

Application Review

Issue Date:

Region: Fayetteville Regional Office
County: Hoke
NC Facility ID: 4700001
Inspector's Name: Heather Carter
Date of Last Inspection: 09/21/2017
Compliance Code: 3 / Compliance - inspection

<p style="text-align: center;">Facility Data</p> <p>Applicant (Facility's Name): Burlington Industries LLC - Raeford Plant</p> <p>Facility Address: Burlington Industries LLC - Raeford Plant 1001 Turnpike Road Raeford, NC 28376</p> <p>SIC: 2231 / Weaving & Finishing Mills Wool NAICS: 313312 / Textile and Fabric Finishing (except Broadwoven Fabric) Mills</p> <p>Facility Classification: Before: Title V After: Fee Classification: Before: Title V After:</p>	<p style="text-align: center;">Permit Applicability (this application only)</p> <p>SIP: 02D .0515, 02D .0516, 02D .0521, 02D .1111 NSPS: Not applicable NESHAP: GACT JJJJJ PSD: Not applicable PSD Avoidance: 02Q .0317 NC Toxics: 02D .1100, 02Q .0711 112(r): Not applicable Other: Renewal of TV permit</p>
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Contact Data			Application Data
<p style="text-align: center;">Facility Contact</p> <p>David Limbacher Maintenance Engineer (910) 875-1253 1001 Turnpike Rd Raeford, NC 28376 David.Limbacher@itg-global.com</p>	<p style="text-align: center;">Authorized Contact</p> <p>David Edmundson Plant Manager (910) 875-1253 1001 Turnpike Road Raeford, NC 28376 David.Edmundson@itg-global.com</p>	<p style="text-align: center;">Technical Contact</p> <p>G. Mike Garlick Sr. Corporate Env. Engineer & Reg. Mgr. (336) 379-2941 804 Green Valley Road, Suite 300 Greensboro, NC 27408 Mike.Garlick@itg-global.com</p>	<p>Application Number: 4700001.18A Date Received: 03/26/2018 Application Type: Renewal Application Schedule: TV-Renewal</p> <p style="text-align: center;">Existing Permit Data</p> <p>Existing Permit Number: 00242/T17 Existing Permit Issue Date: 03/19/2014 Existing Permit Expiration Date: 12/31/2018</p>

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2016	0.3600	11.59	5.66	9.55	2.97	1.04	0.5770 [TCE (trichloroethylene)]
2015	17.26	15.54	5.30	10.68	6.61	2.01	1.17 [Hydrogen chloride (hydrochlori)]
2014	3.98	12.48	5.91	9.81	4.30	1.73	1.28 [TCE (trichloroethylene)]
2013	1.45	10.92	4.77	8.97	4.06	0.7056	0.3758 [TCE (trichloroethylene)]
2012	8.14	12.04	4.73	8.89	5.28	0.9649	0.4605 [Hydrogen chloride (hydrochlori)]

<p>Review Engineer: Eric Crump</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 00242/T18 Permit Issue Date: Permit Expiration Date:</p>
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1. Purpose of Application

Burlington Industries LLC – Raeford Plant (hereafter referred to as “Burlington-Raeford”) is a textile mill located in Raeford, Hoke County, North Carolina that operates under Title V Permit No. 00242T17, which is set to expire on December 31, 2017. The facility has submitted a permit renewal application. Because the renewal application was received at least six months before the expiration date of December 31, 2018 the existing permit will remain in effect, regardless of expiration date, until this renewal application is processed.

2. Facility Description

The Burlington-Raeford facility is a wool and poly-wool textile manufacturing plant with dyeing and blending operations. The facility produces fabric for making uniforms and suits for the military, police, and the workplace. The facility consists of two main sections:

- Yarn Facility – The facility receives bales of wool from another Burlington facility. The wool is dyed various colors, including Army green, Air Force blue, black and khaki. The wool is processed through multiple blending operations where the wool fibers are aligned, wound and compressed into a smaller thread. After many of the blending operations, the wool is passed through heat to ‘set’ the material, i.e., prevent curling and unwinding. Boilers provide steam used to heat and ‘set’ the wool.
- Finishing Operations – treats, dyes and/or bleaches rolls of cloth. The cloth is dried and ‘set’ in a tenter frame (a continuous machine that applies heat uniformly to the cloth) to reduce wrinkling. The cloth is also treated in a carbonizer (a machine that reduces and chars vegetative debris in the cloth to facilitate debris removal), and is sheared and singed to remove protruding fiber ends.

3. Application Chronology

March 19, 2014	Permit No. 00242T17 issued by DAQ.
August 22, 2014	Letter from DAQ to Burlington-Raeford approving protocol for testing coal-fired boiler (ID No. ESB1) for total particulate, carbon monoxide (CO), visible emissions, and fuel sampling for mercury
October 2, 2014	Burlington-Raeford conducts source testing of source ID No. ESB1.
November 17, 2014	Notice of Deviation issued to Burlington-Raeford for failure to submit source testing results within 30 days of sampling.
November 19, 2014	DAQ receives source test report from Burlington-Raeford.
March 23, 2015	DAQ notifies Burlington-Raeford their source testing was acceptable and that compliance with Air Permit No. 00242/T17 was indicated.
April 8, 2015	Burlington-Raeford plant inspected by Heather Carter and Josh Harris, Fayetteville Regional Office (FRO). The facility appeared to be operating in compliance with their current air permit.

April 26, 2016	Burlington-Raeford plant inspected by Heather Carter, FRO. The facility appeared to be operating in compliance with their current air permit.
September 21, 2017	Burlington-Raeford plant inspected by Heather Carter and Steve Allen, FRO. Some records required to be maintained on site were not available for the inspection, but were provided shortly thereafter. The facility appeared to be operating in compliance with their current air permit.
March 26, 2018	Permit renewal application No. 4700001.18A received by DAQ.
April 2, 2018	DAQ letter sent to Burlington-Raeford acknowledging receipt of complete application as of March 26, 2018.

4. Permit Modifications and Title V Equipment Editor (TVEE) Discussion

The following table summarizes changes to the permit resulting from the renewal.

Page No.	Section	Description of Changes
Cover and throughout	--	<ul style="list-style-type: none"> Updated all dates and permit revision numbers Changed all references to "15A NCAC 2D" and "15A NCAC 2Q" to "15A NCAC 02D" and "15A NCAC 02Q"
11	2.1.B.5	Corrected typographical error in heading " <u>ALTERNATIVE OPERATING SCENARIO – Unlimited-Use Boiler</u> "
20	2.1 D	Removed 15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds from summary table
21	2.1 E	Removed 15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds from summary table
24	2.1.F	Included hazardous air pollutants in summary table
27	2.2 B	Removed 15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds from permit
27-28	2.2 B.1	Section 2 (15A NCAC 02Q .0317: Avoidance Conditions for 15A NCAC 02D .1111: Maximum Achievable Control Technology) renumbered as Section 1
28	2.2 B.2	Section 3 (15A NCAC 02D .1100: Control of Toxic Air Pollutants) renumbered as Section 2
28-29	2.2 B.3	Section 4 (15A NCAC 02Q .0711: Toxic Air Pollutant Emissions Limitation Requirement) renumbered as Section 3
30-39	3	Updated General Conditions to version 5.3 dated August 21, 2018

No changes were made to the TVEE as a result of this renewal.

5. Description of Changes and Estimated Emissions

No modifications to the Burlington-Raeford facility have been made, nor have any changes in emissions been reported.

6. Regulatory Review

The mission sources (and associated controls) at the Burlington-Raeford facility are listed below, along with the state regulations to which they are subject:

**A. Starch storage silo (ID No. ESS1) with associated polyester felt fabric filter (ID No. CDBS1) Polyvinyl alcohol storage silo (ID No. ESS2) with associated polyester felt fabric filter (ID No. CDBS2)
Two shearers (ID Nos. ESSH1 and ESSH2) with associated bagfilters (ID Nos. CDSH1 and CDSH2)**

- 15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 2D .0521: Control of Visible Emissions

As documented in the most recent compliance inspection report (October 26, 2017), both storage silos have been empty and unused since 1999, when Burlington-Raeford discontinued the weaving operation at the plant. Both shearers are in operation but are controlled with baghouses that vent indoors, and thus are not subject to the inspection requirement. Continued compliance is expected.

**B. Coal-fired boiler (ID No. ESB1) with associated multicyclone (ID No. CDMCB1)
Two natural gas/No. 2 fuel oil/No. 2 (equivalent recycled) fuel oil/No. 5 fuel oil/No. 6 fuel oil/No. 4 (equivalent recycled) fuel oil-fired boilers (ID Nos. ESB4 and ESB5)**

- 15A NCAC 02D .0503: Particulates from Fuel Burning Indirect Heat Exchangers
- 15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521: Control of Visible Emissions
- 15A NCAC 02D .1111: Maximum Achievable Control Technology
- 15A NCAC 02Q .0317, Avoidance Conditions (*for sulfur dioxide and hazardous air pollutants*)

The emission limits, monitoring, recordkeeping and reporting requirements for these boilers remain unchanged from the previous permit. Particulate matter (PM) emissions from either boiler ESB1, ESB4, or ESB5 shall not exceed a rate of $1.090 \times Q^{-0.2594}$ pounds (lb) per million British thermal units (MMBtu), where Q is the maximum heat input in MMBtu per hour (hr). Sulfur dioxide (SO₂) emissions from each boiler shall not exceed 2.3 pounds per million Btu heat input. Visible emissions from the boilers shall not exceed 20% opacity over a six-minute averaging period. Continued compliance is expected.

The applicability of maximum achievable control technology (MACT) requirements to these sources will be discussed in Section 7 of this review.

**C. Laboratory (ID No. ES206)
Inspection – spot cleaning of fabric (ID No. ES-INSP)**

- 15A NCAC 02Q .0317, Avoidance Conditions (*for hazardous air pollutants*)
- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

Because small quantities of solvents are used in the laboratory and in spot cleaning of fabric, the facility has been required to implement work practices and associated recordkeeping and monitoring requirements under 15A NCAC 02D .0958: Work Practices for Sources of Volatile Organic Compounds to reduce volatile organic compound (VOC) emissions. However, in accordance with

15A NCAC 02D .0902 (f) as amended November 1, 2016, 15A NCAC 02D .0958 no longer applies to Hoke County. The work practice requirements for VOC are therefore not included in this permit renewal. The other regulatory requirements remain unchanged. The facility appears to be complying with these requirements. Continued compliance is expected.

The avoidance conditions for hazardous air pollutants are discussed in Section 7 of this review; the air toxics requirements for this source are discussed in Section 12 of this review.

D. Two direct natural gas/propane-fired tenter frames (ID Nos. ESTF1 and ESTF2) with associated thermal oxidizers (ID Nos. CDOX1 and CDOX2); and Carbonizer/dryer (ID No. ESCD1) with associated thermal oxidizer (ID No. CDOX2)

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521: Control of Visible Emissions
- 15A NCAC 02D .1100: Maximum Achievable Control Technology
- 15A NCAC 02Q .0317, Avoidance Conditions (*for sulfur dioxide and hazardous air pollutants*)
- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

For the reasons given in section 6C above, the work practice requirements for the VOC emission sources listed here have been removed from the permit. The remaining emission limits, monitoring, recordkeeping and reporting requirements for these sources remain unchanged from the previous permit. PM emissions from the tenter frames (ESTF1 and ESTF2) and carbonizer/dryer (ESCD1) shall not exceed a rate of $4.10 \times P^{0.67}$ pounds per hour (lb/hr), where P is the process weight in tons per hour (ton/hr). SO₂ emissions from each tenter frame and its respective control device (CDOX1 and CDOX2) shall not exceed 2.3 lb/MMBtu heat input. Visible emissions from the tenter frames and the carbonizer/dryer shall not exceed 20% opacity over a six-minute averaging period. VOC emissions are to be controlled by work practices and associated recordkeeping and monitoring requirements. Continued compliance is expected.

The avoidance conditions for hazardous air pollutants are discussed in Section 7 of this review, the avoidance conditions for sulfur dioxide are discussed in Section 9, and the air toxics requirements for these sources are discussed in Section 12.

E. Direct natural gas/propane-fired singer (ID No. ESSN1) with associated cyclone (ID No. CDSN1) and spray scrubber (ID No. CDSN2) installed in series

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521: Control of Visible Emissions
- 15A NCAC 02Q .0317: Avoidance Conditions (*for sulfur dioxide and hazardous air pollutants*)

The emission limits, monitoring, recordkeeping and reporting requirements for the singer remains unchanged from the previous permit. PM emissions shall not exceed a rate of $4.10 \times P^{0.67}$ lb/hr, where P is the process weight in ton/hr. SO₂ emissions shall not exceed 2.3 lb/ MMBtu heat input. Visible emissions shall not exceed 20% opacity over a six-minute averaging period.

The avoidance conditions for hazardous air pollutants are discussed in Section 7 of this review. The avoidance conditions for sulfur dioxide are discussed in Section 9 of this review.

7. NESHAPS/MACT/GACT

The boilers at the Burlington-Raeford facility are subject to Subpart JJJJJ of 40 CFR Part 63, "National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers".

Boiler ESB1 is a coal-fired boiler, permitted for two operational scenarios:

- a primary scenario as a limited use boiler, defined in §63.11237 as “any boiler that burns any amount of solid or liquid fuels and has a federally enforceable annual capacity factor¹ of no more than 10 percent”, and
- an alternative scenario as an unlimited use boiler.

Under the primary scenario, Boiler ESB1 is subject to work-practice standards, along with recordkeeping and reporting requirements documenting that the boiler meets the requirements of a limited use boiler. Once the boiler use exceeds the annual capacity factor of 10%, Burlington-Raeford must notify NC DAQ that it will operate as an unlimited use boiler under the alternative operating scenario and must meet the emission limits for mercury and carbon monoxide specified in the permit.

Boilers ESB4 and ESB5 also have two operating scenarios:

- Primary scenario: When firing fuel oil, the boilers are subject to the requirements of Subpart JJJJJ, including regular tune-ups, reporting and recordkeeping requirements.
- Alternative scenario: When firing natural gas, the boilers would avoid the Subpart JJJJJ requirements, in accordance with §63.11195(e).

Burlington-Raeford is required to notify NC DAQ upon switching fuels.

To remain classified as a minor source of hazardous air pollutants and avoid applicability of MACT standards under 15 A NCAC 02D .1111, facility-wide HAP emissions must not exceed 10 ton/yr of each HAP, and 25 ton/yr of all HAP combined. Burlington-Raeford must maintain monthly records of fuel fired from boilers (ESB1, ESB4 and ESB5) tenter frames (ESTF1 and ESTF2), thermal oxidizers, CDOX1 and CDOX2) and the singer (ESSN1); and the amount of HAP emitted, including hydrochloric acid emitted from coal combustion. They must also maintain monthly records of the amount of HAP emitted from all HAP-containing materials, including dyes, coatings, and solvent-based cleaners used at the facility. This would include the laboratory (ID No. ES206) and the inspection and spot cleaning of fabric (ID No. ES-INSP).

8. New Source Performance Standards (NSPS)

The Burlington-Raeford plant is not subject to any NSPS. This permit renewal does not affect that status.

9. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

The Burlington-Raeford facility is not currently seeking modifications to the facility that would trigger NSR. This permit renewal does not affect that status.

¹ *Annual capacity factor* means the ratio between the actual heat input to a boiler from the fuels burned during a calendar year and the potential heat input to the boiler had it been operated for 8,760 hours during a year at the maximum steady state design heat input capacity (40 CFR 63.11237).

To avoid the applicability of PSD requirements, the Burlington-Raeford facility, in accordance with 15A NCAC 02Q .0317, has agreed to a permit condition that limits SO₂ emissions to no more than 250 tons per year from the combined sources listed below:

- Coal-fired boiler (ID No. ESB1);
- Two natural gas/No. 2 fuel oil/No. 2 (equivalent recycled) fuel oil/No. 5 fuel oil/No. 6 fuel oil/No. 4 (equivalent recycled) fuel oil-fired boilers (ID Nos. ESB4 and ESB5);
- Two natural gas/propane-fired tenter frames (ID Nos. ESTF1 and ESTF2) with associated natural gas/propane-fired thermal oxidizers (ID Nos. CDOX1 and CDOX2); and
- One natural gas/propane-fired singer (ID No. ESSN1)

The permit specifies the maintenance of monthly records of coal, fuel oil, natural gas, and propane usage, the sulfur content of the coal and fuel oil fired, and calculations of SO₂ emissions. Continued compliance is expected.

10. Risk Management Program, Section 112(r)

40 CFR Part 68 establishes requirements for stationary sources that hold more than threshold quantities of regulated substances to develop a risk management plan (RMP), in accordance with Section 112(r) of the Clean Air Act. The RMP identifies the potential effects of a chemical accident, steps the facility is taking to prevent an accident, and emergency response procedures if an accident occurs.

The Burlington-Raeford facility is not subject to Section 112(r) of the Clean Air Act requirements because it stores no regulated substances in quantities above the thresholds in the rule. This permit renewal does not affect this status.

10. Compliance Assured Monitoring (CAM)

40 CFR Part 64 establishes requirements for compliance assurance monitoring (CAM). This rule applies to any pollutant specific unit that meets the following three conditions:

- the unit is subject to any non-exempt emission limitation or standard for the applicable regulated pollutant,
- the unit uses any control device to achieve compliance with any such emission limitation or standard, and
- the precontrol potential emission rate for the unit exceeds either 100 ton/yr for criteria pollutants, 10 ton/yr of a single HAP, or 25 ton/yr of multiple HAPs.

CAM was determined in a preceding permit review to not be applicable because potential pre-controlled emissions (particulate) were less than CAM thresholds. This permit renewal does not affect this status.

11. Facility-wide Air Toxics

15A NCAC 2D .1100; Control of Toxic Air Pollutants (State-enforceable only)

The facility-wide emission rates of formaldehyde and acetic acid following the addition of the two tenter frames were expected to exceed the toxic air pollutant (TAP) permitting emission rate (TPER) pursuant to 15A NCAC 2Q .0711. Burlington Industries has previously demonstrated with the acceptable ambient levels for these two TAPs using SCREEN3 air dispersion model. The maximum impacts reached 73% of the AAL for formaldehyde and 81% for acetic acid. Actual emissions have remained well below the modeled rates (permit limits). The 2017 TAP emissions rates are listed below:

Emission Source	TAP	TPER (lb/hr)	Emission Limit	2017 Actual	2017 Facility Wide
ESTF1 and ESTF2	Formaldehyde	0.04	3.672 lb/hr total	0.64 lb/yr <i>0.000073 lb/hr avg.</i>	18.198 lb/yr <i>0.00208 lb/hr avg.</i>
	Acetic acid	0.96	81.84 lb/hr total	No emissions	943.33 lb/yr <i>0.108 lb/hr avg.</i>
I-500	Acetic acid	0.96	1.72 lb/hr	759.33 lb/yr <i>0.086 lb/hr avg.</i>	
I-600	Acetic acid	0.96	0.123 lb/hr	184 lb/yr <i>0.021 lb/hr avg.</i>	

To ensure compliance with the limits above, the following minimum stack heights are specified for the sources shown:

Emission Source(s)	Stack Height, meters
ESTF1, ESTF2	15.2
I-500	4.27
I-600	3.65

Compliance is indicated.

15A NCAC 2Q .0711; Toxic Air Pollutant Emissions Limitations and Reporting requires the facility to obtain a permit prior to exceeding the TPER from all non-exempt facility wide sources combined. TAP emissions from the boilers and emergency generators are exempt.

TPERs Limitations				
Pollutant (Chemical Abstracts Service Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Syst. Toxicants (lb/hr)	Acute Irritants (lb/hr)
Trichloroethylene (79-01-6)	4000			
Xylene (1330-20-7)		57		16.4

During the past five years, the highest annual amount of trichloroethylene emitted was 2,553.3 pounds in 2014; the next highest annual amount was less than half that quantity. The highest annual amount of xylene emitted was 9.48 pounds in 2017 (an average of 0.0011 lb/hr). Emissions are expected to remain below the TPERs. Continued compliance is expected.

12. Facility Emissions Review

The following table displays reported emissions from the Burlington-Raeford facility over the past two years.

Pollutant	2017 Emissions, tons	2016 Emissions, tons
CO	9.45	9.55
NO _x	14.15	11.59
PM ₁₀	6.40	2.97
PM _{2.5}	4.83	2.95
SO ₂	16.53	0.36
VOC	5.73	5.66
Total HAP	1.63	1.04
Largest individual HAP	0.907 (hydrochloric acid)	0.5770 (trichloroethylene)
Total TAP	2.50	1.85

Annual emissions for the facility are well below major source thresholds for criteria pollutants and HAP. PM, NO_x, SO₂, and various HAP/TAP emissions in 2017 increased over 2016 levels due to an increase in coal combustion in 2017. There were small emission decreases of some HAP and TAP due to a reduction in solvent use.

Continued compliance is expected.

13. Compliance Status

A Notice of Deviation was issued to Burlington-Raeford on November 17, 2014 for failure to submit source testing results within 30 days of sampling. Burlington-Raeford submit the test results on November 19, 2014.

The facility was last inspected on September 21, 2017 by Heather Carter and Steve Allen of the Fayetteville Regional Office. The company appeared to be in compliance with all applicable requirements at that time.

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

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. No state or local program is affected.

15. Other Regulatory Considerations

A P.E. seal was not required for this permit renewal.

A zoning consistency determination was not required.

No permit fee was required for this permit renewal.

16. Recommendations

The permit application for Burlington Industries LLC – Raeford Plant located in Raeford, Hoke County, North Carolina 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. 00242T18.