KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 ▪ FAX/377-7158

KA 525-98-02

April 5, 1999

Ms. Rita Felton-Smith
Florida Department of
Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

SUBJECT: Monterey Boats - Williston Cruiser Plant
Air Construction Permit Application

Dear Ms. Felton-Smith:

This is a follow up to our telephone conversation regarding a construction permit application for Monterey's proposed boat manufacturing plant in Williston, to accommodate potential future market growth.

Four copies of the application are enclosed, along with a check in the amount of $2000 (applicable fee of $5000, FDEP has credit of $3000).

We would appreciate your prompt review of our application. If you have any questions, do not hesitate to call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES

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

JBK:par
Encl.

c: F.J. Gombash, Monterey Boats
C. Phillips, DARM

MONTEREY BOATS
SEABRING MARINE INDUSTRIES, INC.

DATE | CHECK NO. | VENDOR KEY

INVOICE #	INVOICE DATE	AMOUNT	DISCOUNT	VOUCHER #	NET AMOUNT
		NEW PLANT APPLICATION			
TOTAL ▶					

AN ARTIFICIAL WATERMARK IS PRESENT ON THE REVERSE SIDE

MONTEREY
SEABRING MARINE INDUSTRIES, INC.
P.O. BOX 70
ARCHER, FL 32618

BARNETT BANK ARCHER BRANCH
P.O. BOX 147047
GAINESVILLE, FL 32614-7047

072179

63-1009/631

DATE 4/5/99 CHECK NO.

Two Thousand 00/100

AMOUNT 2000.00

PAY TO THE ORDER OF FL DEPT. OF ENVIR. PROTECTION

AUTHORIZED SIGNATURE

DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER

⑈072179⑈ ⑆063100921⑆ 3500058456⑈

Department of Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: **Seabring Marine Industries, Inc.**	
2. Site Name: **Monterey Boats - Williston Cruiser Plant**	
3. Facility Identification Number: [X] Unknown	
4. Facility Location: **Williston Airport Industrial Park, off Highway 41** City: **Williston** County: **Levy** Zip Code:	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [ ] Yes [X] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Permit Number:	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   F.J. Gombash, President

2. Owner/Authorized Representative or Responsible Official Mailing Address:

   Organization/Firm: **Seabring Marine Industries, Inc.**
   Street Address: **212 Magnolia Street**
   City: **Archer** State: **FL** Zip Code: **32618**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: **(352) 495-3624** Fax: **(352) 495-2044**

4. Owner/Authorized Representative or Responsible Official Statement:

   I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

F.J. Gombash PRES. 4/5/99
Signature Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID	Description of Emissions Unit	Permit Type
001	Boat Building Facility	AC1B

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be revised: _____

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category II: All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s):_____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit to be revised:_____

Reason for revision:_____

_____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain:

[X] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: **NA**

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[X] Attached - Amount: $ 5000 [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

This application is submitted for a construction permit for Monterey's proposed fiberglass boat manufacturing facility in Williston, in order to accommodate potential future growth. The facility's maximum five-year emission projections are around 230 tons per year (tpy) of VOCs and around 145 tpy of HAPs. Annual hours of operation will be 8,760 hours per year; although all operations will not occur at all times. The currently permitted wood working area operations and emissions will not be affected.

The facility will satisfy the presumptive MACT requirement with the use of hand lay-up and flow coaters for resin.

2. Projected or Actual Date of Commencement of Construction: **June 1999**

3. Projected Date of Completion of Construction: **December 1999**

Professional Engineer Certification

1. Professional Engineer Name: **John B. Koogler, PhD., P.E.**
   Registration Number: **12925**
2. Professional Engineer Mailing Address:

   Organization/Firm: **Koogler & Associates**
   Street Address: **4014 N.W. 13th Street**
   City: **Gainesville** State: **FL** Zip Code: **32609**
3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 377-5822** Fax: **(352) 377-7158**

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature (seal)

4/5/99
Date

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact: **Pradeep Raval, Engineer**
2. Application Contact Mailing Address: Organization/Firm: **Koogler & Associates** Street Address: **4014 N.W. 13th Street** City: **Gainesville** State: **FL** Zip Code: **32609**
3. Application Contact Telephone Numbers: Telephone: **(352) 377-5822** Fax: **(352) 377-7158**

Application Comment

This application is submitted for a new construction permit for Monterey's Williston Cruiser Plant, to accommodate potential future growth. The maximum five-year projection of VOC emissions from the facility are around 230 tpy of VOCs and around 145 tpy of HAPs. Annual hours of operation will be 8,760 hours per year; although all operations will not occur at all times.

Compliance with emission limitations will be demonstrated using a material balance approach, similar to that used by other boat manufacturing operations subject to Title V provisions.

Emission calculations for resin and gelcoat are based on factors contained in FDEP's interim guidance.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: **17** East (km): **356.9** North (km): **3249.2**			
2. Facility Latitude/Longitude: **See Field 1** Latitude (DD/MM/SS): Longitude (DD/MM/SS):			
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **37**	6. Facility SIC(s): **3732**
7. Facility Comment (limit to 500 characters): **Fiberglass Boat Manufacturer**			

Facility Contact

1. Name and Title of Facility Contact: **F.J Gombash, President**
2. Facility Contact Mailing Address: Organization/Firm: **Seabring Marine Industries, Inc.** Street Address: **212 Magnolia Street** City: **Archer** State: **FL** Zip Code: **32618**
3. Facility Contact Telephone Numbers: Telephone: **(352) 495-3624** Fax: **(352) 495-2044**

Facility Regulatory Classifications

1. Small Business Stationary Source? [ ] Yes [ ] No [**X**] Unknown
2. Title V Source? [**X**] Yes [ ] No
3. Synthetic Non-Title V Source? [ ] Yes [**X**] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? [**X**] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs? [ ] Yes [**X**] No
6. Major Source of Hazardous Air Pollutants (HAPs)? [**X**] Yes [ ] No
7. Synthetic Minor Source of HAPs? [ ] Yes [**X**] No
8. One or More Emissions Units Subject to NSPS? [ ] Yes [**X**] No
9. One or More Emission Units Subject to NESHAP? [ ] Yes [**X**] No
10. Title V Source by EPA Designation? [ ] Yes [**X**] No
11. Facility Regulatory Classifications Comment (limit to 200 characters): **NESHAP expected for this source category by November 2000. However, source is subject to presumptive MACT provisions.**

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

NA

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

Title V Core Requirements	
62-4, 204, 210, 213, 252, 256, 257, 281, 296, 297 FAC.	
40 CFR 63, 82	

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification
VOC	**A**
H163 Styrene	**A**

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information: Pollutant (1 of 2)

1. Pollutant Emitted: **NA**		
2. Requested Emissions Cap:	(lb/hour)	(tons/year)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

Facility Pollutant Detail Information: Pollutant (2 of 2)

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hour)	(tons/year)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location: [X] Attached, Document ID:**Attachment 1** [ ] Not Applicable [ ] Waiver Requested
2. Facility Plot Plan: [X] Attached, Document ID: **Attachment 2** [ ] Not Applicable [ ] Waiver Requested
3. Process Flow Diagram(s): [X] Attached, Document ID: **Attachment 3** [ ] Not Applicable [ ] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
5. Fugitive Emissions Identification: [X] Attached, Document ID: **Attachment 2** [ ] Not Applicable [ ] Waiver Requested
6. Supplemental Information for Construction Permit Application: [ ] Attached, Document ID:_____ [X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only **NA**

7. List of Proposed Exempt Activities: [ ] Attached, Document ID: _____ [ ] Not Applicable
8. List of Equipment/Activities Regulated under Title VI: [ ] Attached, Document ID:_____ [ ] Equipment/Activities On site but Not Required to be Individually Listed [ ] Not Applicable
9. Alternative Methods of Operation: [ ] Attached, Document ID:_____ [ ] Not Applicable
10. Alternative Modes of Operation (Emissions Trading): [ ] Attached, Document ID:_____ [ ] Not Applicable

11. Identification of Additional Applicable Requirements: [ ] Attached, Document ID: _
12. Compliance Assurance Monitoring Plan: [ ] Attached, Document ID:_____ [ ] Not Applicable
13. Risk Management Plan Verification: [ ] Plan Submitted to Implementing Agency - Verification Attached, Document ID:_____ [ ] Plan to be Submitted to Implementing Agency by Required Date [ ] Not Applicable
14. Compliance Report and Plan: [ ] Attached, Document ID: _____ [ ] Not Applicable
15. Compliance Certification (Hard-copy Required): [ ] Attached, Document ID: _____ [ ] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): **Fiberglass Boat Manufacturing**		
2. Emissions Unit Identification Number: **001** [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code: **A**	4. Acid Rain Unit? [ ] Yes [**X**] No	5. Emissions Unit Major Group SIC Code: **37**
6. Emissions Unit Comment (limit to 500 characters): **This emissions unit consists of a fiberglass boat manufacturing operation which generates air emissions from laying up fiberglass, wood working, and materials storage and handling.**		

Emissions Unit Control Equipment

A.

1. Description (limit to 200 characters): **NA**
2. Control Device or Method Code: **NA**

B.

1. Description (limit to 200 characters): **NA**
2. Control Device or Method Code: **NA**

C.

1. Description (limit to 200 characters): **NA**
2. Control Device or Method Code: **NA**

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date: **NA**		
2. Long-term Reserve Shutdown Date: **NA**		
3. Package Unit: **NA**		
Manufacturer:	Model Number:	
4. Generator Nameplate Rating: **NA**	MW	
5. Incinerator Information: **NA**		
Dwell Temperature:		°F
Dwell Time:		seconds
Incinerator Afterburner Temperature:		°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: **NA**		mmBtu/hr
2. Maximum Incineration Rate: **NA**	lb/hr	tons/day
3. Maximum Process or Throughput Rate: **See Field 5**		
4. Maximum Production Rate: **NA**		
5. Operating Capacity Comment (limit to 200 characters):		
Maximum process rate is based on material usage (see Attachment 4).		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule:		
	24 hours/day	**7** days/week
	52 weeks/year	**8,760** hours/year

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

NA

Emissions Unit Information Section 1 of 1

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Page 12.	

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **See Attachment 2**
2. Emission Point Type Code: [ ] 1 [ ] 2 [X] 3 [ ] 4
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **The ventilation system consists of building exhaust fans.**
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [X] R [ ] V [ ] W
6. Stack Height: **NA** feet
7. Exit Diameter: **NA** feet
8. Exit Temperature: **Ambient** °F

9. Actual Volumetric Flow Rate: **NA**	acfm
10. Percent Water Vapor : **NA**	%
11. Maximum Dry Standard Flow Rate: **NA**	dscfm
12. Nonstack Emission Point Height: **NA**	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):	
14. Emission Point Comment (limit to 200 characters):	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment (1 of 1)

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Process Materials**	
2. Source Classification Code (SCC): **3-14-999-99**	
3. SCC Units: **TonsProcessed**	
4. Maximum Hourly Rate: **See Att. 4**	5. Maximum Annual Rate: **See Att. 4**
6. Estimated Annual Activity Factor: **NA**	
7. Maximum Percent Sulfur: **NA**	8. Maximum Percent Ash: **NA**
9. Million Btu per SCC Unit: **NA**	
10. Segment Comment (limit to 200 characters): **The process rate is determined by material use inventory.**	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment (___of___)

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **NA**	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC	**NA**	**NA**	**EL**
H163	**NA**	**NA**	**EL**

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **VOC**
2. Total Percent Efficiency of Control: **NA**
3. Potential Emissions: lb/hr **228** tons/year
4. Synthetically Limited? [ ] Yes [**X**] No
5. Range of Estimated Fugitive/Other Emissions: **See field 3 above.** [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year
6. Emission Factor: **See Att. 4** Reference: **MSDS**
7. Emissions Method Code: [ ] 0 [ ] 1 [**X**] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **Based on VOC and HAP content of materials used in the process and documented in spreadsheet .** **VOC = approx. 228 tpy**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **NA**

Emissions Unit Information Section 1 of 1

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **OTHER**		
2. Future Effective Date of Allowable Emissions: **NA**		
3. Requested Allowable Emissions and Units: **NA**		
4. Equivalent Allowable Emissions:	**NA** lb/hour	**228** tons/year
5. Method of Compliance (limit to 60 characters): **Compliance will be demonstrated with work practice standards and purchase/use records.**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Maximum allowable emissions rate requested by applicant based on maximum projected material usage rates.**		

B. (NA)

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **H163**
2. Total Percent Efficiency of Control: **NA**
3. Potential Emissions: lb/hr **117** tons/year
4. Synthetically Limited? [ ] Yes [**X**] No
5. Range of Estimated Fugitive/Other Emissions: **See field 3 above.** [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year
6. Emission Factor: **See Att. 4** Reference: **MSDS**
7. Emissions Method Code: [ ] 0 [ ] 1 [**X**] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **Based on VOC and HAP content of materials used in the process and documented in spreadsheet .** **H163 (Styrene) = approx. 117 tpy**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **NA**

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **OTHER**		
2. Future Effective Date of Allowable Emissions: **NA**		
3. Requested Allowable Emissions and Units: **NA**		
4. Equivalent Allowable Emissions:	**NA** lb/hour	**117** tons/year
5. Method of Compliance (limit to 60 characters): **Compliance will be demonstrated with work practice standards and purchase/use records.**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Maximum allowable emissions rate requested by applicant based on maximum projected material usage rates.**		

B. (NA)

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitation: (NA)

1. Visible Emissions Subtype:
2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: Maximum Period of Excess Opacity Allowed: min/hour
4. Method of Compliance:
5. Visible Emissions Comment (limit to 200 characters): **No visible emissions limitation is applicable to the emissions of VOCs and HAPs.**

Visible Emissions Limitation: (NA)

1. Visible Emissions Subtype:
2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4. Method of Compliance:
5. Visible Emissions Comment (limit to 200 characters):

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)
(NA)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number:	Serial Number:
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number:	Serial Number:
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide? **(NA)**

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [ ] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide? **(NA)**

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code: **NA**			
PM	[ ] C	[ ] E	[ ] Unknown
SO2	[ ] C	[ ] E	[ ] Unknown
NO2	[ ] C	[ ] E	[ ] Unknown
4. Baseline Emissions: **NA**			
PM		lb/hour	tons/year
SO2		lb/hour	tons/year
NO2			tons/year
5. PSD Comment (limit to 200 characters):			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1. Process Flow Diagram [**X**] Attached, Document ID: **Attachment 3** [ ] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [ ] Attached, Document ID:_____ [**X**] Not Applicable [ ] Waiver Requested
3. Detailed Description of Control Equipment [ ] Attached, Document ID:_____ [**X**] Not Applicable [ ] Waiver Requested
4. Description of Stack Sampling Facilities [ ] Attached, Document ID:_____ [**X**] Not Applicable [ ] Waiver Requested
5. Compliance Test Report [ ] Attached, Document ID:_____ [ ] Previously submitted, Date:_____ [**X**] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:_____ [**X**] Not Applicable
7. Operation and Maintenance Plan [ ] Attached, Document ID:_____ [**X**] Not Applicable
8. Supplemental Information for Construction Permit Application [ ] Attached, Document ID:_____ [**X**] Not Applicable
9. Other Information Required by Rule or Statute [**X**] Attached, Document ID: **Attachment 5** [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation
[ ] Attached, Document ID:_____ [**X**] Not Applicable

11. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:_____ [**X**] Not Applicable

12. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:_____ [**X**] Not Applicable

13. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:_____ [**X**] Not Applicable

14. Acid Rain Application (Hard-copy Required)

[ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID:_____

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:_____

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:_____

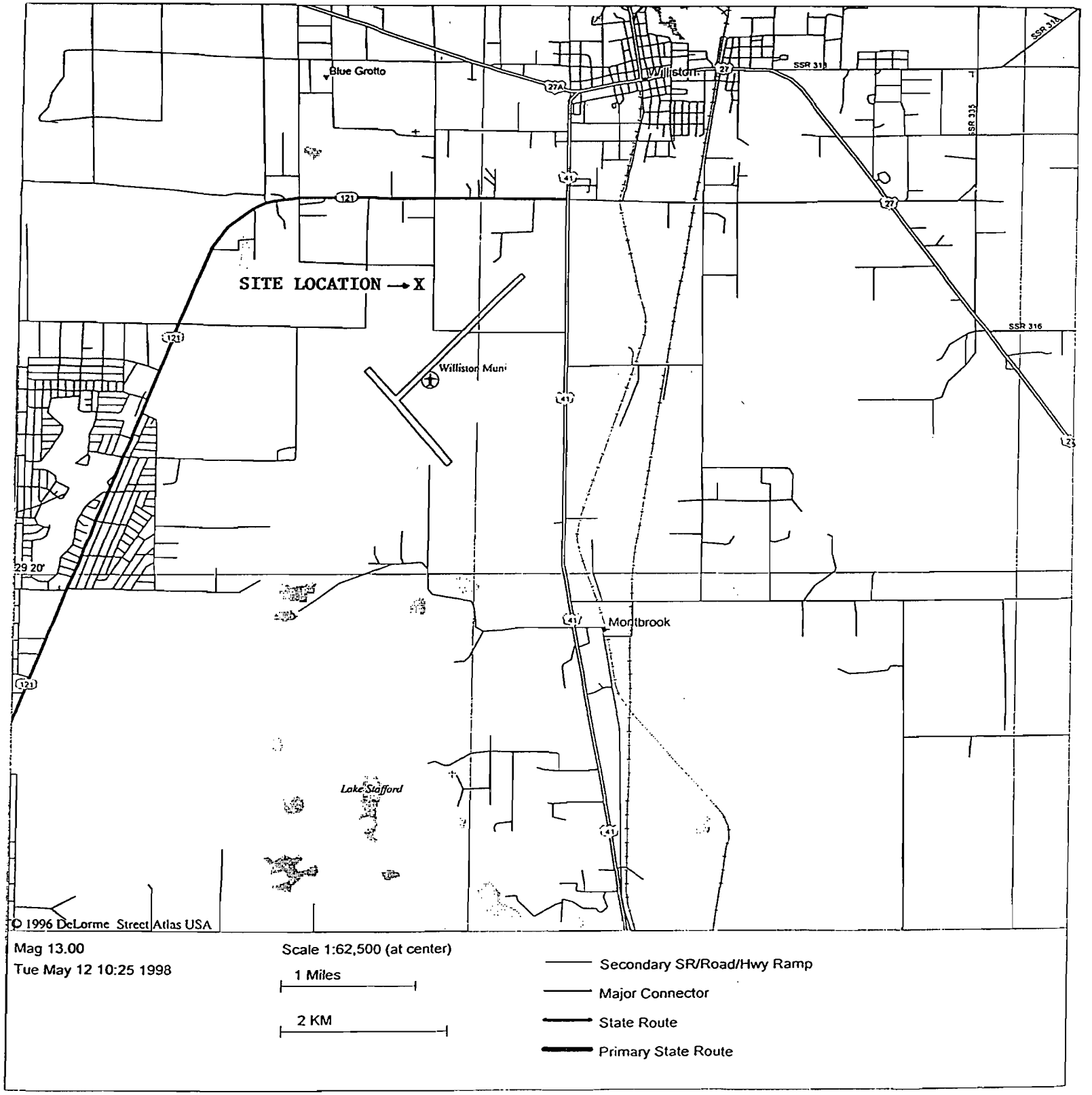
[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:_____

[**X**] Not Applicable

ATTACHMENT 1

FACILITY LOCATION MAP

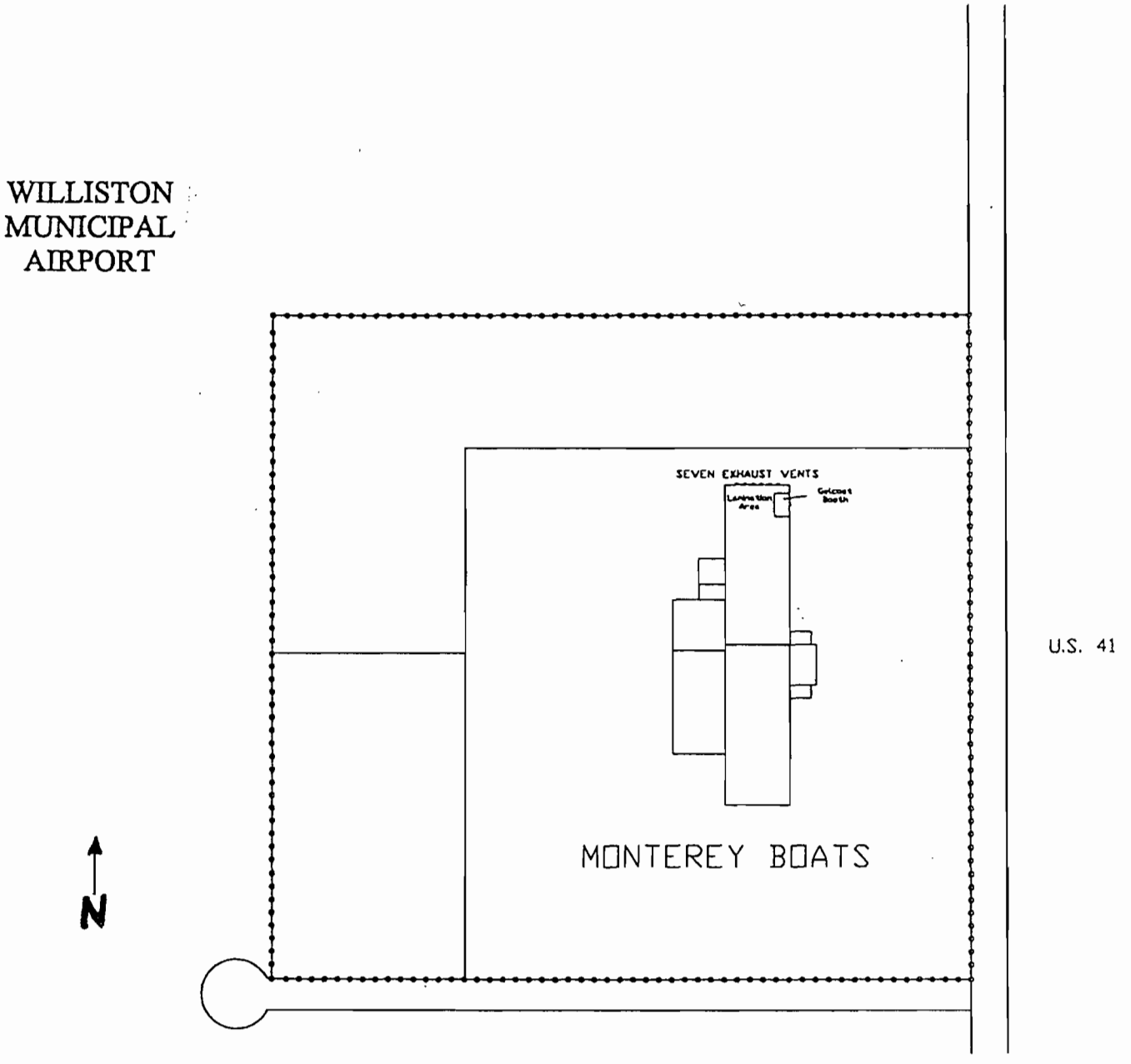
MONTEREY BOATS
WILLISTON, FLORIDA



ATTACHMENT 2

FACILITY PLOT PLAN

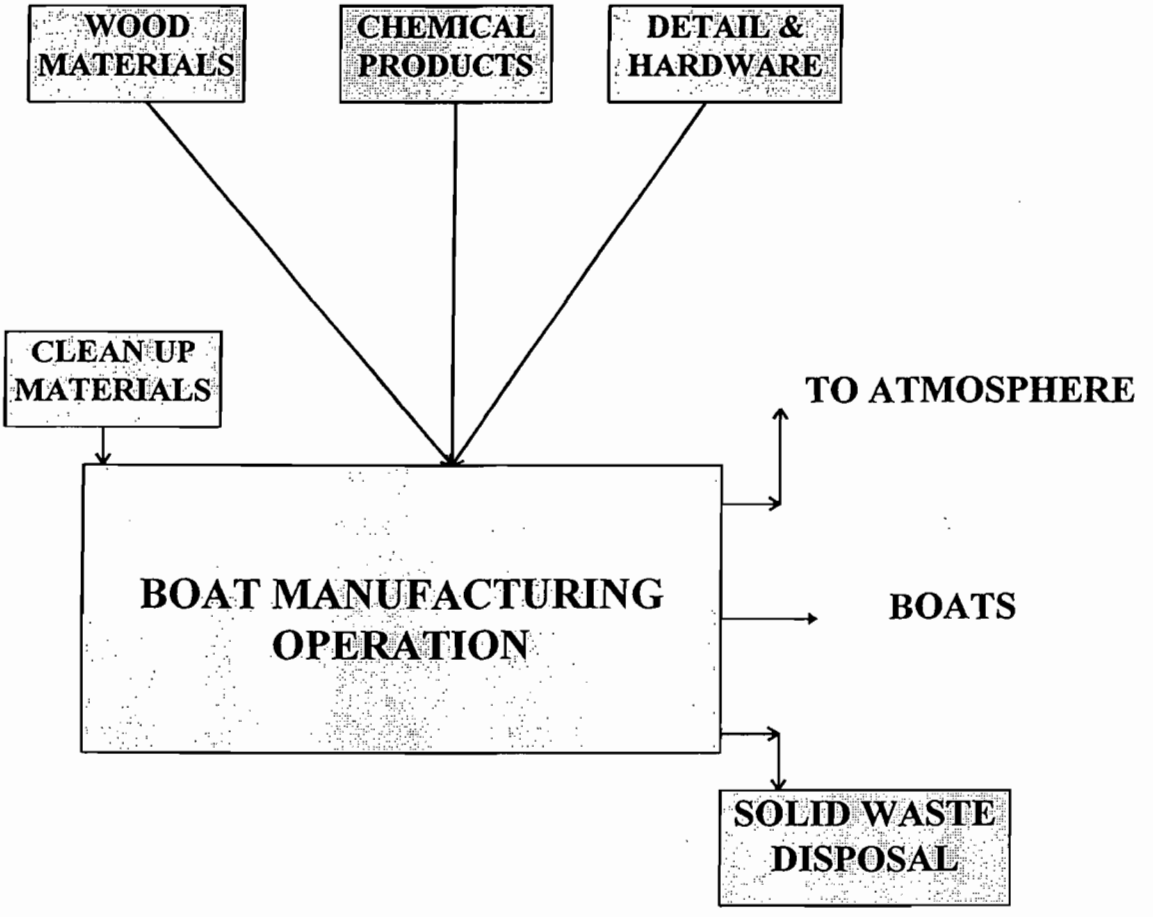
MONTEREY BOATS



ATTACHMENT 3

PROCESS FLOW DIAGRAM

MONTEREY BOATS



ATTACHMENT 4

ESTIMATED MAXIMUM EMISSIONS
MONTEREY BOATS - WILLISTON CRUISER PLANT

Material	Annual Usage (lb/yr)	VOC/HAP Content	VOC Release Factor	Estimated Emissions VOC (lb/yr)	VOC (ton/yr)	HAP (ton/yr)
Acetone	400000	1.000	0.000	0.0	0.0	
Catalyst	200000	0.980	0.050	9800.0	4.9	
MEK (2%)		0.020	0.050	200.0	0.1	0.1
Cumene (2.4%)		0.024	0.050	240.0	0.1	0.1
Acetophenone (0.6%)		0.006	0.050	60.0	0.0	0.0
Contact Cement	200000	0.500	1.000	100000.0	50.0	
Gel Coat (Spray)	600000	0.550	0.540	178200.0	89.1	
Styrene (31.5%)		0.315	0.540	102060.0	51.0	51.0
Methyl Methacrylate (6%)		0.060	0.540	19440.0	9.7	9.7
Resin (Flow coater)	440000	0.440	0.120	23232.0	11.6	
Styrene (44%)		0.440	0.120	23232.0	11.6	11.6
Resin (Flow coater)	2500000	0.390	0.110	107250.0	53.6	
Styrene (39%)		0.390	0.110	107250.0	53.6	53.6
Foam A	300000	0.450	0.002	202.5	0.1	
MDI (45%)		0.450	0.002	202.5	0.1	0.1
Foam B (HFC-134a)	300000	0.000	1.000	0.0	0.0	
Vinyl Paint	70000	0.510	1.000	35700.0	17.9	
Ethyl benzene (5%)		0.050	1.000	3500.0	1.8	1.8
MEK (0.1%)		0.001	1.000	70.0	0.0	0.0
MIK (20%)		0.200	1.000	14000.0	7.0	7.0
Xylene (25%)		0.250	1.000	17500.0	8.8	8.8
Wax	1000	0.980	1.000	980.0	0.5	
Xylene (1%)		0.010	1.000	10.0	0.0	0.0
Mold Release	1000	0.980	1.000	980.0	0.5	
Xylene (60%)		0.600	1.000	600.0	0.3	0.3
Ethyl Benzene (20%)		0.200	1.000	200.0	0.1	0.1
TOTAL:					227.7	144.3

INDIVIDUAL HAP EMISSIONS	**TPY**
Acetophenone	0.0
Cumene	0.1
Diphenylmethane Diisocyanate (MDI)	0.1
Ethyl benzene	1.9
Methyl Ethyl Ketone	0.1
Methyl Isobutyl Ketone	7.0
Methyl Methacrylate	9.7
Styrene	116.3
Xylene	9.1
TOTAL	144.3

ATTACHMENT 5

CASE-BY-CASE MACT DETERMINATION

MONTEREY BOATS - WILLISTON CRUISER PLANT

Introduction

Section 112(g) of the Clean Air Act requires that Maximum Achievable Control Technology (MACT) be applied to modified major sources of Hazardous Air Pollutants (HAPs), prior to EPA's promulgation of final MACT standards for the source category.

Monterey Boats requests a new construction permit for a fiberglass boat manufacturing facility in Williston, Florida, to allow an increase in the allowable HAP emissions, based on a five-year projection of material usage. The ultimate HAP emissions from the facility, primarily styrene, will be above the major source threshold. Consequently, a case-by-case MACT determination is required, as EPA has not finalized the MACT standards for this source category.

Process Description

The proposed facility will manufacture cruisers, beginning with the molding of all cruiser components and ending with finished product, using the open mold process. Separate molds will be used for the boat hull, deck and other miscellaneous small fiber reinforced plastic parts.

To begin a gel coat, containing styrene, will be applied to a waxed mold surface. This phase of the production takes place inside a booth similar to a paint spray booth. After the gel coat hardens, chopped fiber strands and styrene containing resin, with internally mixed catalyst, will be applied by a flow coater (non-atomizing internal mix equipment). The parts will continue to be built on or inside the molds using glass roving, cloth, mat, etc. For each layer, the fiberglass substrate will be saturated with the thermosetting liquid polyester resin mixed with a catalyst until the desired thickness is achieved. The catalyzed resin will form a rigid shape consisting of fiberglass reinforced resin.

The preparation for assembly will include trimming, to eliminate sharp fibers and the trim flange, and the application of an interior grade gel coat, for certain visible areas. Flotation foam will be injected into closed cavities in the hulls. The installation of electrical and mechanical systems, engine, hardware, upholstery, carpet, etc., will then be performed. Various adhesives, waxes, oils, paints and cleaners will be used in the assembly area.

An integrated woodshop will utilize routers, saws, drills and other industrial grade woodworking tools to make all necessary reinforcing and cabinetry. Sawdust generated by the woodworking equipment will be captured at several pick up points. The combined air flow, of about 5000 cfm, will convey the sawdust to an accumulator/dust collector. The exhaust from the dust collector will be vented to the atmosphere.

The proposed facility will be capable of manufacturing 1000-1300 units per year, depending on the size of the crafts and market demands.

Control Technology Options

At this time, there is no existing MACT determination for this source category. However, several control alternatives are discussed in EPA guidance on the subject.

- **Thermal oxidizer**
- **Catalytic oxidizer**
- **Condensers**
- **Rotary concentrators**
- **Solvent recovery/oxidation**
- **Closed molding**
- **Non-spray resin application**
- **Low HAP material use**

Add-on control equipment is currently under EPA consideration for facilities emitting over 500 tons per year of HAPs. A cost assessment of these technologies was conducted using the EPA cost spreadsheets. The resulting add-on control costs were determined to be excessive (see attached spreadsheets). The lowest calculated cost of control, associated with the Polyad system (a VOC concentrator followed by microwave regeneration of the VOCs) was about $6200 per ton of pollutant removed. The actual cost would be much more, based on a current equipment cost proposal on the Polyad system, of $3.5 million. The cost amounts to a 20 percent increase since the EPA factors were generated a few years ago. Given the excessive costs, the add-on control technologies are not discussed in greater detail herein.

Closed molding is a fabrication technique in which reinforced plastic parts are produced between the halves of a two-part mold or between a mold and flexible membrane. This technique includes four types of operations: vacuum bagging; vacuum-assisted resin transfer molding; resin transfer molding; and, compression molding with sheet molding compound. These methods are being used mostly by manufacturers of small crafts/parts. The HAP emissions are better confined using this technique resulting in estimated emission reductions of up to 50 percent over spray application. The disadvantages of these techniques include: increase in solid waste due to membrane disposal and wider flanges on parts; problems associated

with bag fitting and sealing, especially if the parts are large; bag fitting is very difficult for complex shapes; gel coat print through may occur from vacuum pressure; and, more expensive molds would be needed to withstand high molding pressures. These processes are not practical for Monterey Boats in the manufacture of cruisers, primarily due to the large part sizes.

Non-spray resin application includes four basic resin application techniques: bucket and brush; resin rollers; flow coaters; and, resin impregnators. HAP emissions are reduced compared with spray techniques by eliminating the atomization of resin. Monterey Boats proposes to use flow coaters at the proposed plant for all the production resin, resulting in up to 45 percent reduction in styrene emissions as compared to spray application. Gel coat will still be applied by atomized spray techniques as this is the only practical method of uniformly applying this surface coat to the desired specifications.

HAP emissions can also be reduced by material substitutions. Monterey Boats will implement the use of a lower styrene content resin (39 percent styrene) in most of the production resin. Only 15 percent of the resin, for specific parts, will have higher styrene content (44 percent). Furthermore, Monterey Boats will continue to investigate other lower styrene content resins introduced into the market in the future. Industry representatives have indicated several potential problems with low styrene resins: reduced physical performance due to less cross-linking polyester molecules; weaker secondary bonding; more difficult application due to higher material viscosities; difficulty in wetting out traditional reinforcements; and, susceptibility to osmotic blistering with prolonged exposure to water.

At this time there are some new resins on the market with 35 percent styrene content. However, these products would need to be demonstrated in the field for structural strength and integrity for a period of at least five years (corresponding to the boat manufacturer's warranty). It would cause immeasurable harm if a switch to an unproven low styrene resin resulted in structural failures in the boats.

This technology selection is in line with other similar size boat manufacturers such as Sport-Craft, Wellcraft and Sea Ray, to name a few.

Conclusion

Monterey Boats proposes the use of flow coaters for resin application, along with the use of lower styrene content resin (39 percent) as MACT for the proposed Williston cruiser plant. Use of 44 percent styrene content resin will be limited to 15 percent of the total production resin.

Cost spreadsheet for the rotary concentrator	
PARAMETER	***INPUT***
Flowrate (cfm)	140,000
Control device input mass (tons/year)	143
Concentration (ppm)	28
Facility operating schedule (hours/year)	4160
Thermal oxidizer temperature (F)	1450
Fuel cost, ($/million BTU)	4.5
Electricity cost, ($/kwhr)	0.06
COST CALCULATIONS	
Heat recovery (%)	60
Electrical power (kW)	102
Fuel usage (Btu/hr)	7,426,645
Equipment cost (EC), (Durr budgetary costs, 3/15/96)	1,402,289
Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	1,399,021
Total Direct Cost (TDC), ($)	2,509,473
Total Capital Investment (TCI), ($)	3,029,909
Direct operating costs, minus utilities ($/year)	127,750
Thermal incinerators fuel cost ($/year)	139,027
Electrical cost ($/year)	33,811
Overhead, property tax, insurance, administration ($/year)	197,846
Capital recovery cost ($/year)	441,427
Styrene recovery cost ($/year)	0
Total annualized cost ($/year)	939,862
Cost per unit pollutant removed ($/ton)	6,918

	A	B	C	D
1	Cost spreadsheet for condensors			
2	***PARAMETER***	***INPUT***	***CALC.***	
3	Flowrate (cfm)	140,000	140,000	
4	Control device input mass (tons/year)	143	143.00	
5	Concentration (ppm)	28	28	
6	Facility operating schedule (hours/year)	4160		
7	Electricity cost, ($/kwhr)	0.06		
8	Styrene recovery value, ($/lb)	0.42		
9				
10	***COST CALCULATIONS***			
11				
12	Number of stages	Single	Multiple	
13	Operating temperature (F)	-10	-40	
14	Outlet concentration (ppm)	357	84	
15	Removal efficiency (%)	-1175	-199	
16	Tons of cooling	1,667	2,045	
17	Electrical power (kW)	3,334	4,090	
18				
19	Equipment cost (EC), (Chemical engineering, August 1995)	1,121,559	2,214,607	
20	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	1,121,559	2,214,607	
21	Total Direct Cost (TDC), ($)	2,076,631	3,781,787	
22	Total Capital Investment (TCI), ($)	2,493,851	4,605,621	
23				
24	Direct operating costs, minus utilities ($/year)	228,560	88,560	
25	Electrical cost ($/year)	832,109	1,020,807	
26	Overhead, property tax, insurance, administration ($/year)	236,890	237,361	
27	Capital recovery cost ($/year)	363,329	670,993	
28	Styrene recovery cost ($/year)	1,411,236	239,328	
29	Total annualized cost ($/year)	3,072,125	2,017,721	
30				
31	Cost per unit pollutant removed ($/ton)	Infinite	Infinite	
32				
33				
34				
35				
36				

	A	B	C	D	E	F
1	Cost spreadsheet for catalytic oxidation					
2	***PARAMETER***	***INPUT***	***CALC.***			
3	Flowrate (cfm)	140,000	140,000			
4	Control device input mass (tons/year)	143	143.000			
5	Concentration (ppm)	28	28			
6	Facility operating schedule (hours/year)	4160				
7	Catalytic oxidizer temperature (F)	625				
8	Fuel cost, ($/million BTU)	4.5				
9	Electricity cost, ($/kwhr)	0.06				
10						
11	***COST CALCULATIONS***					
12	Heat recovery (%)	0	35	50	70	95
13	Electrical power (kW)	164	273	382	573	601
14	Fuel usage (Btu/hr)	93,579,139	60,435,420	46,230,969	27,291,702	3,617,617
15						
16	Equipment cost (EC), (Vendor quotes, July 1995 dollars for HR=95%)	722,452	518,539	898,551	1,008,164	2,300,000
17	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	826,514	593,230	1,027,979	1,153,381	2,300,000
18	Total Direct Cost (TDC), ($)	1,616,362	1,252,438	1,930,647	2,126,274	3,915,000
19	Total Capital Investment (TCI), ($)	1,923,826	1,473,120	2,313,055	2,555,332	4,770,600
20						
21	Direct operating costs, minus utilities ($/year)	88,560	88,560	88,560	88,560	88,560
22	Thermal incinerators fuel cost ($/year)	1,751,801	1,131,351	865,444	510,901	67,722
23	Electrical cost ($/year)	40,884	68,141	95,397	143,096	149,910
24	Overhead, property tax, insurance, administration ($/year)	130,089	112,061	145,658	155,349	243,960
25	Capital recovery cost ($/year)	280,282	214,619	336,989	372,286	695,029
26	Total annualized cost ($/year)	2,291,617	1,614,731	1,532,048	1,270,192	1,245,180
27						
28	Cost per unit pollutant removed ($/ton)	16,869	11,886	11,277	9,350	9,166

	A	B	C	D	E	F	G
1	Cost spreadsheet for thermal oxidation						
2	***PARAMETER***	***INPUT***	***CALC.***				
3	Flowrate (cfm)	140,000	140,000				
4	Control device input mass (tons/year)	143	143				
5	Concentration (ppm)	28	28				
6	Facility operating schedule (hours/year)	4160					
7	Thermal oxidizer temperature (F)	1450					
8	Fuel cost, ($/million BTU)	4.5					
9	Electricity cost, ($/kwhr)	0.06					
10							
11	***COST CALCULATIONS***						
12	Heat recovery (%)	0	35	50	70	95	
13	Electrical power (kW)	109	218	328	519	547	
14	Fuel usage (Btu/hr)	233,838,527	151,604,023	116,360,664	69,369,518	10,630,586	
15							
16	Equipment cost (EC), (OAQPS Manual, 1988 dollars)	167,686	289,413	330,703	412,826	1,840,200	
17	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	191,891	331,188	378,439	472,416	2,105,826	
18	Total Direct Cost (TDC), ($)	626,350	843,654	917,365	1,063,969	3,612,089	
19	Total Capital Investment (TCI), ($)	697,734	966,856	1,058,144	1,239,708	4,395,456	
20							
21	Direct operating costs, minus utilities ($/year)	88,560	88,560	88,560	88,560	88,560	
22	Thermal incinerators fuel cost ($/year)	4,377,457	2,838,027	2,178,272	1,298,597	199,005	
23	Electrical cost ($/year)	27,256	54,513	81,769	129,468	136,530	
24	Overhead, property tax, insurance, administration ($/year)	81,045	91,810	95,462	102,724	228,954	
25	Capital recovery cost ($/year)	101,653	140,861	154,161	180,613	640,374	
26	Total annualized cost ($/year)	4,675,972	3,213,771	2,598,223	1,799,962	1,293,423	
27							
28	Cost per unit pollutant removed ($/ton)	33,366	22,933	18,540	12,844	9,230	
29							

	A	B
1	Cost spreadsheet for the Thermatrix PADRE system	
2	***PARAMETER***	***INPUT***
3	Flowrate (cfm)	140,000
4	Control device input mass (tons/year)	143
5	Concentration (ppm)	28
6	Facility operating schedule (hours/year)	4160
7	Electricity cost, ($/kwhr)	0.06
8	Styrene recovery value, ($/lb)	0.42
9		
10	***COST CALCULATIONS***	
11		
12	Electrical power (kW)	99
13	Number of desorption units required	3
14		
15	Equipment cost (EC), (Purus cost sheet, 12/2/94)	3,818,000
16	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	3,851,286
17	Total Direct Cost (TDC), ($)	6,335,006
18	Total Capital Investment (TCI), ($)	7,767,685
19		
20	Direct operating costs, minus utilities ($/year)	109,332
21	Electrical cost ($/year)	24,606
22	Overhead, property tax, insurance, administration ($/year)	376,307
23	Capital recovery cost ($/year)	1,131,674
24	Styrene recovery cost ($/year)	-114,114
25	Total annualized cost ($/year)	1,527,805
26		
27	Cost per unit pollutant removed ($/ton)	11,246

	A	B	C
1	Cost spreadsheet for the MIAB system		
2	***PARAMETER***	***INPUT***	***CALC.***
3	Flowrate (cfm)	140,000	140,000
4	Control device input mass (tons/year)	143	143
5	Concentration (ppm)	28	28
6	Facility operating schedule (hours/year)	4160	
7	Catalytic oxidizer temperature (F)	650	
8	Fuel cost, ($/million BTU)	4.5	
9	Electricity cost, ($/kwhr)	0.06	
10	Styrene recovery value, ($/lb)	0.42	
11	Replacement carbon cost ($/lb)	1.6	
12			
13	***COST CALCULATIONS***		
14			
15	Unit Type	MIAB F	MIAB C
16	Electrical power (kW)	218	218
17	Fuel usage (Btu/hr)	1,869,875	373,975
18			
19	Equipment cost (EC), (MIAB cost sheet, January 24, 1996)	1,945,000	1,991,656
20	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	1,945,000	1,991,656
21	Total Direct Cost (TDC), ($)	3,361,200	3,433,984
22	Total Capital Investment (TCI), ($)	4,084,740	4,174,880
23			
24	Direct operating costs, minus utilities ($/year)	112,441	95,694
25	Catalytic oxidizer fuel cost ($/year)	35,004	7,001
26	Electrical cost ($/year)	54,513	54,513
27	Overhead, property tax, insurance, administration ($/year)	230,854	224,412
28	Capital recovery cost ($/year)	595,106	608,238
29	Styrene recovery cost ($/year)	0	0
30	Total annualized cost ($/year)	1,027,918	989,858
31			
32	Cost per unit pollutant removed ($/ton)	7,567	7,286

Cost spreadsheet for the Environmental C&C fluidized-bed preconcentrator		
PARAMETER	***INPUT***	***CALC.***
Flowrate (cfm)	140,000	140,000
Control device input mass (tons/year)	143	143
Concentration (ppm)	28	28
Facility operating schedule (hours/year)	4160	
Styrene recovery value, ($/lb)	0.42	
Fuel cost, ($/million BTU)	4.5	
Electricity cost, ($/kwhr)	0.06	
COST CALCULATIONS		
Recovery or oxidation?	Recovery	Oxidation
Electrical power (kW)	240	240
Fuel usage (Btu/hr)	0	0
Equipment cost (EC), (Environmental C&C quote, 4/3/96)	2,560,600	2,685,600
Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	2,570,809	2,696,307
Total Direct Cost (TDC), ($)	4,337,462	4,533,239
Total Capital Investment (TCI), ($)	5,293,803	5,536,265
Direct operating costs, minus utilities ($/year)	88,560	88,560
Thermal incinerators fuel cost ($/year)	0	0
Electrical cost ($/year)	59,904	59,904
Overhead, property tax, insurance, administration ($/year)	264,888	274,587
Capital recovery cost ($/year)	771,254	806,579
Styrene recovery cost ($/year)	-114,114	0
Total annualized cost ($/year)	1,070,492	1,229,629
Cost per unit pollutant removed ($/ton)	7,880	9,051

	A	B
1	Cost spreadsheet for biofiltration processes	
2	***PARAMETER***	***INPUT***
3	Flowrate (cfm)	140,000
4	Control device input mass (tons/year)	143
5	Concentration (ppm)	28
6	Facility operating schedule (hours/year)	4160
7	Electricity cost, ($/kwhr)	0.06
8		
9	***COST CALCULATIONS***	
10		
11		
12	Electrical power (kW)	382
13		
14	Equipment cost (EC), (Dan Boyd & Assoc, minus Emprosol)	2,285,355
15	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	2,305,279
16	Total Direct Cost (TDC), ($)	3,923,235
17	Total Capital Investment (TCI), ($)	4,780,799
18		
19	Direct operating costs, minus utilities ($/year)	228,560
20	Electrical cost ($/year)	95,424
21	Overhead, property tax, insurance, administration ($/year)	328,368
22	Capital recovery cost ($/year)	696,515
23	Total annualized cost ($/year)	1,348,867
24		
25	Cost per unit pollutant removed ($/ton)	9,929

	A	B	C
1	Cost spreadsheet for the Polyad system		
2	***PARAMETER***	***INPUT***	***CALC.***
3	Flowrate (cfm)	140,000	140,000
4	Control device input mass (tons/year)	143	143
5	Concentration (ppm)	28	28
6	Facility operating schedule (hours/year)	4160	
7	Catalytic oxidizer temperature (F)	650	
8	Fuel cost, ($/million BTU)	4.5	
9	Electricity cost, ($/kwhr)	0.06	
10	Styrene recovery value, ($/lb)	0.42	
11			
12	***COST CALCULATIONS***		
13			
14	Electrical power (kW)	282	
15	Fuel usage (Btu/hr)	448,000	
16			
17	Equipment cost (EC), (Polyad cost sheet, July 1995)	1,488,068	
18	Equipment Cost (EC), (CE equip. cost index, July 1995 dollars)	1,488,068	
19	Total Direct Cost (TDC), ($)	2,648,386	
20	Total Capital Investment (TCI), ($)	3,201,947	
21			
22	Direct operating costs, minus utilities ($/year)	109,332	
23	Catalytic oxidizer fuel cost ($/year)	8,387	
24	Electrical cost ($/year)	70,387	
25	Overhead, property tax, insurance, administration ($/year)	193,677	
26	Capital recovery cost ($/year)	466,492	
27	Styrene recovery cost ($/year)	0	
28	Total annualized cost ($/year)	848,275	
29			
30	Cost per unit pollutant removed ($/ton)	6,244	

AMERICAN
Purification, Inc.
Regenerative Adsorption Systems

February 9, 1999

Attn: Mr. Pradeep Raval
Koogler & Associates
4014 Northwest 13th Street
Gainesville, FL 32609

REF: BUDGET PROPOSAL FOR A POLYAD™ VOC SYSTEM.

Dear Mr. Raval,

American Purification, Inc. appreciates the opportunity to provide you with the following budgetary proposal for your styrene emission project.

VOC Stream Profile

Flow Rate:	140,000 SCFM
Temperature:	80° Fahrenheit
Removal Efficiency Required:	90-95 Percent
Hours of Operation:	16 Hours/Day
Days of Operation:	7 Days/Week
Hours of Operation Per Year:	4160 Hours/Year
Contaminant(s):	
Styrene	68.22 Lbs./Hr.

VOC Loading Profile

Styrene – 95% of Mass Loading

Lbs./Hr.	68.22
Lbs./Day	1092
Lbs./Year	283,795

Other components - 5% of Mass Loading
Needs to be identified.

Polyad™ Operating Parameters

Adsorber Bed(s):	Fluidized Bed.
Adsorber Pressure Drop:	8"-10" H_2O.
Regeneration Method:	Microwave.
Regeneration Temp:	300° F.
Adsorption Media:	Bonopore™ 1120
Operating Costs:	$ 0.15 / lb.
	$ 10.23 / hr.
	$ 163.80 / day.
	$ 42,569 / yr.

Operating Cost Assumptions

Electricity	$ 0.10/kW.
Resin Replacement	3% - 5% per yr. @ $ 0.066/gram.
Nitrogen Cost	$ 0.02/scf.

Operating costs include electricity to run microwave unit, condensers, vacuum pumps, nitrogen, and resin attrition replacement.

Not included in operating costs are, electricity for the 140,000 SCFM fans, and disposal or destruction of the Styrene.

Polyad™ Budgetary Capital Costs

***Polyad™* 140,000 SCFM System**	**$ 3,400,000.00 U.S.**
Installation (approx.)	$ 150,000.00 U.S.

Please keep in mind this is a budgetary proposal. We can provide you with a more comprehensive proposal for this application, however we will need more detailed information with regard to stream parameters, site location, location of the system, and operating parameters at the site.

With regard to the recovered styrene, it can be disposed for the Btu value, aspirated into a thermal oxidizer for destruction, or recovered and reused. All options are viable, it primarily depends on what is ultimately best for your client.

Some of the major benefits of the ***Polyad™*** system are;

- Very low energy consumption.
- High removal efficiency, even in high humidity streams.
- Reliable, few moving parts.
- No NO_x emissions.
- No CO_2 emissions.
- Offers the opportunity to recover and reuse.
- Currently 6 ***Polyad™*** units in operation for styrene emissions.

As I mentioned to you on the phone, American Purification offers many different financing options for the ***Polyad™*** system, one of the most unique options being own & operate.

We look forward to the opportunity of working with you and your company on this project. If you have any questions or comments regarding this proposal, please call me at (888) 313-3778.

Best Regards,

Kevin L. Simpson
Vice President
American Purification, Inc.

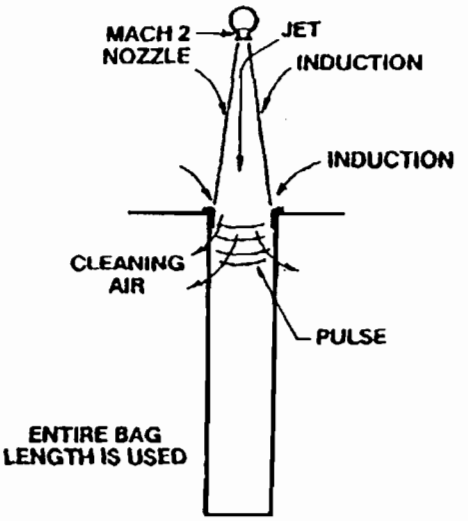
BETTER BAG CLEANING WITH MACH 2 NOZZLES

Plain orifices or straight nozzles are used in most conventional collectors that use a pulse jet cleaning system. Straight nozzles or plain orifices clean filter bags by converting the energy that's in compressed air into jets of cleaning air at sonic speed, while directing the cleaning air into each bag at a timed interval.

Scientifically shaped converging/diverging nozzles are used instead in the SPJ. They're called Mach 2 nozzles (Patent No. 4789387). They can accelerate jets of cleaning air to a speed that's much greater than sonic — to supersonic velocity!

The benefits with Mach 2 nozzles in the SPJ are substantial:

- **Air to cloth ratio goes up.**
- **Compressed air usage goes down.**
- **Pressure drop decreases.**
- **Bag life increases.**

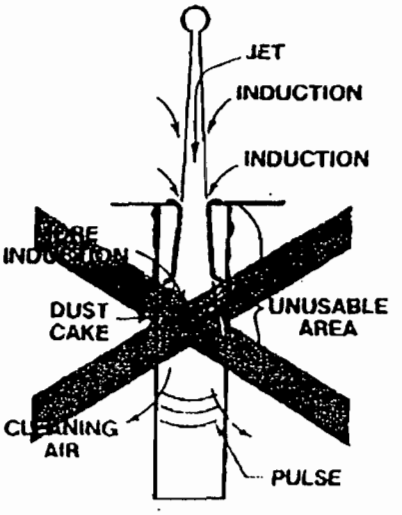


BETTER BAG CLEANING WITHOUT VENTURIES

Venturies are used in most conventional collectors that use a pulse jet bag cleaning system. Venturies help to develop the pressure that's needed to burst the dust cake on filter bags. However, venturies also restrict filtering velocity, impede cleaning, and cause puffing. They're eliminated in the SPJ design!

Scientifically shaped Mach 2 nozzles in the SPJ eliminate any need for venturies. Higher air to cloth ratios are achieved in the SPJ without venturies, as a result of the following important features:

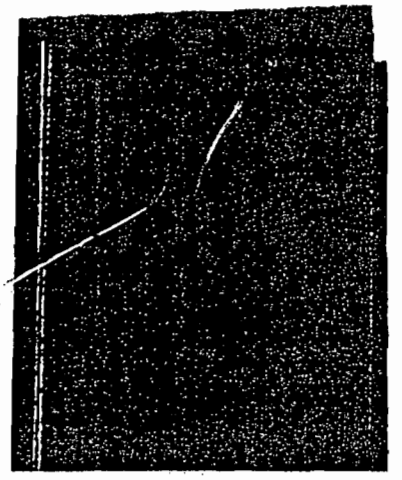
- **A higher volume of air is induced through larger bag openings.**
- **Each bag operates with a less dense dust cake without increased pressure drop.**
- **Cake bursting pressure is nearly uniform top to bottom.**
- **Entire length of each bag is cleaned.**
- **Abrasion from puffing around the top of bags is eliminated.**



QUALITY THAT GOES BEYOND OTHERS

The most often heard comments from users who compared a Scientific SPJ with other brands, are about the remarkably high degree of quality in the SPJ. Actually, such comments are expected, because Scientific Dust Collectors concentrate on building only the highest quality collectors.

The high degree of quality in an SPJ is particularly evident in the strength of construction, and in the performance of the most advanced compressed air cleaning system in the world. These features alone set the SPJ apart from all other fabric collectors. Because of these and many other standard features, the SPJ is now the world's most successful pulse jet fabric collector.



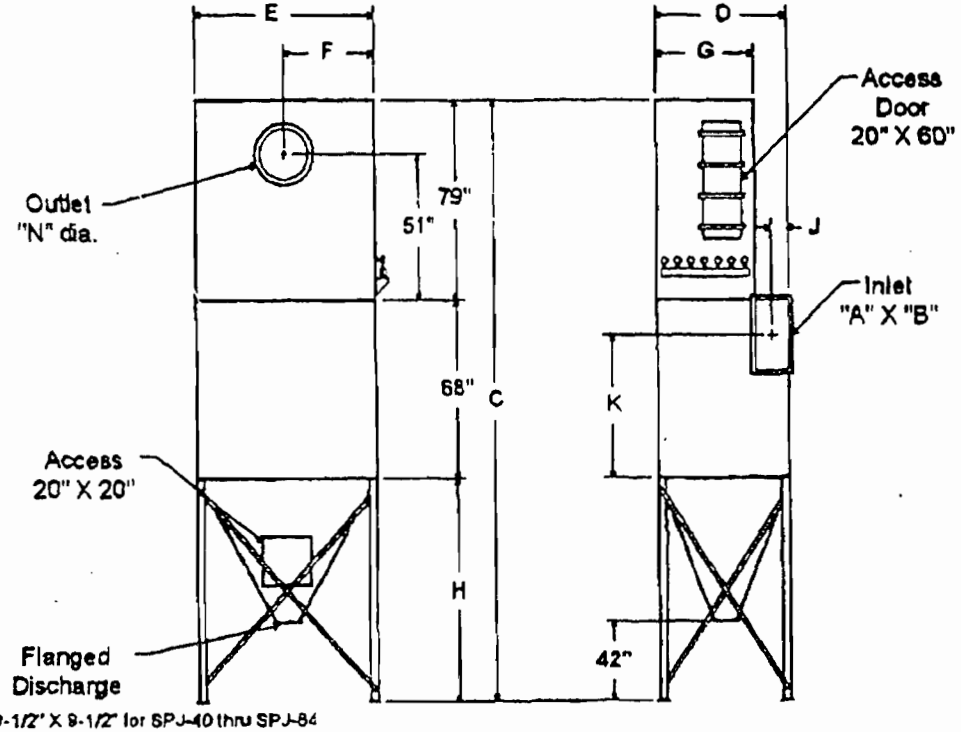
SCIENTIFIC DUST COLLECTORS

Outstandi

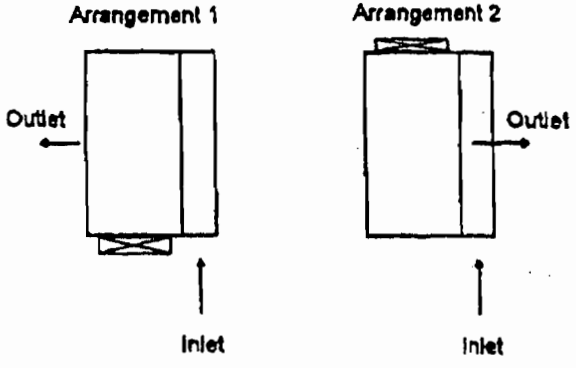
- **HIGH SIDE INLET/DROPOUT BOX**
  Dust laden air enters parallel to baffle. Baffle and bags protected against abrasion. A true downflow design.
- **TOP AND BOTTOM REMOVAL MODELS**
- **WALK-IN PLENUM ON MOST TOP REMOVAL MODELS**
- **HINGED ACCESS DOOR 20" x 60" ON WALK-IN PLENUMS**
- **SNAP BAND BAG ON TOP REMOVAL MODELS**
  Most reliable bag attachment available. No clamp or holddown necessary. Easy to change.
- **HOUSING CONSTRUCTION IS 12 GA MINIMUM**
- **HOUSING STIFFENED TO ± 20" WG MINIMUM**
- **TUBE SHEET 3/16" THICK MINIMUM**
  Avoids warping, cracks, leaks.
- **ALL WELDED CONSTRUCTION**
  Minimum field assembly.
- **LEGS AND CROSS BRACING FOR OUTDOOR INSTALLATION**
- **60° MINIMUM HOPPERS**
  For continuous dust removal.
- **DUST TRAP ON PRESSURE PICKUP**
  Protects pressure gauges.
- **SOLID STATE CONTROLS IN NEMA 4 ENCLOSURE**

Mo.	Filter Area (ft^2)	Qty of Bags	Qty of Valves	Cleaning Air Required (SCFM)	Unit Weight (lbs)	Inlet Size "A" x "B"	C	D	E	F	G	H	J	K	Outlet "N" dia. I.D.	Model
SPJ-40-X4T6	280	40	5	1.6 to 13.1	3,100	14 x 26	20' - 0"	4' - 10"	5' - 6"	33"	44"	91"	9"	52"	22"	SPJ-40-X4T6
SPJ-48-X4T6	336	48	6	2.0 to 13.1	3,400	15 x 29	20' - 0"	5' - 6"	5' - 6"	33"	51"	91"	9-1/2"	51"	24"	SPJ-48-X4T6
SPJ-56-X4T6	392	56	7	2.3 to 13.1	3,700	16 x 32	20' - 8"	6' - 3"	5' - 6"	33"	59"	99"	10"	49"	26"	SPJ-56-X4T6
SPJ-64-X4T6	448	64	8	2.6 to 13.1	4,100	16 x 33	21' - 5"	7' - 0"	5' - 6"	33"	66"	107"	10"	49"	27"	SPJ-64-X4T6
SPJ-72-X4T6	504	72	6	2.9 to 19.6	4,650	18 x 36	22' - 2"	5' - 8"	8' - 0"	48"	61"	116"	11"	47"	28"	SPJ-72-X4T6
SPJ-84-X4T6	588	84	7	3.4 to 19.6	5,000	20 x 38	22' - 11"	6' - 7"	8' - 0"	48"	69"	116"	12"	46"	31"	SPJ-84-X4T6
SPJ-96-X4T6	672	96	8	3.9 to 19.6	5,300	21 x 42	22' - 2"	7' - 3"	8' - 0"	48"	66"	116"	12-1/2"	44"	34"	SPJ-96-X4T6
SPJ-108-X4T6	756	108	9	4.4 to 19.6	5,700	22 x 45	22' - 2"	8' - 0"	8' - 0"	48"	74"	116"	13"	43"	36"	SPJ-108-X4T6
SPJ-120-X4T6	840	120	10	4.9 to 19.6	6,100	24 x 45	22' - 9"	8' - 9"	8' - 0"	48"	81"	123"	14"	43"	38"	SPJ-120-X4T6
SPJ-132-X4T6	924	132	11	5.4 to 19.6	6,600	29 x 41	23' - 5"	9' - 10"	8' - 0"	48"	89"	134"	16-1/2"	45"	35"	SPJ-132-X4T6
SPJ-144-X4T6	1,008	144	12	5.9 to 19.6	7,200	34 x 36	24' - 8"	10' - 10"	8' - 0"	48"	96"	145"	19"	46"	41"	SPJ-144-X4T6

SPJ - 6



9-1/2" X 9-1/2" for SPJ-40 thru SPJ-84
11-1/4" X 11-1/4" for SPJ-72 thru SPJ-144



- ✓ Cleaning air to be clean and dry at 80 to 100 PSIG.
- ✓ All dimensions are inches unless otherwise indicated.
- ✓ Dimensions are nominal only. Request certified drawing for exact dimensions.

Scientific Dust Collectors

4101 West 126th Street, Alsip, IL

A Vandercapes Ltd. Company

Model SPJ Pulse Jet Fabric Dust Collector
Top Removal w/ Walk-In Plenum -- 6' Bags

Wood Skoop

MSDS INFORMATION

(PREVIOUSLY SUBMITTED)