therefore for delivery by second day

(Consult your local Express Mail Next Day Service directory for deposit deadlines for different destinations)

Total Postage & Fees $ 10.75

Account Number (If any) (Using an authorized number indicates postage and fees paid.)

Express Mail Corporate Account No.:

Federal Agency Control No.:

For Customer Use

FROM:

Drum Service Co. of Florida
P.O. Box 278
Zellwood, FL 32798

PLACE MAIL

Label 11-B (March 1985) ★ U.S.G.P.O.-1985-485-211

For Postal Use

DESTINATION

Date 4/14/86 Time of Delivery 1210 A.M. P.M.

Signature of Addressee or Agent

DELIVERY WAS ATTEMPTED

Date 4/12 Time 1000 A.M. P.M.

Notice Left By HDF

For Customer Use

ADDRESSEE'S COPY

TO: Telephone Number: (904) 488-933

Mr. Edward J. Svec
Department of Environmental Regulation
State of Florida
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

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