

## **HISTORY OF NPDES PERMIT FOR BLUE RIDGE PAPER, LLC (NC0000272)**

### **(I) Summary of the Variance and Removal of the Color Variance in 2020**

The effluent permit limit requirements applicable to Blue Ridge Paper Products LLC established in compliance with NC G.S. 143-215.1, other lawful standards and regulations promulgated and adopted by the NC Environmental Management Commission (EMC), and the Clean Water Act (Act), as amended, previously contained a variance provision to the state's narrative, aesthetic, water quality standard for color. The variance was granted July 13, 1988, by the EMC, under provisions in G.S. 143-215.3(e). Further, the variance has been continued under regulations contained in Title 15A North Carolina Administrative Code (NCAC) Subchapter 02B .0226, Exemptions From Surface Water Quality Standards: "Variances from applicable standards, revisions to water quality standards or site-specific water quality standards may be granted by the Commission on a case-by-case basis pursuant to G.S. 143-215.3(e), 143-214.3 or 143-214.1. A listing of existing variances shall be maintained and made available to the public by the Division. Exemptions established pursuant to this Rule shall be reviewed as part of the Triennial Review of Water Quality Standards conducted pursuant to 40 CFR 131.10(g)."

The variance included in the May 26, 2010 final NPDES permit for Blue Ridge Paper, LLC reflected a continued reduction in color over time, with a final annual average color limit to be subsequently revised to a value within the range of 32,000-36,000 lbs/day true color PCU, monitored at the first sampling location downstream of the effluent discharge (E1), Fiberville Bridge. The daily maximum and monthly average limits were 52,000 lbs/day true color PCU and 105,250 lbs/day true color PCU, respectively.

The same daily maximum and monthly average limits detailed in 2010 are proposed in the 2020 draft NPDES permit, with a specific annual average color limit of 36,000 lbs/day true color PCU. With the removal of the variance, previous language pertaining to the facility's process improvements and related reporting contained in the 2010 permit is removed. Section A. (8.) of the revised Permit requires specific monitoring, a reopener clause to address any future breakthroughs in color removal technologies, and other efforts to minimize impacts from color during critical conditions. This language was included to assure the facility's continuous efforts to minimize color impacts on the receiving stream.

The Division of Water Resources has concluded that the designated uses of the Pigeon River are being met and that meeting the permit condition of a delta 50 PCU measurement between the upstream Canton and downstream Fiberville station will not contravene the narrative state surface water quality color standard. Consistent with a provision contained in the 2001 variance action by the state, which states, "[t]his variance shall extend for an indefinite period of time, subject to consideration during the water quality standards triennial reviews. Any modification or termination based thereon shall be subjected to the public hearing process required by NC G.S. 143-215.3(e)," this notice provides for the public hearing process required by State and Federal regulations to terminate the variance for Blue Ridge Paper, LLC. this facility.

In conclusion, after a thorough reevaluation of available science, the facility treatment controls, and the permit conditions, the removal of the variance as a permit condition and modification to the State's applicable water quality standards is recommended by Division of Water Resources staff. The removal and discontinuance of the variance is considered, under the Clean Water Act, to be a change to applicable NC surface water quality standards, requiring public notice/hearing and consideration by the

Environmental Management Commission under its regulations contained in 15A NCAC 02B .0100 -.0300. Additionally, the results of the evaluation must be submitted to the US Environmental Protection Agency (EPA) for review and action.

## **(II) Reevaluation Rationale**

The Division of Water Resources believes that through the past diligent application of advanced and innovative technology, akin to a “Pollutant Minimization Plan”, according to 40 CFR Part 131.14 (b)(1)(ii)(A)(3) and a reevaluation under the requirements of 40 CFR Part 131.14 (b)(1)(v), the facility has achieved compliance with the intention of the NC narrative standard at 15A NCAC 02B .0211 and is no longer eligible to continue the variance. The color narrative water quality standard definition from 15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters is as follows:

“(12) Oils, deleterious substances, or *colored* or other wastes: only such amounts as shall not render the waters injurious to *public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or* impair the waters for any designated uses. For the purpose of implementing this Rule, oils, deleterious substances, or colored or other wastes shall include substances that cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, as described in 40 CFR 110.3(a)-(b), incorporated by reference including subsequent amendments and editions. This material is available, free of charge, at: [http://www.ecfr.gov/;](http://www.ecfr.gov/)”

Each of the narrative standard components was evaluated to ensure no color-related impairments had occurred for any designated uses in this segment of the Pigeon River:

1) Public Health Protection - NC public health advisories are provided to protect people from exposures to contaminants in the water. No advisories have been issued related to color, as color is not associated with adverse human health effects. Additionally, as recreation levels have notably increased (see Item 2 below), the public values the health benefits that recreation in and on the river provides.

2) Secondary Recreation - The Pigeon River in NC is frequently used for recreation. Although the waterbody is not currently classified for primary recreation, according to Smoky Mountain Outdoors Rafting the Pigeon River was ranked, in 2015, the #3 most visited among the top whitewater rafting rivers in the US by American Outdoors Association, stating that the Pigeon River was the third most visited rafting destination (statistics gathered from 2013), stating that “the river has experienced a major environmental recovery over the years, and is now home to a flourishing ecosystem”. American Outdoors Association stated, in its 2018 Rafting Use Trends Update (data from 2017), that the Pigeon River was the third highest rated river and that “Use on the Class II Pigeon River in Tennessee near the nation’s most visited National Park, grew more than 1000% from 17,337 visits in 1995 to 202,874 visits in 2016. Use was down on the Pigeon in 2017 due to declines in area tourism because of the wildfires in Gatlinburg, TN.” Therefore, the record at this time reflects use of the water for recreational purposes has increased and recent color concentration data indicates lower concentrations since that time period, demonstrating the water quality continues to support use of the water for recreational purposes, relative to color. (Source: <https://www.americaoutdoors.org/rafting-use-trends-2018-update/> and <https://www.smokymountainrafting.com/blog/whitewater-rafting-tennessee/top-whitewater-rafting-rivers/> )

3) Aquatic Life and Wildlife Protection - NC DWR maintains a monitoring site on the Pigeon River that lies downstream of Blue Ridge Paper, LLC (Evergreen Packaging). This site has been sampled 15 times over the past 35 years. EPT Richness Index (E= Ephemeroptera, P= Plecoptera, T= Tricoptera) estimates water quality by the relative abundance of three major orders of stream insects that have low tolerance to water pollution. EPT can be expressed as a percentage of the sensitive orders to the total taxa found. In 2017, eighteen EPT taxa were collected at the benthic monitoring site at State Road 1642 and the assessment indicated that water quality in the Pigeon River at this site has improved steadily since advancements were made to the paper mill in the early 1990's. The assessment noted that while in-stream macroinvertebrate habitat is relatively poor, the fact that riffles were mostly lacking and riparian inputs were low was a causative factor. Additionally, high water temperatures and a high specific conductance in-stream were noted in 2017 as a cause for the ratings. The color of the stream was not noted as a reason for the benthic impairment. The benthic water quality at this site appears to hover near the Fair to Good-Fair cusp with the 2017 rating of Fair just 1 EPT taxon shy of a Good-Fair rating. The previous rating in 2012 is also a cusp rating. With the advent of long-lived taxa present in the stream (stoneflies) it appears that water quality here, while not particularly good, is at least stable and does not appear to be worsening.

Biological studies conducted by the University of Tennessee in 2005 and 2012 concluded that the Pigeon River has a balanced and indigenous fish community and a diverse and healthy macroinvertebrate community "below the mill's discharge." Scientific studies indicate that stream color concentrations below 100 color units have no effect on health of aquatic organisms (NCASI Special Report 9407, Human Perception and Biological Impacts of Kraft Mill Effluent Color, June 1994). The State of Tennessee has identified the return of the sensitive species, River Run Walleye. Its reappearance is an indicator of high water quality. The Pigeon River has also become a trophy smallmouth bass fishery. The facility submitted a "Balanced and Indigenous Populations (BIP)" study related to a federal Section 316(a) temperature variance study to NC DWR in 2014 that supports the same conclusions of a diverse and healthy community. The NC staff biologists concurred with the assessment, further supporting that aquatic life and wildlife are being adequately protected. (See Item 6, below)

4) Palatability of Fish - Color is not a parameter associated with fish palatability and is therefore not applicable for this discussion.

5) Aesthetic Quality - The interpretation of color as an aesthetic impact, while subjective, has been studied often since the initial variance was granted.

Evaluating the aesthetic component depends on the personal preferences and perceptions, vision characteristics, background light conditions, natural settings, bottom substrate, and previous personal experiences. This difficulty lead DWR to attempt to translate the narrative standard to a numeric (measurable/quantifiable) value. In the early 1980's, the EPA interpreted the NC narrative color standard as an instream standard of 50 Platinum-Cobalt Units. This number was based on the ability of the average observer to detect instream color. However, detection/perception of colored water is not necessarily objectionable to the observer, so the EPA interpretation was a conservative read of the rule. See the evaluation of existing conditions discussion in the next section for more discussion on quantifying color levels in this permit. The reevaluation concludes that, at current permit or instream levels, the discharge does not affect the aesthetic value.

6) The Pigeon River is currently rated as "impaired" on the Clean Water Act required Section 303(d) list for benthic macroinvertebrates. As outlined in Item 3, above, the color of the water is not

associated with this impairment. In 2019, the facility submitted a “Balanced and Indigenous Populations (BIP)” assessment under Section 316(a) of the Act to the Division. While that BIP evaluates effects of the temperature of the water and its effect on the stream biological community, it provides insight into the stream condition. The fish data noted “good, and improving diversity” and while the benthos data indicates some impact from the thermal discharge, it was determined that the “Balanced and Indigenous” threshold, defined by 40 CFR Part 125.71(c), was met.

#### **(IV) Evaluation of Existing Conditions/ Permitting Rationale/ Additional Protective Permit Conditions**

After removing data collected below the 30Q2 flow condition, an analysis of instream color values recorded from 2011 – 2018 indicates more than 90% of the individual samples at the Fiberville monitoring station are less than 50 PCU. 50 PCU was the concentration previously interpreted by EPA as the value which necessitated the variance. This quantitative comparison provides documentation of the daily instream conditions over the recent period of record relative to the loadings which have been implemented. Therefore, operating the 2020 permit at the color limits noted, the discharge should continue to result in compliance with the reevaluated aesthetic narrative for color and no longer require the application of a variance.

The March 4, 2019 report entitled “Analysis of Color Concentrations in the Pigeon River” (AquAeTer, Inc.), includes a data assessment from July of 2010 to December of 2018, and indicates that the “monthly 30Q2 analyses represent a precise analysis of the same hydrologic event for each month of the year and do not introduce bias in the analyses due to multiple months with different hydrologic and meteorologic events not related to the same statistical event.” This agrees with the state’s current water quality standards regulations contained in 15A NCAC 02B .0206 (a)(5) that aesthetic quality “shall be protected using the minimum average flow for a period of 30 consecutive days that has an average recurrence of once in two years (30Q2 flow).” The Division proposes in Part I, Section A. (1.), Footnote 16, that the permit condition require the facility to meet a monthly average  $\Delta$  50 PCU (the difference between monthly average upstream and monthly average downstream true color) at the Fiberville bridge when the flow in the Pigeon River is equal or above monthly 30Q2. By meeting this condition, the Division has determined that the facility will not contravene the state narrative color standard.

The annual average, monthly average, and daily maximum color limits (measured as True Color) were established in accordance with the Technology Review Workgroup (TRW) recommendations for the 2010 permit renewal and will be continued in the revised permit. The TRW was chaired by the EPA and consisted of independent experts, EPA experts, and representatives from North Carolina and Tennessee. The Division expects that concentrations similar to those experienced over the 2011-2018 timeframe will continue to be experienced instream, and thus designated uses will continue to be met, relative to color, assuming representative flow conditions. To ensure comparable data is available at the next permit reissuance:

Section A. (5.) of the permit, “Instream Monitoring Special Condition”, requires the facility to report monthly average true color concentration and the difference between monthly average true color concentration between UP and DN1 ( $\Delta$  Color). All instream samples collected shall be representative of the Pigeon River and Big Creek, respectively. The facility shall meet the  $\Delta$  Color of 50 Platinum Cobalt Units (PCU) when the Pigeon River flow at Canton is equal or above Monthly 30Q2 of 129 cfs. Samples taken when the river flow at Canton is less than 129 cfs will not be included in the average for that month.

Section A. (8.) of the revised Permit includes requirements for “Color Analysis and Compliance Special Condition”. These conditions establish monitoring for color upstream and at 3 locations downstream to assure compliance with the water quality standard is maintained. The permittee shall not increase the mill's pulp production capacity during the term of the permit, unless the permittee can demonstrate that the increased production can be achieved while reducing color loading. Increased production may warrant a revision to the permit.

To further protect the recreational designated use of the river, major maintenance outages may not be scheduled during periods of lowest river flow and higher recreational use in the river (June, July, August, and September).

The permit requires the facility to conduct a technical review of color removal technologies once during the permit cycle and provide the report to DEQ DWR with the renewal application. The NPDES Permit shall be subject to reopening in order to modify the color requirements based upon any breakthrough in color removal technologies. Such breakthroughs shall be brought to the NPDES Committee for consideration, by Blue Ridge Paper, LLC and the Division of Water Resources, as soon as they are discovered.

#### **(V) Conclusions/ Recommendations**

Noting the successful technology-based effluent improvements, the reexamination of the data gathered on water quality conditions in the river, the increased use of the river for recreational purpose, and favorable biological examinations of the river, the facility requested removal of the Color Variance applicable to their permit. Based on the evidence and data presented, the Division of Water Resources believes that the current Blue Ridge Paper, LLC discharge meets the North Carolina narrative standard, and that the facility does not qualify for a continuance of the variance under regulations in 40 CFR Part 131, as the original variance was written for an expected limited timeframe and purpose and the state may not adopt a variance if the criterion can be achieved. The Division believes that through the past diligent application of advanced and innovative technology, akin to a “Pollutant Minimization Plan”, according to 40 CFR Part 131.14 (b)(1)(ii)(A)(3) and a reevaluation under the requirements of 40 CFR Part 131.14 (b)(1)(v), the facility has achieved compliance with the intention of the NC narrative water quality standard at 15A NCAC 02B .0211 and is no longer eligible to continue the variance.

In accordance with state and federal regulations this modification to the permit is effectively a change to water quality standards and subject to public hearing. The NC EMC last accepted comments from the public on this (and other state approved standards and variances) in July of 2018. There were no substantive comments received and no negative comments relating to the color variance. Under 40 CFR Part 131.14 (b)(1)(v) the state has reevaluated the Color Variance, examined the highest attainable condition using all existing and readily available information and, now, provides notification to obtain public input on this reevaluation, to confirm the finding that the present condition for color corresponds to meeting the applicable criterion at 15A NCAC 02B .0211(12) and that a variance is no longer required for this facility. Responses from the public will be submitted to the EMC for the purpose of evaluating the approval of the removal of the variance provision from the permit applicable to Blue Ridge Paper Products LLC, (d/b/a Evergreen Packaging), Permit Number NC0000272. Upon completion of that process, and certification under 40 CFR Part 132.5(b)(2) from the State’s Attorney General’s office that proper notification has been given, the results of the EMC decisions will be submitted to the EPA for review and action.