

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date: **XX/XX/2022**

Region: Washington Regional Office
County: Pitt
NC Facility ID: 7400317
Inspector's Name: Kurt Tidd
Date of Last Inspection: N/A
Compliance Code: N/A

Facility Data	Permit Applicability (this application only)
<p>Applicant (Facility's Name): World Cat Greenville</p> <p>Facility Address: World Cat Greenville 601 Staton Road Greenville, NC 27834</p> <p>SIC: 3732 / Boat Building and Repairing NAICS: 336612 / Boat Building</p> <p>Facility Classification: Before: Permit/Registration Pending After: Title V Fee Classification: Before: N/A After: Title V</p>	<p>SIP: 15A NCAC 02D .0515, .0521, .0535, .0540, .0605, .0611, .1111, .1806, 02Q .0207 and .0504 NSPS: N/A NESHAP: 40 CFR 63 Subpart VVVV PSD: N/A PSD Avoidance: N/A NC Toxics: 15A NCAC 02Q .0702(a)(27) Exempt 112(r): N/A Other: N/A</p>

Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	<p>Application Number: 7400317.20A Date Received: 11/04/2020 Application Type: Greenfield Facility Application Schedule: State Existing Permit Data Existing Permit Number: N/A Existing Permit Issue Date: N/A Existing Permit Expiration Date: N/A</p>
Scott Ellis Director of Manufacturing/ Engineering (252) 641-8000 601 Staton Road Greenville, NC 27834	Scott Ellis Director of Manufacturing/ Engineering (252) 641-8000 601 Staton Road Greenville, NC 27834	Scott Ellis Director of Manufacturing/ Engineering (252) 641-8000 601 Staton Road Greenville, NC 27834	

Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP

<No Inventory>

<p>Review Engineer: Jeff Twisdale</p> <p>Review Engineer's Signature: <i>Jeff Twisdale</i></p> <p>Date: <i>XX/XX/2022</i></p>	<p>Comments / Recommendations:</p> <p>Issue 10681/R00 Permit Issue Date: XX/XX/2022 Permit Expiration Date: XX/XX/2030</p>
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I. Purpose of Application:

World Cat Greenville (WCG), under parent company, HC Composites LLC, submitted a permit application (7400317.20A) for a greenfield facility located in Greenville, North Carolina. The facility is a fiberglass boat manufacturing operation that will build a select range of styles and sizes in an existing building at this new location. The facility has requested to permit the fiberglass boat building operation under a construction and operation air permit for the following equipment:

- Resin and gelcoat application area (ID No. ES-LAM01) controlled by panel filters (ID No. CD-PF)
- Two resin storage tanks (6,000 gallons capacity each, ID Nos. IRST01 and IRST02)

The facility will be major for hazardous air pollutants (HAP) since styrene emissions are expected to be greater than 10 tons per year (tpy). As a result, the facility will be required to comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Fiberglass Boat Manufacturing (40 CFR 63 Subpart VVVV). The facility will also have the potential to emit greater than 100 tpy of volatile organic compounds (VOCs). Therefore, the facility will be classified as Title V (TV). This permit is being issued pursuant to 15A NCAC 02Q .0300 procedures as allowed under 15A NCAC 02Q .0504.

Table 1. Facility Emissions Overview

Pollutant	Expected Actual Emissions (tons/yr)	Potential Emissions Before Controls (tons/yr)	Potential Emissions After Limitation (tons/yr)
VOC	84.0	122.2	84.0
Highest Individual HAP (styrene)	32.9	43.4	32.9
Total HAP	37.5	53.5	37.5

II. Facility Description

WCG will manufacture fiberglass outboard power catamarans (boats with twin hulls) in open molds as well as some parts in closed molds. The finished boats will range in length from 23 feet to 40 feet and are available in Center Console and Dual Console models. The WCG facility consists of a single "L" shaped building approximately 505 feet wide and 600 feet long containing two main activity areas. The north-south segment of the "L" contains the product assembly area. Minimal emissions are anticipated from this area. The gelcoat and resin application activities and the resin curing will be conducted in the lamination area in the approximately square building segment.

III. Application Chronology/History

November 4, 2020	The Raleigh Central Office (RCO) received a permit application that was deemed incomplete since the application fee, zoning and signature were not included. An acknowledgement letter was sent stating that the application was incomplete.
January 12, 2021	Received the fee, zoning and signature info needed.
February 16, 2021	Requested information concerning HAP/TAP emission points; MACT VVVV compliance demonstration; PM control for cutting, grinding, and sanding operations; maximum capacity of the resin tanks, and any painting or gelcoat spray booths being utilized.
March 12, 2021	Received information from Tom John, consultant representing WCG, concerning HAP/TAP emission points being vertical stacks with no rain caps; MACT VVVV compliance demonstration by utilizing the MACT model point value averaging option and complaint materials; good housekeeping practices to limit PM from being released from the building; maximum capacity of the resin tanks to be 6,000 gallons, and currently no plans for painting or gelcoat spray booths.
March 18, 2021	Requested the short-term styrene emissions that need to be estimated to represent the potential higher short-term emissions rather than being back calculated from the annual estimates.
November 8, 2021	Received information from Tom John concerning styrene emission rates, updated gelcoat and resin usages, and updated applications forms.
November 11, 2021	Requested updated tracking frequency for the gelcoat and resin on a short-term basis to ensure compliance with the styrene TPER value, and for the source and stack parameters needed for dispersion modeling.
December 15, 2021	Received information from Tom John including a layout indicating the six fan locations evacuating the styrene emissions, and an updated spreadsheet showing the styrene emissions per hourly usage.
February 14, 2022	Matt Porter, AQAB meteorologist, sent additional info request for source, stack and site parameters in order to perform the dispersion modeling for styrene.

March 11, 2022	RCO requested the source, stack and site parameters for dispersion modeling as well as the updated facility contact info for a second time.
March 15, 2022	Received the source, stack and site parameters needed for dispersion modeling.
March 23, 2022	Matt Porter completed Toxics (styrene) modeling memo to ensure that there is no unacceptable risk to human health.
April 4, 2022	Requested details on PM emitted from the building, and if any filters were used to control those emissions. An email from Scott Ellis, Responsible Official for WCG, requested that the facility be exempt from State air toxics in accordance with 15A NCAC 02Q .0702(a)(27)(B) since the facility is subject to the Boat Building MACT Subpart VVVV.
April 19, 2022	Received details on panel filters installed on six exhaust stacks to control PM and the exemption request for Toxics from Scott Ellis pursuant to 15A NCAC 02Q .0702(a)(27).
May 5, 2022	Draft permit and review were submitted for comment to Booker Pullen, NSR supervisor for review.
May 6, 2022	Comments received on the draft permit and review from Mr. Booker Pullen, NSR supervisor.
May 12, 2022	Draft permit and review were submitted for comment to Scott Ellis of WCG, Yongcheng Chen and Kurt Tidd of the Washington Regional Office (WaRO), Samir Parekh of the Stationary Source Compliance Branch (SSCB)

IV. Regulatory Review

WCG will be subject to the following regulations:

- 15A NCAC 02D .0515 “Particulates from Miscellaneous Industrial Processes”
- 15A NCAC 02D .0521 “Control of Visible Emissions”
- 15A NCAC 02D .0605 “General Recordkeeping and Reporting Requirements”
- 15A NCAC 02D .0611 “Monitoring Emissions from Other Sources”
- 15A NCAC 02D .1111 “40 CFR 63 Subpart VVVV; NESHAP for Boat Manufacturing”
- 15A NCAC 02D .1806 “Control and Prohibition of Odorous Emissions”
- 15A NCAC 02D .0535 “Excess Emissions Reporting and Malfunction”
- 15A NCAC 02D .0540 “Particulates from Fugitive Dust Emission Sources”
- 15A NCAC 02Q .0207 “Annual Emissions Reporting”
- 15A NCAC 02Q .0504 “Option for Obtaining Construction and Operation Permit”

WCG shall follow all the required monitoring, recordkeeping and reporting associated with these regulations, and with the MACT for the specific affected sources as indicated below:

Emission Source ID No(s).	Emission Source Description	Control Device	Control Device Description
ES-LAM01 MACT VVVV	Resin and gelcoat application area	CD-PF	Panel Filters installed on each exhaust stack
IRST01* and IRST02*	Two resin storage tanks (6,000 gallons capacity each)	N/A	N/A

* Insignificant Activities per 15A NCAC 02Q .0503(8)

V. Specific Emission Sources and Control Devices

A. Resin and gelcoat application area (ID No. ES-LAM01) with panel filters (ID No. CD-PF)

This area will be used for the gelcoating and laminating (open molding) of the large parts including decks, hulls, liners, etc. as well as small parts including hatches, covers, consoles, etc. In addition, this area will be used for closed molding including mold preparation (waxing) and repair of molds.

Styrene based gelcoat is applied predominantly by spray methods to the hull and deck forms and molds in the lamination area and is allowed to cure during the manufacturing process. Styrene based resin is hard piped to the point of use from either of two 6,000-gallon resin storage tanks located on the western side of the building.

The resin storage tanks will be equipped with conservation vents on J-neck vents and estimated to have total breathing and working losses from both tanks estimated at less than 100 pounds per year based on estimated annual resin usage of 93,700 gallons of resin per year, or 15.5 total turnovers per year (both tanks combined). (See *TANKS 4.09d model output in Attachment 2 of the application*). Therefore, the tanks will be Insignificant Activities per 15A NCAC 02Q .0503(8).

Resin and fiberglass for structural support are hand applied over the gelcoat on the mold using buckets/brushes and rollers or non-atomized spray methods. When a sufficient thickness of resin/fiberglass has been applied to the mold, the resin is allowed to fully cure and harden. In addition to the hand/spray resin application to the open mold, the facility also utilizes vacuum infusion/resin transfer molding (RTM) of some components and some model lines. In these methods, cut to shape fiberglass mat is applied over the gelcoat without the application of resin. A plastic/silicone sheet is placed over the fiberglass and sealed at the edges of the mold. Catalyzed resin is forced into the open spaces in the fiberglass mat by application of vacuum at the discharge end or pressure at the inlet

After curing, the hardened fiberglass hull and deck parts are removed from the mold and the excess material trimmed as necessary to remove the excess flashing. If necessary, imperfections in the surfaces are removed by grinding the surface and re-applying gelcoat and/or resin. The trimming, cutting, shaping and grinding operations are typically performed by handheld air driven tools and by limited tabletop equipment. These activities are generally controlled by small portable vacuum collectors and normal good housekeeping type procedures, including frequent cleaning of surfaces and sweeping of floors by providing control of all particulate matter (PM) generated that will be necessary to prevent contamination of the molds and the curing fiberglass surfaces in the adjoining work area. Minimal PM will exit the building from these activities due to the panel filters being installed on each of the six vertical stacks for the building. The panel filters will be 24" x 24" x 0.5" each with 0.44 ounce per square foot, 6 denier polyester with a PVAC binder for the filter material. These panel filters will have a Minimum Efficiency Reporting Value (MERV) of 4 or 5.

The manufacture of small parts other than the large parts is performed in a similar process with the same methods and materials as is used for hulls and decks but with correspondingly smaller molds. After removal of the components from the molds, the molds are cleaned, inspected and prepared for return to lamination in the mold care step, using solvent-based materials. Scratches and other imperfections observed on the mold surface are repaired, if necessary, typically with resin or gelcoat tooling. In some situations, for example a damaged mold or a new product line, a new mold will have to be manufactured, using production or other resins and tooling. Mold care is typically conducted in or near the lamination area, but the activity may be located farther away as the situation demands.

Completed hulls and decks are relocated to the adjacent Assembly Area that has minimal emissions and then are prepared for the addition of small parts and components, motors, electrical and mechanical equipment, wiring installation, and final assembly. Two-part floatation foam may also be added as part of the assembly, depending on the boat model line requirements. Miscellaneous HAP-containing bonding or other putties, fillers, waxes and solvents, and various adhesives and coatings are used in the assembly area. When completed, the finished boat is inspected and prepared for storage prior to delivery.

Fugitive sources, such as open product and waste containers, will be identified and minimized, and solvents in general will be subject to careful disbursement and general good housekeeping practices, including the use of solvent safety cans, etc. to minimize emissions. Acetone, the primary cleanup solvent, is no longer considered a VOC, but the usages and emissions may be included in the facility records for completeness.

15A NCAC 02D .0515 - Particulates from Miscellaneous Industrial Processes

PM emissions will be controlled by a filter system consisting of panel filters installed on each of the six exhaust stacks. To ensure compliance, monthly visual inspections of the filters are required, and the results recorded. The records demonstrate monthly visual inspections are performed. Compliance is expected.

15A NCAC 02D .0521 - Control of Visible Emissions

The operation is limited to 20 percent opacity visible emissions. Visible emissions are controlled by a panel filter installed on each of the six stacks. To ensure compliance monthly inspections are required, and the results will be recorded. Compliance is expected.

15A NCAC 02D .1806 – Control and Prohibition of Odorous Emissions.

The facility is required to prevent objectionable odors beyond the facility's boundary. No objectionable odors are expected. Compliance is expected.

15A NCAC 02D .1111 – MACT - 40 CFR Part 63, Subpart VVVV

The facility will comply with the open molding emission limit by using the emissions averaging option. WCG shall assure that the emission limit established by 40 CFR 63.5698, equation 1, is not exceeded using the procedures set in 40 CFR 63.5704(a). Compliance using the emissions averaging option will demonstrate on a 12-month rolling-average basis and is determined at the end of every month (12 times per year). The facility will have one year to collect data since it is a 12-month rolling standard. For the fabric adhesive operations, the HAP content must be < 5% to comply with the MACT.

WCG submitted the initial notification requirement for the MACT on November 8, 2020, when they initially submitted their application that noted applicability of MACT Subpart VVVV.

The facility will conduct daily recordkeeping of materials used and application methods as appropriate. Raw materials usages and corresponding chemical species usages will be recorded and emissions calculated as monthly and rolling 12 month cumulative totals, providing reasonable assurance of compliance with permit emission limits and to demonstrate compliance with the HAP limits of the Subpart.

The styrene and methyl methacrylate (MMA) emission factors utilized for emission calculations are taken from the Unified Emission Factor (UEF) Table and reflect the appropriate styrene or MMA content of these materials and corresponding application methods. General VOC species will be assumed to have an emission factor of 1.0, (*Emission Rate in Pounds of Styrene Emitted per Ton of Resin or Gelcoat Processed*) except for reactive species (e.g., peroxides, isocyanates and phthalates) which are assumed to have very low emission factors. When styrene is used as a solvent for mold cleaning rather than as a polymerizing unit, the emission factor will be assumed to be 1.0 (*Emission Rate in Pounds of Styrene Emitted per Ton of Resin or Gelcoat Processed*). Where styrene is polymerized, the UEF factors will be assumed to apply. MMA which may be present in gelcoat and in other materials such as adhesives, is assumed to have the same emission factor as presented in the UEF when the monomer is polymerized; otherwise, the factor will be assumed to be 1.0 (*Emission Rate in Pounds of MMA Emitted per Ton of Resin or Gelcoat Processed*).

The styrene content of the resin and gelcoat used may vary depending on a particular type, purpose, blend or supplier, and the species and concentrations of all other raw materials are subject to change, outside the control of WCG. Despite these changes, the record keeping system will track each individual species (e.g., styrene) at its actual concentration in each material used in a production capacity as identified from its accompanying material Safety Data (SD) sheet, determine the weighted rolling average concentration for MACT compliance as necessary, assign an emission factor, and determine the emissions of an individual raw material or source as well as the total facility emission. The styrene and other species contents shown for resin, gelcoat and other materials are values based on current materials and vendors, obtained from the material SD sheets, which will be made available for DAQ to review upon request. The thresholds for identifying species in the SD sheets is 1.0 % (0.1 % for carcinogenic materials), and species present at lesser concentrations may not be identified in those documents.

Non-volatile HAP species may include metals and metal compounds which may be present in some of the materials used (e.g., pigments in some gelcoats). Although these species may potentially be emitted to the air as a result of very high temperatures (e.g., combustion process), the normal use of these materials in boat building, a non-volatile species does not volatilize into the air. Since these materials are not sources of air pollution, they will not be included in the air emission calculations or considered in the HAP determination.

It should be noted that the maximum raw material usage rate is a surrogate measure of the HAP species emission rates that are the product of the usage rate, the species concentration and the emission factor for a particular species in a specific operation. If the species concentration varies up or down, or the application method changes from spray to hand, the usage rate may be adjusted accordingly to maintain compliance with a HAP emission limitation. This will allow the potential for higher cost resins and/or gelcoats with styrene contents below the MACT limits to be used at correspondingly higher levels than illustrated in the spreadsheet, or for variations in the resin/gelcoat ratio as models change, without violating the emission limits of the permit or the MACT allowable HAP limits. As a result, detailed recordkeeping was proposed for demonstrating compliance with HAP emissions limitations.

The facility proposed to comply with the requirements of MACT VVVV as applicable to their operations and will demonstrate compliance with the HAP emission limitation by the "point value" averaging method. For resins, pigmented and clear gel coats, and resin and gelcoat tooling operations, the quantity of material used in each 12-month rolling period will be determined, as well as the application method and HAP content for each material in each application. The appropriate calculations will be performed, and the facility-wide HAP calculated emissions will be compared to the HAP emissions allowed under the MACT. The facility will be considered in compliance with the HAP material content and emission limitations if the calculated HAP emissions are demonstrated to be less than or equal to the allowable HAP emissions of the Subpart. Operations involving resin infusion, a closed molding process, are exempt under MACT VVVV and will not be included in the MACT compliance demonstration. The materials applied to the surface of a closed molding mold (e.g., gelcoat, skin coat) which do not meet the definition of closed molding will be included in the MACT calculation. The material usages and emissions associated with the infusion process will be included in the facility-wide monthly and 12 month rolling usages and emissions spreadsheet to demonstrate compliance with the limitations in the permit.

The facility will be required to submit reports for each 6-month period ending on July 30 and December 31. The report shall evaluate compliance with the open molding emission limit for each 12-month averaging period ending on each six months that the report covers. The report shall be submitted within 60 days after the end of the reporting period.

Monitoring/Recordkeeping/Reporting:

The facility's monitoring/recordkeeping/reporting requirements will have to be met as noted above. WaRO will review the records at the facility for the past 12 months once completed to ensure compliance with the MACT's HAP limits and the MACT Model Point value as well as compliant coatings. Compliance is expected.

VI. NSPS/ PSD/NAA/Increment/ MACT/ CAM/ Facility-wide Toxic Air Pollutants

NSPS - This facility is not currently subject to any NSPS regulations.

PSD/NAA/Increment - This facility is a Prevention of Significant Deterioration (PSD) minor source since the potential VOC emissions (122 tpy) will be less than the major source threshold of 250 tpy. Pitt County is in an attainment area, and the non-attainment area (NAA) regulations do not apply. Pitt County has been triggered for PSD increment tracking for NOx. A review of the application indicates that there are no NOx emissions. Therefore, no increment is consumed.

MACT - This facility is subject to 40 CFR 63, Subpart VVVV (Boat Manufacturing MACT). WCG shall follow the MACT Subpart VVVV requirements and associated monitoring, recordkeeping and reporting including the periodic reporting of emissions (e.g., rolling averages of HAP emissions, etc.) as detailed above.

112(r) - This facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule. The facility is not required to maintain a written Risk Management Plan (RMP).

CAM - 40 CFR 64 requires that a continuous assurance monitoring plan be developed for all equipment located at major facilities that have pre-controlled emissions above the major source threshold and use a control device to meet an applicable standard. This facility does not utilize a control device to meet compliance with an emission limit or a standard for a federally regulated pollutant, nor does the facility have uncontrolled potential emissions greater than 100 tons per year. Therefore, CAM is not applicable to this facility.

Facility-wide Toxic Air Pollutants - This greenfield facility did not trigger toxics modeling since the six toxic air pollutants (TAPs) emitted were estimated to be below their respective Toxic Air Pollutant Permitting Emissions Rates (TPERs) as detailed below.

15A NCAC 02Q .0711 - Toxic Air Pollutants Emissions Limitation Requirement

The facility completed an NC air toxics review in their application for six TAPs, and their emissions did not exceed the TPERs in 15A NCAC 02Q .0711. Normally, the Permittee shall maintain records of operational information demonstrating that the TAP emissions do not exceed the TPERs as listed below:

Pollutant	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
ethylene glycol monoethyl ether (110-80-5)		5.1	2.00	
n-hexane (110-54-3)		46.3		
methyl ethyl ketone (78-93-3)		155.8		93.19
Styrene (100-42-5)				11.16
Toluene (108-88-3)		197.96		58.97
Xylene (mixed isomers) (1330-20-7)		113.7		68.44

However, this regulation does not apply since the Responsible Official (Scott Ellis) requested that WCG be exempted from a permit to emit toxic air pollutants pursuant to 15A NCAC 02Q .0702(a)(27)(B) since the facility is subject to the Boat Building MACT Subpart VVVV. In accordance with 15A NCAC 02Q .0702(a)(27), this facility is exempt from North Carolina (NC) Air Toxics (State-only requirement); however, the NC Division of Air Quality (DAQ) is required by NC Session Law 2012-91, House Bill 952, to perform a health risk assessment.

The facility completed an NC air toxics review in their application for six TAPs, and their emissions did not exceed the TPERs in 15A NCAC 02Q .0711; however, NC DAQ was unsure if the styrene emissions presented an unacceptable health risk since the styrene hourly emissions, initially estimated just below the TPER limit of 11.16 pounds per hour (lb/hr), were calculated by dividing the annual styrene emission rate by 8,760 hours per year of operation. NC DAQ raised a question about the methodology for determining the hourly emission rate, and WCG prepared a revision to address that concern. WCG identified the expected activities for each hour of operation at the maximum capacity and determined that the styrene emissions from the gelcoat operations, conducted over an 8-hour period each day, had the potential to exceed the TPER on a 1-hour basis, although the daily and annual average values did not exceed the TPER.

WCG requested self-imposed limitations on gelcoat and resin annual usage below the levels previously requested. These reduced levels will result in reduced styrene emissions from these activities, with styrene emissions being calculated at 7.62 lb/hour based on 360 days/year, 24 hours/day of operation (*see below Table 2 of the revised TAP emissions spreadsheet submitted December 15, 2021*).

Table 2		TOXIC AIR POLLUTANTS COMPARED to 15A NCAC 02Q.0711(b)											
		styrene		methyl ethyl ketone		xylene		toluene		hexane		glycol ethers	
		projected	limit	projected	limit	projected	limit	projected	limit	projected	limit	projected	limit
lbs/yr	65800			396.82		225.16		16.37		2352.75		6.00	
lb/day	182.78			1.09	155.8	0.62	113.7	0.04	197.96	6.45	46.3	0.02	5.1
lb/hr*	7.62	11.16		0.05	93.19	0.03	68.44	0.002	58.97	0.27		0.001	2
		*at 360 days/yr, 8640 hrs/yr											

WCG then calculated the hourly emissions associated with application of resin, gelcoat, putty, and adhesives, and when those activities would be conducted over the course of each 24-hour day (see below *Table 3 of the revised TAP emissions spreadsheet submitted December 15, 2021*).

Table 3		% of total		styrene emissions			hrs/day	
		styrene	emissions	lbs/yr	lbs/day*	lbs/hr**	activity	operation lbs/hr
resin	41.58%	27359	76.00	3.17	resin	10	7.60	
gelcoat	47.36%	31161	86.56	3.61	gelcoat	8	10.82	
putty	4.62%	3039	8.44	0.35	putty	8	1.06	
adhesives	6.45%	4241	11.78	0.49	adhesives	8	1.47	
total		65800.00	182.78	7.62				
* at	360	days/yr operation						
** average at	24	hrs/day operation						

The results, shown in the data and graph, (see attached *Table 4 of the revised TAP emissions spreadsheet submitted December 15, 2021*), show that the styrene emissions do not exceed the TPER limit at any 1-hour period during the 24-hour operating day.

The dispersion modeling analysis approved by Matt Porter, Air Quality Analysis Branch (AQAB) meteorologist, on March 23, 2022, was conducted to support determination of unacceptable risks in terms of ambient impacts from styrene emissions released from resin, gelcoat, putty, and adhesive boat molding operations.

Table 1 and Table A2 of the approved dispersion modeling memo provides a conservative estimate of the facility-wide total styrene hourly emissions released through the worst-case stack that would result in modeled impacts scaled to 95% of the styrene AAL for the worst-case stack (EFSP1). In other words, the worst-case stack (EFSP1) modeled at 99.77 lb/hr styrene would result in maximum modeled impacts at 95% of the AAL. The modeling confirms that the max styrene emission rate of 10.82 lb/hr (gelcoat, as presented by WCG) results in a worst-case 1-hour impact of 10.3% (1,092 µg/m³) of the styrene AAL (10,600 µg/m³). Note the emissions were modeled assuming 8,760 hours/year operation for each year of the 5-year meteorological database.

Table 1.
Maximum Modeled Toxics Impacts from Worst-Case Stack
World Cat Greenville, NC

Pollutant	Averaging Period	AAL (µg/m ³)	Maximum Modeled Impacts % of AAL
Styrene	1-hour	10,600	95 %

Table A2. Unit Emissions Impact Summary (Worst-Case Stack in Bold)

Model ID	Unit Emissions (g/s)	Unit Impact (ug/m3)	Styrene AAL (ug/m3)	95% AAL (ug/m3)	95% Scaled Emissions (g/s)	95% Scaled Emissions (lb/hr) ⁽¹⁾	Worst-Case Stack?
EFL1	1.0	451.09	10,600	10,070	22.32	177.18	No
EFL2	1.0	623.77	10,600	10,070	16.14	128.13	No
EFL3	1.0	538.98	10,600	10,070	18.68	148.28	No
EFL4	1.0	524.53	10,600	10,070	19.20	152.37	No
EFSP1	1.0	801.08	10,600	10,070	12.57	99.77	Yes
EFSP2	1.0	539.79	10,600	10,070	18.66	148.06	No

(1) 95% Scaled Emissions (lb/hr) = [10,600 (ug/m3) AAL x (95%)] / [Unit Impact (ug/m3 per 1 g/s)] x [3600 (sec/hr)] / [453.59 (g/lb)]

Therefore, the NC DAQ believes that the TAP emissions from the facility will not present an unacceptable health risk.

VII. Public Notice / EPA and Affected State(s) Review

This permit application is being processed pursuant to the 15A NCAC 02Q .0300 provisions. As such, a public notice/hearing process is not required. However, since this facility is classified as Title V, and this is the first time obtaining a construction and operating permit, a review under the Secretary's Environmental Justice provisions is triggered. Therefore, a 30-day public comment period will be part of the permitting process. EPA and the Affected State review is not required at this time. The permit requires the submittal of a procedural 1st time Title V permit application within 12 months of startup. That application will be subject to the formal public participation process pursuant to 15A NCAC 02Q .0500 procedures.

VIII. RCO Conclusions, Comments, and Recommendations:

A professional engineer's seal was not required for this permit modification.

A consistency determination was required for this permit modification. Ms. Chantae Gooby, Chief Planner with the City of Greenville, confirmed this proposed operation is consistent with local zoning ordinances on January 7, 2021.

Recommend issuance of Permit No. 10681R00 once any comments have been resolved.

Table 4 of the revised TAP emissions spreadsheet submitted December 15, 2021

Table 4	AM												PM														
	12:01:00 -1.00	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12			
resin									Y	Y	Y	Y	Y	Y	Y	Y	Y	Y									
gelcoat	Y	Y	Y	Y	Y	Y	Y	Y																			
putty										Y	Y	Y	Y	Y	Y	Y	Y										
adhesives										Y	Y	Y	Y	Y	Y	Y	Y										
	styrene lbs per hour emitted per activity																										
	AM												PM														
	12:01:00 -1.00	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12			
resin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	0.00	0.00	0.00	0.00	0.00	0.00			
gelcoat	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
putty										1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06			
adhesives										1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47			
total/hr	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	7.60	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	2.53	2.53	2.53	2.53	2.53	2.53			
lbs/hr per exhaust	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.27	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	0.42	0.42	0.42	0.42	0.42	0.42			
AM													PM														
0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12				
11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16			
10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	7.60	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	2.53	2.53	2.53	2.53	2.53				