December 7, 2006

Becky Southard
Air Permits Division
Texas Commission on Environmental Quality

Delivered Electronically: RSouthar@tceq.state.tx.us

Dear Ms. Southard:

Thank you for agreeing to meet with representatives of the composites industry at your office in Austin on December 12 to discuss the September 2006 TCEQ Proposed Air Quality Standard Permit for Thermoset Resin Facilities.

The American Composites Manufacturers Association is the national trade group for the composites industry. Our members include small and medium-sized companies that use combinations of thermoset plastic resin, glass fiber and other materials to make underground gasoline storage tanks and pollution control equipment, wind turbine blades, modular tub/shower units and bathroom vanities, ballistic panels and armor for military vehicles, fiberglass boats, automotive, truck and motorhome components, window lineal and ladder rail, bridge decks and concrete reinforcing bars, playground equipment, components for commercial and military aircraft, signs and building fascia, and thousands of other composites products, as well as the suppliers of raw material to this industry.

The more than 150 composites manufacturing companies in Texas directly employ over 7,500 workers and have combined annual sales revenue of more than $950 million.

Our industry's operations are regulated under provisions of TAC Chapter 116 Permits for New Construction or Modification, and Chapter 106 Permits by Rule found at §106.392. Composite facilities that are major sources of HAP are also required to comply with the U.S. EPA NESHAP (MACT standards) found at 40 CFR 63 Subpart VVVV (boat building) and Subpart WWWW (general composites).

We have a number of concerns and questions regarding the proposed Standard Permit, but I will start with what we believe is the most serious issue.

1. The emission limits are infeasibly low.

Tables 1 and 2 of the proposed Standard Permit list maximum hourly styrene and methyl methacrylate emission rates for composites manufacturing operations. These emission rates vary by stack height, building peak height, and exhaust flow rate. Even at the highest exhaust flow rate and tallest stack height (neither condition we believe is widely achievable in practice), the maximum styrene emission rates are too low to allow economically viable operations at most composites manufacturing facilities.

In an attachment to this letter,[1] we provide descriptions of two typical composites plants. The smaller of the two plants would have an annual styrene emission rate of 25 tpy and a maximum styrene emission rate of 50 pounds per hour, while the medium sized example plant would have an annual styrene emission rate of 80 tpy and a maximum emission rate of 80 pounds per hour for two workshifts per day. Neither plant could even come close to meeting the emission limits listed in the proposed Standard Permit.

Further, most composites manufacturing operations cannot afford add-on control to meet the proposed emission limits. When it promulgated the composites manufacturing NESHAP, EPA carefully evaluated the feasibility and affordability of add-on control for the composites industry. EPA determined that, with the exception of larger companies making small parts at new plants with emissions of 100 tons per year or more, add-on control was not cost effective.[2] There have been no significant changes in the available control technologies, and increases in the cost of electricity and natural gas fuel since EPA's analysis have made add-on control even more costly.

It is our understanding that TCEQ's position is, essentially, "comply with the proposed emission limits or install add-control." Few if any of the existing composites manufacturing plants in Texas could survive under such a policy. And for the majority of likely new and modified plants, such a policy would be an outright construction ban.

We further understand that the styrene emission limits in the proposed Standard Permit were designed by TCEQ to prevent any possibility of nuisance odor. These limits were determined from an ISCST3 air dispersion model performed by TCEQ. We reviewed this model and discovered that TCEQ used a target for maximum styrene exposure of 70 $\mu g/m^3$ instead of the current TCEQ styrene ESL[3] of 110 $\mu g/m^3$. Also, TCEQ used meteorological data for only one location in Texas, and generally used worst-case assumptions throughout the modeling.

As shown in the attachment, SCREEN3 modeling of worst-case styrene emissions from typical small and medium sized plants cannot meet the current styrene ESL of 110 $\mu g/m^3$. The proposed styrene limits in the Standard Permit are even more impossible to meet.

We believe that the present odor-based ESL policy approach is already overly restrictive, and the proposed Standard Permit would be even less feasible for most of the composites industry in Texas. These very low limits would largely prevent the composites industry from making products and offering employment in Texas.

Nuisance odor is a local phenomenon caused by local circumstances. What is acceptable in a rural setting or in an industrial park may not be acceptable in an urban location or next to a sensitive receptor such as a school or restaurant. We suggest that Texas, like most states, should continue to require site-specific modeling and land-use studies to predict nuisance odor, and that the odor situation at each plant site should be considered on a case-by-case basis.

In the meantime, TCEQ should provide a reasonable alternative for existing, modified, and new composites manufacturing sources that does not require compliance with infeasible emission

[1] Engineering Environmental Consulting Services, "Infeasibility of the 110 $\mu g/m^3$ Styrene Odor ESL for Typical Composites Facilities," November 24, 2006.

[2] EPA's MACT analysis for composites can be found at www.epa.gov/ttn/atw/rpc/rpcpg.html.

[3] TCEQ recently requested information to be used in revising the styrene ESL, and we expect to provide comments regarding the feasibility of the current odor-based ESL and suggesting an alternative level that would be both feasible for our industry and protective of public health.

limits or installation of cost-ineffective add-on control. The EPA NESHAP reflect a careful analysis of the maximum achievable control, and we suggest that TCEQ should rely on these standards in setting requirements for our industry.

2. Other concerns with the proposed standard permit.

2.1. Use of control equipment.

Section (1)(B) of the proposed Standard Permit prohibits the use of control equipment to meet the emission limits. In the small number of cases where add-on control may be cost effective, we do not understand why such control could not be used to satisfy the proposed emission limits.

2.2. Permit options.

We are not sure how to interpret Section (1)(C). We suggest that TCEQ allow sources to apply for a Standard Permit, a Permit by Rule, or a New Source permit, as appropriate. If it is TCEQ's intent to allow sources to chose the type of permit, then this should be made clear in Section (1)(C). However, if TCEQ intends to restrict the type of permit available to sources, then this should be made clear, and industry should be allowed to provide comment regarding this policy.

2.3. Filter and air flow requirements.

The requirements of Sections (4)(D), (E) and (F) are excessive. The proposed permit would required dry particulate filters with 98% efficiency, but filers with 95% efficiency are cost effective, should be adequately protective of public health, and would meet the requirements of the current composites PBR.

The requirement for an average air velocity of 100-feet-per-minute across the open face of booths or work areas will be infeasible for the manufacture of large parts. Such a requirement is only practical for small booths. For example, a large composite part made in a large room area that measures 150 feet wide × 300 feet long × 30 feet high would require 100 fpm × 150 feet × 30 feet = 450,000 cfm of airflow across the smallest room face. This is an excessive amount of airflow that would require expensive fans and numerous exhaust stacks, and the associated makeup supply air would be cost prohibitive to heat in the wintertime.

We suggest that large parts as defined in the composites NESHAP should be exempt from the requirement of Section (4)(F), as long as air flows are managed as needed to protect workers and to minimize ground level emissions to the greatest practical extent.[4]

Many small business composite facilities produce a variety of small parts in one large room area. These facilities will have the same problem with the 100 feet-per-minute requirement as the large-part operation detailed above.

2.4. Stack height requirements.

Section (4)(H) requires that stack height must be at least two times the peak room height and at least 40 feet above ground level. We believe that a required minimum stack height is not practical. For example, a building with a 50-foot roof would need a 100-foot stack. Likewise, a 40-foot stack would be excessive for an operation in a small building with a roof height of only

[4] See 40 CFR 63.5805(d)(2)(ii) for EPA's definition of "large parts."

10 feet. In both examples, the required stack heights are unreasonable and unnecessary to prevent nuisance odor. The proper stack height depends on local topography, surrounding land use, and other site-specific circumstances. We suggest that the proper stack height at each facility should be determined on a case-by-case basis.

Also, the higher stack heights shown in Tables 1 and 2 of the proposed Standard Permit would be cost prohibitive for most small businesses.

2.5. Controls for odor.

The control requirement in Section (4)(K) to mitigate nuisance odor seems to conflict with Section (1)(B), which prohibits the use of add-on control.

2.6. Restriction of operating hours.

Section (4)(L) restricts operations to a period from two hours before sunrise to two hours after sunset. This proposed work-period limitation has several drawbacks. First, some composite facilities must operate two workshifts to be economically viable, and this would not be allowed under the Standard Permit.

Further, the allowable period is a moving window that varies by time of year. During the winter, the short daylight period would severely limit operations, and the ever-changing start and stop times would be difficult to manage.

Finally, most composite facilities are not air conditioned due to the prohibitive cost. In the summer months, many facilities in Texas are too hot to work a normal day shift. Many companies shift the summer work to the early morning hours to protect the workers against excessive heat. This would not be allowed under the Standard Permit.

2.7. VOC limit.

Section (6)(C) limits VOC plus exempt solvent emissions to a total of 50 tons per rolling 12-month period. Most composite facilities use considerable amounts of acetone clean up solvent, which is a non-VOC exempt solvent. If acetone is included with styrene and methyl methacrylate, the 50-tpy limit is too low to allow for economically viable operation at many facilities.

If styrene, methyl methacrylate or acetone are not included in the VOC total, then this should be made clear.

2.8. Material usage records.

Section (7)(B) requires that material usage records be kept daily. Calculating daily material usage typically requires a daily material inventory of the gelcoat and resin materials received and stored at the facility. Such an inventory involves measuring the amount of gelcoat and resin contained in numerous partially filled storage tanks, totes, 55-gallon drums, 5-gallon pails, and/or one-gallon cans every day. This is a very difficult task at most composite facilities, and would be excessively burdensome for small businesses. Further, daily measurements are not very accurate, due to the numerous measurements and small changes in material level in some of the containers.

At most, we believe that monthly usage records are the only practical recordkeeping period for most of our industry. If average hourly rates are needed, then we suggest that sources be required to prepare monthly estimates of material usage, and then calculate hourly usage rates by dividing by the number of hours operated during that month.

* * *

Thank you for your attention to our comments regarding the proposed Standard Permit. We forward to meeting with TCEQ on December 12.

Sincerely,

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Infeasibility of the 110 μg/m^3 Styrene Odor ESL for Typical Composites Facilities

The magnitude of the problem posed to the composites industry in Texas by the present TCEQ nuisance odor policy guidelines and the current 110 μg/m^3 styrene odor ESL is best illustrated by modeling the ground-level impacts for the following two examples; a typical small composite shop and a typical medium-sized composite plant. Neither one of these two examples can meet the 110 μg/m^3 styrene odor ESL unless cost-prohibitive add-on controls or impractically tall exhaust stacks are installed.

Small Shop Example – typical small business one-shift 25-tpy composite manufacturing shop

- work period – one workshift consisting of 2,000 hr/yr
- maximum annual emission rate – 25 tpy styrene
- average hourly styrene emission rate – 25 pound per hour
- maximum styrene emission rate at peak production – 50 pound per hour (6.300 g/sec)
- building dimensions – 60 ft (18.29 m) W ×120 ft (36.58 m) L × 20 ft (6.096 m) H
- ventilation options:
  - Option A – horizontal wall fan (3.3 feet or 1 m high – 0.0001 m/s vertical)
  - Option B – vertical roof fan with ten-foot outlet (30 feet or 9.144 m – 16.92 m/s)
  - Option C – vertical GEP stack (50 feet or 15.24 m high – 16.92 m/s)
  - Option D – vertical 2 ×GEP stack (100 feet or 30.48 m high – 16.92 m/s)
- exhaust outlet diameter – 30 inches or 3.5 feet (1.067 m)
- distance to the nearest property boundary – 330 feet (100 m)

Medium Plant Example – typical two-shift 80-tpy composite manufacturing plant

- work period – two workshift consisting of 4,000 hr/yr
- maximum annual emission rate – 80 tpy styrene
- maximum styrene emission rate at peak production – 80 lbs per hour (10.080 g/sec)
- building dimensions – 60 ft (18.29 m) W ×120 ft (36.58 m) L × 20 ft (6.096 m) H
- ventilation options:
  - Option A – horizontal wall fan (3.3 feet or 1 m high – 0.0001 m/s vertical)
  - Option B – vertical roof fan with ten-foot outlet (30 feet or 9.144 m – 20.32 m/s)
  - Option C – vertical GEP stack (50 feet or 15.24 m high – 20.32 m/s)
  - Option D – vertical GEP × 2 stack (100 feet or 30.48 m high – 20.32 m/s)
- exhaust outlet diameter – 4 feet (1.219 m)
- distance to the nearest property boundary – 330 feet (100 m)

SCREEN3 model version 96043 (the most recent version) was employed to determine the maximum one-hour ground-level styrene concentrations for the two examples using the following modeling assumptions:

- Simple terrain - no special complex terrain or elevated simple terrain was considered
- Rural terrain (most composite plants are in rural locations)
- Full meteorology
- Automated receptor distances – range from 100 (nearest property line) to 4,000 meters
- Ground level impacts – no flagpole receptors
- Building downwash is modeled

Most of Texas is generally flat, so simple terrain is a good assumption in most cases. However, some areas in Texas have hilly terrain that is considered elevated for modeling purposes. If elevated terrain was included in the screening models, then the impracticality of the 110 μg/m^3 ESL would be even more pronounced, because elevated terrain tends to increase the impact of stack emissions significantly when compared to corresponding flat terrain.

The **SCREEN3** model maximum one-hour average ground level styrene results and the percentages of the short-term styrene odor ESL for the typical small shop example are listed below:

TYPICAL SMALL SHOP EXAMPLE Ventilation Option		**Maximum One-Hour Average Ground-level Styrene Concentration (μg/m^3)**	**Distance to Maximum Impact (m)**	**Percentage of TCEQ ESL 110 μg/m^3 Styrene Odor Threshold (% threshold)**
A	Wall Fan (3.3' horizontal discharge)	38,450	100	35,955 %
B	Roof-mounted Fan (30' vertical discharge)	758	102	689 %
C	GEP Stack (50' vertical discharge)	410	1,022	373 %
D	GEP × 2 Stack (100' vertical discharge)	152	359	138 %

As shown in the results table, a typical small shop with a GEP (50-foot) stack that is 2.5 times the building height would still exceed the 110 μg/m^3 ESL limit for styrene by about 3.7 times, and would continue to exceed the odor ESL well beyond 4,000 meters from the shop.

Even with a 100-foot stack that is twice the GEP height, a typical small shop would still exceed the 110 μg/m^3 styrene odor ESL by almost 40%.

The **SCREEN3** model maximum one-hour average ground level styrene results and the percentages of the short-term styrene odor ESL for the medium-sized composite plant example are listed below:

TYPICAL MEDIUM PLANT EXAMPLE Ventilation Option		**Maximum One-Hour Average Ground-level Styrene Concentration (µg/m^3)**	**Distance to Maximum Impact (m)**	**Percentage of TCEQ ESL 110 µg/m^3 Styrene Odor Threshold (% threshold)**
A	Wall Fan (3.3' horizontal discharge)	61,510	100	55,920 %
B	Roof-mounted Fan (30' vertical discharge)	910	140	830 %
C	GEP Stack (50' vertical discharge)	494	1,219	450 %
D	GEP × 2 Stack (100' vertical discharge)	187	2,000	170 %

As shown in the table of results, a medium plant with a GEP stack would still exceed the 110 µg/m^3 styrene odor ESL by about 4.5 times, and would continue to exceed this limit well beyond 4,000 meters from the shop.

Even with a 100-foot stack that is twice the GEP height, a typical medium plant would still exceed the 110 µg/m^3 styrene odor ESL by almost 70%.

Based upon the example model results:

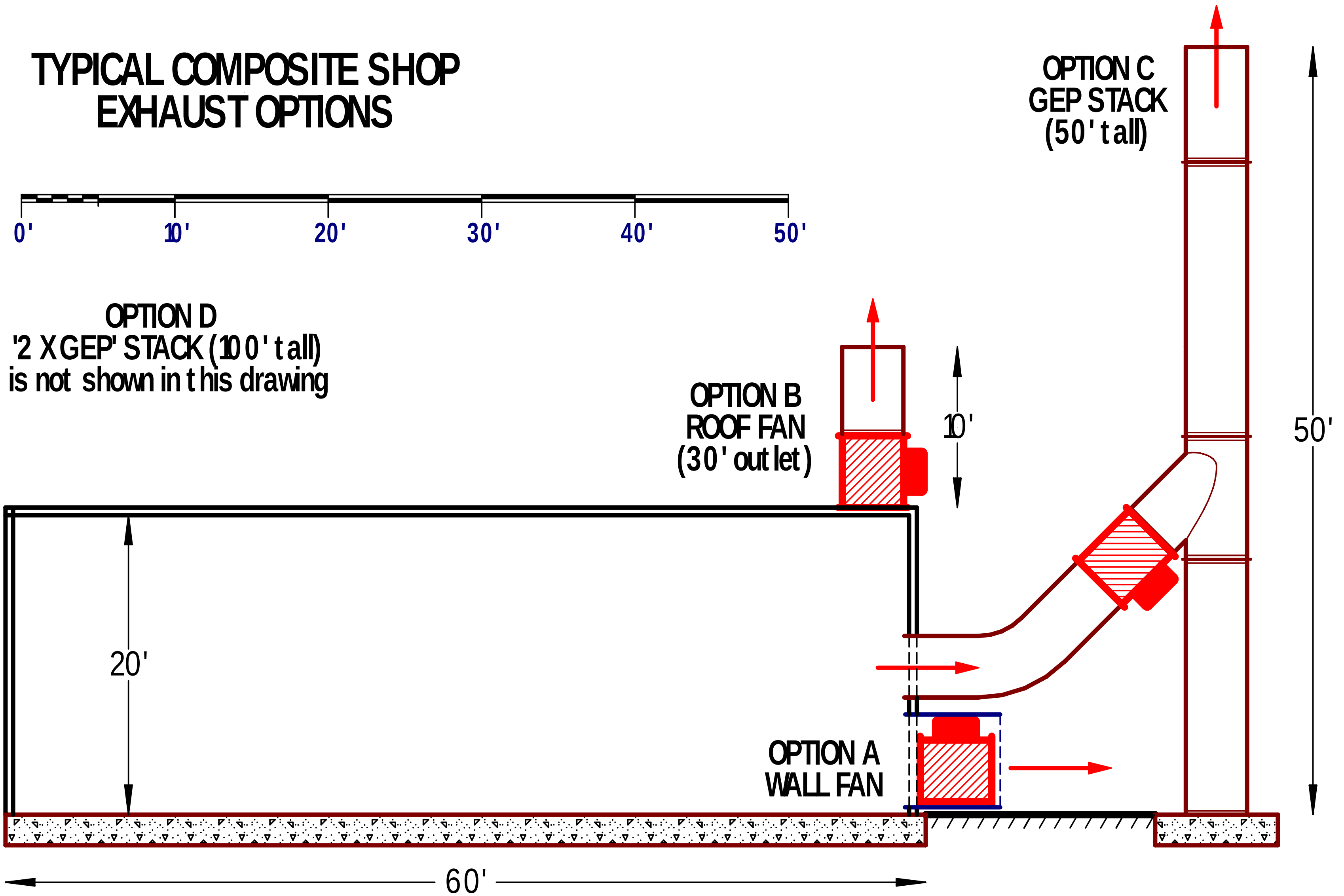
- A typical small composite shop cannot meet the current 110 μg/m^3 styrene odor ESL with any practical ventilation option, including a stack that is twice the GEP height. Presumably, a small composite shop must instead use permanent total enclosures and add-on controls. However, such controls are cost-prohibitive for a small source (excessive initial capital cost and cost-effectiveness greater than $30,000 per ton reduced). This fact is supported by the TNRCC BACT guideline that indicates add-on controls do not even require investigation at a composites facility unless the annual emission rate exceeds 80 tpy.

- A typical medium-sized composite plant has even more difficulty meeting the 110 μg/m^3 styrene odor ESL with any practical ventilation option, including a stack that is twice the GEP height. A medium-sized plant has only one option for meeting the odor ESL, which is to install permanent total enclosures around the molding processes and add-on controls. However, as in the small shop case, such controls are also cost-prohibitive.

Both of these conclusions stem from the current TCEQ effects screening policy that attempts to prevent the possibility of any styrene odor by establishing a very low short-term odor ESL and requiring one-hour average dispersion modeling to show compliance with the short-term ESL at all off-site locations regardless of surrounding population patterns or land-use.

Strict adherence to the current TCEQ odor policy and current short-term 110 μg/m^3 odor ESL effectively constitutes a virtual construction ban on any new composites facilities in Texas.

If this policy were fairly and uniformly applied to the existing sources in Texas during the modification or renewal of the existing air permits, then nearly all of the composites industry in Texas would be forced out of business.


TYPICAL COMPOSITE SHOP
EXHAUST OPTIONS
0'
10'
20'
30'
40'
50'
OPTION D
'2 X GEP' STACK (100' tall)
is not shown in this drawing
OPTION C
GEP STACK
(50' tall)
OPTION B
ROOF FAN
(30' outlet)
10'
50'
20'
OPTION A
WALL FAN
60'