1. Purpose of Application

Gainsborough Baths, LLC (Gainsborough) currently holds Title V Permit No. 09685R03 with an expiration date of January 31, 2018 for a resin bathtub manufacturing facility in Lexington, Davidson County, North Carolina. This permit application is an initial TV permit for the facility in accordance with 15A NCAC 2Q .0504(d).
2. Facility Description

Gainsborough is a specialty (assisted) bath manufacturer that produces bathtubs, showers, and replacement doors/panels. As indicated in the most recent inspection report, the facility either uses the hand lay-up/manual process that includes resin mixing (ID No. HLU) or the resin transfer molding process (ID no. RTM) to produce tubs. For the HLU process, resin is mixed in buckets and applied to layers of reinforcement material in molds by hand. For the RTM process, catalyzed resin is injected under pressure into closed fiberglass molds. The catalyst is added to the resin in order for the resin to hardened (the resin is in liquid form). The process, described as exothermic, gives off heat. The facility has about 12 molds for each process, but not all are used at one time. Once the resin has been set, the molds cure at room temperature. The basic mold maintenance and cleaning (ID No. I-M1) are done in the production areas. The facility primarily uses acetone (non-Hazardous Air Pollutants (HAP)) and occasionally uses Loctite’s FREKOTE PMC, which contains toluene and methyl ethyl ketone (both organic-HAPs), to clean the molds.

After the bathtubs have cured, they are sent to the dry filter-type gel coat application booth (ID No. GC1) in Finishing Area A. The bathtubs are buffed and gel coated using a non-atomized spray gun. The facility also has a tooling and application area (ID No. T1) where resins and gel coats are applied to wood and steel frames that are attached to the bathtubs in order to provide structural support. The facility also has seven natural gas-fired space heaters (ID Nos. I-SH1 through I-SH7), which are included in the permit as insignificant activities.

The facility has recently permitted a shower manufacturing line that includes similar processes as the tub and door manufacturing operations. The shower line includes gel coat application (ID No. SL-GC2) resin transfer molding (ID No. SL-RTM2), hand lay-up (ID No. SL-HLU2), mold cleaning and preparation (ID No. I-SL-M2), and tooling application (ID No. I-SL-T2). According the current compliance inspector, Taylor Hartsfield of the Winston-Salem Regional Office (WSRO), the facility has not yet constructed the shower line and, instead, produces showers in the bathtub manufacturing line. The facility operates two shifts, with production of bathtubs first followed by production of showers. Total operations equal 16 hours per day, 5 days a week for about 50 weeks per year.

3. History/Background/Application Chronology

Permit History

March 18, 2008 Air Permit No. 09685R00 was issued with a permit expiration date of February 28, 2013 for a tub and door manufacturing facility. Brag Fabrication, LLC (now Gainsborough) was in operation as a bathtub manufacturing facility prior to permitting. With no enforceable permit limits, the potential emissions of styrene exceeded Title V limits, making the facility subject to MACT Subpart WWWW. The facility accepted an avoidance.

---

1 Taylor Hartsfield (11/10/2015).
condition limiting HAPs to 10 tons per year of individual HAPs and 25 tons per year of all HAPs combined to be classified as a synthetic minor (SM) under 15A NCAC 2Q .0315.

February 26, 2013  Air Permit No. 09685R01 was issued as a permit renewal with a permit expiration date of January 31, 2018.

October 29, 2013  Air Permit No. 09685R02 was issued. Under this permit modification, the avoidance condition limiting HAPs was removed, making the facility a Title V facility.

January 27, 2015  Air Permit No. 09685R03 was issued. Under this permit modification, the facility added a shower manufacturing line including the following:
- Gel coat application (ID No. SL-GC2)
- Resin transfer molding (ID No. SL-RTM2)
- Hand lay-up (ID No. SL-HLU2)
- Mold cleaning and preparation (ID No. I-SL-M2)
- Tooling application (ID No. I-SL-T2)
- Edge trimming and drilling both (ID No. I-SL-TB)
- Buffing and finishing boot (ID No. I-SL-FB).

Application Chronology

September 24, 2014  Received an initial TV permit application for the facility in accordance with 15A NCAC 2Q .0504(d). The permit application was initially assigned to Brian Bland.

September 26, 2014  Sent acknowledgment letter indicating the application was complete.

November 16, 2015  Permit application reassigned to Betty Gatano.

December 14, 2015  Draft permit and permit review forwarded for comments.

December 21, 2015  Received comments from Mark Cuilla, Permitting Supervisor.

December 29, 2015  Received comments from facility. The comments included confirmation the dry-type spray booth (Finishing Area C) (ID No. FAC) is subject to MACT Subpart WWWW.

December 31, 2015  Draft permit sent to public notice.
4. Permit Modifications/Changes and TVEE Discussion

The following table describes the changes to the current permit as part of the permit modification.

<table>
<thead>
<tr>
<th>Pages</th>
<th>Section</th>
<th>Description of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover and throughout</td>
<td>--</td>
<td>Updated all dates and permit revision numbers.</td>
</tr>
</tbody>
</table>
| --          | Insignificant Activities List | ● Moved the mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2) to the insignificant activities list. Although these are MACT sources, they meet the definition of insignificant activities under 15A NCAC 2Q.0503(8).  
  ● Moved the tooling application area (ID No. I-SL-T2) to the insignificant activities list. Although this is a MACT source, it meets the definition of insignificant activities under 15A NCAC 2Q.0503(8).  
  ● Moved the dry filter-type booth (Finishing Area C) (ID No. FAC) to the equipment list under Section 1.0. The emission source does not meet the definition of insignificant activity under 15A NCAC 2Q.0503(8).  
  ● Added MACT Subpart WWWW labels to the mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2). |
| 3           | 1.0 – Equipment list | ● Moved the mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2) to the insignificant activities list. They meet the definition of insignificant activities under 15A NCAC 2Q.0503(8).  
  ● Moved the tooling application area (ID No. I-SL-T2) to the insignificant activities list. It meets definition of insignificant activities under 15A NCAC 2Q.0503(8).  
  ● Moved the dry filter-type booth (Finishing Area C) (ID No. FAC) to the equipment list under Section 1.0. The emission source does not meet the definition of insignificant activity under 15A NCAC 2Q.0503(8).  
  ● Added MACT labels to the dry filter-type booth (Finishing Area C) (ID No. FAC) and the resin transfer molding operations (ID Nos. RTM and SL-RTM2). |
| 4 – 5       | 2.1.A.1. | Added requirements for 15A NCAC 2D.0521, Control of Visible Emissions, for emission sources (ID Nos. GC1 and SL-GC2). |
| 5 – 9       | 2.1.A.2. | Added requirements for 15A NCAC 2D.1111, Maximum Achievable Control Technology (MACT), as promulgated in 40 CFR 63 Subpart WWWW for the reinforced plastic composite operations. |
| 10 – 11     | 2.2.A.1 | Added requirements for 15A NCAC 2D.0958, Work Practices Standards of Volatile Organic Compounds. This regulation is applicable facility-wide. |
| 11          | 2.2.A.2 | Added requirements for 15A NCAC 2D.1806, Control and Prohibition of Odorous Emissions. This regulation is applicable facility-wide and is state-enforceable only. |
| 11          | 2.2.A.3 | Added requirements for 15A NCAC 2Q.0711, Emission Rates Requiring a Permit. This regulation is applicable to non-MACT emission sources and is state-enforceable only. |
| 12 – 23     | 3.0     | Added the General Conditions and the List of Acronyms for Title V permits (V3.7: 09/21/2015). |
The following changes will be made to the Title V Equipment Editor (TVEE) under this permit modification:

- The mold cleaning and preparation processes will be moved to the insignificant activities list, and their ID numbers will be modified (ID Nos. I-M1 and I-SL-M2).
- The tooling application area for the shower line will be moved to the insignificant activities list, and its ID number will be modified (ID No. I-SL-T2).
- The dry filter-type booth (Finishing Area C) (ID No. FAC) will be moved to the permit, and its ID number will be modified.
- A MACT Subpart WWWW label will be added to the dry filter-type booth (Finishing Area C) (ID No. FAC).
- MACT Subpart WWWW labels will be added to the mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2), the resin transfer moldings (ID Nos. RTM and SL-RTM2). These processes are subject to the MACT Subpart WWWW but are excluded from requirements.

5. Emissions

The majority of emissions from Gainsborough are volatile organic compounds (VOCs), mostly consisting of styrene, from its bathtub and shower manufacturing processes. Styrene is also a HAP. Potential emissions of styrene are above 10 tons per year, making this facility major for HAPs. Emissions of VOC and styrene on a per source basis are provided in the table below.

<table>
<thead>
<tr>
<th>Emission Source</th>
<th>Potential VOC Emission (tons/per year)</th>
<th>Potential Styrene Emission (tons/per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG1</td>
<td>20.8</td>
<td>20.8</td>
</tr>
<tr>
<td>T1</td>
<td>1.1</td>
<td>0.96</td>
</tr>
<tr>
<td>HLU</td>
<td>17.96</td>
<td>17.96</td>
</tr>
<tr>
<td>I-M1</td>
<td>0.35</td>
<td>0.10</td>
</tr>
<tr>
<td>RTM</td>
<td>6.17</td>
<td>6.17</td>
</tr>
<tr>
<td>SL-GC2</td>
<td>11.7</td>
<td>8.98</td>
</tr>
<tr>
<td>I-SL-T2</td>
<td>0.22</td>
<td>0.19</td>
</tr>
<tr>
<td>SL-HLU2</td>
<td>2.3</td>
<td>2.3</td>
</tr>
<tr>
<td>I-SL-M2</td>
<td>0.14</td>
<td>0.09</td>
</tr>
<tr>
<td>SL-RTM2</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>FAC</td>
<td>0.58</td>
<td>0.56</td>
</tr>
<tr>
<td>I-SL-FB</td>
<td>0.14</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Notes:
- Calculation of emissions from sources CG1, T1, HLU, I-M1, RTM, and FAC were reported in Permit Application No. 2900351.14A.
- Calculation of emissions from sources SL-GC2, I-SL-T2, SL-HLU2, I-SL-M2, SL-RTM2, and I-SL-FB were reported in Permit Application No. 2900351.14B.
- The emissions reported from I-FAB, FAC, and I-SL-FB were adjusted to account for a minor difference in calculation methodology and are slightly higher than reported in the permit applications.

As shown in the table above, the tooling application area (ID No. I-SL-T2) and the mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2) meet the definition of insignificant activities by size or production under 15A NCAC 2Q .0503(8) because potential emissions of VOC from the
sources are less than five tons per year and potential emissions of HAPs are below 1,000 pounds per year. These sources will be moved to the insignificant activities list under this permit modification.

The dry filter-type booth (Finishing Area C) (ID No. FAC) was previously considered an insignificant activity. As shown in the table above, potential emissions of styrene from this source are ~0.56 tons per year or 1,113 pounds per year. This source does not meet the definition of insignificant activities by size or production under 15A NCAC 2Q .0503(8) with this emission rate. Booth (ID No. FAC) will be added to the permit under this modification.

Emissions of particulate matter (PM) from Gainsborough are minimal. The small amount of PM emissions are primarily generated from the cutting, trimming, and sanding of the products in the trimming/finishing booths (ID Nos. I-TB, I-SL-TB, and I-SL-FB) and the finishing areas (ID Nos. I-FAB and FAC). All of these sources, except for FAC, meet the definition of insignificant activities per 15A NCAC 2Q .0503(8) and will be included on the insignificant activities list. (Finishing area (ID No. FAC) is not considered an insignificant activity due to emissions of styrene.) Potential PM emissions from these sources are provided in the table below.

<table>
<thead>
<tr>
<th>Emission Source</th>
<th>Potential PM Emission (lbs/per year)</th>
<th>Potential PM Emission (tons/per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-TB</td>
<td>2,487</td>
<td>1.25</td>
</tr>
<tr>
<td>I-FAB</td>
<td>6,570</td>
<td>3.3</td>
</tr>
<tr>
<td>FAC</td>
<td>6,570</td>
<td>3.3</td>
</tr>
<tr>
<td>I-SL-TB</td>
<td>1,248</td>
<td>0.31</td>
</tr>
<tr>
<td>I-SL-FB</td>
<td>1,643</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Notes:

- Calculation of emissions from sources I-TB, I-FAB, and FAC were reported in permit application No. 2900351.14A.
- Calculation of emissions from sources I-SL-TB and I-SL-FB were reported in permit application No. 2900351.14B.

No PM emissions are expected from the dry filter-type gel application booths (ID No. GC1 and SL-GC2). Products are gel coated using non-atomized spray guns. As discussed in “Draft Guide to the Estimation and Permitting of Particulate Emissions from the Manufacture of Reinforced Plastic Composites,”2 “there are no PM emissions generated during application of resin or gelcoat by flowcoaters, by hand, or any other method that does not atomize applied liquid, because droplets small enough to become suspended or entrained by ventilation airflows virtually never form.”

6. Regulatory Review

Gainsborough is subject to the following regulations. The permit will be updated to reflect the most current stipulations for all applicable regulations.

- 15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes – This regulation is applicable to the dry-filter spray booths (ID Nos. I-TB and I-FAB), which vent PM emissions to

---

http://fusiforme.home.mindspring.com/dwnlds/pm_emissions.pdf
the atmosphere. These booths are insignificant activities, and no requirements will be added to the permit. Due to the small amount of PM emissions from these sources, compliance is anticipated.

No PM emissions are expected from dry-filter type spray booths (ID Nos. GC1 and SL-GC2) because products are coated with non-atomized spray guns. Thus, neither of these sources are subject to 2D .0515. Also, another spray booth at the facility (ID No. FAC) exhausts PM emissions indoors and is not subject to this rule.

Edge trimming and drilling booth (ID No. I-SL-TB), which has not yet been constructed, is also subject to 2D .0515. Because it is an insignificant activity, requirements for this booth will not be added to the permit once it has been constructed.

- **15A NCAC 2D .0521, Control of Visible Emissions** – This regulation requires the facility to control any visible emissions from emission sources that may be discharged from vents or stacks. Gainsborough has three existing dry-filter type spray booths (ID Nos. GC1, I-TB, and I-FAB) that vent to the atmosphere. These booths were manufactured after July 1, 1971 and must not have visible emissions of more than 20 percent opacity when averaged over a six-minute period, except as specified in 15A NCAC 2D .0521(d).

Requirements for the dry filter-type gel coat application booth for the bath manufacturing line (ID No. GC1) and shower manufacturing line (ID No. SL-GC2 (to be constructed)) will be included on the permit. Gainsborough must make monthly visible emission observation from these emissions sources. The facility will have to establish “normal” visible emissions from GCL within 30 days of permit issuance. The dry filter-type gel coat application booth for the shower manufacturing line (ID No. SL-GC2) is not yet constructed will have to establish “normal” visible emissions within 30 days of operation for this emission source. Compliance is anticipated.

Dry-filter spray booths (ID Nos. I-TB and I-FAB) are insignificant activities and requirements for these booths will not be added to the permit. A fourth spray booth at the facility (ID No. FAC) exhausts indoors and is not subject to this rule.

Edge trimming and drilling booth (ID No. I-SL-TB), which has not yet been constructed, is also subject to 2D .0521. Because it is an insignificant activity, requirements for this booth will not be added to the permit once it has been constructed.

- **15A NCAC 2D .0958, Work Practices for Sources of VOC** – Gainsborough is subject to 2D .0958 because it uses VOCs as solvents, carriers, material processing media, or industrial chemical reactants, or in other similar uses; mixes, blends, or manufactures volatile organic compounds; or emits volatile organic compounds as a product of chemical reactions. This rule is applicable facility wide, and compliance is anticipated.

- **15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions** – This regulation is applicable facility-wide and is state-enforceable only. No odor complaints have been received for this facility. Continued compliance is anticipated.
15A NCAC 2D .1111, Maximum Achievable Control Technology (MACT) – The facility is subject to the National Emission Standards for Hazardous Air Pollutants for Reinforced Plastic Composites Production, as promulgated under 40 CFR Part 63 Subpart WWWW. See Section 7 for further discussion on this MACT.

15A NCAC 2Q .0711, Emission Rates Requiring a Permit – Non-MACT sources are subject to 2Q .0711. More discussion is provided in Section 8 below.

7. NSPS, NESHAPS/MACT, NSR/PSD, RACT, 112(r), CAM

NSPS
The Permittee is not currently subject to any New Source Performance Standards. This permit modification does not affect this status.

NESHAPS/MACT
Gainsborough is a major source of HAPs. Emission sources at the facility are subject to “National Emissions Standards for Hazardous Air Pollutants for Reinforced Plastic Composites Production,” 40 CFR 63 Subpart WWWW (also referred to as MACT Subpart WWWW). This regulation applies to plastic composite production facilities that manufacture either reinforced or non-reinforced plastics. The rule covers open molding, closed molding, mixing, and equipment cleaning operations, as well as the storage of HAP-containing materials at the facility.

A reinforced plastic composites production facility is a new affected source if it commences construction of an affected source after August 2, 2001. All subject emission sources at the Gainsborough are considered new sources because they were constructed, or will be constructed, after this date.

In accordance with 40 CFR 63.5805(c), the facility has to comply with the emissions limits set forth in Table 3 of 40 CFR 63 Subpart WWWW for its open molding operations (ID Nos. GC1, SL-GC2, T1, I-SL-T2, HLU, SL-HLU2, and FAC). The emission limits are provided in the table below.

<table>
<thead>
<tr>
<th>Affected Source</th>
<th>Pollutant</th>
<th>Application Type</th>
<th>Emission Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Molding - non-corrosion resistant and/or high strength (CR/HS)</td>
<td>Organic HAP</td>
<td>Mechanical resin application</td>
<td>88 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manual resin application</td>
<td>87 lb/ton</td>
</tr>
<tr>
<td>Open Molding – tooling</td>
<td>Organic HAP</td>
<td>Mechanical resin application</td>
<td>254 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manual resin application</td>
<td>157 lb/ton</td>
</tr>
<tr>
<td>Open Molding - gel coat</td>
<td>Organic HAP</td>
<td>Tooling gel coating</td>
<td>440 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White/off-white pigmented gel coating</td>
<td>267 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All other pigment gel coating</td>
<td>377 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CR/HS or high performance gel coat</td>
<td>605 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fire retardant gel coat</td>
<td>854 lb/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clear production gel coat</td>
<td>522 lb/ton</td>
</tr>
</tbody>
</table>
MACT Subpart WWWW allows facilities several options to comply with the emission limits noted in the table above. The options specified in 40 CFR 63.5810(a) through (d) are briefly discussed in the following paragraphs.

**Option 1: Demonstrate an individual resin or gel coat, as applied, meets the applicable emission limit.**

For this option, Gainsborough must calculate an actual organic HAP emissions factor for each different process stream within each operation type using the appropriate equations in Table 1 of MACT Subpart WWWW. If the calculated emission factor is less than or equal to the appropriate emission limit, the facility has demonstrated the process stream complies with the emission limit.

**Option 2: Demonstrate the individual organic HAP emissions limits are met for each combination of operation type and resin application method or gel coat type, on average.**

As per 40 CFR 63.5810(b), the facility can demonstrate compliance with the emissions limits by using the following equation:

\[
\text{Average organic HAP Emissions} = \frac{\sum_{i=1}^{n} (\text{Actual Process Stream EF}_i \times \text{Material}_i)}{\sum_{i=1}^{n} \text{Material}_i} \quad (\text{Eq. 2})
\]

where,
- Actual Process Stream emissions factor (EF, lb/ton) is the actual organic HAP emission factor for process stream calculated by using the equations listed in Subpart WWWW Table 1
- Material (tons) is the neat resin plus or neat gel coat plus used during the last 12 calendar months for process stream i, and
- \( n \) is the number of process streams with a calculated organic HAP emissions factor

This option allows the facility to demonstrate that “on average” they meet the emissions limits listed in the table above for “each unique combination of operation type and resin application method or gel coat type...that applies” to them.

**Option 3: Demonstrate compliance with a weighted average emission limit.**

The facility can also demonstrate compliance with the emission limits by using the following equations as specified in 40 CFR 63.5810(c):

\[
\text{Weighted Average Emission Limit} = \frac{\sum_{i=1}^{n} (\text{EL}_i \times \text{Material}_i)}{\sum_{i=1}^{n} \text{Material}_i} \quad (\text{Eq. 3})
\]

where,
- \( \text{EL}_i \) (lb/ton) is the organic HAP emissions limit for operation type i from the table listed above
- \( \text{Material}_i \) (tons) is the neat resin plus or neat gel coat plus used during the last 12-month period for operation type i, and
- \( n \) is the number of operations
where,
- \( Actual \ Operation \ EF_i (lb/ton) \) is the actual organic HAP emissions factor for operation type \( i \)
- \( Material_i (tons) \) is the neat resin plus or neat gel coat plus used during the last 12 calendar months for operation type \( i \)
- \( n \) is the number of operations

The facility must calculate the weighted average organic HAP emissions limits for “all open molding operations” each month for the “last 12 month period” in order to determine the organic HAP emissions limit they must meet. They must also calculate their weighted average organic HAP emissions factor for the open molding operations each month. The values calculated by equations 3 and 4 must be compared and if “each 12-month rolling average organic HAP emissions factor is less than or equal to the corresponding 12-month rolling average organic HAP emissions limit” compliance is demonstrated.

**Option 4: Meet the organic HAP emissions limit for one application method and use the same resin(s) for all application methods of that resin type**

This option is limited to resins of the same type. The resin types for which this option may be used are noncorrosion-resistant, corrosion-resistant and/or high strength, and tooling. For any combination of manual resin application, mechanical resin application, filament application, or centrifugal casting, Gainsborough can meet the organic HAP emissions limit for any one of these application methods and use the same resin in all of the resin application methods.

For whichever option is selected, Gainsborough is required to keep records of resin and gel coat use, organic HAP content, and operation where the resin is used. Additionally, the facility must keep records of the calculations used to determine organic HAP emissions factors or average organic HAP contents.

In addition to complying with emission limits, subject facilities also have to comply with work practice standards in Table 4 to MACT Subpart WWWW, as applicable. The facility also must keep a certified statement that they are in compliance with the work practice requirements per 40 CFR 63.5915(d).

As specified in 40 CFR 63.5835(d), a facility must develop a written startup, shutdown, and malfunction plan according to the provisions in 40 CFR 63.6(e)(3) if it uses an add-on control to meet an organic HAP emission limit. Gainsborough is NOT required to develop, implement and maintain a startup, shutdown and malfunction plan because it has no add-on control devices.

Previously, dry filter-type spray booth (Finishing Area C) (ID No. FAC) was not thought to be subject to MACT Subpart WWWW. Activities in this area include sanding and manual gel coat application for seams and areas that need repair. As specified under 40 CFR 63.5790(b) activities covered under MACT Subpart WWWW include repair operations on parts the facility also manufactures. Therefore, this emission source is subject to MACT Subpart WWWW and will be denoted as such under this permit modification.
The mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2) and the resin transfer molding operations (ID Nos. RTM and SL-RTM2) were previously determined to be exempt from MACT Subpart WWWW. This determination is incorrect. Affected sources under this MACT consist of closed molding and cleaning operations, among several other activities. In 40 CFR 63.5790(c), the rule specifically excludes mold stripping and cleaning and certain closed molding operations (including resin transfer molding) from any requirements under MACT Subpart WWWW. It appears then, the mold cleaning and preparation processes (ID Nos. I-M1 and I-SL-M2) and the resin transfer molding operations (ID Nos. RTM and SL-RTM2) are subject to MACT Subpart WWWW with no applicable requirements. This change will be made as part of the permit modification.

NSR/PSD
Davidson County is currently in attainment for ozone. As shown under Section 5, the potential emissions of VOC are less than the major Prevention of Significant Deterioration (PSD) threshold of 250 tpy. Emissions of all other PSD regulated pollutants are much less than the VOC emissions. Therefore, the facility is considered minor for PSD, and no avoidance condition is needed in the permit.

112(r)
The 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 112(r). This permit modification does not affect the 112(r) status of the facility.

CAM
The facility has no control devices and is not subject to CAM. This permit modification does not affect the status of the facility.

8. Facility Wide Air Toxics
The DAQ conducted a screening level modeling analysis at the request of the facility when Gainsborough was initially permitted in 2008. Jerry Freeman of the Air Quality Analysis Branch (AQAB) summarized the results of the modeling in a memorandum dated January 24, 2008. Styrene was modeled an emission rate of 16 lb/hr to give an impact of 12% of its Acceptable Ambient Level (AAL).

In 2015, Gainsborough was permitted to add a new shower manufacturing line at its facility. The modification included an addition of a new stack and an increase of facility-wide emissions by 25%. The facility also requested to remove the air toxic limit under 2D .1100 for styrene for the emission sources subject to MACT Subpart WWWW. DAQ conducted an air toxics evaluation and demonstrated removing the permitted limit for styrene does not pose an unacceptable risk to human health. The modeled limit for styrene was removed under Air Permit No. 09685R03 for MACT emission sources. The review for Air Permit No. 09685R03 provides a detailed discussion of the air toxics evaluation.3

A permit condition for compliance with 2Q .0711 will be included in the permit for the applicable non-MACT emissions sources (ID Nos. I-FAB and I-SL-FB). Potential emissions of styrene and methyl ethyl ketone (MEK) from these emissions sources are reported as less than their toxic

3 Brian Bland (January 27, 2015).
permitting emission rates (TPER). The current permit lists styrene, toluene, and xylene under 2Q .0711 as TAPs from the non-MACT emission sources. However, no toluene or xylene emissions are reported from these sources from the DAQ emissions inventory. The permit application did not include emissions of xylene or toluene from these sources. The permit will be updated to include only styrene and MEK for the non-MACT emission sources as indicated by the permit application and the emission inventory. The table below provides potential emissions of TAPs from the non-MACT emission sources.

<table>
<thead>
<tr>
<th>Emission Source</th>
<th>Potential Emissions of Styrene</th>
<th>Potential Emissions of MEK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/hr</td>
<td>lb/day</td>
</tr>
<tr>
<td>I-FAB</td>
<td>0.127</td>
<td>3.05</td>
</tr>
<tr>
<td>I-SL-FB</td>
<td>0.032</td>
<td>0.76</td>
</tr>
<tr>
<td>Total</td>
<td>0.159</td>
<td>3.81</td>
</tr>
<tr>
<td>TPER</td>
<td>2.7</td>
<td>--</td>
</tr>
</tbody>
</table>

Notes:
- Calculation of styrene emissions from sources I-FAB were reported in Permit Application No. 2900351.14A. The emissions reported from I-FAB were adjusted to account for a minor difference in calculation methodology and are slightly larger than reported in the permit applications.
- Emissions from I-SL-FAB were assumed to be 25% of emissions of I-FAB as specified in Air Permit No. 2900351.14B.

The potential emissions of styrene and MEK from these non-MACT sources remain below the TPERS, and continued compliance is anticipated.

9. Facility Emissions Review

The potential emissions as reported in Permit Application Nos. 2900351.14A and 2900351.14B are provided in the table below. Actual emissions for criteria pollutants and HAPs are provided in the header of this permit review.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Potential Emissions (tons per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM/PM10/PM2.5</td>
<td>8.98</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>Nitrogen oxides</td>
<td>0.23</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>0.19</td>
</tr>
<tr>
<td>VOC</td>
<td>63.62</td>
</tr>
<tr>
<td>Total HAP</td>
<td>63.62</td>
</tr>
<tr>
<td>Largest HAP (styrene)</td>
<td>60.08</td>
</tr>
</tbody>
</table>

Notes:
- Potential emissions for all pollutants, except CO and NOx, were reported in Permit Application No. 2900351.14B and include emissions from the new shower manufacturing line.
- The only combustion sources at the facility are the small space heaters, which emit CO, SO2, and NOx. These emissions were reported in Permit Application No. 2900351.14A and are based DAQ’s “Natural Gas Combustion Emissions Calculator Revision K” (06/19/2012).
10. Compliance Status

During the most recent inspection conducted on November 10, 2015 by Taylor Hartsfield of the WSRO, the facility appeared to operate in compliance with all applicable air quality regulations and permit conditions. Additionally, a signed Title V Compliance Certification (Form E5) indicating the facility was in compliance with all applicable requirements was included with the permit application.

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

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. Virginia, South Carolina, Mecklenburg County Air Quality, and Forsyth County Office of Environmental Assistance and Protection are within 50 miles of the facility.

12. Other Regulatory Considerations

- A P.E. seal is required and was received with the permit application on September 24, 2014.
- A zoning consistency determination is NOT required with the permit application.
- A permit fee of $918 was required for the permit application and was received on September 24, 2014.

13. Recommendations

The permit application for Gainsborough Baths, LLC in Lexington, Davidson County, NC has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 09685T04.