Application to Modify Air Emissions Units and Request Title V Operating Permit Revision

New Gatsby Spas, Inc.
Facility ID No. 0570468

Prepared for:
New Gatsby Spas, Inc.
4408 Airport Road
Plant City, Florida 33567-1112

Prepared by:
Radian International
1979 Lakeside Parkway, Suite 800
Tucker, Georgia 30084

February 2000

Table of Contents

List of Tables

1.0 Introduction

New Gatsby Spas, Inc. (Gatsby) operates a spa manufacturing facility at 4408 Airport Road, Plant City, Hillsborough County, Florida. The primary activity at Gatsby is fiberglass reinforced spa production (Standard Industrial Classification [SIC] Code 3088). The principal processes involved in spa manufacturing at the facility include vacuum forming of acrylic spa shells, fiberglass resin and foam application, PVC plumbing, mold preparation (tooling), woodworking, and additional activities and equipment necessary to support these activities.

1.1 Purpose for Permit Application

Gatsby plans to make modifications to achieve the full production capacity of the facility (approximately 48,750 spas per year). The facility is currently operating under Hillsborough County Environmental Protection Commission (EPC) Permit No. 0570468-005-AV, issued on 10/20/1998 and transferred by amendment from Gatsby Spas, Inc. to New Gatsby Spas, Inc. on 07/27/1999. The current operating permit is the facility's initial Title V air operating permit.

Since Gatsby is a Title V facility and plans to make modifications which will increase potential emissions of air pollutants, a permit to construct and a revision to the existing operating permit are required. This application constitutes Gatsby's request for a permit to modify air emissions units (construction permit) and subsequent revision of the facility's Title V operating permit. This application fulfills the requirements of:

- EPC Rule 1-3.21 (Permits Required),
- DEP Rule 62-4.210 F.A.C. (Construction Permits),
- DEP Rule 62-210.300 F.A.C. (Permits Required),
- DEP Rule 62-213.400 F.A.C. (Permits and Permit Revisions Required), and
- Permit No. 0570468-005-AV, Appendix TV-3, Title V Condition Nos.: 13 (Construction Permits), 18 (Permits Required), and 31 (Permits and Permit Revisions Required).

1.2 Application Contacts

The Contact Person for additional information about this permit application submittal is Eric Nemeth, Esq. of Edwards and Angell, LLP. Mr. Nemeth can be reached by telephone at (973) 376-7700.

1.3 Conclusions

The documentation provided in this permit application supports the conclusion that, by implementing federally-enforceable emissions limitations, the proposed modification project constitutes a minor modification to a minor source, as defined in the federal Prevention of Significant Deterioration (PSD) regulations and 62-212.400(2) F.A.C. Based on the specifications for the facility and estimated emission rates, Gatsby has demonstrated compliance with all applicable air regulatory requirements. No application fee is required for this application, since the facility already holds a Title V operating permit [62-4.050(4)(a)(2)].

1.4 Proposed Modification Project Description

During the proposed expansion project, Gatsby plans to modify the existing production resin application operation by implementing one of two resin application scenarios. Both of these scenarios are discussed below.

- Scenario 1: Use of the current atomized resin application method with limited material usage (i.e., material use will be limited to maintain estimated emissions below the PSD major modification threshold); and

- Scenario 2: Conversion to non-atomized flow coating technology. This technology involves applying the resin to the fiberglass reinforcement without atomizing the resin fluid stream.

Gatsby does not foresee dual operation of these two processes or frequently alternating their use, since delays with retooling do not make that choice economically reasonable.

In addition to the implementation of the resin application scenarios, Gatsby plans to install and operate one new bulk resin storage tank (8,000 gallons) and three new resin mixing day tanks (1,800 gallons each). The bulk resin tank will provide the additional resin storage capacity necessary to achieve full production capacity. Also, the use of multiple bulk and mixing day tanks will allow Gatsby to explore the use of resins with varying styrene contents. This flexibility may be essential for complying with the anticipated Reinforced Plastic Composites Production NESHAP.

Another proposed process modification includes relocation of the mold preparation (tooling) resin spray booth. The existing mold preparation (tooling) resin spray application is

performed within the spa production resin spray booths. Relocating this operation to a new location is designed to eliminate potential bottlenecks from the existing configuration.

In addition to the modifications intended to increase facility capacity, the facility plans to replace an existing cyclone control device which controls particulate emissions from the woodworking operation with a baghouse that vents within the woodworking building. This project will reduce potential emissions and allow the woodworking operation to be classified as an insignificant activity with respect to construction and operating permit requirements.

These modifications, along with non-process related building and warehouse space expansion, are designed to allow the facility to achieve its full operating potential (approximately 48,750 spas per year). Gatsby requires a construction permit that provides the operational flexibility of choosing Scenario 1 or 2. As discussed in Section 4.0, both scenarios are considered to be compliant with all applicable federal, state, and local air quality regulations.

1.5 Organization

This submittal is organized into six (6) sections with additional appendices. The six main sections and appendices are as follows:

Section 1.0 (Introduction) provides background information on the Gatsby facility and the permit application and identifies the contact personnel. Section 1.0 also contains a description of the proposed construction project and the conclusions documented in the application. A summary of the permit application organization is provided.

Section 2.0 (Facility Site Information) contains information concerning the Gatsby facility's location and physical setting as well as the attainment classification of the area for designated criteria pollutants.

Section 3.0 (Emission Estimates) contains summary information on baseline and modified source emissions from the facility.

Section 4.0 (Regulatory Review) presents the results and conclusions of a detailed regulatory review for the proposed modification project.

Section 5.0 (Dispersion Modeling Analysis) presents the results and conclusions of the dispersion modeling analysis performed for the proposed modification project.

Section 6.0 (Proposed Permit Conditions/Modifications) contains suggested permit conditions for the project and facility modification revisions to existing Title V operating permit.

Appendix A (Permit Application Forms) contains the required Florida DEP application forms and supplemental attachments.

Appendix B (Emissions Calculations) contains detailed air emissions calculations and supporting documentation.

Appendix C (Dispersion Modeling Report) contains detailed documentation of the dispersion modeling analysis performed for the proposed modification project.

2.0 Site Information

Gatsby's facility is located at 4408 Airport Road, Plant City, Florida, near the Plant City Municipal Airport. The facility was originally constructed in the 1970's for mobile home production, purchased by Gatsby Spas, Inc. in 1992, and last modified in 1998 to its current configuration. The major components of the spa manufacturing process include vacuum forming of acrylic spa shells, fiberglass resin and polyurethane foam application, PVC plumbing, solvent cleaning, mold preparation (tooling), and woodworking. Offices, warehouses, and maintenance areas are co-located with the main manufacturing operations. Areas surrounding the facility are a combination of industrial, commercial, and residential sites. Attachment A of Appendix A is an area map showing the facility's location. Attachment B of Appendix A contains a facility plot plan, providing the location of emissions sources at the facility. Provided in Attachment C of Appendix A is a flow diagram of the major processes at Gatsby.

The attainment status for Hillsborough County is as follows:

- Maintenance area for ozone;
- Maintenance area for particulate matter (circle centered at the intersection of U. S. 41 South and State Road 60 with radius of 12 kilometers);
- Maintenance area for lead (circle centered at UTM 364.0 km East and 3093.5 km North, zone 17, and radius of 5 kilometers);
- Unclassifiable for sulfur dioxide; and
- Attainment for all other criteria pollutants.

The Gatsby facility is located outside the air quality maintenance areas for particulate matter and lead, but within the air quality maintenance area for ozone.

3.0 Emission Estimates

Emission estimates for the proposed facility modification, as well as baseline potential emission rates for regulated air pollutants from the Gatsby facility were calculated to support the regulatory conclusions documented in this permit application. Section 3.1 provides the baseline (pre-project, current facility configuration) potential to emit emission estimates. Section 3.2 presents the modified facility potential to emit emission estimates.

3.1 Baseline Emissions

Baseline potential emissions are presented in Table 3.1. Baseline potential emissions of PSD-regulated pollutants from Gatsby are less than the 250 ton/yr PSD major source threshold. The Gatsby operations are not one of the 28 listed source categories in the PSD regulations for which the major source threshold is 100 tons/yr, therefore, the facility is a minor source with respect to these regulations. Detailed calculations and documentation supporting the emission estimates prevented in this permit application are included in Appendix B.

Table 3.1 Gatsby Facility: Baseline Potential to Emit

Pollutant	Potential Emissions (tons/year)	PSD Regulated?	PSD Major Source?
VOC	79.0[a]	Yes	No
NO_x	0.25	Yes	
PM/PM_{10}	15.0	Yes	
SO_2	0.002	Yes	
CO	0.21	Yes	
Styrene	56.8[a]	No	
MEK	1.01	No	
DBP	1.16	No	
Total HAP	58.9[a]	No	

a Based on emissions limits in current Title V operating permit.

3.2 Modified Facility Emissions

Potential emissions of regulated pollutants from the proposed modified facility are presented in Table 3.2. Included are emissions from the two resin application scenarios discussed in Section 1.4. The worst-case potential emissions (Scenario 1) are used for regulatory applicability determinations. Potential emissions for each pollutant affected by the proposed facility modification are each less than the 250 ton/yr major modification threshold for PSD, except for VOC. As discussed in Section 4.1, a limit on material use is proposed to limit the potential emissions from the facility modification to below the PSD major modification threshold for VOC. Detailed calculations and documentation supporting the emission estimates presented in this permit application are included in Appendix B.

Table 3.2 Gatsby Facility: Modified Facility Potential to Emit

Pollutant	Modified Facility Potential Emissions (tons/year)		PSD Regulated?	Modification Potential Emissions[c] (tons/year)	PSD Major Modification?
	Scenario 1[a]	Scenario 2[b]			
VOC	321	169	Yes	242[a]	No
NO_x	0.25	0.25	Yes	0	
PM/PM_{10}	0.4	0.4	Yes	-14.6	
SO_2	0.002	0.002	Yes	0	
CO	0.21	0.21	Yes	0	
Styrene	232	77.1	No	N/A	
MEK	1.01	1.01	No	N/A	
DBP	1.16	1.16	No	N/A	
Total HAP	239	239	No	N/A	

[a]Potential emissions from Scenario 1 (atomized spray resin application with limited material usage).
[b]Potential emissions from Scenario 2 (non-atomized flow coating resin application).
[c]Modification potential emissions equal the maximum modified facility potential emissions – current potential emissions.

3.3 Emissions Estimation Methods

The emission estimates detailed in Appendix B of this application were performed using the following methods:

- For resin and gelcoat application emissions: Fiberglass Reinforced Products (FRP) Model (Version 1.0)-derived emission factors;
- For miscellaneous material usage emissions: material balance;

- For bulk storage tanks: EPA TANKS (Version 4.0);
- For mixing storage tanks: diffusion calculation using mass transfer equations;
- For natural gas combustion: EPA AP-42 emission factors; and
- For woodworking operations: control device performance data.

The proposed emission factors are derived from the FRP Model (Version 1.0) which was developed by U.S. EPA's Office of Research and Development, in collaboration with Research Triangle Institute, as a new standard model for estimating styrene emissions from fiber-reinforced plastics fabrication processes. This model uses a nine-variable approach to estimating the emission factors for styrene emissions from spray resin lay-up, hand resin lay-up, and spray gelcoat operations (lb styrene emitted/lb styrene available). This method has been used in this permit application in lieu of the emission factors in the current Title V permit.

For comparison, the Gatsby Title V emission factors used in the facility's current air operating permit were selected (using statistical methods) from AP-42, EPA/RTI, NMMA, and CFA emissions data [basis: 04/13/1998 memo from Clair H. Fancy, Chief, Bureau of Air Regulation, Florida DEP]. In a 06/01/1998 memo, Howard L. Rhodes, Director, Division of Air Resources Management, Florida DEP, updated this guidance by specifying the following "interim" emission factors for reinforced plastics as summarized in Table 3.3.

Table 3.3 Reinforced Plastics Interim Emission Factors (% Available Styrene)

Operation	Styrene Content		
	35%	38%	42%
Resin Non-Spray Layup	13	15	16
Resin Spray Layup	19	25	30
Gel Coat	49	51	53

The styrene-based resins used at the Gatsby facility have a maximum styrene content of 45%; therefore, the interim resin layup emission factors provided by Florida DEP must be extrapolated for application to this facility. The FRP model-derived emission factors (see Appendix B), the current Title V permit emission factors, the extrapolated interim emission factors, and the Composite Fiberglass Association (CFA) Unified Emission Factors (UEF) are summarized in Table 3.4 for comparison.

Table 3.4 Summary of Reinforced Plastics Emission Factors Atomized Spray Application Process (% Available Styrene)

Operation	FRP Model	Title V Permit	Extrapolated Florida DEP Interim	CFA Unified Emission Factors
Resin Non-Spray Layup	8.4	15.4	17.5	16.9
Resin Spray Layup	23.5/31.9/33.5[a]	25.9	35.0	31.4
Resin Flow Coat Layup	9.6/3.8[b]	N/A	N/A	12.0
Gel Coat	61	35	59.3	64.9

[a]Factors represent Scenario 1 Stage I, Stage II, and Mold Preparation Spray Booths.
[b]Factors represent Scenario 2 Stage I and Stage II Spray Booths.
N/A = not available.

As illustrated in Table 3.4, there are variations between the emission factors estimated by the FRP Model and those provided by the current operating permit, the Florida DEP, and the CFA UEF factors. The Florida DEP interim factors, CFA UEF factors, and factors used in the current facility operating permit are general factors (i.e., based on multiple data points for "similar" operations). The FRP Model takes into account facility-specific variables (e.g., resin styrene content, application thickness, spray distance, etc.). Therefore, the factors developed using the FRP Model more accurately reflect the processes at Gatsby's Plant City facility and these factors were used to estimate emissions from resin and gelcoat application processes.

4.0 Regulatory Review

This section documents a detailed regulatory review conducted in support of this permit application. All potentially applicable federal, state, and local air quality regulations were reviewed, and the necessary emission inventories were performed to assess regulatory applicability and determine compliance methodologies for the proposed modified facility. Section 4.1 provides a review of PSD applicability to the proposed facility modification. 112(g) Rule (Case-by-Case MACT) applicability to the project is summarized in Section 4.2. Section 4.3 provides a summary of other federal, state, and local regulations potentially applicable to the proposed project.

4.1 Prevention of Significant Deterioration

The PSD regulations are codified as 62-212.400 F.A.C. and adopted by EPC 1-3.50 (New Source Review). This regulation defines "major" source emission thresholds and "major" or "significant" emission increase thresholds for new construction, reconstruction, or modification.

The Gatsby facility is not one of the 28 listed source categories in Table 212.400-1 of 62-212.400 F.A.C.; therefore, the major source threshold of 250 tons/yr from 62-212.400(2)(d)(2)(a) applies for any PSD regulated air pollutant. As documented in Table 3.1 and Appendix B of this application, the Gatsby baseline (pre-project) potential emissions of PSD regulated pollutants are all below the applicable 250 ton/yr major source thresholds. The facility is a minor source with respect to these regulations. Therefore, the PSD applicability test applies only to the modification. No "actual-to-potential" test applies.

For this source category, a major modification to a minor source, as defined in 62-212.400(2)(d)(3), is a modification that itself would constitute a new major facility (i.e., 250 tons/yr increase in any PSD regulated pollutant). As documented in Table 3.2 and Appendix B of this application, the potential emissions increases of PSD regulated pollutants resulting from the proposed modification project are below the major modification threshold, except for VOC. By applying a federally enforceable emissions limitation of 321 tons/yr VOC on the spa manufacturing operation, the potential emissions increase from the proposed construction project will remain below 250 tons/yr VOC. Therefore, with the implementation of a federally enforceable emissions limitation, the project constitutes a minor modification to a minor source with respect to PSD regulations and, as such, PSD review requirements do not apply to the project.

4.2 112(g) Case-by-Case MACT

The 112(g) rule, or case-by-case MACT (40 CFR 63.40-63.44) applies to newly constructed facilities or facilities undergoing a reconstruction of a major source of hazardous air pollutant (HAP) emissions (i.e., >10 tpy of any single listed HAP or >25 tpy of total HAPs) where no MACT exists. Construction is defined:

> (§63.41) *Construct a major source means*
> (1) To fabricate, erect, or install at any greenfield site a stationary source or group of stationary sources which is located within a contiguous area and under common control and which emits or has the potential to emit 10 tons per year of any HAP's or 25 tons per year of any combination of HAP, or
> (2) To fabricate, erect, or install at any developed site a new process or production unit which in and of itself emits or has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, unless the process or production unit satisfies criteria in paragraphs (2)(i) through (vi) of this definition.
> *[Paragraphs (2)(i) through (vi) provide exceptions to the construction definition]*

The proposed modification project does not involve installing a new stationary source or group of stationary sources at a greenfield site and does not involve installing a new process or production unit at a developed site. The project is a modification of existing operations at a developed site. Therefore, the project does not meet the definition of "construction".

Reconstruction is defined:

> (§63.41) *Reconstruct a major source* means the replacement of components at an existing process or production unit that in and of itself emits or has that potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP whenever:
>
> (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable process or production unit; and

(2) It is technically and economically feasible for the reconstructed major source to meet the applicable maximum achievable control technology emission limitation for new sources established under this subpart.

Styrene, which is emitted from the Gatsby facility, is a HAP. As shown in Appendix B, the Gatsby facility is a major source of HAP, and the proposed modification project is expected to result in an emissions increase greater than 10 tons/yr of styrene and greater than 25 tons/yr of total HAP. The proposed facility modification does not include the introduction of a new primary process that operates independently from existing operations. Therefore, the proposed modification does not meet the definition of "construction." The cost of the proposed modification is estimated at $859,000, including the purchase of two flow coaters and conversion of two existing atomized guns to flow coaters (as backup), two 26 foot stack extensions for the production booths, and non process-related paving and building construction, which is below 50 percent of the cost of constructing a new spa manufacturing process estimated at $2,110,100. Therefore, the proposed modification does not meet the definition of "reconstruction." Although potential styrene and total HAP emissions will increase as a result of the proposed facility modification, the 112(g), or Case-by-Case MACT, rule does not apply to this project.

Reinforced plastics composites manufacturing is a designated source category for EPA MACT rulemaking in the year 2000 bin. Gatsby will comply with any applicable requirements of this future MACT rule in accordance with the compliance schedule contained in the final promulgated rule.

4.3 Other Federal, State, and Local Regulations

An applicability and compliance review for other federal, state, and local regulations that specifically apply to the proposed modified facility are summarized in Table 4.1. The current and proposed modified facility are considered to be in compliance with all generally-applicable regulations (e.g., definitions, open burning, test methods); therefore, these regulations are not discussed in this section.

Table 4.1 Summary of Applicability and Compliance Review for Other Regulations

Citation	Title	Summary	Compliance Plan
Federal Regulations			
The facility is not subject to a New Source Performance Standard (as codified in 40 CFR Part 60 and adopted by 62-204.800) or National Emission Standard for Hazardous Air Pollutants (as codified in 40 CFR Parts 61 and 63 and adopted by 62-204.800). NESHAP for this facility's source category is scheduled for promulgation in year 2000.			
State of Florida (DEP) Regulations			
62-4.210 F.A.C	Construction Permits	Specifies the requirements of construction permit applications.	This permit application is intended to satisfy the requirements of this regulation.
62-210.300 F.A.C.	Permits Required	Specifies the construction and operating permit requirements for newly constructed or modified sources.	This permit application is intended to satisfy the requirements of this regulation.
62-213.400 F.A.C.	Permits and Permit Revisions Required	Specifies the operating permit requirements for major (Title V) sources.	This permit application is intended to satisfy the requirements of this regulation.
62-296.320(1) F.A.C. [also adopted by EPC 1-3.60]	General Pollutant Emission Limiting Standards – Part 1	Requires that facilities apply known and existing vapor emission control devices or systems deemed necessary and ordered by the Department for volatile organic compound/organic solvent emission storage and handling.	The proposed modified facility will continue to perform the operational practices required by its final revised operating permit and is in compliance with Condition II.5 of the current operating permit: A) Maintain covers and lids on all containers when not in use; B) When possible and practical, use a cover for any open trough or basin of VOC so that it can be covered when not in use; C) Immediately attend to spills/waste as appropriate; D) Continue search for lower styrene-based resins or vapor suppressant resins.

Table 4.1 Summary of Applicability and Compliance Review for Other Regulations

Citation	Title	Summary	Compliance Plan
62-296.320(2) F.A.C.	General Pollutant Emission Limiting Standards – Part 2	Prohibits the discharge of air pollutants which cause or contribute to an objectionable odor.	Emissions below the FRAC have been demonstrated through modeling (see Appendix C).
62-296.320(4) F.A.C.	General Pollutant Emission Limiting Standards – Part 4	Requires compliance with process weight rate-based particulate emissions limits and a visible emissions standard of 20% opacity.	The proposed modified facility is expected to have minimal particulate emissions. Therefore, compliance with the particulate emissions limits and visible emissions standard is anticipated.
Hillsborough County (EPC) Regulations			
1-3.21	Permits Required	Specifies the construction and operating permit requirements for newly constructed or modified sources.	This permit application is intended to satisfy the requirements of this regulation.
1-3.22	Prohibitions	Prohibits construction or operation of sources which would result in air pollutant releases leading to or contributing to ambient air concentrations greater than NAAQS, discharge pollutants in excess of EPC standards, or discharge pollutants which causes or contributes to an objectionable odor.	The proposed modified facility is not expected to lead or contribute to ambient air concentrations greater than NAAQS or discharge pollutants in excess of EPC standards. By implementing the use of stack extensions, emissions below the FRAC have been demonstrated through modeling.
1-3.23	Necessary Precautions	Requires that facilities apply known and existing vapor emission control devices or systems deemed necessary and ordered by the Department for volatile organic compound/organic solvent emission storage and handling.	The proposed modified facility will continue to perform the operational practices required by Condition II.5 of the current operating permit (see Rule 62-296.320(1) F.A.C.

Table 4.1 Summary of Applicability and Compliance Review for Other Regulations

Citation	Title	Summary	Compliance Plan
1-3.62	Visible Emissions	Requires compliance with a visible emissions standard of 20% opacity.	The proposed modified facility is expected to have minimal particulate emissions. Therefore, compliance with the visible emissions standard is anticipated.

Negative Declarations:

- Rule 62-296.511 F.A.C., Solvent Metal Cleaning, does not apply to the facility's cold cleaners, since the cold cleaners collectively emit VOC at rates below 15 lb/day and 3 lb/hr.
- Rule 62-296.570 F.A.C., Reasonably Available Control Technology (RACT) Requirement for Major VOC and NOx-Emitting Facilities, does not apply to the facility, since the facility does not reside in Broward, Dade, or Palm Counties and is not a major NOx-emitting facility.
- Rule EPC Chapter 1-3.61, Particulate Emissions [adopts Rule 62-296.700 F.A.C., Reasonably Available Control Technology (RACT) Particulate Matter, for all new and existing emission units], does not apply to the facility, since the facility's total maximum allowable emissions of particulate matter are less than 15 tons/yr and 5 lb/hr [62-296.700(2)(a)], and the facility is located more than 5 km outside the boundary of the particulate matter air quality maintenance area [62-296.700(2)(d)].

5.0 Dispersion Modeling Analysis

An air dispersion modeling analysis was conducted to assess the impacts of Styrene associated with operations at the Gatsby Spas facility in Plant City, FL. This analysis determined the impact of proposed modifications to accommodate expanded production levels at the facility. The complete air dispersion modeling analysis report is provided in Appendix C. This report describes the model input, methodology, and results of the analysis conducted to determine compliance with the Florida Reference Air Concentrations (FRACs) and OSHA Permissible Exposure Limits (PELs) for styrene.

The results of the analysis are summarized in Table 5-1. Maximum styrene concentrations were calculated to be less than the FRACs and PELs at the receptors (i.e., nearby residences and neighborhoods).

Table 5-1. Results of ISCST3 Modeling[a]

Scenario[b]	Averaging Period	Maximum Styrene Concentration ($\mu g/m^3$)	Percent of FRACs	Percent of PELs
Scenario 1	1 hour	1422	--	0.2
	8 hour	509	24	0.1
	24 hour	397	78	--
	Annual	53	53	--
Scenario 2	1 hour	530	--	0.1
	8 hour	213	10	0.0
	24 hour	148	29	--
	Annual	25	25	--

[a] Impacts are compared to the following threshold values:
FRACs = 2130 $\mu g/m^3$ (8-hr); 507 $\mu g/m^3$ (24-hr); 100 $\mu g/m^3$ (annual)
PELs: TWA = 100 ppm (433230 $\mu g/m^3$); Ceiling = 200 ppm (866470 $\mu g/m^3$)

[b] Scenario 1: Atomized Spray Application with 45% Styrene Content Resin and Limited Potential Usage.
Scenario 2: Flow Coater Application with 45% Styrene Content Resin Used.

6.0 Proposed Permit Conditions / Revisions

To incorporate the requirements for the proposed facility modification, revisions to the current Title V operating permit will be required. It is also anticipated that the construction permit for this modification will include most of the same elements as the Title V permit. Therefore, the permit conditions/revisions suggested in this section pertain to both the construction permit and current Title V operating permit. These suggested conditions/revisions are provided in the Section/ Subsection/Condition format of the Title V permit. The conditions/revisions are annotated as follows:

- Deletions – denoted by strike out (e.g., ~~strikeout~~);
- Additions – denoted by underline (e.g., underline); and
- Comments denoted by italics (e.g., *italics*).

Section I. Facility Information

Subsection A. Facility Description

Facility Description

Revise the Facility Description to clarify the facility's current configuration:

The spa manufacturing process includes forming of the mold and woodworking to make the outer shell. In the process, an acrylic sheet is clamped on a mold, heated by a natural gas catalytic oven, and vacuum formed to make the spa shell. Resin, fiberglass, and foam are then applied to the outer shell via spray layup. The facility currently has ~~two-stage carousel spray booths with 20,000 cfm fans exhausting out 35 feet stacks. In time the facility is to install~~ three (3) spray booths, each equipped with a filter media~~, a fan rated at 10,000 acfm and a stack of approximately 35 feet high~~ as authorized in 0570468-004-AC. ~~A high volume/low pressure hand held spray gun is used at each spray booth to minimize overspray and maximize transfer efficiency.~~ Two alternative methods of operation may be used for resin spray application: atomized spray guns or flow coater (non-atomized) guns. Emissions from this spray operation, primarily styrene, are currently evacuated and exhausted through the stacks~~, each with 20,000 cfm flow~~ for better dispersion and odor control around the facility. Plumbing, cleaning, and frame fitting are done after the foam spray application.

Volatile organic compound (VOC) emissions generated from the usage of resins, cleanup solvents, PVC cements and polymerization initiators are controlled by a VOC emissions limitations~~-~~with corresponding recordkeeping ~~placed on material usage~~ and by the use of reasonable precautions.

Particulate matter (PM) emissions generated from the woodworking and fiberglass cutting operations are controlled by control devices that are vented inside the building ~~a rebuilt cyclone and are exhausted outside. PM emission from fiberglass cutting are vacuumed into a filter bag inside the building.~~ These operations are insignificant activities and are not subject to PM-RACT because emissions are less than 5 lb/hr and 15 tons/yr.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

Based on the initial Title V permit application received June 12, 1996, this facility is a major source of hazardous air pollutants (HAPs).

Subsection B. Summary of Emission Unit ID No(s). and Brief Description(s).

Emissions Unit Listing

Remove EU ID No. 002, Wood Working. This operation is now considered an insignificant activity, since it meets the criteria of 62-213.430(6)(b):

1. *Is not subject to a unit-specific applicable requirement;*
   The operation is only subject to generically-applicable rules.
2. *In combination with other insignificant activities would not cause the facility to exceed any major source thresholds; and*
   The facility's significant emission unit (spa production) causes the facility to be a major source.
3. *Would not emit or have the potential to emit:*
   a. *500 lb/yr or more of lead and lead compounds;*
   b. *1000 lb/yr or more of any HAP;*
   c. *2500 lb/yr or more of total HAP; or*
   d. *5.0 tons/yr or more of any other regulated pollutant.*
      Potential PM emissions from the woodworking operation are below 5.0 tons/yr.

Section II. Facility-wide Conditions.

Condition 6.A.

Replace the existing Condition 6.A. with the following text:

A) Ensure that all particulate control devices are properly operated and maintained.

This change meets the intent of the existing condition but more effectively applies to the control devices at the facility.

Section III. Emissions Unit(s) and Conditions.

Eliminate Subsection B entirely, since the woodworking operation is now an insignificant activity. Also, eliminate the Subsection organization, since only one emissions unit remains in this section.

Eliminate/update the note regarding adoption of conditions from the construction permit (which has since been rescinded).

Condition A.1.

Revise Condition A.1. as follows:

A.1. The maximum material usage in any 12 consecutive month period is limited as follows:

[Rule 62-4.160(2), 62-210.200 F.A.C. ~~and Air Construction Permit 0570468-004-AC~~]

Material	Maximum Percent VOC By Weight for Each and Every Gallon Used		Maximum Usage (lbs.) for any 12 Consecutive Month Period
Method of Operation 1 (Atomized Spray Production Resin):			
i. Styrene Based Resins	45	~~965,000~~	3,885,767
ii. Styrene Based Gelcoat	53	~~400~~	1,755
iii. Styrene Monomer	100	~~3,000~~	11,653
iv. Foam Coating (BASF Products)	Variable	~~82,000~~	204,699
v. MEKP	3	~~19,200~~	81,186
vi. Isopropanol	100	~~15,400~~	76,092
vii. Adhesive Cement	100	~~9,000~~	5,704
viii. Waterborne Stain	2	~~19,100~~	93,239
Method of Operation 2 (Flow Coater Production Resin Application):			
i. Styrene Based Resins	45		4,089,862
ii. Styrene Based Gelcoat	53		1,822
iii. Styrene Monomer	100		12,101
iv. Foam Coating (BASF Products)	Variable		212,564
v. MEKP	3		84,306
vi. Isopropanol	100		79,016
vii. Adhesive Cement	100		5,923
viii. Waterborne Stain	2		96,821

Condition A.2.

Revise Condition A.2. to include the new PSD avoidance limit and eliminate the HAP emissions limits, for which there is no regulatory basis:

A.2. The maximum allowable ~~hazardous air pollutant (HAP) and other~~ volatile organic compound (VOC) emissions that can be emitted from this facility in any consecutive 12 months are specified as follows:

Pollutant	Emissions (tons)
Total VOC/~~HAP~~	321.0/~~79.0~~

Condition A.4.

Revise Condition A.4 to represent the current and future configuration of the facility:

A.4. All ~~spraying~~ spray or flow coating of fiberglass resin shall be done in the corresponding spray booth in the manufacturing building. The spray booth fans shall be operating during any fabrication and/or material usage containing styrene or other VOC material and remain in operation at least two hours after the last material has been applied.

Condition A.5.

Eliminate Condition A.5. entirely, since the catalytic oven is an insignificant activity.

Condition A.6.

Eliminate Condition A.6. entirely, since this condition has no regulatory or technical basis.

Condition A.7.

Eliminate Condition A.7. entirely, since this condition is obsolete.

Condition A.9.

Revise NOTE (1) of Condition A.9. to read:

NOTE (1): Emissions calculations shall be used to demonstrate compliance with the limits in Condition No. A.2. For the purpose of these calculations, the density and VOC content of the raw materials shall be determined from the Material Safety Data Sheet or Product Data Sheet. Emissions from gelcoat and resin shall be calculated using the FRP Model or other best available emissions estimation models, emission factors, and/or emissions test results. This data

is to be maintained with the monthly records required by Condition No. A.9. and shall be provided to the Environmental Protection Commission of Hillsborough County upon request.

~~Product~~	~~Process~~	~~Emission Factor~~
~~Resin~~	~~Hand Layup~~	~~15.4%~~
~~Resin~~	~~Spray Layup~~	~~25.9%~~
~~Gelcoat~~	~~N/A~~	~~35%~~
~~Styrene Monomer~~	~~Surface Cleaner~~	~~100%~~

Eliminate NOTE (2) of Condition A.9., since this note is no longer necessary.

Appendices

Revise all appendices to the permit to reflect the changes proposed in the permit body.

Appendix A

Permit Application Forms
and
Supplemental Attachments

Department of
Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Identification of Facility Addressed in This Application

1. Facility Owner/Company Name : New Gatsby Spas, Inc.	
2. Site Name : New Gatsby Spas, Inc.	
3. Facility Identification Number : 0570468	[ ] Unknown
4. Facility Location : Plant City, Florida Street Address or Other Locator : 4408 Airport Road City : Plant City County : Hillsborough Zip Code : 33567-1112	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official :

Name : Kenneth W. Sorah
Title : President/CEO

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

Organization/Firm : New Gatsby Spas, Inc.
Street Address : 4408 Airport Road
City : Plant City
State : FL Zip Code : 33567-1112

3. Owner/Authorized Representative or Responsible Official Telephone Numbers :

Telephone : (813)754-4122 Fax : (813)752-5716

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 units.*

Kenneth W Sorah
Signature

1/26/2000
Date

* Attach letter of authorization if not currently on file.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type
001	Spa Manufacturing Process	

Purpose of Application and Category

ategory I : All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, .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 :

[X] 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.

Operation permit to be revised/corrected :
0570468-005-AV

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit.

Operation permit to be revised :

Reason for revision :

ategory II : All Air Operation Permit Applications Subject to Processing Under Rule 2-210.300(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 Fule 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.

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 :
0570468-005-AV

[ ] 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 :

[ ] Attached - Amount : $0.00 [X] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations : The facility is proposing to reconfigure its operations to achieve the full production capacity of the facilit This includes installing one additional bulk resin storage tank, three additional resin mixing day tanks, an mold preparation ("tooling") resin spray booth. Revision of permitted emission factors is requested to reflect more accurate data. Revision of emission limits is requested to reflect the facility's true potential emissions.
2. Projected or Actual Date of Commencement of Construction : 01-Feb-2000
3. Projected Date of Completion of Construction : 01-Mar-2000

Professional Engineer Certification

1. Professional Engineer Name : John M. Burke Registration Number : 46949
2. Professional Engineer Mailing Address : Organization/Firm : Radian International Street Address : 1979 Lakeside Pkwy, Suite 800 City : Tucker State : GA Zip Code : 30084
3. Professional Engineer Telephone Numbers : Telephone : (770)414-4522 Fax : (770)414-4919

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 pollutant 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 [ ] 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 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

1-14-2000
Date

(seal)

JOHN M. BURKE
REGISTERED
STATE OF
PROFESSIONAL ENGINEER

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact :

Name : Eric Nemeth
Title : Counsellors at Law

2. Application Contact Mailing Address :

Organization/Firm : Edwards & Angell, LLP
Street Address : 51 John F. Kennedy Parkway
City : Short Hills
State : NJ Zip Code : 07078-5006

3. Application Contact Telephone Numbers :

Telephone : (973)376-7700 Fax : (973)376-3380

Application Comment

Please copy the application contact in all correspondence (demands, request for information, etc.) sent to the facility's responsible official.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility, Location, and Type

1. Facility UTM Coordinates : Zone : 17 East (km) : 385.40 North (km) : 3098.00			
2. Facility Latitude/Longitude : Latitude (DD/MM/SS) : 28 1 Longitude (DD/MM/SS) : 82 9 39			
3. Governmental Facility Code : 0	4. Facility Status Code : A	5. Facility Major Group SIC Code : 30	6. Facility SIC(s) : 3088
7. Facility Comment :			

Facility Contact

1. Name and Title of Facility Contact : Mr. Dan Clements Engineering Manager
2. Facility Contact Mailing Address : Organization/Firm : New Gatsby Spas, Inc. Street Address : 4408 Airport Road City : Plant City State : FL Zip Code : 33567-1112
3. Facility Contact Telephone Numbers : Telephone : (813)754-4288 Fax : (813)759-6000

Facility Regulatory Classifications

1. Small Business Stationary Source?	N
2. Title V Source?	Y
3. Synthetic Non-Title V Source?	N
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	Y
5. Synthetic Minor Source of Pollutants Other than HAPs?	N
6. Major Source of Hazardous Air Pollutants (HAPs)?	Y
7. Synthetic Minor Source of HAPs?	N
8. One or More Emissions Units Subject to NSPS?	N
9. One or More Emission Units Subject to NESHAP?	N
10. Title V Source by EPA Designation?	N
11. Facility Regulatory Classifications Comment : The facility will potentially be subject to a MACT standard (40 CFR, Part 63) for reinforced plastic composites production (promulgation expected by year 2000).	

B. FACILITY REGULATIONS

Rule Applicability Analysis

B. FACILITY REGULATIONS

List of Applicable Regulations

62-210 F.A.C. Stationary Sources - General Requirements

62-213 F.A.C. Operation Permits for Major Sources of Air Pollution

62-296.320 F.A.C. General Pollutant Emission Limiting Standards

62-297.310 F.A.C. General Test Requirements

62-297.330 F.A.C. Applicable Test Procedures

62-297.340 F.A.C. Frequency of Compliance Tests

62-297.570 F.A.C. Test Reports

Chapter 1-1 General Rules. Rules of the Environmental Protection Commission of Hillsborough County.

Chapter 1-3 Air Pollution. Rules of the Environmental Protection Commission of Hillsborough County.

Chapter 1-4 Open Burning. Rules of the Environmental Protection Commission of Hillsborough County.

AC29-258630

62-4.210 F.A.C. Construction Permits

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification
VOC	A
H163 Styrene	A
H075 Dimethyl phthalate	B
H120 MEK	B
HAPS	A

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 1

1. Pollutant Emitted :	VOC
2. Requested Emissions Cap :	(lbs/hour) 321.0000 (tons/year)
3. Basis for Emissions Cap Code :	ESCPSD
4. Facility Pollutant Comment :	

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 2

1. Pollutant Emitted :	H163
2. Requested Emissions Cap :	(lbs/hour) (tons/year)
3. Basis for Emissions Cap Code :	OTHER
4. Facility Pollutant Comment :	Styrene. No emissions cap is requested for this pollutant.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 3

1. Pollutant Emitted :	H075
2. Requested Emissions Cap :	(lbs/hour) (tons/year)
3. Basis for Emissions Cap Code :	
4. Facility Pollutant Comment :	Dimethylphthalate. No emissions cap is requested for this pollutant.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 4

1. Pollutant Emitted : H120
2. Requested Emissions Cap : (lbs/hour) (tons/year)
3. Basis for Emissions Cap Code :
4. Facility Pollutant Comment : Methyl ethyl ketone. No emissions cap is requested for this pollutant.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 5

1. Pollutant Emitted : HAPS
2. Requested Emissions Cap : (lbs/hour) (tons/year)
3. Basis for Emissions Cap Code :
4. Facility Pollutant Comment : Total Hazardous Air Pollutants. No emissions cap is requested for this pollutant.

D. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location :	Attachment A
2. Facility Plot Plan :	Attachment B
3. Process Flow Diagram(s) :	Attachment C
4. Precautions to Prevent Emissions of Unconfined Particulate Matter :	Attachment D
5. Fugitive Emissions Identification :	Attachment E
6. Supplemental Information for Construction Permit Applic	NA

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt	Attachment F
8. List of Equipment/Activities Regulated under	NA
9. Alternative Methods of Operation :	NA
10. Alternative Modes of Operation (Emissions	NA
11. Identification of Additional Applicable	NA
12. Compliance Assurance Monitoring	NA
13. Risk Management Plan Verification :	NA
14. Compliance Report and Plan :	Attachment G
15. Compliance Certification (Hard-copy Requir	Attachment G

III. EMISSIONS UNIT INFORMATION

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

Emissions Unit Information Section 1

Spa Manufacturing Process

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

[ ] 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.

Emissions Unit Information Section 1

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

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Spa Manufacturing Process		
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 : 30
6. Emissions Unit Comment : This emission unit comprises of all activities involved in the spa manufacturing process.		

Emissions Unit Information Section 1

Spa Manufacturing Process

Emissions Unit Control Equipment 1

1. Description : None
2. Control Device or Method Code :

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

Emissions Unit Information Section 1
Spa Manufacturing Process

Emissions Unit Details

1. Initial Startup Date :	
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :	 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :		
4. Maximum Production Rate :	48750	Spas per year
5. Operating Capacity Comment : The maximum production rate is provided for informational purposes only. Production rate limitations are not requested in this application.		

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)

Emissions Unit Information Section 1
Spa Manufacturing Process

Rule Applicability Analysis

List of Applicable Regulations

62-296.320 General Pollutant Emission Limiting Standards

AC29-258630

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :		
2. Emission Point Type Code :	3	
3. Descriptions of Emission Points Comprising this Emissions Unit : Four spray booth stacks and fugitive emissions sources.		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common : Spa Manufacturing Process		
5. Discharge Type Code :	V	
6. Stack Height :	35	feet
7. Exit Diameter :	4.00	feet
8. Exit Temperature :	82	°F
9. Actual Volumetric Flow Rate :	10,000	acfm
10. Percent Water Vapor :		%
11. Maximum Dry Standard Flow Rate :		dscfm
12. Nonstack Emission Point Height :	15	feet
13. Emission Point UTM Coordinates : Zone : East (km) : North (km) :		
14. Emission Point Comment :		

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Resin Application Operation Method I

2. Source Classification Code (SCC) : 31401504

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 1,942.88

Method of operation 1

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Gelcoat Application

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :	5. Maximum Annual Rate : 0.88

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :	8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   MEKP

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :	5. Maximum Annual Rate : 40.59

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :	8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 4

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Foam Coating

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 102.35

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 5

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Isopropanol	
2. Source Classification Code (SCC) : 31499999	
3. SCC Units : Tons Used	
4. Maximum Hourly Rate :	5. Maximum Annual Rate : 38.05
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.	

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 6

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : PVC Cement	
2. Source Classification Code (SCC) : 31499999	
3. SCC Units : Tons Used	
4. Maximum Hourly Rate :	5. Maximum Annual Rate : 2.85
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.	

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 7

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Waterborne Stain

2. Source Classification Code (SCC) : 31499999

3. SCC Units :

4. Maximum Hourly Rate :	5. Maximum Annual Rate : 46.42

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :	8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of atomized spray resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 8

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Resin Application Operation Method 2

2. Source Classification Code (SCC) : 31401504

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 2,044.93

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 9

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Gelcoat

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :	5. Maximum Annual Rate : 0.91

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :	8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 10

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   MEKP

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 42.15

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 11

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Foam Coating

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 106.28

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 12

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Isopropanol

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 39.51

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 13

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   PVC Cement

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 2.96

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Segment Description and Rate : Segment 14

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

   Waterborne Stain

2. Source Classification Code (SCC) : 31499999

3. SCC Units : Tons Used

4. Maximum Hourly Rate :

5. Maximum Annual Rate : 48.41

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur :

8. Maximum Percent Ash :

9. Million Btu per SCC Unit :

10. Segment Comment :

    This alternative method of operation includes the use of flow coater (non-atomized) resin application methods in both production resin spray booths.

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

Emissions Unit Information Section 1
Spa Manufacturing Process

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - VOC			EL
2 - H163			WP
3 - H075			NS
4 - H120			NS
5 - HAPS			WP

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

Emissions Unit Information Section 1
Spa Manufacturing Process

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **VOC**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : lb/hour 321.0000000 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference See Note
7. Emissions Method Code : 2
8. Calculations of Emissions : See Appendix B
9. Pollutant Potential/Estimated Emissions Comment : PSD Avoidance Emissions Limitation. NOTE: Emissions calculated using emission factors (FRP Model) and material balances.

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

Emissions Unit Information Section 1
Spa Manufacturing Process

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : **H163**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : lb/hour 235.0000000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference See Note
7. Emissions Method Code : 5
8. Calculations of Emissions : See Appendix B
9. Pollutant Potential/Estimated Emissions Comment : No emissions limitation requested. NOTE: Emissions calculated using emission factors (FRP Model) and material balances.

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

Emissions Unit Information Section 1
Spa Manufacturing Process

Pollutant Potential/Estimated Emissions : Pollutant 3

1. Pollutant Emitted : **H075**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : lb/hour 1.1600000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference See Note
7. Emissions Method Code : 2
8. Calculations of Emissions : See Appendix B
9. Pollutant Potential/Estimated Emissions Comment : No emissions limitation requested. NOTE: Emissions calculated using material balance.

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

Emissions Unit Information Section 1
Spa Manufacturing Process

Pollutant Potential/Estimated Emissions : Pollutant 4

1. Pollutant Emitted : **H120**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : lb/hour 1.0100000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference See Note
7. Emissions Method Code : 2
8. Calculations of Emissions : See Appendix B
9. Pollutant Potential/Estimated Emissions Comment : No emissions limitation requested. NOTE: Emissions calculated using material balance.

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

Emissions Unit Information Section 1
Spa Manufacturing Process

Pollutant Potential/Estimated Emissions : Pollutant 5

1. Pollutant Emitted : **HAPS**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : lb/hour ~~235.0~~0000000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference See Note
7. Emissions Method Code : 2
8. Calculations of Emissions : See Appendix B
9. Pollutant Potential/Estimated Emissions Comment : No emissions limitation requested. NOTE: Emissions calculated using emission factors (FRP Model) and material balances.

Emissions Unit Information Section 1
Spa Manufacturing Process

Pollutant Information Section 1

Allowable Emissions 1

1. Basis for Allowable Emissions Code :	ESCPSD		
2. Future Effective Date of Allowable Emissions :			
3. Requested Allowable Emissions and Units :	321.00	tons/yr	
4. Equivalent Allowable Emissions :	lb/hour	321.00	tons/year
5. Method of Compliance : See Note			
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) : NOTE: Record keeping of material usage, material VOC content, emission factors, and emissions.			

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section _____

Visible Emissions Limitation : Visible Emissions Limitation _____

1. Visible Emissions Subtype :
2. Basis for Allowable Opacity :
3. Requested Allowable Opacity : Normal Conditions : % Exceptional Conditions : % Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :
5. Visible Emissions Comment :

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

[ ] 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.

[X] 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?

[ ] 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.

[X] 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, 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 :

PM :	SO2 :	NO2 :

4. Baseline Emissions :

PM :	lb/hour	tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year

5. PSD Comment :

PM, SO2 or NOx are emitted below PSD significance thresholds.

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 1

Spa Manufacturing Process

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment C
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	NA
9. Other Information Required by Rule or Statue :	NA

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :	Attachment H
11. Alterntive Modes of Operation (Emissions Trading) :	NA

12. Identification of Additional Applicable Requirements :	NA
13. Compliance Assurance Monitoring Plan :	NA

14. Acid Rain Application (Hard-copy Required) :

NA	Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
NA	Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
NA	New Unit Exemption (Form No. 62-210.900(1)(a)2.)
NA	Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

Attachment A

Area Map Showing Facility Location

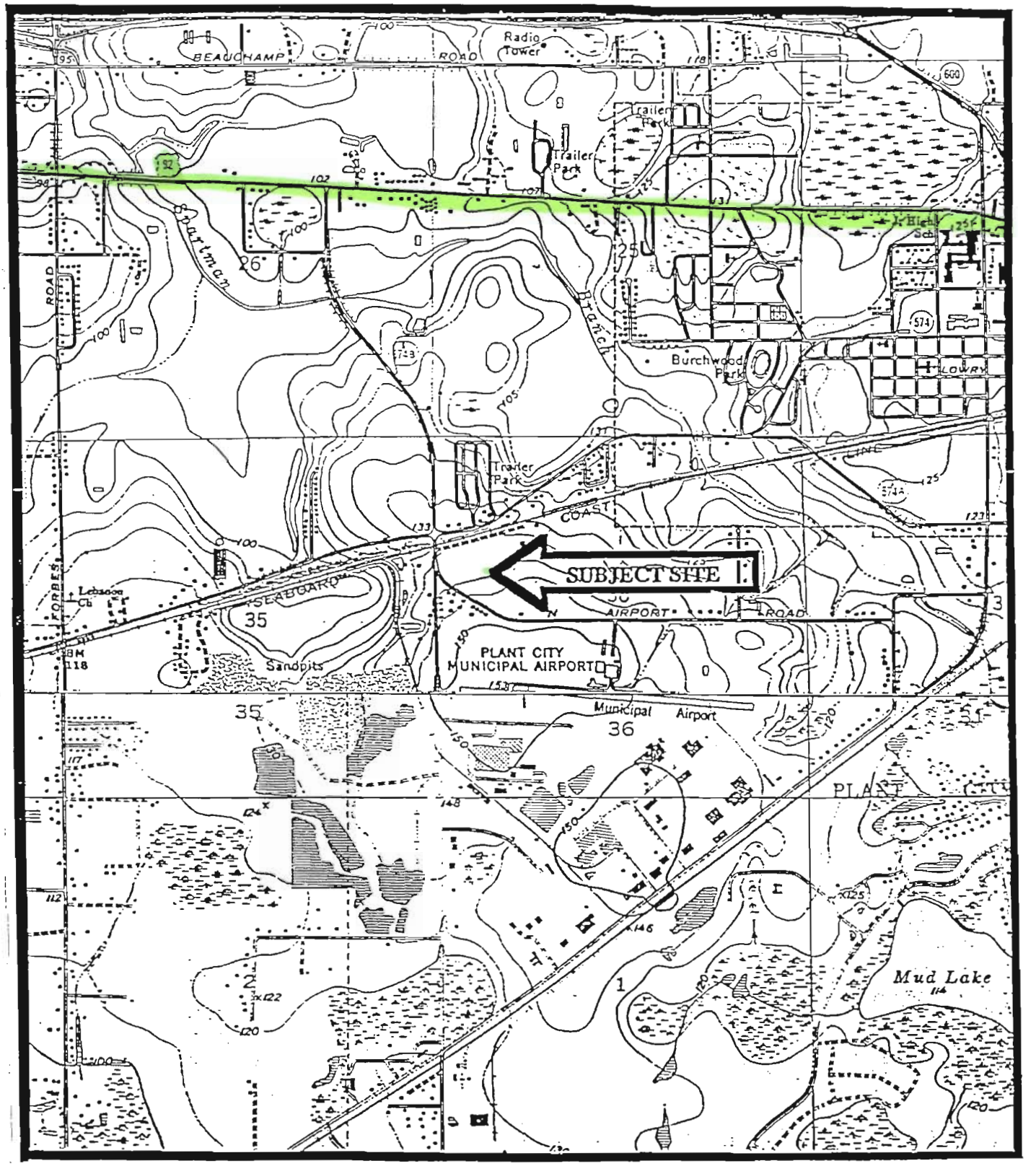
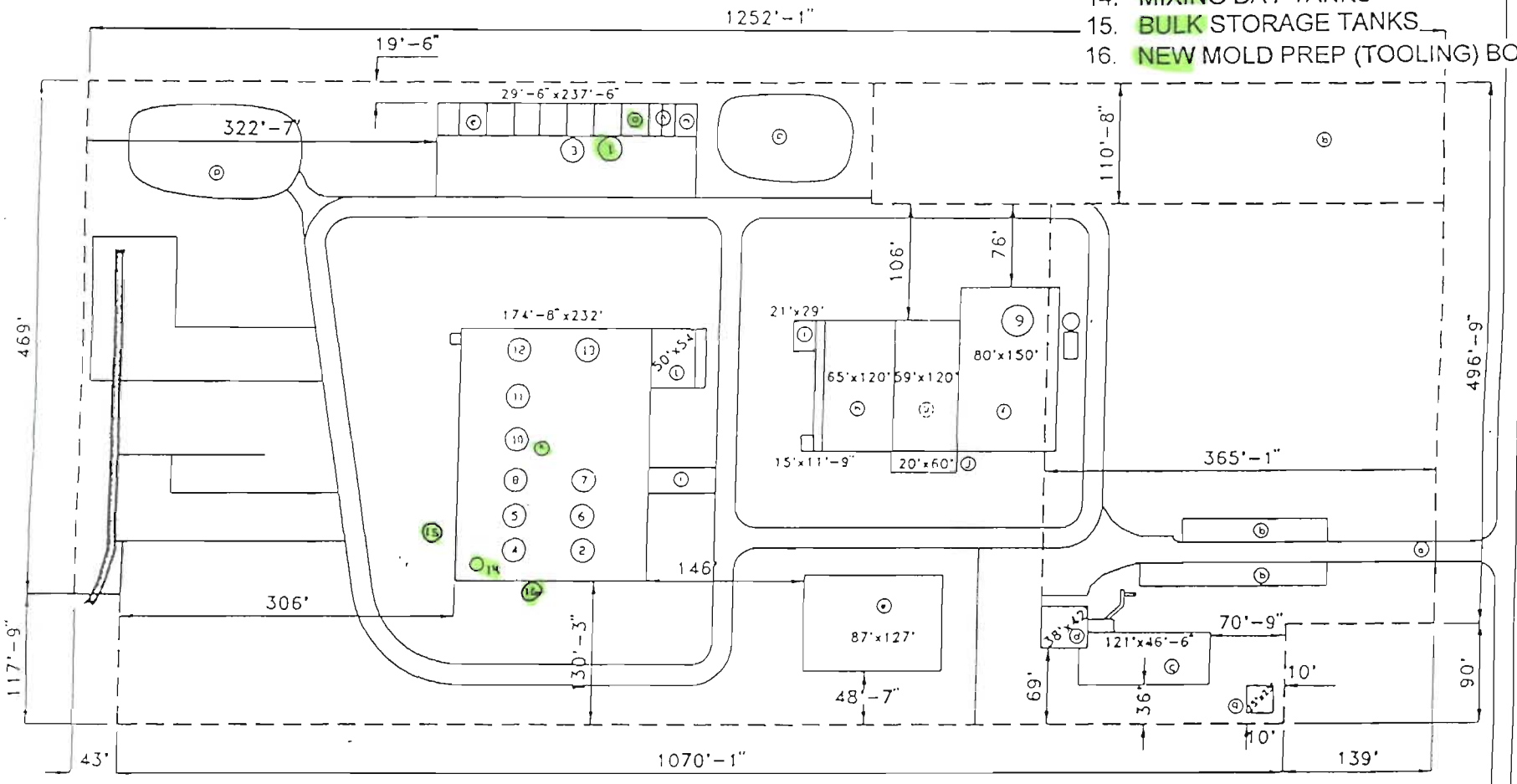


Figure A-1 USGS Topographic Quadrangle maps of Plant City West, Florida, dated 1975, and photorevised in 1983 and Dover, Florida, dated 1955, and photorevised in 1987.	Project Number [redacted] N ↑ Scale 1" = 2,000'

Attachment B

Facility Plot Plan

1. MOLD BUILDING
2. VACUUM FORMING
3. FILTER WELL LAYUP
4. FIBERGLASS
5. FOAM
6. CUT-OFF
7. PLUMBING/PLUMBING
8. BOXING
9. WOOD
10. PACK INSTALLATION
11. WATER TEST
12. FINAL FINISH
13. PALLETS/BAGGING
14. MIXING DAY TANKS
15. BULK STORAGE TANKS
16. NEW MOLD PREP (TOOLING) BOOTH



a) MAIN ENTRANCE
b) PARKING
c) MAIN OFFICE
d) SHOW ROOM
e) SPA STORAGE
f) WOOD SHOP
g) WOOD AND MATERIAL STORAGE
h) MATERIAL STORAGE
i) LOADING DOCK
j) COMPRESSOR SHED
k) MAIN MANUFACTURING BUILDING
l) PLANT OFFICE
m) MAINTENANCE SHOP
n) FABRICATION SHOP
o) MOLD SHOP
p) RETENTION POND
q) PICNIC SHED

N

Gatsby

Figure B-1. Facility Plot Plan

Attachment C

Process Flow Diagram

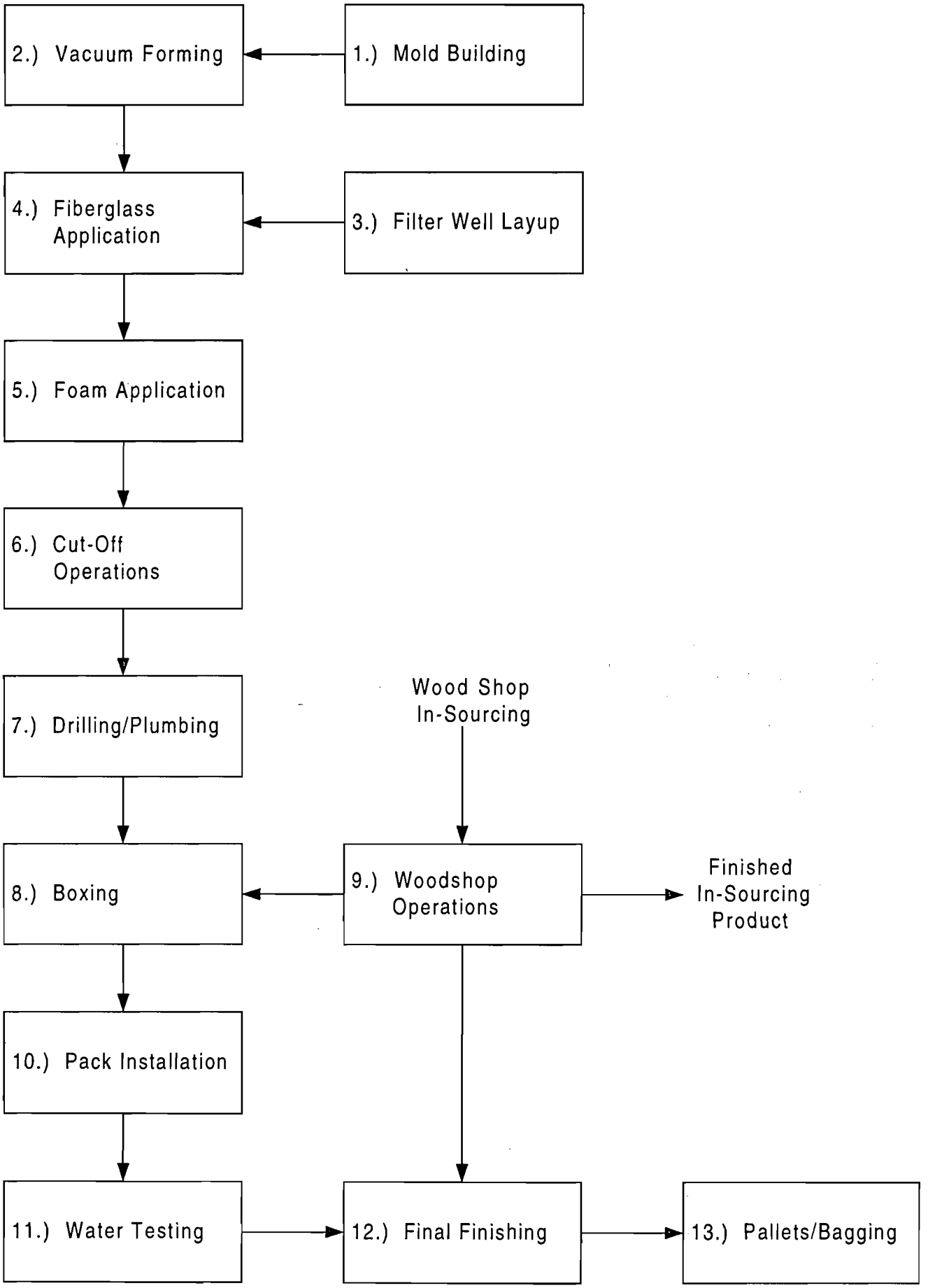


Figure C-1. Process Flow Diagram

Description of Processes

1. The vacuum molds for vacuum forming are made in this process.

2. An acrylic sheet is clamped on a mold and heated between 360°F and 385°F. Once the acrylic is at temperature, vacuum forming of the acrylic follows.

3. The filter well of the spa is hand laid with polyester resin and glass chop mat.

4. The application of fiberglass to the acrylic shell consists of a) cleaning the shell with styrene; b) applying one light coat of polyester resin; and c) applying one heavy coat of polyester resin. After step "b", a filter shell is fiberglassed to the spa shell and sealed in place with the heavy coat of resin (step "c"). The filter shells are made with polyester resin by the hand laid method.

5. On completion of fiberglassing work, each spa shell is coated with ½ inch of polyurethane foam.

6. The spa shells are trimmed of peripheral mold material and cut to their final shape on a rotary table.

7. The spa shells are drilled for plumbing. All plumbing consists of mounting ABS jets and PVC inserts to the shell. PVC hoses are glued to the jets and inserts with PVC cement.

8. A redwood collar frame is screwed to the plumbed spa shell. A structural pine wood frame is then screwed to the collar frame.

9. The redwood collar frame is constructed and stained with water born stain in the wood shop before the boxing assembly of the spas.

10. Framed spas receive electric/electronic components and are plumbed to completion.

11. Each spa is filled with water and checked for leaks and control performance.

12 Spas are cleaned, dried, and panelled. Final inspection of cosmetic defects may require polishing of the acrylic shell. A water born stain is used at the bottom of the wood frame.

Attachment D

Precautions to Prevent Emissions of Unconfined Particulate Matter

Precautions to Prevent Emissions of Unconfined Particulate Matter

Unconfined particulate matter emissions result from the following sources:

1. Wood Working Operations – PM emissions from wood working operations are controlled by a baghouse and vented internally to the building. PM emissions from the building are considered unconfined emissions.
2. Fiberglass Cutting – Spa shells are trimmed of peripheral mold material and cut to their final shape on a rotary table. Unconfined PM emissions result from this cutting process.
3. Roads, Parking Areas, and Yards.

All reasonable precautions, as described by 62-296.320(4) F.A.C., shall be taken to control unconfined particulate matter emissions from these sources. Wood working and fiberglass cutting operations shall be performed in such a manner as to minimize particulate matter emissions. Roads, parking areas, and yards shall be paved, have dust suppressants applied to them, and/or have sources of particulate matter removed from them where applicable to minimize particulate matter emissions.

Attachment E

Fugitive Emissions Identification

Fugitive Emissions Identification

The following operations are sources of fugitive emissions:

1. Wood Working Operations – PM emissions from wood working operations are controlled by a baghouse and vented internally to the building. PM emissions from the building are considered fugitive emissions.
2. Fiberglass Cutting – Spa shells are trimmed of peripheral mold material and cut to their final shape on a rotary table. Fugitive PM emissions result from this cutting process.
3. Hand Layup – Polyester resin is applied to the spa filter wells by hand. Small amounts of fugitive VOC and HAP emissions result from this process.
4. Miscellaneous Cleanup Solvents – Small amounts of fugitive VOCs and HAPs are emitted from the use of miscellaneous materials used in the spa production process.
5. Mixing Tanks – Small amounts of fugitive VOCs and HAPs are emitted from four (4) polyester resin mixing day tanks.

Particulate matter emissions from sources 1 and 2 are below the 5.0 ton per year insignificant activity threshold (62-213.430(6)(b)3.d. F.A.C.) and therefore, these activities are exempt from permitting. Emissions from sources 3, 4, and 5 are included in EU001 of this permit application.

Attachment F

List of Proposed Insignificant Units

List of Proposed Insignificant Activities

1. Woodworking Operation – The facility prepares wood skirting and paneling in its wood shop. These operations include saws, sanders, and other woodworking machinery. The exhaust from these operations will be vented through a baghouse that is exhausted inside the building. The emissions from this source are considered insignificant per 62-213.430(6)(b) F.A.C.
2. Parts Washers – There are three (3) parts washers or degreasers that are serviced by Safety Kleen. The degreasing liquid does not contain HAPs and the VOC emissions from this liquid are considered to be insignificant per 62-213.430(6)(b) F.A.C.
3. Silk Screening – The facility has a small silk screening operation to serve their packaging needs. The operation is very small and the chemicals used in this process are used in very small quantities (measured in quarts). The emissions from this source are considered insignificant per 62-213.430(6)(b) F.A.C.
4. Catalytic Oven – A 0.6 MMBtu/hr natural gas fired oven is used to heat acrylic sheets to allow vacuum molding of the spa shell. Emissions from this source are considered insignificant per 62-213.430(6)(b) F.A.C.

Attachment G

Compliance Report, Plan, and Certification

Compliance Report and Plan

The Gatsby Spa, Inc. facility is in compliance with all applicable requirements. No plan for resolution of non-compliance is necessary.

Compliance Certification

FACILITY NAME: Gatsby Spa, Inc.

CERTIFICATION OF COMPLIANCE:

I, the undersigned, am the responsible official as defined in Chapter 62-210.20, F.A.C., of the Title V source for which this report is being submitted. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made and data contained in this report are true, accurate, and complete.

Compliance statements will be delivered annually to the Department by the last day of February following the previous year of reporting.

SIGNATURE OF RESPONSIBLE OFFICIAL:

Signature: Kenneth W. Sorah Date: 10/15/99

Name (print): Kenneth W. Sorah

Official Title: President/CEO

Address: 4408 Airport Road
Plant City, FL 33567-1112

Attachment H

Alternative Methods of Operation

Alternative Methods of Operation

New Gatsby Spas, Inc. proposes two alternative methods of operation for emissions unit 001, the spa manufacturing process. These two methods are as follows:

1. Method 1: Utilize a non-vapor suppressed resin with a maximum styrene content of 45 wt.% applied with atomized spray guns in both production resin spray booths, use a maximum annual quantity of 3,885,767 lbs/yr of this resin for all resin application operations, and use limited quantities of other miscellaneous materials.

2. Method 2: Utilize a non-vapor suppressed resin with a maximum styrene content of 45 wt.%, applied with flow coating (non-atomized) guns in both production resin spray booths, and use a maximum annual quantity of 4,089,862 lbs/yr of this resin for all resin application operations.

Appendix B

Emission Calculations

RADIAN INTERNATIONAL
A DAMES & MOORE GROUP COMPANY

CALCULATION SHEET

Calc. No.
Summary

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By Tommy Sweat Date: 2/4/2000

Section I. General Information

Project: New Gatsby Spas, Inc. Air Pollutant Emissions Inventory Project No.: 803815.01

Subject: Summary of Air Pollutant Emissions from Gatsby Spa, Inc.

Section II. Summary of Emissions

A. Presented below in Table II-1 are total facility-wide potential emissions. The different potential emission categories are described as follows:

- Current potential emissions take into account the facility's current permitted emission limits.
- Future potential emissions from Method of Operation 1 (MOA 1) are based on the limited potential process throughput and material usage of the post-modified facility to achieve a modification potential of 242 tons/yr VOC using the atomized spray process.
- Future potential emissions from Method of Operation 2 (MOA 2) are based on the potential process throughput and material usage of the post-modified facility to achieve a modification potential of 90 tons/yr VOC using a nonatomized, flow coating process.

Table II-1. Summary of Annual Air Pollutant Emissions from Gatsby Spa, Inc.

	Emissions (tpy)			
	Current	Future Potential		Modification
Pollutant	Potential[a]	MOA 1	MOA 2	Potential[b]
Criteria Pollutants				
PM_{10}	15.0	0.354	0.354	N/A
SO_2	0.0015	0.0015	0.0015	N/A
NO_x	0.250	0.250	0.250	N/A
CO	0.210	0.210	0.210	N/A
VOC	79.0	321	169	242
Hazardous Air Pollutants (HAP)				
Dimethyl Phthalate	1.16	1.12	1.16	N/A
MEK	1.01	0.98	1.01	N/A
Naphthalene	4.28E-04	4.12E-04	4.28E-04	N/A
Styrene	56.8	232	77.1	N/A
Xylene	7.50E-05	7.22E-05	7.50E-05	N/A
Total HAP	58.9	235	79.3	N/A

a Gatsby Spa, Inc. permitted emission limits are: 15.0 tpy PM, 79.0 tpy VOC, 56.8 tpy styrene, and 58.9 tpy total HAP (Permit No. 0570468-005-AV).

b Modification potential emissions equal maximum future potential emissions - current potential emissions (i.e., 321 tpy - 79 tpy = 242 tpy VOC).

B. Hourly PM emissions are presented below in Table II-3.

Table II-2. Summary of Hourly PM Emissions from Gatsby Spa, Inc.

	Emissions (lb/hr)		
Pollutant	Current Actuals	Current Potential[a]	Future Potential
PM_{10}	0.081	5.0	0.081

a Gatsby Spa, Inc. permitted emission limits are: 5.0 lb/hr PM (Permit No. 0570468-005-AV).

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By: Tommy Sweat Date: 2/4/2000

Section I. General Information

Project: New Gatsby Spas, Inc. Air Pollutant Emissions Inventory Project No.: 803815.01

Subject: Styrene Emissions from Resin Application

Section II. Source Description

A. One of the first steps in spa manufacturing is creating the vacuum mold. The mold is made of wood and a vinyl ester blend resin applied in the tooling (mold prep) booth. The spa shell, which is made for commercial sale, is then manufactured by forming an acrylic sheet onto the vacuum mold. Resin, fiberglass, and foam are then applied to the outer shell. New Gatsby Spas currently has two stage carousel spray booths with 10,000 cfm fans for production resin application. The proposed production resin application process includes two alternative methods of operation: (1) atomized spray application; and (2) flow coater (non-atomized) spray application. Filter molds also are coated with resin in a hand layup application. The purpose of this calculation is to estimate VOC and HAP emissions from resin application operations including the two alternative methods of operation.

Section III. Data

Method of Operation 1 - Atomized Spray Gun Application

A. The United States Environmental Protection Agency (EPA), in collaboration with Research Triangle Institute, has developed a model for estimating styrene emissions from fiber-reinforced plastics fabrication processes. This model is called the FRP Model Version 1.0 (1998). Gatsby Spa resin application process parameters as needed for input values into the FRP Model are summarized below.

Table III-1. FRP Model Data and Usage Rate Data for Resin Application Processes[a]

Variable	Atomized-Spray Booths			Resin Hand Layup	Gelcoat Application
	Stage I	Stage II	Tooling Booth		
Model Data					
Styrene Content (wt. %)	45	45	45	45	53
Styrene Suppressant	N/A	N/A	N/A	N/A	N/A
Distance From Spray Gun to Mold (inches)	32	32	32	N/A	32
Dry Material Off Mold / Material Sprayed (%)	5	5	5	N/A	5
Thickness (mils)	93.75	218.75	1,000	125	30
Cup Gel Time (min)	12	12	12	18	20
Application Rate (lbs/min)	9.3	9.3	9.3	N/A	9
Air Temperature (°F)	72.3	72.3	72.3	72.3	72.3
Air Flow Velocity (ft/min)	142.9	142.9	142.9	35.6	35.6
Usage Data					
Styrene-based Resin Usage (lb/yr) - Actual[b]	295,005	547,865	4,000	38,775	400
Styrene-based Resin[c] Usage (lb/yr) - Future Potential	1,344,065	2,496,114	18,224	176,662	1,822
Styrene-based Resin[d] Usage (lb/yr) - Limited Potential	1,294,334	2,403,758	17,550	170,125	1,755

a Data from Gatsby Spa Inc. personnel.
b Of the total resin used in the Stage I and II booths, 35% and 65% by weight, respectively, is used in each booth.
c See Data B.
d See Data C.

Section III. Data (continued)

B. Future potential resin usage for all resin application processes is based on the unlimited potential process throughput of the post-modified facility (i.e., 48,750 spas/yr). Future potential resin usage for all resin application processes is estimated by multiplying the actual resin usage by the actual-to-potential ratio.

C. Limited potential resin usage values are 96.3 percent of future potential resin usage. Limited potential resin usage values are used to keep the facility VOC emission increase below the Prevention of Significant Deterioration (PSD) applicability threshold (i.e., 250 tpy). A potential facility-wide increase of 242 ton VOC/yr in addition the facility's current permitted VOC emission limit (i.e., 79 tpy) results in total facility-wide potential VOC emissions of 321 tpy. Limited potential material usage values are also 96.3 percent of future potential material usage values (See Calculation Material Usage).

Method of Operation 2 - Flow Coater (Non-Atomized) Gun Application

D. The United States Environmental Protection Agency (EPA), in collaboration with Research Triangle Institute, has developed a model for estimating styrene emissions from fiber-reinforced plastics fabrication processes. This model is called the FRP Model Version 1.0 (1998). Gatsby Spa resin application process parameters as needed for input values into the FRP Model are summarized below.

Table III-2. FRP Model Data and Usage Rate Data for Resin Application Processes[a]

Variable	Flow Coater Booths		Resin Spray	Resin Hand	Gelcoat
	Stage I	Stage II	Tooling Booth	Layup	Application
Model Data					
Styrene Content (wt. %)	45	45	45	45	53
Styrene Suppressant	N/A	N/A	N/A	N/A	N/A
Distance From Spray Gun to Mold (inches)	32	32	32	N/A	32
Dry Material Off Mold / Material Sprayed (%)	N/A	N/A	5	N/A	5
Thickness (mils)	93.75	218.75	1,000	125	30
Cup Gel Time (min)	12	12	12	18	20
Application Rate (lbs/min)	N/A	N/A	9.3	N/A	9
Air Temperature (°F)	72.3	72.3	72.3	72.3	72.3
Air Flow Velocity (ft/min)	142.9	142.9	142.9	35.6	35.6
Usage Data					
Styrene-based Resin Usage (lb/yr) - Actual[b]	N/A	N/A	4,000	38,775	400
Styrene-based Resin Usage (lb/yr) - Future Potential[c]	1,365,000	2,535,000	13,200	176,662	1,822

a Data from Gatsby Spa Inc. personnel.
b Since the flow coaters have not been used in the Stage I and II booths, past actual resin usage data for these booths is not applicable for this calculation.
c See Data E.

E. Future potential resin usage for all resin application processes is based on the potential process throughput of the post modified facility (i.e., 48,750 spas/yr). Future potential resin usage for the Stage I and Stage II coating booths is equal to 35% and 65%, respectively, of 80 lb resin/spa times 48,750 spas/yr [Ref. A]. Future potential resin usage for all other resin application processes is estimated by multiplying the actual resin usage by the actual-to-potential ratio.

Section III. Data (continued)

Actual-to-Potential Data

F. The actual-to-potential ratio for the hand layup and gelcoat application processes are calculated using the following data:

Table III-3. Actual-to-Potential Ratio Data[a]

Resin Application Process Parameter	Value
Actual Tub Production (tub/yr)	10,700
Potential Tub Production (tub/yr)	48,750

a Data from Gatsby Spas Inc. personnel.

Actual-to-Potential Ratio for Resin Application = 48,750 (potential tubs/yr) / 10,700 (actual tubs/yr)

= 4.56

G. The actual-to-potential ratio for the tooling (mold prep) booth: 3.3 (i.e. 33 potential molds/yr to 10 actual molds/yr).

Section IV. Assumptions

A. The Stage II booth dry material off mold per material sprayed value is assumed to be the same as the value for the Stage I booth.

B. The thickness of resin sprayed in the new spray booth is assumed to be 1,000 mils (i.e., 1 inch).

C. For the gelcoat application, the spray distance and air velocity values are assumed to be the same as the values for the sprayup booths and hand layup, respectively.

Section V. Approach

A. The EPA's FRP Model v1.0 and the data shown in Tables III-1 and III-2 were used to estimate emissions of styrene from the resin application processes presented in this calculation. Because this software is a peer-reviewed technical resource, a detailed manual calculation of the emission algorithms was not prepared. Complete documentation of the calculations performed in the FRP Model v1.0 program is presented in EPA's documentation for the ORD/RTI FRP Emission Model [Ref. B]. Output data from the FRP Model program consists of the percent of available styrene emitted. Tables VI-1 and VI-2 summarize the output data for each resin application process for Methods of Operation 1 and 2, respectively. Shown below is an example calculation of actual styrene emissions from the Tooling Booth (Method of Operation 1).

Actual Styrene Emissions = Resin Usage (lb/yr) * Percent Available Styrene (%) * Percent Available Styrene Emitted (%)

= 4,000 (lb resin/yr) * 0.45 (lb styrene/lb resin) * 0.335 (lb styrene emitted/lb styrene available)

= 603 lb styrene/yr {0.302 tpy}

Section V. Approach (continued)

B. An example calculation of future potential styrene emissions from the Tooling Booth (Method of Operation 1) is shown as follows:

Future Potential Resin Usage = Actual Resin Usage (lb/yr) * Actual-to-Potential Ratio

= 4,000 (lb resin/yr) * 4.56

= 13,200 lb resin/yr

Future Potential Styrene Emissions = Future Potential Resin Usage (lb/yr) * Percent Available Styrene (%) * Percent Available Styrene Emitted (%)

= 13,200 lb resin/yr * 0.45 (lb styrene/lb resin) * 0.335 (lb styrene emitted/lb styrene available)

= 1,990 lb styrene/yr {0.995 tpy}

C. An example calculation of limited potential styrene emissions from the Tooling Booth (Method of Operation 1) is shown as follows:

Limited Potential Resin Usage = Future Potential Resin Usage (lb/yr) * [1 - Percent Reduction]

= 13,200 (lb/yr) * [1 - 0.037]

= 12,712 lb/yr

Limited Potential Styrene Emissions = Limited Potential Resin Usage * Percent Available Styrene (%) * Percent Available Styrene Emitted (%)

= 12,712 (lb/yr) * 0.45 (lb styrene/lb resin) * 0.335 (lb styrene emitted/lb styrene available)

= 1,916 lb/yr {0.958 tpy}

Section VI. Results

Method of Operation 1 - Atomized Spray Gun Application

A. Summarized in Table VI-1 is the output data from the FRP Model (percent available styrene emitted) and actual and potential emissions from resin application processes for operational method 1.

Table VI-1. Actual and Potential Styrene Emissions from Resin Atomized Spray Application Processes Calculated from FRP Model Emission Factors

	FRP Emission Factor [Available Styrene Emitted (%)]	Emissions					
		Actual		Future Potential		Limited Potential	
		(lb/yr)	(tpy)	(lb/yr)	(tpy)	(lb/yr)	(tpy)
Stage I Booth	31.9	42,348	21.2	192,941	96.5	185,802	92.9
Stage II Booth	23.5	57,937	29.0	263,964	132	254,197	127
Tooling Booth	33.5	603	0.302	1,990	0.995	1,916	0.958
Resin Hand Layup	8.4	1,466	0.733	6,678	3.34	6,431	3.22
Gelcoat Application	61	129	0.065	589	0.295	567	0.284
Total		102,483	51.2	466,161	233	448,913	224

Method of Operation 2 - Flow Coater (Non-Atomized) Gun Application

B. Summarized in Table VI-2 is the output data from the FRP Model (percent available styrene emitted) and future potential emissions from resin application processes for operational method 2.

Table VI-2. Future Potential Styrene Emissions from Flow Coater (Non-Atomized) Resin Application Processes as Calculated from FRP Model Emission Factors

	FRP Emission Factor [Available Styrene Emitted (%)]	Future Potential Styrene Emissions	
		(lb/yr)	(tpy)
Stage I Booth	9.6	58,968	29.5
Stage II Booth	6.1	69,586	34.8
Tooling Booth	33.5	1,990	0.995
Resin Hand Layup	8.4	6,678	3.34
Gelcoat Application	61	589	0.295
Total		137,811	68.9

Section VII. References

A. Data from Gatsby Spas facility personnel.

B. Summarized Background Information for the ORD Empirical Model to Predict Styrene Emissions from Fiber-Reinforced Plastics Fabrication Processes. U.S. Environmental Protection Agency.

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By Tommy Sweat Date: 2/4/2000

Section I. General Information

Project: New Gatsby Spas, Inc. Air Pollutant Emissions Inventory Project No.: 803815.01

Subject: VOC and HAP Emissions from Miscellaneous Material Usage

Section II. Source Description

A. Gatsby Spa uses cleanup solvents, PVC cements, and polymerization initiators which emit volatile organic compounds (VOC) and hazardous air pollutants (HAP) due to evaporation. The purpose of this calculation is to estimate VOC and HAP emissions from material usage and property data.

Section III. Data

A. Material usage and property data is summarized below in Table III-1.

Table III-1. Gatsby Spa Material Usage and Property Data[a]

Material	Pollutant	Usage (lb/hr) Content (wt. %)	Actual	Future Potential[b]	Limited Potential[c]
MEKP Catalyst			18,504	84,306	81,186
	Dimethyl Phthalate[d]	2.76			
	MEK[e]	0.24			
	VOC	3			
BASF NPU 553377 Foam			46,655	212,564	204,699
	VOC	45			
Styrene Monomer			2,656	12,101	11,653
	Styrene	100			
	VOC	100			
Isopropanol			17,343	79,016	76,092
	VOC	100			
Immersion Cleaner and Cold Parts Clean			4	18.2	17.6
	Napthalene	4.70			
	VOC	84.8			
PVC Cement			1,300	5,923	5,704
	MEK	30.8			
	VOC	76.9			
Waterborne Stain			21,251	96,821	93,239
	VOC	2			
Screen Ink Thinner			5	22.8	21.9
	VOC	100			
VM&P Naptha			10	45.6	43.9
	VOC	100			
Mineral Spirits			20	91.1	87.8
	VOC	100			

Section III. Data (continued)

Table III-1. Gatsby Spa Material Usage and Property Data (continued)[a]

Material	Pollutant	Usage (lb/hr) Content (wt. %)	Actual	Future Potential[b]	Limited Potential[c]
Marbocote 75 CEE			75	75.0	72.2
	VOC	100			
Safety Kleen 105 Solvent			15	15.0	14.4
	Xylene	1			
	VOC	100			
Safety Kleen Premium Solvent			10	10.0	9.6
	VOC	100			

a Data from Gatsby Spa Inc. personnel.
b See Data B.
c See Data E.
d See Assumption A.
e See Assumption B.

B. Future potential material usage is based on the unlimited potential process throughput of the post-modified facility. Future potential material usage is estimated by multiplying the actual material usage by the actual-to-potential ratio.

C. Actual-to-Potential Ratio: 4.56 (See Calculation ResinAppl. for estimation of this ratio.)

D. For waterborne staining, Gastby Spa also performs out-source staining in addition to their own in-house staining. The actual-to-potential usage ratio for waterborne stain is equal to 4.55 plus the actual-to-potential ratio for the Wood Shop (i.e. 4.56 + 5 = 9.56). See Calculation Wood for calculation of the Wood Shop's actual-to-potential ratio.

E. Limited potential material usage values are 96.3 percent of future potential usage. Limited potential usage values are estimated to keep the facility VOC emission increase [Method of Operation 1] below the Prevention of Significant Deterioration (PSD) applicability threshold (i.e., 250 tpy). A potential facility-wide increase of 242 ton VOC/yr in addition the facility's current permitted VOC emission limit (i.e., 79 tpy) results in total facility-wide potential VOC emissions of 321 tpy. Limited potential resin usage value are also 96.3 percent of future potential resin usage (See Method of Operation 1 in Calculation ResinAppl.). Restricting potential material usage for Method of Operation 2 is not necessary.

Section IV. Assumptions

A. MEKP Catalyst contains 69 wt% dimethyl phthalate (MSDS is provided as Attachment 1). However, since dimethyl phthalate has a low vapor pressure, it is assumed that only 4.0% of the available dimethyl phthalate is emitted [Ref. A]. Thus, the total weight percentage of dimethyl phthalate emitted is 2.76% (i.e. 0.69 * 0.04 = 0.0276).

B. Per MSDS, MEKP Catalyst contains 3 wt% of volatile material. Since 2.76 wt% of emitted compounds is comprised of dimethyl phthalate, it is assumed that the remaining 0.24 wt% emitted is methyl ethyl ketone (MEK). This is within the expected range of MEK present in MEKP Catalyst [Ref. A].

Section V. Approach

A. Actual emissions are calculated using the actual usage of material and the weight fraction of pollutant. For example, actual VOC emissions from use of MEKP Catalyst are calculated as follows:

Actual Annual
VOC Emissions = MEKP Catalyst Usage (lb/yr) * VOC Weight Fraction

= 18,504 (lb/yr) * 0.03

= 555 lb/yr {0.277 tpy}

B. Future potential emissions are calculated using the actual-to-potential ratio and actual usage. Future potential VOC emissions from use of MEKP Catalyst are calculated as follows:

Future Potential MEKP
Catalyst Usage = Actual MEKP Catalyst Usage (lb/yr) * Actual-to-Potential Ratio

= 18,503 (lb/yr) * 4.56

= 84,306 lb/yr

Future Potential Annual
VOC Emissions = Future Potential MEKP Catalyst Usage * VOC Weight Fraction

= 84,306 (lb/yr) * 0.03

= 2,529 lb/yr {1.26 tpy}

C. Limited potential emissions are calculated using the future potential usage and percent usage reduction needed to fall below the PSD applicability threshold [Method of Operation 1]. Limited potential VOC emissions from use of MEKP Catalyst are calculated as follows:

Limited Potential MEKP
Catalyst Usage = Future Potential MEKP Catalyst Usage (lb/yr) * [1 - Percent Reduction]

= 84,306 (lb/yr) * [1 - 0.037]

= 81,186 lb/yr

Limited Potential Annual
VOC Emissions = Limited Potential MEKP Catalyst Usage * VOC Weight Fraction

= 82,619 (lb/yr) * 0.03

= 2,436 lb/yr {1.24 tpy}

Section VI. Results

A. Presented below in Table V-1 are actual and potential VOC and HAP emissions from material usage.

Table V-1. Actual and Potential VOC and HAP Emissions from Miscellaneous Material Usage

	Emissions					
			Potential		Limited Potential	
	Actual		Method of Operation 2		Method of Operation 1	
	(lb/yr)	(tpy)	(lb/yr)	(tpy)	(lb/yr)	(tpy)
Criteria Pollutants						
VOC	43,112	21.6	196,066	98.0	188,811	94.4
Hazardous Air Pollutants						
Dimethyl Phthalate	511	0.255	2,327	1.16	2,241	1.12
MEK	445	0.222	2,027	1.01	1,952	0.98
Napthalene	0.188	9.40E-05	0.857	4.28E-04	0.825	4.12E-04
Styrene	2,656	1.33	12,101	6.05	11,653	5.83
Xylene	0.150	7.50E-05	0.150	7.50E-05	0.144	7.22E-05
Total HAP	3,612	1.81	16,455	8.23	15,847	7.92

Section VII. References

A. Haberlein, R. Emission Factors for Liquid Organic Peroxide Catalysts used in the Open Molding of Composites. (provided as Attachment 2).

Attachment 1

MATERIAL SAFETY DATA SHEET

Distributed by: GLS Corporation
Composites Materials Division
1750 N. Kingsbury St.
Chicago, IL 60614
(312) 664-3500

Manufacturer: Alpha/Owens Corning Corporation
4620 N. Galloway Road
Lakeland, FL 33809
(813) 858-4431

Product: ALTEK 415-12 (ALTEK 52-415-12)

Revision: APRIL 18, 1989

National Paint and Coatings Association Hazardous Material Identification System:

HEALTH HAZARD	2
FLAMMABILITY HAZARD	3
REACTIVITY HAZARD	2
PERSONAL PROTECTION	I

SECTION I. MATERIAL IDENTIFICATION

TRADE/MATERIAL NAME: ALTEK 415-12 (ALTEK 52-415-12)
DESCRIPTION: DIACID/GLYCOL CONDENSATE
CAS: MIXTURE
TRADE SECRET REGISTER: N/A
CHEMICAL NAME: UNSATURATED POLYESTER RESIN

SECTION II. INGREDIENTS AND HAZARDS

INGREDIENT NAME:	CAS NUMBER:	PERCENT*:	EXPOSURE LIMITS:
STYRENE	100-42-5	45	50 PPM TWA; 100 PPM STEL

SARA 313 INFORMATION: THIS PRODUCT CONTAINS THE ABOVE SUBSTANCE WHICH IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.

* WEIGHT PERCENT

SECTION III. PHYSICAL DATA

APPEARANCE AND ODOR: VISCOUS LIQUID WITH A SWEET PUNGENT ODOR.

BOILING POINT:	293 DEG. F	EVAPORATION RATE:	3.1
VAPOR PRESSURE:	<4.5 mmHg	SPECIFIC GRAVITY:	(H2O=1) 1.0-1.1
WATER SOLUBILITY (%):	VERY SLIGHT	MELTING POINT:	N/A
VAPOR DENSITY (AIR=1):	3.6		

SECTION IV. FIRE AND EXPLOSION DATA

FLASH POINT (METHOD):	LIMITS%:	AUTOIGNITION TEMP:
88 - 92 DEG. F (CC)	LEL = 1.1	914 DEG. F
	UEL = 6.1	

NFPA FLAMMABLE/COMBUSTIBLE LIQUID CLASSIFICATION: 1C
NFPA FIRE HAZARD SYMBOL CODES: FLAMMABILITY: 3 HEALTH: 2 REACTIVITY: 2
EXTINGUISHING MEDIA: WATER FOG, DRY CHEMICAL, FOAM OR CO2 SPECIAL: NONE

UNUSUAL FIRE OR EXPLOSION HAZARDS: AT ELEVATED TEMPERATURES, SUCH AS IN A FIRE CONDITION, POLYMERIZATION MAY TAKE PLACE RESULTING IN VIOLENT RUPTURE OF CLOSED CONTAINERS. WEAR PROTECTIVE PRESSURE APPARATUS, EYE PROTECTION, AND KEEP VAPORS AWAY FROM POSSIBLE IGNITION SOURCES.

SPECIAL FIRE-FIGHTING PROCEDURES: IF ELECTRICAL EQUIPMENT IS INVOLVED, THE USE OF FOAM SHOULD BE AVOIDED. HANDLING EQUIPMENT SHOULD BE COOLED BY WATER STREAM IF EXPOSED TO FIRE.

SECTION V. REACTIVITY DATA

MATERIAL IS STABLE. HAZARDOUS POLYMERIZATION MAY OCCUR.

CHEMICAL INCOMPATIBILITIES: ACIDS, OXIDIZING AGENTS, FREE RADICAL INITIATORS SUCH AS PEROXIDES, AND METALLIC HALIDES AND SOAPS.

CONDITIONS TO AVOID: SUNLIGHT, OPEN FLAMES, CONTAMINATION, AND PROLONGED STORAGE ABOVE 75 DEG. F.

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, AND LOW MOLECULAR WEIGHT HYDROCARBONS.

SECTION VI. HEALTH HAZARD INFORMATION

THIS PRODUCT IS CONSIDERED A POSSIBLE CARCINOGEN BY IARC.*

SUMMARY OF RISKS: CAUSES IRRITATION TO THROAT, EYES, SKIN AND NOSE. HARMFUL IF INHALED.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY CONTACT: MAY AGGRAVATE PRE-EXISTING RESPIRATORY AND SKIN DISORDERS.

TARGET ORGANS: CNS, RESPIRATORY SYSTEM, LUNGS, EYES AND SKIN.

PRIMARY ROUTES OF ENTRY: INHALATION, INGESTION, CONTACT.

ACUTE EFFECTS: MAY IRRITATE EYES, NOSE, THROAT, AND SKIN.

CHRONIC EFFECTS: MAY CAUSE VICTIM TO FEEL DRUGGED, SLEEPY OR BECOME UNCONSCIOUS. REPEATED SKIN CONTACT MAY CAUSE RASH. MAY AFFECT THE BRAIN OR NERVOUS SYSTEM, CAUSING DIZZINESS, HEADACHE OR NAUSEA. REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

SIGNS AND SYMPTOMS OF OVEREXPOSURE:
EYE CONTACT: CAUSES IRRITATION TO THE EYES.
SKIN CONTACT: MAY CAUSE IRRITATION TO THE SKIN.
INHALATION: MAY IRRITATE EYES, NOSE AND THROAT. MAY FEEL DRUGGED, SLEEPY, OR UNCONSCIOUS.
INGESTION: MAY CAUSE VICTIM TO BECOME WEAK AND UNSTEADY.

FIRST AID:
EYE CONTACT: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET PROMPT MEDICAL ATTENTION. (CONTACT LENSES SHOULD NOT BE WORN WHILE WORKING WITH THIS MATERIAL.)
SKIN CONTACT: WASH EXPOSED SKIN WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION DEVELOPS. REMOVE CONTAMINATED CLOTHING, SHOES, AND THOROUGHLY CLEAN BEFORE REUSE.
INHALATION: MOVE EXPOSED PERSON(S) TO FRESH AIR. GET MEDICAL ATTENTION.
INGESTION: DO NOT INDUCE VOMITING. CALL PHYSICIAN IMMEDIATELY.

* FOR HAZARD COMMUNICATION PURPOSES UNDER OHSA STANDARD 29 CFR PART 1910.1200, STYRENE IS LISTED AS A POSSIBLE CARCINOGEN BY IARC. NEITHER THE DATA FROM VARIOUS LONG-TERM ANIMAL STUDIES NOR FROM EPIDEMIOLOGY OF WORKERS EXPOSED TO STYRENE PROVIDE AN ADEQUATE BASIS TO CONCLUDE THAT STYRENE IS CARCINOGENIC.

SECTION VII. SPILL, LEAK AND DISPOSAL PROCEDURES

SPILL/LEAK PROCEDURES: REMOVE ALL SOURCES OF IGNITION. VENTILATE AREA. PREVENT MATERIAL FROM ENTERING DRAINS. ABSORBENT SHOULD BE VERMICULITE, DRY SAND OR EARTH.
SMALL SPILL: SOAK UP WITH ABSORBENT AND SCOOP INTO DRUMS.
LARGE SPILL: DIKE AND PUMP INTO DRUMS.

WASTE MANAGEMENT/DISPOSAL: DISPOSE OF ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII. SPECIAL PROTECTION INFORMATION

PERSONAL PROTECTIVE EQUIPMENT:

GOGGLES: USE CHEMICAL GOGGLES.
GLOVES: USE GLOVES OF RUBBER OR OTHER RESISTANT MATERIAL.
RESPIRATOR: CHEMICAL CARTRIDGE RESPIRATOR WITH NIOSH/OSHA APPROVED ORGANIC VAPOR CARTRIDGE TO 400 PPM. AT EXPOSURES ABOVE 400 PPM USE AN SCBA.
OTHER: USE CHEMICAL RESISTANT APRONS OR COATS TO AVOID SKIN CONTACT.

WORKPLACE CONSIDERATIONS:

VENTILATION: LOCAL EXHAUST IS PREFERRED. MECHANICAL VENTILATION IS ACCEPTABLE. USE EXPLOSION PROOF EQUIPMENT.
SAFETY STATIONS: SAFETY SHOWERS AND EYE WASH STATIONS ARE RECOMMENDED.
CONTAMINATED EQUIPMENT: CLEAN CONTAMINATED EQUIPMENT WITH AN APPROPRIATE SOLVENT PRIOR TO STORAGE.

SECTION IX. SPECIAL PRECAUTIONS

STORAGE SEGREGATION: STORE IN A COOL DRY PLACE AWAY FROM INCOMPATIBLE MATERIALS.

SPECIAL HANDLING/STORAGE: STORE IN AN AREA BELOW 75 DEG. F. AND OUT OF DIRECT SUNLIGHT. KEEP AWAY FROM HEAT, SPARK AND SMOKING AREAS. EMPTY CONTAINERS MAY BE HAZARDOUS.

ENGINEERING CONTROLS: EQUIPMENT SHOULD BE GROUNDED DURING TRANSFER AND NON-SPARKING PUMPS SHOULD BE USED.

OTHER PRECAUTIONS: DO NOT TRANSFER TO UNLABELED BOTTLES OR CONTAINERS.

DOT CLASS:	UN REGISTER:	DATA SOURCE CODE(S):
FLAMMABLE LIQUID	UN-1866	#1

Attachment 2

Engineering Environmental
Consulting Services

March 24, 1999

Emission Factors for Liquid Organic Peroxide Catalysts used in the Open Molding of Composites

Robert A. Haberlein, Ph.D., QEP

Introduction

Small quantities of highly reactive liquid organic peroxide solutions are used by the reinforced plastics industry to initiate the polymerization reaction (also referred to as "curing") in the resin or gelcoat material. These solutions are commonly called "catalysts," and are known by the commercial trade names Butanox™, Lupersol™, Thermacure™ or Hi-Point™. In order to start the curing reaction, enough catalyst solution is added to the resin or gelcoat material until about 1% to 2% of the material weight consists of catalyst. The catalyst solution is either sprayed together with the resin or gelcoat during spray lay-up (Mechanical), or a carefully measured amount of catalyst is stirred into a pail or bucket of resin for hand lay-up (Manual).

Most organic peroxide catalysts consist of a 30% to 47% solution of methyl ethyl ketone peroxide (MEKP) dissolved in dimethyl phthalate (DMP). The DMP acts as is a stabilizing agent to prevent the spontaneous detonation of the MEKP at room temperature. A trace amount of methyl ethyl ketone (MEK) may also be present as a contaminant byproduct left over from the manufacture of the MEKP.

MEKP

MEKP is a highly reactive, colorless liquid organic oxidizer, with a pungent burning odor, which has the following properties:

CAS registry number	1338-23-4
molecular formula	$CH_3COCH_2CH_3O_2$.
vapor pressure	less than 0.1 mm Hg at room temperature

Contrary to a popular misconception, MEKP does not decompose into MEK after being sprayed together with resin or gelcoat. Instead, the MEKP is immediately consumed by the resin to initiate the curing process, so no MEKP is released. If a trace amount of MEKP does not fully react with the resin or gelcoat, a small amount of acetic acid droplets may be formed due to reactions with moisture present in the air - but not MEK. Acetic acid droplets are neither a HAP nor a VOC. Therefore, the normal usage of MEKP at reinforced plastics facilities will not result in any measurable VOC or HAP emissions whatsoever.

DMP

DMP is a colorless, oily, viscous organic liquid with a faintly sweet, ester-like odor, which has the following properties:

CAS registry number	131-11-3
molecular formula	$C_{10}H_{10}O_4$
vapor pressure	less than 0.01 mm Hg at room temperature

DMP is both a VOC and a listed HAP. Fortunately, DMP has an extremely low vapor pressure resulting in practically no evaporation at room temperature. DMP vapor emissions from catalyst solutions are probably extremely small, but are still non-zero. The following five-step theoretical approach is employed to determine a reasonable non-zero emission factor for DMP:

1. According to the UEF model, a 50% styrene-content resin applied by spray gun will emit about 18.1% of the available styrene monomer before the resin cures. After curing, these emissions from the resin essentially stop.

2. DMP emissions will also emit a trace amount of vapor before the resin cures, and will follow the same general evaporation mechanisms as for the styrene monomer.

3. The ratio of vapor pressures for DMP to styrene is 0.01 mmHg ÷ 4.5 mmHg = 0.0022.

4. The evaporation rate for typical VOC species is proportional to the VOC vapor pressure.

5. Hence, the emission factor for DMP will be 0.0022 × 18.1% = **0.040% of available DMP by weight.**

Note that DMP emissions will be practically negligible at nearly all reinforced plastics facilities in the USA. For example, a plant using one million pounds of resin (which is a relatively large amount) would only emit the following amount of DMP vapor:

1,000,000 lb/yr resin × 1.5% catalyst × 60% DMP × 0.04% = **3.6 lb/yr DMP emissions**

This amount of DMP will be very small, so record-keeping and reporting requirements for DMP emissions from catalyst usage do not seem to be warranted.

MEK

MEK is another VOC and listed HAP, which may be a trace contaminant byproduct of the precursor chemical reactions employed to produce MEKP. However, the amount of contamination is reportedly very small - normally from about 50 ppm to a maximum of 1% by weight of MEK may be present in the raw MEKP feedstock used to make commercially-available catalyst formulations. Presumably, all of this trace amount of MEK will be released during the lamination process, because the MEK will neither react nor combine with the polyester resin during curing. However, as in the case of DMP emissions discussed above, these MEK emissions will be insignificant at nearly all reinforced plastics facilities in the USA. For example, a plant using one million pounds of resin would emit no more than the following amount of MEK vapor at a maximum contamination level of 1% MEK in the MEKP feedstock and assuming a 40% MEKP concentration in the catalyst:

1,000,000 lb/yr resin × 1.5% catalyst × 1% MEK × 40% MEKP = **60 lb/yr MEK emissions**

The actual emission of MEK would probably be lower, because most catalysts formulations use MEKP with much less than 1% MEK contamination. The actual MEK contamination in a specific catalyst formulation can be obtained from the catalyst supplier. The amount of MEK emissions will be so small that record-keeping and reporting requirements for MEK emissions from catalyst usage do not seem to be warranted.

The above information regarding MEKP, DMP, and MEK emissions may be confirmed by contacting Dr. Frank Long, a leading authority on organic peroxides, who works for the Norac Company, one of the two major manufacturers of catalyst materials for the reinforced plastics industry. Dr. Long may be reached at (626) 334-2908, or at info@norac.com. The information provided by Dr. Long can be verified by contacting Mr. Brice Milleville, another authority on MEKP catalysts, who works for Akzo Nobel, the second major manufacturer of MEKP catalysts. Mr. Milleville may be reached at (914) 674-5099, or by email at bryce.milleville@akzo-nobel.com.

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By Tommy Sweat Date: 2/4/2000

Section I. General Information

Project: New Gatsby Spas, Inc. Air Pollutant Emissions Inventory Project No.: 803815.01

Subject: Styrene Emissions from Bulk Storage and Mixing Tanks

Section II. Source Description

A. Gatsby Spa operates two vertical aboveground resin storage tanks and four mixing tanks. The purpose of this calculation is to determine styrene emissions from these sources.

Section III. Data

Storage Tanks

A. The Tampa facility has two vertical fixed-roof storage tanks for storing styrene-based resin. Table III-1 summarizes the physical characteristics and throughput rates of each tank.

Table III-1. Storage Tank Characteristics

Variable for Each Tank	Value
Working Capacity (gals.)	8,000
Height (ft)	15
Diameter (ft)	10
Potential Resin Throughput (lb/yr)[a]	1,950,000

a See Assumption A.

B. Meteorological data (i.e., monthly solar insulation values and 10-meter mean wind speed data, and temperature data) for Tampa, Florida were used for the facility.

C. The density of styrene: 7.45 lb/gal [Ref. A]

Mixing Tanks

E. Resins are stored and blended with fillers in four mixing tanks. This calculation uses styrene property data, physical equipment parameters, and the stagnant gas film diffusion model to estimate emissions from this process. Styrene and equipment parameters needed for this model are summarized below in Table III-2.

Table III-2. Mixing Tank Parameters and Styrene Properties

Variable	Value	
Styrene Properties		
Molecular Weight	104.2	
Vapor Pressure[a]	4.5	mmHg
Equipment Parameters		
Surface Area	64	ft^2
Actual Operating Hours	3,000	hr/yr
Potential Operating Hours	8,760	hr/yr
Diffusion Path Length	0.5	ft
Average Temperature[b]	72.3	°F

a From resin MSDS. See Attachment 1.
b This average temperature is the same value as used in the TANKS v4.0 program for Tampa.

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By Tommy Sweat Date: 2/4/2000

Section IV. Assumptions

A. Since each bulk storage tank is the same size, it is assumed that each tank will store half of the total resin used in resin application processes (i.e., Stage I booth, Stage II booth, Tooling booth, Resin Hand Layup, and Gelcoat Application [see Calculation ResinAppl]).

B. The styrene content of resin stored in the storage and mixing tanks is assumed to be 45 wt.% regardless of which scenario is being used [see Calculation ResinAppl for description of scenarios].

C. The TANKS v4.0 default values were used for the storage tank's shell and roof condition and color.

D. It is assumed that the stagnant air film extends 6 inches above the surface area of the resin and that convective mass transfer does not occur within 6 inches of the surface. The rate of diffusion through the stagnant film is the limiting factor in the diffusion / convection system.

E. For calculating emissions from the mixing tanks, it is assumed that the mixing tanks contain all resin (i.e. no filler products). This is a conservative estimate since the fillers contain no VOCs or HAP.

F. It is assumed that the MSDS styrene vapor pressure is valid at the average temperature of the facility.

Section V. Approach

Storage Tanks

A. Since only the liquid styrene fraction of the resin is being used to estimate emissions from the resin storage tanks, the total tank resin throughput must be decreased to reflect the throughput of just the liquid component. The potential liquid throughput for Tank No. 1 is calculated as follows:

Potential Liquid Throughput = Total Resin Throughput (lb resin/yr) * Weight Fraction Styrene (lb styrene/lb resin) / Density of Styrene (lb styrene/gal styrene)

= 1,950,000 (lb resin/yr) * 0.45 (lb styrene/lb resin) / 7.45 (lb styrene/gal styrene)

= 117,785 gal styrene/yr

B. The Environmental Protection Agency's (EPA) TANKS v4.0 [Ref. B] and the data shown in Table III-1 were used to estimate emissions of VOC from the storage tanks presented in this calculation. Because this software is a peer-reviewed technical resource, a detailed manual calculation of the fixed-roof tank emission algorithms was not prepared. Complete documentation of the calculations performed in the TANKS v4.0 program is presented in EPA's AP-42 document [Ref. C]. Output data from the TANKS v4.0 program for each tank configuration are presented in Attachment 2. Section VI presents a summary of the styrene emissions from each tank based on the input data presented in Table III-1.

Section V. Approach (continued)

Mixing Tanks

C. Resins are stored and blended with fillers in four mixing tanks. This calculation uses styrene property data, physical equipment parameters, and the stagnant gas film diffusion model to estimate emissions from this process. To calculate the diffusion coefficient of styrene in air, the Fuller, Schettler, and Giddings relation is used [Ref. D].

$$D_{AB} = \frac{10^{-3} T^{1.75} \left[(M_A + M_B) / M_A M_B \right]^{1/2}}{P \left[(\sum v)_A^{1/3} + (\sum v)_B^{1/3} \right]^2}$$

where

D_{AB}	=	Diffusion Coefficient (cm^2/s)
T	=	Temperature (Kelvin)
M_A	=	Molecular weight of styrene
M_B	=	Molecular weight of air
P	=	Pressure (atm)
v	=	Atomic diffusion volume (18.74 for styrene and 20.1 for air) [Ref. D]

D_{AB} = 0.001 * (22.4°C + 273)$^{1.75}$ * [(104.2 + 29) / (104.2 * 29)]$^{1/2}$ / [(1 atm) * [(18.74)$^{1/3}$ + (20.1)$^{1/3}$]^2]

= 0.153 cm^2/s

D. To estimate the molar flux of styrene in air, the stagnant film model [Ref. E] is used as follows:

$$N = \frac{D_{AB}}{RT} \left(\frac{p(A1) - p(A2)}{L} \right)$$

where

N	=	Molar flux (mol/cm^2 s)
D_{AB}	=	Diffusion coefficient (cm^2/s)
R	=	Universal gas constant (62.36 L mmHg/mol K)
T	=	Temperature (K)
p(A1)	=	Partial pressure of styrene in stagnant film (mmHg)
p(A2)	=	Partial pressure of styrene above stagnant film (assumed = 0)
L	=	Path length for diffusion (cm)

N = 0.153 (cm^2/s) / 62.36 (L mmHg / mol K) / (22.4°C + 273) (K) * 4.5 (mmHg) / 0.5 (ft) / 30.48 (cm/ft) / 1000 (cm^3/L)

= 2.45E-09 mol/cm^2 s

Section V. Approach (continued)

E. To estimate potential styrene emissions, the molar flux of styrene, the surface area of the tanks, the potential hours of tank operation are used as follows:

Potential Styrene Emissions = Styrene Molar Flux (mol/cm^2 s) * Molecular Weight of Styrene (g/mole) * Surface Area per Tank (ft^2/tank) * Number of Tanks (tank) * Potential Hours of Operation (hr/yr) * 3,600 (s/hr) * 929 (cm^2/ft^2) * (2.205 lb/1000 g)

= 2.45E-09 (mol/cm^2 s) * 104.2 (g/mol) * 64 (ft^2/tank) * 4 tanks * 8,760 (hr/yr) 3,600 (s/hr) * 929 (cm^2/ft^2) * (2.205 lb/1000 g)

= 4,224 lb/yr {2.11 tpy}

Section VI. Results

A. Potential styrene emissions are summarized in Table VI-1.

Table VI-1. Future Potential Styrene Emissions from Resin Storage and Mixing Tanks

	Future Potential	
	(lb/yr)	(tpy)
Storage Tank No. 1	39.2	0.020
Storage Tank No. 2	39.2	0.020
All Mixing Tanks	4,224	2.11
Total	4,303	2.15

Section VII. References

A. Lewis, Richard J. Hawleys Condensed Chemical Dictionary. Van Nostrand Reinhold Company. 1993.

B. TANKS v4.0 User's Guide, U.S. Environmental Protection Agency.

C. AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary and Area Sources, U.S. Environmental Protection Agency, Research Triangle Park, N.C., Fifth Edition, October 1995, Sections 7.0 and 7.1.

D. Green, D and Perry, R. Perry's Chemical Engineers' Handbook. Sixth Edition. McGraw-Hill, Inc. 1984. p. 3-285.

E. Greenkorn, R.A. and Kessler, D.P. Transfer Operations. McGraw Hill, Inc. 1979. pp. 452-455.

Attachment 1

D 9049 D

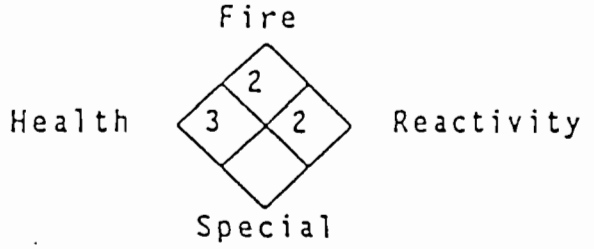
W I T C O M A T E R I A L S A F E T Y D A T A S H E E T

INT(R) PD-1 RED

Product Code: 260 0156

CAS NO:1338-23-4

NFPA HAZARD RATING
4 - Extreme
3 - High
2 - Moderate
1 - Slight
0 - Insignificant



DIVISION AND LOCATION---SECTION I

Division: POLYMER ADDITIVES GROUP
Location: MARSHALL, TEXAS
P.O. BOX 1439, HWY 59 & BUSSEY RD, MARSHALL,TX, 75671
Emergency Telephone Number: (903) 938-5141 or Chemtrec (800) 424-9300
Transportation Emergency: CHEMTREC 1-(800) 424-9300 (U.S. and Canada)

CHEMICAL AND PHYSICAL PROPERTIES---SECTION II

Chemical Name:
methyl ethyl ketone peroxide
Formula: not applicable
Hazardous Decomposition Products:
carbon monoxide and carbon dioxide from burning.
Incompatibility (Keep away from):
strong acids, bases, promoters, accelerators, readily oxidizables, and metal salts.

Toxic and Hazardous Ingredients:	%	CAS #
methyl ethyl ketone peroxide (5.4% active oxygen max.)	22 +/-2	1338-23-4
dimethylphthalate	67 +/-2	131-11-3

Form: liquid Odor: slightly pungent
Appearance: clear Color: red
Specific Gravity (water=1): 1.133
Boiling Point: no data available, decomposes over 68°C (155°F)
Melting Point: not applicable
Solubility in Water (by weight %): less than 1 at 25°C
Volatile (by weight %): less than 3
Evaporation Rate: not applicable
Vapor Pressure (mm Hg at 20°C): not applicable
Vapor Density (air=1): not applicable
pH (as is): no data available
Stability: Product is stable when stored at recommended temperatures
Viscosity SUS at 100°F: 15 centistokes at 25°C (77°F)
Other physical properties:
self accelerating decomposition temperature (SADT): 4 gal: 76°C (169°F)
1 gal: 79°C (175°F)

(Continued on next page)

FIRE AND EXPLOSION DATA---SECTION III

Special Fire Fighting Procedures:

Fight fire with large amounts of water from a safe distance. Keep containers cool with water spray. After a fire, wait until material has cooled to room temperature before starting clean-up. Wear protective equipment to prevent smoke inhalation.

Unusual Fire and Explosion Hazards:

Potential explosion hazards. Once ignited, product will burn vigorously.

Flashpoint: (Method Used) Setaflash closed tester 85°C (185°F)

Flammable limits %: not applicable

Extinguishing agents:

Drychemical or Waterspray or Waterfog or CO_2 or Foam

Closed containers exposed to fire may be cooled with water.

HEALTH HAZARD DATA---SECTION IV

Permissible concentrations (air):

methyl ethyl ketone peroxide: 0.7 ppm, 5 mg/m^3 ceiling (OSHA); 0.2 ppm, 1.5 mg/m^3 ceiling (ACGIH)

dimethylphthalate: 5 mg/m^3 (OSHA/ACGIH)

Chronic effects of overexposure:

Specific symptoms and effects of over exposure not known, but will cause severe eye irritation; may cause blindness. Harmful if inhaled. Harmful or fatal if swallowed. Moderate skin irritant.

Acute toxicological properties:

for methyl ethyl ketone peroxide: acute oral LD_{50} = 1000-5000 mg/kg (rat); eye (rabbit) severe irritant/corrosive

Emergency First Aid Procedures:

Eyes: Immediately flush with large quantities of water on site for 20 to 30 minutes. Hold eyes open while flushing. Call a physician. Continue water flush up to one hour during transport to a medical facility.

Skin Contact: Wash with soap and water. If irritation occurs, see a physician.

Inhalation: Remove to fresh air. Consult a physician if discomfort persists.

If Swallowed: Administer large quantities of water if person is conscious. Never give anything by mouth to an unconscious person. Immediately contact a physician.

ROUTES OF ENTRY:

Inhalation, skin/eye contact, ingestion

SPECIAL PROTECTION INFORMATION---SECTION V

Ventilation Type Required (Local,mechanical,special):

Local if necessary to maintain allowable PEL(permissible exposure limit) or TLV(threshhold limit value)

Respiratory Protection (Specify type):

Use NIOSH/MSHA certified respirator with organic vapor cartridge if vapor

(Continued on next page)

(Section V continued)

concentration exceeds permissible exposure limit

Protective Gloves:
neoprene type

Eye Protection:
chemical safety goggles

Other Protective Equipment:
as required to protect against skin contact

HANDLING OF SPILLS OR LEAKS---SECTION VI

Procedures for Clean-Up:
Use appropriate protective clothing during clean-up.
Absorb spills with inert material such as perlite, vermiculite, or sand and then wet with water. Sweep up using non-sparking equipment and place in double polyethylene bags. Isolate leakers and contaminated containers to a safe place for disposal.

Waste Disposal:
Dispose of in accordance with all applicable federal, state and local regulations.
Dispose of waste at EPA-approved hazardous waste disposal facilities.

SPECIAL PRECAUTIONS---SECTION VII

Precautions to be taken in handling and storage:
Store in original containers away from promoters and combustible material. Keep away from acids, heat, sparks, flames and direct sunlight. Keep closed to avoid contamination. Isolated storage is desirable.

Maximum Storage Temperature: 38°C (100°F)

TRANSPORTATION DATA---SECTION VIII

D.O.T.: Regulated

U.S. D.O.T. Proper Shipping Name: Organic peroxide Type E, liquid (methyl ethyl ketone peroxides, =<40%), 5.2, UN 3107, PG II,
ERG 48, Hi-Point PD-1 Red

U.S. D.O.T. Hazard Class: Organic Peroxide

I.D. Number: UN 3107

Label(s) Required: Organic Peroxide

Reportable Quantity: not applicable

Freight Classification: Chemicals, NOI, N.F.M.C. Item 43940 Sub 2

Special Transportation Notes:
none

(Continued on next page)

ENVIRONMENTAL/SAFETY REGULATIONS---SECTION IX

Section 313 (Title III Superfund Amendment and Reauthorization Act):

This product contains the following chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (the corresponding CAS number and percent by weight are also provided):
dimethyl phthalate CAS# 131-11-3 67%

COMMENTS

Never mix any promoter or accelerator with product as very rapid or explosive decomposition could occur. Do not store with food or drink.

*** STATE RIGHT-TO-KNOW SUBSTANCES ***

CAS NUMBER	CHEMICAL NAME
131-11-3	Dimethyl phthalate
7722-84-1	Hydrogen peroxide
78-93-3	Methyl ethyl ketone
1338-23-4	Methyl ethyl ketone peroxide

Trade Secret Registry Numbers: NJ 136411-5146P PA RTK Withheld

Prepared by: Roger N. Lewis

Title: R & D Director/Organic Peroxides

Original Date: Sent to: _____

Revision Date: 04/25/94 _____

Supersedes : 09/30/93 _____

Date Sent : _____

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, express or implied, and we assume no responsibility for any loss, damage, or expense, direct or consequential, arising out of their use.

Attachment 2

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Resin Tank Nos. 1 and 2
City:	Tampa
State:	Florida
Company:	New Gatsby Spas, Inc
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	10.00
Liquid Height (ft):	13.62
Avg. Liquid Height (ft):	13.62
Volume (gallons):	8,002.03
Turnovers:	14.72
Net Throughput (gal/yr):	117,789.88
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Tampa, Florida (Avg Atmospheric Pressure = 14.76 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Styrene	Jan	68.24	63.46	73.03	72.33	0.0954	0.0810	0.1119	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Feb	69.27	64.20	74.35	72.33	0.0987	0.0831	0.1169	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Mar	71.95	66.42	77.48	72.33	0.1080	0.0896	0.1294	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Apr	74.49	68.39	80.59	72.33	0.1174	0.0959	0.1431	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	May	77.27	71.31	83.24	72.33	0.1286	0.1057	0.1556	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Jun	78.83	73.54	84.11	72.33	0.1352	0.1138	0.1600	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Jul	79.22	74.20	84.23	72.33	0.1369	0.1163	0.1606	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Aug	79.07	74.18	83.96	72.33	0.1363	0.1162	0.1592	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Sep	78.18	73.42	82.94	72.33	0.1324	0.1134	0.1542	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Oct	75.29	70.17	80.40	72.33	0.1205	0.1018	0.1422	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Nov	71.70	66.67	76.74	72.33	0.1071	0.0904	0.1264	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09
Styrene	Dec	69.18	64.46	73.90	72.33	0.0984	0.0838	0.1152	104.1500			104.15	Option 2: A=7.14, B=1574.51, C=224.09

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.2993	0.2982	0.3943	0.4591	0.5045	0.4479	0.4421	0.4274	0.3908	0.4006	0.3413	0.3032
Vapor Space Volume (cu ft):	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558
Vapor Density (lb/cu ft):	0.0018	0.0018	0.0020	0.0021	0.0023	0.0024	0.0025	0.0025	0.0024	0.0022	0.0020	0.0018
Vapor Space Expansion Factor:	0.0343	0.0366	0.0402	0.0448	0.0438	0.0383	0.0362	0.0351	0.0341	0.0369	0.0363	0.0337
Vented Vapor Saturation Factor:	0.9897	0.9893	0.9883	0.9873	0.9861	0.9854	0.9852	0.9853	0.9857	0.9870	0.9884	0.9893
Tank Vapor Space Volume												
Vapor Space Volume (cu ft):	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558	162.2558
Tank Diameter (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Vapor Space Outage (ft):	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659
Tank Shell Height (ft):	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000
Average Liquid Height (ft):	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200
Roof Outage (ft):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Roof Outage (Dome Roof)												
Roof Outage (ft):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Dome Radius (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Shell Radius (ft):	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
Vapor Density												
Vapor Density (lb/cu ft):	0.0018	0.0018	0.0020	0.0021	0.0023	0.0024	0.0025	0.0025	0.0024	0.0022	0.0020	0.0018
Vapor Molecular Weight (lb/lb-mole):	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0954	0.0987	0.1080	0.1174	0.1286	0.1352	0.1369	0.1363	0.1324	0.1205	0.1071	0.0984
Daily Avg. Liquid Surface Temp. (deg. R):	527.9123	528.9448	531.6176	534.1607	536.9427	538.4978	538.8854	538.7379	537.8524	534.9576	531.3724	528.8476
Daily Average Ambient Temp. (deg. F):	59.9000	61.5000	66.5500	71.2500	77.3500	81.2000	82.3500	82.3500	80.9000	74.7500	67.4500	62.2000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025	532.0025
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,027.6375	1,272.2527	1,607.9244	1,961.6804	2,034.6525	1,931.2225	1,843.0214	1,733.2460	1,548.9121	1,408.3615	1,130.4330	970.5289
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0343	0.0366	0.0402	0.0448	0.0438	0.0383	0.0362	0.0351	0.0341	0.0369	0.0363	0.0337
Daily Vapor Temperature Range (deg. R):	19.1476	20.3119	22.1257	24.3856	23.8689	21.1446	20.0768	19.5543	19.0368	20.4558	20.1409	18.8757
Daily Vapor Pressure Range (psia):	0.0309	0.0338	0.0398	0.0472	0.0499	0.0462	0.0443	0.0430	0.0408	0.0404	0.0360	0.0313
Breather Vent Press. Setting Range(psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0954	0.0987	0.1080	0.1174	0.1286	0.1352	0.1369	0.1363	0.1324	0.1205	0.1071	0.0984
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0810	0.0831	0.0896	0.0959	0.1057	0.1138	0.1163	0.1162	0.1134	0.1018	0.0904	0.0838
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.1119	0.1169	0.1294	0.1431	0.1556	0.1600	0.1606	0.1592	0.1542	0.1422	0.1264	0.1152
Daily Avg. Liquid Surface Temp. (deg R):	527.9123	528.9448	531.6176	534.1607	536.9427	538.4978	538.8854	538.7379	537.8524	534.9576	531.3724	528.8476
Daily Min. Liquid Surface Temp. (deg R):	523.1254	523.8669	526.0862	528.0643	530.9755	533.2117	533.8662	533.8494	533.0932	529.8437	526.3372	524.1287
Daily Max. Liquid Surface Temp. (deg R):	532.6992	534.0228	537.1491	540.2571	542.9100	543.7840	543.9046	543.6265	542.6116	540.0716	536.4076	533.5665
Daily Ambient Temp. Range (deg. R):	19.8000	19.8000	20.1000	20.9000	19.7000	16.6000	15.7000	15.7000	16.2000	19.1000	20.5000	19.8000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9897	0.9893	0.9883	0.9873	0.9861	0.9854	0.9852	0.9853	0.9857	0.9870	0.9884	0.9893
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0954	0.0987	0.1080	0.1174	0.1286	0.1352	0.1369	0.1363	0.1324	0.1205	0.1071	0.0984
Vapor Space Outage (ft):	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659	2.0659

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Losses (lb):	2.3214	2.4036	2.6280	2.8582	3.1298	3.2911	3.3324	3.3166	3.2233	2.9339	2.6067	2.3957
Vapor Molecular Weight (lb/lb-mole):	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500	104.1500
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0954	0.0987	0.1080	0.1174	0.1286	0.1352	0.1369	0.1363	0.1324	0.1205	0.1071	0.0984
Net Throughput (gal/mo.):	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237	9,815.8237
Number of Turnovers:	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200	14.7200
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302	8,002.0302
Maximum Liquid Height (ft):	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200	13.6200
Tank Diameter (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	2.6206	2.7017	3.0224	3.3174	3.6343	3.7390	3.7745	3.7440	3.6140	3.3345	2.9480	2.6990

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January , February , March , April , May , June , July , August , September , October , November , December

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Styrene	34.44	4.71	39.15

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By Tommy Sweat Date: 2/4/2000

Section I. General Information

Project: New Gatsby Spas, Inc. Air Pollutant Emissions Inventory Project No.: 803815.01

Subject: Air Pollutant Emissions from a Natural Gas Fired Oven

Section II. Source Description

A. At Gatsby, an acrylic sheet is clamped onto a spa mold, heated by a catalytic natural gas oven (0.6 MMBtu/hr heat input), and vacuum formed to make the spa shell. This calculation will estimate criteria pollutant emissions from operation of the oven.

Section III. Data

A. The emission rates for criteria pollutants from the ovne have been estimated using emission factors presented in the U.S. Environmental Protection Agency's AP-42 [Ref. A]. These emission factors for criteria pollutants are presented in Table III-1.

Table III-1. Criteria Pollutant Emission Factors

Classification	Fuel Type	Emission Factor (lb/10^6 scf - Natural Gas)				
		PM_{10} [a]	SO_2 [b]	NO_x	CO	VOC
Commercial (0.3 - 100 10^6 Btu/hr)	Natural Gas	7.6	0.6	100	84	5.5

a PM_{10} emisson factor is the summation of filterable and condensible PM emission factors for natural gas combustion, per AP-42 guidance [Ref. A].

b Based on average sulfur content of natural gas, 2000 gr/10^6 scf, per AP-42 guidance [Ref. A].

B. The heating value of natural gas: 1,050 Btu/scf [Ref. B].

C. Actual operating hours: 3,000 hr/yr
Potential operating hours: 8,760 hr/yr

Section IV. Approach

A. Emissions from the oven are estimated based on the oven's maximum heat input capacity, the heating value of natural gas, and the operating hours of the oven. An example calculation of potential PM emissions from the oven is shown below:

Potential Annual PM Emissions = Maximum Heat Capacity (MMBtu/hr) * (10^6 Btu/MMBtu) / Heating Value (Btu/scf) * Emissions Factor (lb/10^6 scf) * 8760 (hr/yr)

= 0.6 (MMBtu/hr) * (10^6 Btu/MMBtu) / 1,050 (Btu/scf) * 7.6 (lb/10^6 scf) * 8,760 (hr/yr)

= 38.0 lb PM/yr {0.004 tpy}

Section V. Results

Potential Hourly PM Emissions = Potential Annual PM Emission (lb/yr) / Potential Operating Hours (hr/yr)

= 38.0 (lb/yr) / 8,760 (hr/yr)

= 0.004 lb PM/hr

A. Summarized below in Table V-1 are actual and potential criteria pollutant emissions from operation of the natural gas fired oven.

Table V-1. Criteria Pollutant Emissions from Operation of the Natural Gas Fired Oven

	Actual Emissions[a]			Future Potential Emissions[a]		
Pollutant	(lb/hr)	(lb/yr)	(tpy)	(lb/hr)	(lb/yr)	(tpy)
PM_{10}	0.004	13.0	0.007	0.004	38.0	0.019
SO_2	N/A	1.03	0.0005	N/A	3.00	0.002
NO_x	N/A	171	0.086	N/A	501	0.250
CO	N/A	144	0.072	N/A	420	0.210
VOC	N/A	9.4	0.005	N/A	27.5	0.014

a The facility has permitted PM emission limits of 5.0 lb PM/hr and 15.0 lb PM/yr from all sources (Permit No. 0570468-005-AV). See Calculation Woodshop for PM emissions from the wood working operations.
N/A = Not Applicable.

Section VI. References

A. Supplement D, March, 1998. Revision to Section 1.4, AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary, Point, and Area Sources. U.S. Environmental Protection Agency, Research Triangle Park, N.C.

B. AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary, Point, and Area Sources. U.S. Environmental Protection Agency, Research Triangle Park, N.C. Fifth Edition, October, 1992, Appendix A.

RADIAN INTERNATIONAL
A DAMES & MOORE GROUP COMPANY

CALCULATION SHEET

Calc. No.
Woodshop

Prepared By: Jeremy Sagen Date: 2/4/2000 Reviewed By Tommy Sweat Date: 2/4/2000

Section I. General Information

Project: New Gatsby Spas, Inc. Air Pollutant Emissions Inventory Project No.: 803815.01

Subject: PM Emissions From the Wood Shop

Section II. Source Description

A. The spa manufacturing operation includes woodworking to make the frame of the outer shell of the spa. Particulate matter (PM) emissions generated from the woodworking operations are controlled by a baghouse filtration unit that vents inside the building.

Section III. Data

A. Operational data for the Wood Shop is summarized below in Table III-1. Gatsby Spa performs in-sourcing woodworking operations for other spa manufacturing facilities as well as its own in-house woodworking operations.

Table III-1. Wood Shop Operation Parameters[a]

Variable	Value	
Actual Hours of Operation	3,000	(hr/yr)
Potential Hours of Operation	8,760	(hr/yr)
Exhaust Flow into Baghouse	9,000	(acfm)
Exit Grain Loading from Baghouse	0.00087	(gr/dscf)
Exhaust Tempature	72.3	°F

a Data from Gatsby Spa Inc. personnel.

Section IV. Assumptions

A. The flow into the baghouse is assumed to be 2% water by weight.

Section V. Results

A. Actual controlled PM emissions are calculated using the the exit grain loading factor, the hours of operation, and the flow rate into the baghouse.

Actual Controlled
PM Emissions = Exit Grain Loading Factor (gr/dscf) * Flow Rate (acfm) / (1 - 0.02 wt.% water) * (25 °C / 22.4 °C) Actual Operating Hours (hr/yr) * 60 (min/hr) / 7,000 (gr/lb)

= 0.00087 (gr/dscf) * 9,000 (acfm) / 0.98 * (25oC / 22.4oC) * 3,000 (hr/yr) * 60 (min/hr) / 7,000 (gr/lb)

= 229 lb PM/yr {0.114 tpy}

Section V. Results (continued)

Hourly Actual
PM Emissions = Actual Annual Controlled PM Emissions (lb/yr) / Actual Hours of Operation (hr/yr)

= 229 (lb/yr) / 3,000 (hr/yr)

= 0.076 lb PM/hr

B. Current potential controlled PM emissions are limited by the facility's permit (No. 05700468-005-AV) to 5.0 lb/hr and 15.0 tpy. This includes PM emissions from the natural gas-fired oven (see Calculation Oven).

C. Future potential controlled PM emissions from the baghouse filtration unit are calculated using the potential hours of operation rather than the current hours of operation.

Potential Controlled
PM Emissions = Actual Controlled PM Emissions (lb/yr) * Potential Operating Hours (hr/yr) / Actual Operating Hours (lb/yr)

= 229 (lb/yr) * 8,760 (hr/yr) / 3,000 (hr/yr)

= 670 lb PM/yr {0.335 tpy}

Hourly Potential
PM Emissions = Potential Annual Controlled PM Emissions (lb/yr) / Potential Hours of Operation (hr/yr)

= 670 (lb/yr) / 8,760 (hr/yr)

= 0.076 lb PM/hr

Section VI. References

A. Alley, F.C. and Cooper, C. David. Air Pollution Control. A Design Approach. Waveland Press, Inc. 1990. Figure 3.1, page 83.

B. AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary, Point, and Area Sources. U.S. Environmental Protection Agency, Research Triangle Park, N.C. Supplement A, September, 1996, Appendix B2.

Appendix C

Dispersion Modeling Report

Air Dispersion Modeling for Gatsby Spas Inc., Plant City, FL

An air dispersion modeling analysis was conducted to assess the possible impacts of Styrene associated with operations at the Gatsby Spas facility in Plant City, FL. The following sections describe the model input, methodology, and results of the analysis conducted to determine compliance with the Florida Reference Air Concentrations (FRACs) and OSHA Permissible Exposure Limits (PELs) for Styrene. The modeling was conducted in accordance with applicable EPA and Florida modeling guidelines. This modeling found that ground-level facility wide maximum concentrations of Styrene are less than the FRACs and PELs for all averaging periods and emission scenarios modeled.

Modeling Input & Methodology

To characterize ambient air quality concentrations resulting from air emissions associated with the facility, the U.S. EPA-approved Industrial Source Complex Short-Term Model (ISCST3 version 99155) was used to calculate ground-level concentrations at all receptors. The recommended regulatory default options listed in the *EPA Guideline on Air Quality Models* were used. The model option to invoke rural dispersion coefficients was also used.

Meteorological data used in the analysis included one year (1991) of data collected at the National Weather Service station located in Tampa, FL (surface and upper air data). These data were the closest/most readily available to the site, and can be considered representative of conditions at the site.

The emission sources of concern in this analysis, including the stack parameters input to the model, are shown in Table 1. As described in the table, two emission scenarios were modeled: atomized spray application and flow coater application. The results of both are presented below.

A Good Engineering Practice (GEP) stack height/building wake effects analysis was conducted for the facility. The latest version of EPA's Building Profile Input Program (BPIP, version 95086) was used to conduct the GEP stack height analysis and the building wake effect parameters calculated by BPIP were input to the ISCST3 model.

The receptors used in this analysis were the nearby residences and neighborhoods surrounding the facility, shown in Figure 1. These locations were determined by on-site Gatsby personnel.

Table 1
Modeled Stack Parameters

Source Description	Source ID	Source Type	Stack Height[a] (m)	Exit Temperature[b] (K)	Exit Velocity[c] (m/s)	Stack Diameter (m)	Scenario 1 Styrene Emission[d] Rate (g/s)	Scenario 2 Styrene Emission[d] Rate (g/s)
Stage I Sprayup Booth	B1	Point	19.7	295.5	4.04	1.21	3.90	1.24
Stage II Sprayup Booth	B2	Point	19.7	295.5	4.04	1.21	5.34	1.46
Tooling Booth	BT	Point	11.8	295.5	10.3	0.762	0.040	0.042
Main Manufacturing Building - fugitive	MBLDG	Volume	4.37	14.3	4.07	--	0.480	0.407
Storage Tank No. 1	ST1	Volume	2.3	0.71	2.1	--	0.00050	0.00050
Storage Tank No. 2	ST2	Volume	2.3	0.71	2.1	--	0.00050	0.00050

[a] For volume sources, this is the release height.

[b] For volume sources, this is the sigma y parameter (source width/4.3).

[c] For volume sources, this is the sigma z parameter (source height/2.15).

[d] Scenario 1: Atomized Spray Application with 45% Styrene Content Resin and Limited Potential Usage (potential emissions).
Scenario 2: Flow Coater Application with 45% Styrene Content Resin Used (potential emissions).

Results

The results of the analysis are provided in Table 2. Maximum Styrene concentrations at the receptors were calculated to be less than the FRACs and PELs. Model input and output files are included on the attached diskette.

Table 2
Results of ISCST3 Modeling[a]

Scenario[b]	Averaging Period	Maximum Styrene Concentration ($\mu g/m^3$)	Percent of FRACs	Percent of PELs
Scenario 1	1 hour	1422	--	0.2
	8 hour	509	24	0.1
	24 hour	397	78	--
	Annual	53	53	--
Scenario 2	1 hour	530	--	0.1
	8 hour	213	10	0.0
	24 hour	148	29	--
	Annual	25	25	--

[a] Impacts are compared to the following threshold values:
FRACs = 2130 $\mu g/m^3$ (8-hr); 507 $\mu g/m^3$ (24-hr); 100 $\mu g/m^3$ (annual)
PELs: TWA = 100 ppm (433230 $\mu g/m^3$); Ceiling = 200 ppm (866470 $\mu g/m^3$)

[b] Scenario 1: Atomized Spray Application with 45% Styrene Content Resin and Limited Potential Usage.
Scenario 2: Flow Coater Application with 45% Styrene Content Resin Used.

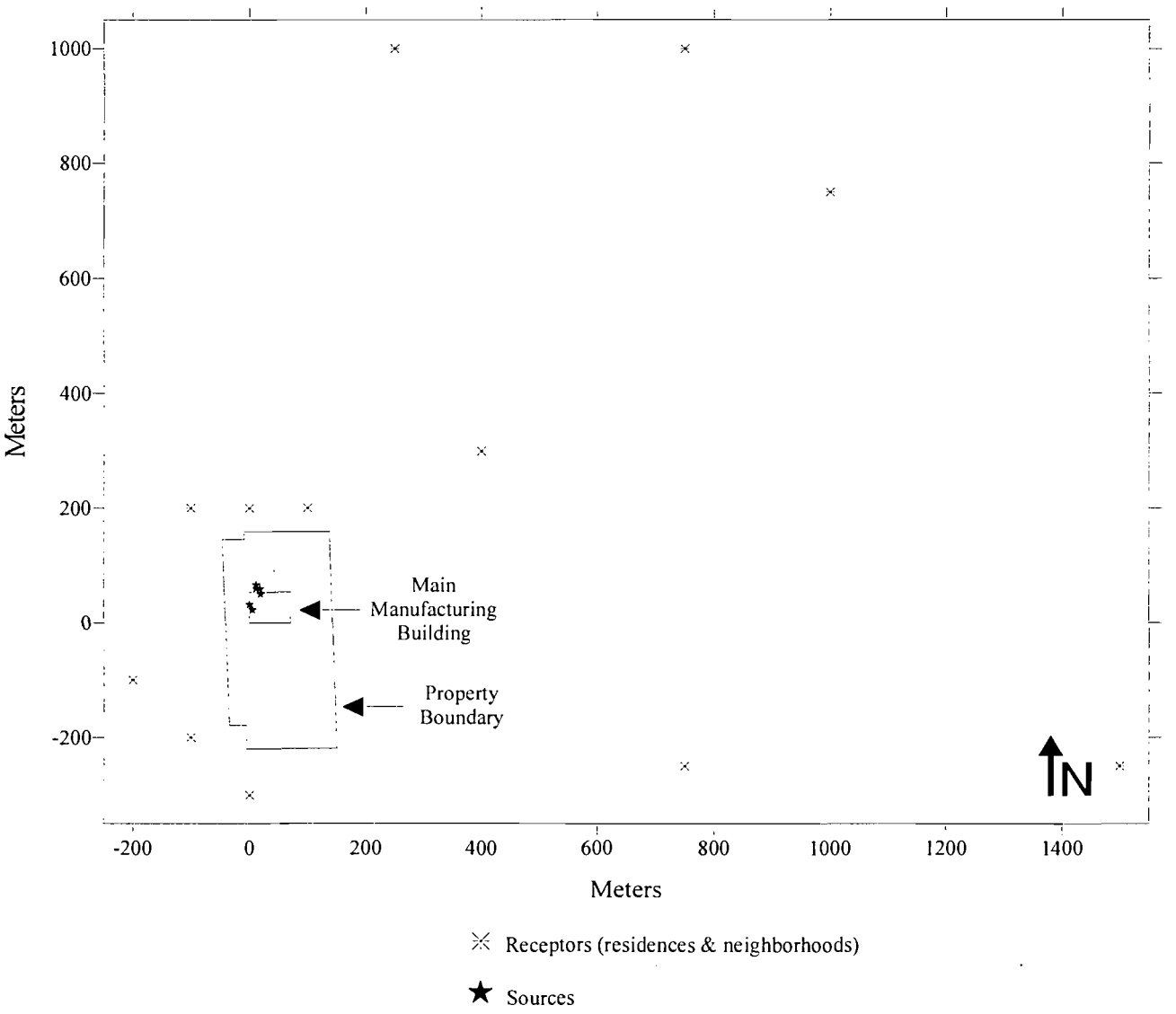


Figure 1. Modeled Receptor Grid and Source Locations

FRP MODEL / PROCESS = Resin sprayup

Neat resin styrene content (% W/W)	=	45;	mod. factor = 1.378
Styrene suppressant?	=	0;	mod. factor = 1.000
Distance from spray gun to mold (in.)	=	0;	mod. factor = 0.692
Dry material off mold / material sprayed (%)	=	5;	mod. factor = 0.972
Thickness (mils)	=	93.75;	mod. factor = 0.953
"Cup" gel time (min)	=	12;	mod. factor = 0.994
Application rate (lb/min)	=	9.3;	mod. factor = 1.000
Air temperature (°F)	=	72.3;	mod. factor = 0.970
Air velocity over mold (ft/min)	=	142.9;	mod. factor = 1.017

==========
Baseline emission (% AS) = 18.9
Calculated emission (% AS) = 16.4
Overall modification factor = 0.87
==========

2/25/2000 5:28:00 PM

FRP MODEL / PROCESS = Flow coater

Neat resin styrene content (% W/W)	= 45;	mod. factor = 1.140
Styrene suppressant?	= 32;	mod. factor = 1.000
Distance from spray gun to mold (in.)	= 15;	mod. factor = 1.000
Dry material off mold / material sprayed (%)	= N/A;	
Thickness (mils)	= 218.75;	mod. factor = 0.500
"Cup" gel time (min)	= 12;	mod. factor = 0.958
Application rate (lb/min)	= N/A;	
Air temperature (°F)	= 72.3;	mod. factor = 0.970
Air velocity over mold (ft/min)	= 142.9;	mod. factor = 1.017

==========

Baseline emission (% AS) = 11.3

Calculated emission (% AS) = 6.1

Overall modification factor = 0.54

==========

2/25/2000 5:30:05 PM

FRP MODEL / PROCESS = Flow coater

Neat resin styrene content (% W/W)	= 45;	mod. factor = 1.140
Styrene suppressant?	= 32;	mod. factor = 1.000
Distance from spray gun to mold (in.)	= 15;	mod. factor = 1.000
Dry material off mold / material sprayed (%)	= N/A;	
Thickness (mils)	= 93.75;	mod. factor = 0.786
"Cup" gel time (min)	= 12;	mod. factor = 0.958
Application rate (lb/min)	= N/A;	
Air temperature (°F)	= 72.3;	mod. factor = 0.970
Air velocity over mold (ft/min)	= 142.9;	mod. factor = 1.017

==========

Baseline emission (% AS) = 11.3
Calculated emission (% AS) = 9.6
Overall modification factor = 0.85

==========

2/25/2000 5:31:04 PM

40 CFR 63

§ 63.41 Definitions.

Construct a major source means:

(1) To fabricate, erect, or install at any greenfield site a stationary source or group of stationary sources which is located within a contiguous area and under common control and which emits or has the potential to emit 10 tons per year of any HAP's or 25 tons per year of any combination of HAP, or

(2) To fabricate, erect, or install at any developed site a new process or production unit which in and of itself emits or has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, unless the process or production unit satisfies criteria in paragraphs (2) (i) through (vi) of this definition.

(i) All HAP emitted by the process or production unit that would otherwise be controlled under the requirements of this subpart will be controlled by emission control equipment which was previously installed at the same site as the process or production unit;

(ii) (A) The permitting authority has determined within a period of 5 years prior to the fabrication, erection, or installation of the process or production unit that the existing emission control equipment represented best available control technology (BACT), lowest achievable emission rate (LAER) under 40 CFR part 51 or 52, toxics - best available control technology (T–BACT), or MACT based on State air toxic rules for the category of pollutants which includes those HAPs to be emitted by the process or production unit; or

(B) The permitting authority determines that the control of HAP emissions provided by the existing equipment will be equivalent to that level of control currently achieved by other well-controlled similar sources (i.e., equivalent to the level of control that would be provided by a current BACT, LAER, T–BACT, or State air toxic rule MACT determination);

(iii) The permitting authority determines that the percent control efficiency for emissions of HAP from all sources to be controlled by the existing control equipment will be equivalent to the percent control efficiency provided by the control equipment prior to the inclusion of the new process or production unit;

(iv) The permitting authority has provided notice and an opportunity for public comment concerning its determination that criteria in paragraphs (2)(i), (2)(ii), and (2)(iii) of this definition apply and concerning the continued adequacy of any prior LAER, BATC, T–BACT, or State air toxic rule MACT determination;

(v) If any commenter has asserted that a prior LAER, BACT, T–BACT, or State air toxic rule MACT determination is no longer adequate, the permitting authority has determined that the level of control required by that prior determination remains adequate; and

(vi) Any emission limitations, work practice requirements, or other terms and conditions upon which the above determinations by the permitting authority are applicable requirements under section 504(a) and either have been incorporated into any existing title V permit for the affected facility or will be incorporated into such permit upon issuance.

Control technology means measures, processes, methods, systems, or techniques to limit the emission of hazardous air pollutants through process changes, substitution of materials or other modifications;

(1) Reduce the quantity of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications;

(2) Enclose systems or processes to eliminate emissions;

(3) Collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point;

(4) Are design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in 42 U.S.C. 7412(h); or

(5) Are a combination of paragraphs (1) through (4) of this definition.

Process or production unit means any collection of structures and/or equipment, that processes assembles, applies, or otherwise uses material inputs to produce or store an intermediate or final product. A single facility may contain more than one process or production unit.

Reconstruct a major source means the replacement of components at an existing process or production unit that in and of itself emits or has that potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, whenever:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable process or production unit; and

(2) It is technically and economically feasible for the reconstructed major source to meet the applicable maximum achievable control technology emission limitation for new sources established under this subpart.