

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Air Permit Review**

**Permit Issue Date:**

**Region:** Fayetteville Regional Office  
**County:** Cumberland  
**NC Facility ID:** 2600050  
**Inspector's Name:** Gregory Reeves  
**Date of Last Inspection:** 03/23/2011  
**Compliance Code:** 3 / Compliance - inspection

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>	
<p><b>Applicant (Facility's Name):</b> The Goodyear Tire &amp; Rubber Company</p> <p><b>Facility Address:</b> The Goodyear Tire &amp; Rubber Company 6650 Ramsey Street Fayetteville, NC 28302</p> <p><b>SIC:</b> 3011 / Tires And Inner Tubes <b>NAICS:</b> 326211 / Tire Manufacturing (except Retreading)</p> <p><b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V</p>			<p><b>SIP:</b> <b>NSPS:</b> <b>NESHAP:</b> <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b></p>	
<b>Contact Data</b>			<b>Application Data</b>	
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<p><b>Application Number:</b> 2600050.11A <b>Date Received:</b> 01/19/2011 <b>Application Type:</b> Modification <b>Application Schedule:</b> PSD</p> <p style="text-align: center;"><b>Existing Permit Data</b></p> <p><b>Existing Permit Number:</b> 00011/T41 <b>Existing Permit Issue Date:</b> 12/20/2010 <b>Existing Permit Expiration Date:</b> 12/31/2013</p>	
<p>Alan Markle Environmental Coordinator (910) 630-5678 6650 Ramsey St Fayetteville, NC 28311</p>	<p>Billy Taylor Plant Manager (910) 630-5211 6650 Ramsay St Fayetteville, NC 28311</p>	<p>Alan Markle Environmental Coordinator (910) 630-5678 6650 Ramsey St Fayetteville, NC 28311</p>		
<p><b>Review Engineer:</b> Gautam Patnaik</p> <p><b>Review Engineer's Signature:</b> _____ <b>Date:</b> _____</p>			<p style="text-align: center;"><b>Comments / Recommendations:</b></p> <p><b>Issue</b> 00011/T42 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b></p>	

**I. Introduction and back ground**

The Goodyear Tire & Rubber Company operates a rubber tire manufacturing plant in Fayetteville (Cumberland County), North Carolina. The facility primarily produces passenger tires and radial light truck tires. The plant's Standard Industrial Classification (SIC) code is 3011 (Manufacture of Tires and Tubes), and the plant's North American Industry Classification System (NAICS) code is 326211 (Tire Manufacturing.)

Goodyear Fayetteville is a major source under Title V of the Clean Air Act (CAA) and the North Carolina Administrative Code Title 15A, Chapter 2, Subchapter 2Q, Section 500 (NCAC 15A 2Q.500). This facility is also an existing major source under the Prevention of Significant Deterioration (PSD) program and is currently operating in accordance with North Carolina Division of Air Quality (NCDAQ) Title V Operating Permit No. 00011T41.

Rubber mixing is currently conducted in nine banbury mixers at this facility, four dedicated to productive mixing, four dedicated to non-productive mixing, including Banbury Mixer # 8, and one swing banbury mixer (i.e., can operate as non-productive or productive). Non-productive rubber has no cure agents, productive rubber has cure agents. Non-productive rubber is obtained from the initial stage of mixing where the main raw materials are combined without the cure agents being added. Productive rubber is obtained from the final stage of mixing where the cure agents are introduced into the rubber compound prior to transport to the calendaring/extruding area. The mixing materials include carbon black, process oils, pigments, natural rubber, synthetic rubber, and specially-formulated coupling agents.

The Banbury mixers are fed manually with raw materials, oil is injected at a certain interval within the mixing cycle, and the entire mixture is blended in batch mode. The mixed batch then falls from the banbury mixer onto a mill, a roller die extruder, or other device where it is further blended. The batch is then processed into either continuous slab rubber or into small “pellets” of rubber for temporary storage. Currently, only pellets can be formed in Banbury Mixer #8, which includes an associated pelletizer, a slurry dip vat, two pellet coolers, and a pellet loader. Particulate matter (PM) emissions from the Banbury mixers are controlled with dust collectors.

## II. Purpose of Application

A portion of the tires manufactured at the facility is produced using the special coupling agent. Usage of this agent allows the facility to meet the increasing demands of auto manufacturers and to meet the United States Environmental Protection Agency’s (U.S. EPA) Corporate Average Fuel Economy (CAFE) standards. The processing of rubber containing the coupling agent results in ethanol (VOC) emissions that do not occur from the mixing of other rubber formulations. This type of rubber mixing is currently performed in four Banbury mixers (BB01-K9-1, BB02-L9-1, BB06A-V9-1 and BB07-AE8-1). The applicant is proposing to produce rubber containing silica and the special coupling agent in the modified Banbury Mixer #8. Ethanol emissions from the mixers are routed to a single regenerative thermal oxidizer (RTO) for VOC control. The special coupling agent is currently being used in Banbury Mixers #1 and #2 (ID Nos. BB01-K9-1 and BB02-L9-1) and once the modifications to Banbury Mixer #8 is complete and with the production of rubber containing the coupling agent in Banbury Mixers #6A, #7 and #8, the facility plans to stop coupling agent usage in Banbury Mixers #1 and #2 (BB01-K9-1 and BB02-L9-1) and disconnect them from the RTO.

Emissions from rubber mixing processes consist of VOC, hazardous air pollutants (HAP), and PM. Emissions from Banbury Mixer #8 were calculated using throughput through the mixer, Rubber Manufacturer Association (RMA) emission factors (per compound in the rubber), and PM control efficiency of the dust collector. Emissions factors take into account the various compounds made in the tires using a percentage of each compound per pound of rubber produced. Non-productive rubber mixing comprises 90% of the total rubber emissions. Therefore, Banbury Mixer #8 (a non-productive mixer) applies a 90% factor.

The coupling agent produces ethanol, through a series of chemical reactions. The evolution of ethanol is dependent on the processing temperature and rubber formulation and assumption that VOC emissions are split between emissions from mixing (75%) and emissions from curing (25%), which is the standard approach for distributing ethanol emission releases used at this facility and per their formulation, each pound of coupling agent produces 0.252 pounds of ethanol.

Particulate emissions from the associated equipment (e.g., carbon black towers, hand weigh operations, etc.) were calculated using throughput, fly loss percentage, and control efficiency of the dust collectors. Calculations assume a 1% fly loss percentage and a 98% control device efficiency. The associated units throughput attributed to Banbury Mixer #8 was derived from the total unit throughput, multiplied by the ratio of Banbury Mixer #8 rubber throughput to total mixing rubber throughput. All PM were assumed to be PM<sub>10</sub>.

The total facility-wide potential coupling agent throughput is 2,710,000 pounds per year. The facility will continue to use the coupling agent in only two Banbury mixers at a time to remain within the design limits of the RTO (See Section 2.2 B. 1. b. iii., of the Permit). Potential emissions are calculated assuming Banbury Mixer #8 would use 1,350,000 pounds of the coupling agent per year

The facility is proposing to upgrade the existing Banbury Mixer #8 (ID No. BB08-CE8-1). This modification includes the replacement of the pelletizer on the Banbury Mixer #8 with a twin screw roller die extruder and increasing the capacity of the unit by approximately 15%. As part of the modification, the pellet feed system will be removed and Banbury Mixer #8 will no longer have the capability to receive pellets. The pellet feed system will also be removed for Banbury Mixer #7.

The modifications to Banbury Mixer #8 will give the mixer the ability to mix a new family of rubber polymers. These polymers will not change emissions from the mixer except that some of the rubber compounds containing the polymers will also use coupling agents producing ethanol as described above. The use of these polymers in green tires is not anticipated to have any impact on tire curing time. Curing time is the bottleneck of the tire production process, which according to the RMA website, curing time for a passenger tire is approximately 12 to 15 minutes. Therefore, the facility does not expect an increase in actual rubber throughput in the curing area (increases in rubber throughput from Banbury Mixer #8 will be offset by the decreases in rubber throughput in Banbury Mixers #1 and #2).

In addition, the facility requests to utilize Banbury Mixer #8 to mix rubber compound which involves the use of silica and the special coupling agent resulting in increased volatile organic compound (VOC) emissions in the form of ethanol. This VOC emission increase associated with the using of the special agent, exceeds the PSD significant emission rate (SER). Therefore, this project will be subject to PSD review. The emissions of other criteria pollutant emissions are less than their respective SERs.

As a result of the removal of the pelletizer on Banbury Mixer #8, the particulate matter emissions from the associated equipment related to Banbury Mixer #8 pellet handling will be eliminated. Throughput from the other associated equipment common to all the Banbury mixers (such as the carbon black handling system) will increase as a result of the increased throughput of Banbury Mixer #8.

### Previous PSD Modifications

This facility has had two previous PSD modifications:

- 1) Air Quality Permit No. 00011T40 issued on April 12, 2010:  
Was issued to upgrade Banbury Mixer #7 (ID No. BB07-AE8-1) by replacing the existing pelletizer with a twin screw roller die extruder and add the ability to use a coupling agent in Mixer #7.

- 2) Air Quality Permit No. 00011T36 issued on June 2, 2008:  
Was issued to allow the use of coupling agent at Banbury Mixers #1, #2, and #6A (ID Nos. K9-1, L9-1, and V9-1) and at the tire curing operations (ID Nos. GTS-CP-01 through GTS-CP-322).

### III. Regulatory Summary

The following discussion pertains to the Federal and state regulatory requirements that are applicable to this project:

#### A. 15A NCAC 02D .0515 “Particulates from Miscellaneous Industrial Processes”

This regulation specifies the allowable emission rate from any stack, vent, or outlet, resulting from any industrial process for which no other emission control standards are applicable, shall not exceed the level calculated using the process weight rate.

Banbury Mixer #1 and # 2 (BB01-K9-1 and BB02-L9-1) will be disconnected from the RTO however, the particulate matter emissions from these sources will still be controlled by the bagfilters (DC-13 and DC-14). The rubber pellet material feed system for Banbury mixer #7 (No. AE8-3), Pellet Loaders (BB07-AE-12, BB08-CE11B-1, BB08-CE11B-2, and BB08-CE-12), and their associated control devices (DC-29, DC-115, DC-116, DC-117, and DC-115) will be removed and will not be a factor for increased particulate matter emissions.

The latest inspection found the facility to be in compliance including the Banbury Mixer #8 (BB08-CE8-1) which is subject to this regulation and is controlled by an existing bagfilter (ID No. DC-21). The Banbury Mixer #8, will now also be controlled by gas-fired regenerative thermal oxidizer (RTO) in series with the bagfilter. The addition of the RTO will provide some control to particulate matter emissions.

#### Monitoring/Recordkeeping/Reporting

The applicant shall conduct a monthly external inspection of the ductwork, bin vent filters, and bagfilter noting the structural integrity; and an annual internal inspection of the bin vent filters, cyclones, and bagfilter noting the structural integrity and the condition of all filters. The results of inspection and maintenance shall be maintained in a log made available to DAQ. The applicant shall submit a semi annual summary report to DAQ.

#### B. 15A NCAC 02D .0521 “Control of Visible Emissions”

For sources modified and mentioned in Secion III A., of the review above these sources are all subject to 20 percent opacity when averaged over a six-minute period.

#### Monitoring/Recordkeeping/Reporting

The applicant shall establish “normal” for the Banbury Mixer #1 and # 2 (BB01-K9-1 and BB02-L9-1), and the Banbury Mixer #8 (BB08-CE8-1) in the first 30 days following the modification of the sources.

C. 15A NCAC 2D .1100: “Control of Toxic Air Pollutants”

The facility exceeded the facility-wide toxic air pollutant (TAP) permit exemption rates and conducted a modeling analysis in 2007 to demonstrate compliance with the acceptable ambient levels. These modeled emissions are stipulated in 2.2 a. 2. a., of their permit. The potential facility-wide toxics emissions by this project are below these limits and therefore, additional modeling is not required at this time. The use of coupling agent in Banbury Mixer #8 (BB08-CE8-1) will result in a potential increase of ethanol emissions. Ethanol is not a state regulated toxic air pollutant (TAP) and thus the facility will not have to demonstrate toxic compliance by excess emissions of this pollutant.

D. 15A NCAC 02D .0958 “Work Practices for Sources of VOC”

The facility is currently subject to this regulation, which provides work practice standards for VOC emissions sources to limit evaporative losses. The facility will continue to comply with the work practice standards.

E. 15A NCAC 02D .0524 “40 CFR 60, Subpart BBB: NSPS for the Rubber Tire Manufacturing Industry”

The New Source Performance Standard (NSPS) for the Rubber Tire Manufacturing Industry applies to green tire spraying machines, tread end cementers, sidewall cementers, and under tread cementers that are constructed or modified after January 20, 1983. Various equipments at this facility are subject to this NSPS. Use of the coupling agent in the rubber mix does not affect operations at the green tire spraying machines, tread end cementers, sidewall cementers, under tread cementers, or mixers therefore this Subpart is not applicable to the proposed modification.

F. 15A NCAC 02D .1111 “40 CFR 63, Subpart XXXX: Rubber Tire Manufacturing MACT”

This facility is subject to the National Emission Standards for Hazardous Air Pollutants (HAP) (NESHAP) for the Rubber Tire Manufacturing Industry, which limits the HAP concentration in cements and solvents used at the facility. As defined in 40 CFR 63.6015, cements and solvents do not include materials used in rubber processing. Therefore, the coupling agent, which is a material used for rubber processing, is not affected by the MACT requirements.

G. 15A NCAC 2Q .0500 “Title V Procedures”

The proposed modification constitutes a significant modification of the Title V Air Quality Permit. Goodyear has chosen to use the two step significant modification procedures pursuant to 15A NCAC 2Q .0501(c)(2). This first step modification is being processed in accordance with state permitting procedures and the PSD permitting procedures in 15A NCAC 2D .0530. Within 12 months of initial

start-up of any of the new or modified equipment, Goodyear is required to submit a Title V application as required under 2Q .0504.

H. 15A NCAC 02D .0614 “40 CFR Part 64, Compliance Assurance Monitoring (CAM)”

Banbury Mixer #8 will now be controlled by RTO (ID No. RTO-1) to comply with the VOC BACT emission limitation proposed in this permit modification. As stated in Specific Condition 2.3 A.1.b., of the permit, 15A NCAC 2D .0614 does not apply to the permitted sources that are controlled by the regenerative thermal oxidizer (ID No. RTO-1) because the applicant is required to install, operate, and maintain a continuous monitoring system for the measurement and recording of combustion chamber temperature that meets the exemption applicability of 40 CFR 64.2(b)(1)(vi).

I. 15A NCAC 02D .0530 “Prevention of Significant Deterioration”

Congress first established the New Source Review (NSR) program as part of the 1977 Clean Air Act Amendments and modified the program in the 1990 Amendments. The NSR program requires pre-construction review prior to obtaining a permit. The basic goal of NSR is to ensure that the air quality in clean (i.e. attainment) areas does not significantly deteriorate while maintaining a margin for future industrial growth. The NSR regulations focus on industrial facilities, both new and modified, that create large increases in the emission of certain pollutants. PSD permits are a type of NSR permitting requirement for new major sources or sources making a major modification in an attainment area.

Pursuant to the Federal Register notice on February 23, 1982, North Carolina (NC) has full authority from the EPA to implement the PSD regulations in the State effective May 25, 1982. NC's State Implementation Plan (SIP)-approved PSD regulations have been codified in 15A NCAC 2D .0530, which implement the requirements of 40 CFR 51.166. The Code of Federal Regulations (CFR) in 15A NCAC 2D .0530 are incorporated by reference unless a specific reference states otherwise. The version of the CFR incorporated in 15A NCAC 2D .0530 is that as of November 7, 2003, except those provisions noticed as stayed in 69 FR 40274, and does not include any subsequent amendments or editions to the referenced material. The PSD regulations applicable to this project are the regulations in 15A NCAC 2D .0530 in effect as of the final permit issuance date. The latest revisions to 15A NCAC 2D .0530 became effective on July 28, 2006.

Under PSD requirements, all major new or modified stationary sources of air pollutants as defined in Section 169 of the Federal Clean Air Act (CAA) must be reviewed and permitted prior to construction by the permitting authority, as applicable, in accordance with Section 165 of CAA. A "major stationary source" is defined as any one of 28 named source categories, which emits or has a potential to emit 100 tons per year of any regulated pollutant, or any other stationary source, which emits or has the potential to emit 250 tons per year of any PSD regulated pollutant.

The tire manufacturing industry (SIC Code 3011) is not one of the 28 named source categories. However, the Goodyear facility has the potential to emit greater than 250 tpy of a PSD-regulated pollutant, and is therefore an existing PSD major stationary source as defined in 40 CFR 51.166(b)(1)(i)(b). For existing major stationary sources, there are several steps to determine whether the modification is a *major modification* and therefore subject to PSD pre-construction

review. The first step is to determine whether there is a physical change or change in the method of operation. Second, there must be an emissions increase. The third, the net emissions increase must be equal to or greater than certain "significance levels" as listed in 40 CFR 51.166(b)(23)(i) for the regulated pollutants.

40 CFR 51.166(b) (47) outlines the procedure to determine baseline actual emissions and the facility used 2008 and 2009 calendar years for the Banbury Mixer #8 only, since this was the only source with a projected emissions increase. Note that although Banbury Mixer #8 produced pellets during the baseline period, Goodyear elected not to calculate baseline emissions from these operations. Projected actual emissions for the Banbury Mixer were calculated using a 15 percent increase in throughput from the current maximum throughput capacity of the Banbury Mixer (181,000,000 lb/yr). Because of the multiple passes required for non-productive rubber, the actual rubber throughput to downstream operations (e.g., milling, curing) is approximately 75,000,000 pounds. The projected actual throughput for the associated emission units was calculated by increasing the baseline throughput by the ratio of projected actual Banbury Mixer #8 throughput to the baseline Banbury Mixer #8 throughput. This methodology for calculating projected actual emissions is consistent with the methodology used in the Banbury Mixer #7 modification (Application Number: 2600050.09D).

The table below shows the calculated emissions increase, compared to the PSD Significant Emission Rates (SERs). Only VOC emission increases are above the PSD SERs for the proposed project.

	<b>Total Baseline Emissions</b>	<b>Projected Actual Emissions</b>	<b>Emission Increase</b>	
<b>Pollutant</b>	<b>(tpy)</b>	<b>(tpy)</b>	<b>(tpy)</b>	<b>PSD SER (tpy)</b>
PM	2.66	5.64	2.98	25
PM <sub>10</sub>	2.66	5.64	2.98	15
PM <sub>2.5</sub>	2.66	5.64	2.98	10
VOC	2.75	99.95	97.20	40

The changes to be made in the project description as mentioned above and the use of a coupling agent in the rubber mix at the Banbury Mixer #8 does constitute a change in the method of operation. The modification mentioned above will result in a projected controlled VOC emissions increase of 97.2 tpy. Because the VOC emissions increase exceeds 40 tpy, the significant level for an existing major stationary source, the proposed project must be evaluated as a PSD major modification with respect to this pollutant. The proposed project will not result in emissions increases of any other NSR-regulated pollutant. In accordance with the PSD requirements for major modifications pursuant to 15A NCAC 2D .0530 and 40 CFR 51.166, Goodyear performed the following reviews and analyses for VOC emissions associated with the project:

BACT determination (See Section IV);  
 Air Quality Impact Analysis (See Section V); and,  
 Additional Impacts Analysis including effects on soils, vegetation, visibility, and Class I areas (See Section VI).

#### IV. Best Available Control Technology (BACT)

The BACT requirements are intended to ensure that the control systems incorporated in the design of the proposed modification reflect the latest control technologies used in a particular industry and take into consideration existing and future air quality in the vicinity of the facility. Given the variation between emission sources, facility configuration, local airsheds, and other case-by-case considerations, Congress determined that it was impossible to establish a single BACT determination for a particular pollutant or source. Economics, energy, and environmental impact are mandated in the CAA to be considered in the determination of case-by-case BACT for specific emission sources.

Best Available Control Technology may be defined through an emission limitation based on the maximum degree of reduction of each pollutant subject to PSD regulation, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques.

To assist in bringing consistency to the BACT process, U.S. EPA developed guidance for PSD applicants to use the "top-down" approach to BACT. However, NC DAQ does not strictly adhere to EPA's top-down guidance. Rather NC DAQ implements BACT in strict accordance with the statutory and regulatory language. As such, NC DAQ's BACT conclusions may differ from those of the applicant or U.S. EPA.

##### *BACT for VOC Control:*

The proposed project results in an emission increase of VOC from the Banbury Mixer No. 8 when mixing the coupling agent. Therefore, PSD review is required for VOC.

##### *i) Step 1 – Identify Control Options:*

A review of the EPA's RACT/BACT/LAER Clearinghouse (RBLC) and state-issued air permits was conducted for comparable emissions sources and the following list of control measures and operational practices for consideration of BACT to reduce VOC emissions from tire manufacturing operations:

##### Control Options:

1. Regenerative Thermal Oxidation (RTO)
2. Regenerative Catalytic Oxidation (RCO)
3. Condensers
4. Good Design/Operation

Goodyear Fayetteville currently operates an RTO to control VOC emissions from mixing.

##### *ii) Step 2 – Eliminate Technically Infeasible Control Options and Operational Practices:*

All of the control measures and operational practices mentioned above are worthy of consideration.

*iii) Step 2 Rank Remaining Options by Effectiveness*

The table below lists the remaining technically feasible controls and their efficiencies.

Pollutant	Listed Control Technologies	Potential Control Effectiveness (%)
VOC	RTO	95%
	RCO	95%
	Condensers	75%
	Good Design/Operation	Base Case

*iv) Step 4 – Evaluate Control Options:*

Not applicable – See step v) below.

*v) Step 5 – Select BACT:*

As noted in the table above the RTO at Goodyear Fayetteville facility has the greatest control effectiveness of all listed control technologies. Goodyear will use this top tier control device (RTO) as BACT for VOC emissions control from the Banbury mixer #8 (ID No. BB08-CE8-1).

Emissions of VOCs resulting from the use of the coupling agent Banbury mixer (ID No. BB08-CE8-1) shall not exceed 13.2 pounds per ton of rubber compound processed as stipulated in Section 2.2 B. 1. a., of the revised permit. The applicant shall maintain the 3-hour average combustion temperature of the regenerative thermal oxidizer (ID No. RTO-1) at or above 1,630 degrees Fahrenheit when in use. The facility plans to stop coupling agent usage in Banbury Mixers #1 and #2 (BB01-K9-1 and BB02-L9-1) and disconnect them from the RTO. Section 2.2 B. 1. b. ii., of the permit makes this possible when the regenerative thermal oxidizer is not required when none of the mixer is being used to mix rubber formulations with an organic coupling agent.

Green House Gas (GHG) Emissions

The Green House Gases (GHG) are pollutants that trap heat in the atmosphere and are associated with climate change. Under EPA rulemaking the “Tailoring rule” issued on June 3, 2010, and codified in: “<http://www.gpo.gov/fdsys/pkg/FR-2010-06-03/pdf/2010-11974.pdf#page=1>” covers applicability of PSD and Title V to GHG emissions starting January 2, 2011. Under this rule GHGs are a single air pollutant defined as the aggregate group of the following six gases:

- Carbon dioxide (CO<sub>2</sub>)
- Methane (CH<sub>4</sub>)
- Nitrous oxide (N<sub>2</sub>O)
- Sulfur hexafluoride (SF<sub>6</sub>)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)

This rule will be implemented in a phased approach based on the time frame the permit is issued and since the permit for this modification is very likely to be issued after July 1, 2011 this modification will be subject to the Step 2 of the “Tailoring rule.”

Step 2 will begin July 1, 2011, and will build on Step 1. In this phase, modifications at existing facilities that increase GHG emissions by at least 75,000 tpy will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant. The Green House Gases net emissions increase due to this project are from combustion sources and are less than 6,000 tons of CO<sub>2</sub>e per year and thus are not subject to a GHG BACT review

## **V. Air Quality Impact Analysis**

PSD regulations [40 CFR 51.166(k)] requires to demonstrate air quality analysis of the ambient impacts associated with the construction and operation of the proposed source or modification. The analysis should demonstrate that emissions from the proposed major source or modification in conjunction with existing sources will not cause or contribute to a violation of any applicable NAAQS or PSD increment especially ambient impact analysis to determine if the Class II Area National Ambient Air Quality Standards (NAAQS), Class II Area increment, and Class I Area increment standards will be exceeded at any location and during any time period where the proposed modification will have significant impact. The proposed modification results only in an increase of VOC emissions above PSD significant thresholds. However, in accordance with 40 CFR 52.21(i)(8)(ii), EPA has not established an acceptable ambient monitoring method for VOC. Therefore, there are no modeling requirements for this pollutant.

### Volatile Organic Compounds (VOCs)

VOC, in combination with NO<sub>x</sub> and sunlight, is a precursor to ozone formation. Previous and on-going regional air dispersion modeling efforts associated with attainment planning within the North Carolina air shed have shown that VOC emissions increase of 98 tpy will not contribute to significant ozone formation. No additional monitoring or modeling is required to demonstrate that the proposed project . There are not increments for VOCs.

No additional monitoring or modeling is required to demonstrate that the proposed project will not result in an exceedance of any Class I Area increment standards.

## **VI. Additional Impact Analysis**

### A. Local Visibility, Soils, and Vegetation

PSD regulations [40 CFR 61.166(o)(1)] require that applications for major modifications include an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the proposed modification and the associated commercial, residential, industrial, and other growth. The analysis need not include an evaluation of the impact on vegetation having no significant commercial or recreational value.

Atmospheric ammonium sulfate  $[(\text{NH}_4)_2\text{SO}_4]$ , which likely increases in concentration with increased  $\text{SO}_2$  emissions to the atmosphere, is the major contributor to visibility impairment in North Carolina. The proposed project, which is only anticipated to increase VOC emissions from the facility, is not anticipated to have any impact on local visibility impairment.

Gaseous air pollutants can potentially cause harmful acute, chronic, and long-term effects on vegetation. Acute and chronic effects are caused by the pollutant acting directly on the organism, while long-term effects are indirectly caused by secondary agents, such as changes to soil pH.

VOCs, along with  $\text{NO}_x$  and sunlight, is a precursor to ozone formation. Ground-level ozone can have detrimental effects on plants and ecosystems, including:

- Interference with the ability of plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition and harsh weather;
- Damage to leaves of trees and other plants, negatively impacting the appearance of urban vegetation, National Parks, and recreation areas; and,
- Reduction of crop yields and forest growth, potentially impacting species diversity in ecosystems.<sup>1</sup>

The Goodyear facility is located in the Coastal Plains of North Carolina, which is characterized by naturally high VOC concentrations in the atmosphere due to the high concentration of pine forests. The formation of ozone in North Carolina has been shown to be  $\text{NO}_x$ -limited. Therefore, the VOC emissions increases associated with this project are not anticipated to significantly increase ground-level ozone concentrations or impact regional soils or vegetation.

## B. Growth Impacts

PSD regulations [40 CFR 61.166(o)(2)] requires that applications for major modifications include an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the proposed modification.

Associated growth includes residential and commercial/industrial growth resulting from the new facility. Residential growth depends on the number of new employees and the availability of housing in the area, while associated commercial and industrial growth consists of new sources providing services to the new employees and the facility. Goodyear does not anticipate that additional personnel will be employed to aid the increased coupling agent usage and Banbury Mixer #8 upgrade. Therefore, additional growth from this project is expected to be minimal.

## C. Visibility Impacts on Class I Areas

PSD regulations [40 CFR 61.166(p)] provides an opportunity for the Federal Land Manager (FLM) to determine whether the proposed modification would have an adverse impact on an air quality related value (AQRV), including visibility, on any Class I areas.

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<sup>1</sup> U.S. Environmental Protection Agency. (March 6, 2007). *Ground-Level Ozone, Health and Environment*. Retrieved February 8, 2008 from U.S. EPA website: <http://www.epa.gov/air/ozonepollution/health.html>

Fayetteville facility does not lie within a 200 kilometer radius of any Class I areas. The closest Class I areas to the Goodyear Fayetteville facility are Swanquarter and Cape Romain.

On June 1, 2011 Mr. Chuck Buckler (NC DAQ) contacted Ms. Jill Webster, of the US Fish and Wildlife Service. She responded stating “Based on the emissions contained in this email, the Fish and Wildlife Service does not anticipate any additional significant impacts at the Class I areas.”

The FLM has not submitted any demonstration.

## **VII. NSPS, NESHAPS, Attainment Status, CAM, Compliance Status, and Notification in Areas Without Zoning**

### NSPS

The New Source Performance Standard (NSPS) for the Rubber Tire Manufacturing Industry applies to green tire spraying machines, tread end cementers, sidewall cementers, and under tread cementers that are constructed or modified after January 20, 1983. However, the proposed use of a coupling agent in the rubber mix does not affect operations at the green tire spraying machines, tread end cementers, sidewall cementers, or under tread cementers. Therefore, this Subpart is not applicable to the proposed project.

### NESHAP/MACT

This facility is subject to the National Emission Standards for Hazardous Air Pollutants (HAP) NESHAP) for the Rubber Tire Manufacturing Industry, which limits the HAP concentration in cements and solvents used at the facility. As defined in 40 CFR 63.6015, cements and solvents do not include materials used in rubber processing. Therefore, the coupling agent, which is a material used for rubber processing, is not affected by the MACT requirements.

In addition, As per 40 CFR 63.5982(b)(4) “The rubber processing affected source is the collection of all rubber mixing processes (e.g., banburys and associated drop mills) that either mix compounds or warm rubber compound before the compound is processed into components of rubber tires. The mixed rubber compound itself is also included in the rubber processing affected source. There are no emission limitations or other requirements for the rubber processing affected source.” Thus, the Banbury mixers are MACT-affected sources with no applicable requirements.

### CAM

The current permit section 2.3 A. 1. b., exempts the regenerative thermal oxidizer (ID No. RTO-1) and the sources being controlled by this control device because the applicant is required to install, operate, and maintain a continuous monitoring system for the measurement and recording of combustion chamber temperature that meets the exemption applicability of 40 CFR 64.2(b)(1)(vi).

### Compliance Status

On the latest inspection done on 03/23/2011 by Mr. Greg Reeves of the Regional Office the facility was found to be in compliance on the date of the inspection.

### **VIII Public Notice/EPA, Regional Office & Applicant Review**

The Regional Office and the applicant were also provided a copy of the draft permit and their comments taken into account.

Public Notice Requirements – 40 CFR 51.166(q) requires that the permitting agency make available to the public a preliminary determination on the proposed project, including all materials considered in making this determination. With respect to this preliminary determination the NCDAQ:

- i) will make available in the NCDAQ Fayetteville Regional Office all materials submitted, a copy of the preliminary determination, and other information submitted and considered. In addition a copy of this same information will be available at the NCDAQ Central Office in Raleigh, NC.
- ii) Will publish a public notice, by advertisement in a local paper including the preliminary decision and the opportunity for public comment.
- iii) Send a copy of the public notice to:
  - a. The applicant
  - b. EPA Region IV for comment
  - c. Officials having cognizance over the location of the location of the project as follows:
    - i. Any affected state/local air agency – No other state or local agencies are expected to be affected by this project.
    - ii. Chief Executives of the city and county in which the proposed project is to be located. Notices will be sent to the County Manager, Cumberland County
    - iii. Federal Land Manager – As noted above, the FLM for the closest Class I area did not request any analysis to be performed.

### **IX. Recommendations**

It is recommended that permit no. 00011T42 be issued.

### **X. Changes made in the proposed Permit.**

The following table describes the changes in modified permit:

<b>Page(s)</b>	<b>Permit Condition</b>	<b>Description of Change(s)</b>
4	Source List	Removed rubber pellet material feed system for Banbury mixer #7 (No. AE8-3) and associated bagfilter (DC-29)
4	Source List	Removed natural gas-fired regenerative thermal oxidizer (RTO) from the Banbury Mixer #1
4	Source List	Removed natural gas-fired regenerative thermal oxidizer (RTO) from the Banbury Mixer #2
5	Source List	Removed Pellet Loader – Process #7 and associated dust collector (DC-115)

<b>Page(s)</b>	<b>Permit Condition</b>	<b>Description of Change(s)</b>
6	Source List	Banbury Mixer #8 controlled by natural gas-fired regenerative thermal oxidizer (RTO)
6	Source List	Removed Pellet Cooler – Process #8 (BB08-CE11B-1, BB08-CE11B-2, and BB08-CE-12) and associated dust collector/cyclones (DC-116, DC-117, and DC-115)
20	2.1 C.	Added Banbury mixer #8 (ID No. BB08-CE8-1) with associated bagfilter (ID No. DC-21) and regenerative thermal oxidizer (ID No. RTO-1)
22	2.1 C. 1.	2D .0515 requirements for Banbury mixer #8 (ID No. BB08-CE8-1)
23 to 24	2.1 C.2.	2D .0521 requirements for Banbury mixer #8 (ID No. BB08-CE8-1)
31 to 33	2.2 B. 1.	BACT requirements for Banbury mixer #8 (ID No. BB08-CE8-1)
33	2. 3	Permit Shield for the RTO controlled sources
35 to 46	General Conditions	Updated