UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 29, 2021

David Phillips
Mill Manager
International Paper, Columbus Mill
4335 Carson Road
Columbus, Mississippi 39701

Dear Mr. Phillips:

This is in response to your letter, dated August 2, 2021, to the U.S. Environmental Protection Agency (EPA), which proposed an alternative monitoring procedure (AMP) for the Kraft pulping system located at the International Paper Columbus Mill (Mill) in Columbus, Mississippi. The Mill is subject to Title 40, Code of Federal Regulations (CFR), Part 63, Subpart S-National Emission Standards for Hazardous Air Pollutants (NESHAPs) from the Pulp and Paper Industry (Subpart S). We requested additional information from you on August 20, 2021, and August 23, 2021, and received the information on August 23, 2021. Based on the information you provided, your proposed AMP is approved, subject to specific conditions. Details regarding the AMP and the basis for our determination are provided in the remainder of this letter.

The Mill, which includes a bleach plant and an oxygen delignification system, produces softwood pulp in a fiber production line using a digester. In addition to the production of fiber, turpentine, black liquor, and white liquor are also produced. Subpart S is applicable to the Mill because the Mill is a major source as defined in §63.2 and uses the Kraft process to produce pulp. Under §63.446(c)(3), the Mill is subject to the pulping process condensates mass collection requirement of 11.1 pounds (lbs) of hazardous air pollutants (HAPs) per oven-dried ton of pulp (ODTP) and collects pulping process condensate streams resulting from condensation of vapors evolving from the digester, turpentine recovery, and weak liquor feed stages of the evaporator, high-volume low-concentration, and low-volume high-concentration systems. The condensate streams are combined and transported in a closed collection system to a steam stripper feed tank. The condensate from the stripper feed tank is routed to a steam stripper, which serves to strip methanol (MeOH) from the condensate. Under the current treatment option of §63.446(e)(5), the Mill is required to treat 10.2 pounds HAPs per ODTP or must achieve a total HAP concentration of 330 parts per million, or less, by weight (ppmw) at the outlet of the control device (stripper bottom effluent).

Monitoring of Stripper Operation Parameters

Based on the information provided, you have installed, calibrated, operated, and maintained a continuous monitoring system (CMS) required by §63.453(g) to measure the: 1) process wastewater feed rate, 2) steam feed rate, and 3) process wastewater column feed temperature, in lieu of measuring total HAP(s) concentration in the stripper's bottom liquid-phase effluent exiting the stripper required by

§63.453(h). Data acquired by the CMS are used in the verification of compliance status determinations for the treatment standard of §63.446(e)(5).

Change of Treatment Compliance Option and Proposed Monitoring of Effective Steam Ratio (ESR)

You propose to change the Mill's compliance treatment option of condensates from §63.446(e)(5), which requires treatment of the condensates to remove 10.2 pounds total HAP per ODTP or achieve a total HAP concentration of less than or equal to 330 ppmw at the outlet of the control device, to §63.446(e)(3), and treat the condensates to reduce or destroy the total HAPs by at least 92 percent (%) or more by weight (wt %). To demonstrate compliance with the 92 wt% treatment, or greater, of total HAP(s), you propose to monitor stripper bottom's temperature, in addition to those parameters monitored under §63.453(g), and utilize a lumped parameter, the effective steam ratio (ESR), as an indicator of compliance status with §63.453(g) because you believe that the ESR provides better assurance of the stripper's intended performance should the Mill experience potential fouling of stripper feed preheat exchanger(s) upstream of the stripper. You contend that when fouling occurs at the preheat exchanger(s), the stripper column automatically implements adjustments by process control systems to correct the stripper's operation to ensure maintenance of intended stripper efficiency. You propose to conduct performance testing (Testing) consisting of three one-hour runs to demonstrate at least 92 wt% or greater HAPs removal efficiency and establish an associated three-hour average ESR, calibrated to the stripper's operation design specifications and guarantee, to use for indication of compliance status with the 92 wt%, or greater, removal efficiency during non-Testing times (*e.g.,* continuous compliance demonstration procedure).

EPA Review of Applicable Standards

Closed collection systems are required to meet the design and operation standards specified in §63.446(d)(1-2). Under §63.457(g), for purposes of complying with the Kraft pulping condensate requirements in §63.446, the owner or operator must measure the total HAP concentration as MeOH. Under §63.446(c)(3), the condensates from specified equipment systems listed in §63.446(b)(1-5) that contain a total mass of 11.1 lbs MeOH/ODTP, for mills that perform bleaching, shall be treated in accordance with §63.446(e)(3) to reduce or destroy the total HAPs by at least 92 wt% or more.

Under §63.453(a), each owner or operator subject to the standards specified in §63.443(c) and (d), and §63.446(c), (d), and (e), shall install, calibrate, certify, operate, and maintain according to the manufacturer's specifications, a CMS, as defined in §63.2 of this part, and as specified in §63.453(g), except as allowed in §63.453(m). The CMS shall include a continuous recorder. Under §63.2, CMS means "a comprehensive term that may include, but is not limited to, continuous emission monitoring systems, continuous opacity monitoring systems, continuous parameter monitoring systems, or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis as defined by the regulation."

Under §63.453(m), each owner or operator using a control device, technique, or alternative parameter other than those specified in §63.453(g), shall install a CMS and establish appropriate operating parameters to be monitored that demonstrate, to the Administrator's satisfaction, continuous compliance with the applicable control requirements. Under §63.453(n), to establish or reestablish the value for each operating parameter required to be monitored under paragraphs §63.453(g) and (m), each owner or operator shall continuously monitor and record the operating parameter during the initial performance test required in §63.457(a), or any subsequent performance test, and base the determinations on the

control performance and parameter data monitored during the tesing. The determinations may be supplemented, if necessary, by engineering assessments and the manufacturer's recommendations. The owner or operator shall provide, for the Administrator's approval, the rationale for selection of the monitoring parameters necessary to comply with §63.453(m) and the associated values, monitoring frequencies, and averaging times. Additionally, the rationale shall include all data and calculations used to develop the value and a description of why the value, monitoring frequency, and averaging time demonstrate continuous compliance with the applicable emission standard.

EPA's Determination

Your request to change the Mill's compliance demonstration treatment option from §63.446(e)(5) to §63.446(e)(3) is acceptable under §63.446(e). Furthermore, your request for approval of the AMP was submitted under the provisions of §63.453(n) which allows you to establish, or reestablish, a value for each operating parameter required to be monitored under paragraphs §63.453(m). Your proposal to monitor the stripper's ESR is based on monitoring provisions that may be allowed under §63.457(c) and is submitted for the EPA's approval. You cite similar requests that the EPA has approved for IP Mills located in Prattville, Alabama, and Pine Hill, Alabama. You included copies of these approvals in your request.

You propose to conduct Testing, to demonstrate compliance with the treatment standard in §63.446(e)(3) and use the results from the Testing to establish the stripper's minimum ESR operating curve. During non-Testing periods, you propose to monitor the ESR hourly, determine three-hour averages for the ESR and use the curve's relationship to determine compliance status using the parameters measured by the CMS.

You have included the rationale for selection of the monitoring parameters associated with the ESR to comply with §63.453(m) and proposed the monitoring frequencies and averaging times. Additionally, you included the rationale which will be used to develop the ESR value and a description of why the value, monitoring frequency, and averaging time demonstrate continuous compliance with the applicable emission standard. Therefore, the following AMP [a composition of fourteen (14) specific conditions (Conditions)], and based on your site-specific circumstances, is acceptable to the EPA:

1. Stripper condensate feed volumetric flow rate [Q_F (gals/hr)] and temperature [T_F (^oF)], bottom stream effluent temperature [T_B (^oF)], and steam injection rate [m_s (lbs/hr)] shall be collected once every 15 minutes (minimum frequency) during Testing conducted to determine compliance with the treatment standard promulgated in 40 CFR §63.446(e)(3).

2. Q_F, T_F, T_B, and m_s for the stripper shall be monitored continuously following Testing.

3. The hourly averages for Q_F, T_F, T_B, and m_s during Testing shall be determined by computing hourly averages using the 15-minute readings taken during Testing.

4. The hourly averages of stripper ESR during Testing shall be determined using the hourly averages Q_F, T_F, T_B, and m_s within the equation:

$$ESR = \frac{m_s - [(Q_F)(\rho_F)\,(T_b - T_F)(\frac{Cp_{H2O}}{\Delta Hvap_{H2O}})]}{(Q_F)(\rho_F)}$$

where: Cp_{H2O} = Specific heat capacity of liquid water (BTU/lb/°F) at standard conditions. May be assumed to be constant at 1 BTU/lb/°F.

ΔH_{Vap} = Heat of vaporization of water at standard conditions. May be assumed to be constant at 1,000 BTU/lb

ρ_F = Density of stripper foul-condensate feed (lbs/gal) at standard conditions. May be assumed to be constant at 8.34 lbs/gal.

5. Hourly averages of Q_F, T_F, T_B, m_s, and ESR for the stripper shall be determined following Testing.

6. The thee-hour average ESR for the stripper during Testing shall be determined by computing hourly averages using all hourly averaged taken during Testing.

7. Three-hour rolling averages of Q_F, T_F, T_B, m_s, and ESR for the stripper shall be determined following Testing.

8. During Testing, the Mill shall collect a minimum of three grab samples, once per hour, of the stripper condensate feed, and stripper bottom effluent, and analyze the samples for MeOH concentration using NCASI Method DI/MeOH 94.03.

9. The Mill shall calculate the composite average of MeOH concentrations for the stripper condensate feed, and stripper bottom effluent, obtained during Testing, by averaging the analytical results obtained for the grab samples acquired during Testing.

10. Compliance with the treatment standard of §63.446(e)(3) during Testing shall be determined by test methods and procedures specified in §63.457.

11. Using the results obtained from Testing, the Mill shall conduct an engineering assessment including, but not limited to, using stripper design stripping efficiency performance guarantee information, to determine a three-hour average minimum ESR operating curve, for all anticipated stripper condensate feed rates and MeOH concentrations, which demonstrates compliance with the treatment standard of §63.446(e)(3).

12. The three-hour rolling average ESR shall be maintained at, or above, the operating curve's minimum three-hour rolling average ESR.

13. Using the stripper manufacturer's recommended inspection frequencies and procedures, or industry-based alternative best-practice inspection frequencies and procedures, the Mill shall inspect the stripper to ensure that stripping efficiency is maintained at, or above, the efficiency demonstrated during Testing, and the efficiency required by the operating curve.

14. Quarterly stripper condensate feed and stripper bottom effluent composite averaged MeOH concentrations shall be determined by collecting and analyzing three grab samples, one grab sample every hour for three hours, once per quarter. The composite averages shall be used, in conjunction with an engineering assessment, to confirm the stripper stripping efficiency is maintained at, or above, efficiency demonstrated during Testing, and efficiency developed by the operating curve.

Please note that our approval does not alter the Mill's obligations to meet all other applicable NESHAP requirements, including, but not limited to the following NESHAP General Provisions:

a) The requirement to maintain and operate affected facilities and associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions, per 40 CFR 63.6 (e)(3); and

b) The prohibition against concealing emissions which would otherwise constitute a violation of an applicable standard, including the use of gaseous diluents to achieve compliance with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere, per 40 CFR 63.4(b).

In closing, the EPA notes, based on additional information provided, the Mill conducts quarterly monitoring of stripper feed condensate MeOH concentration to use in demonstrations of compliance for the 11.1 lbs MeOH/ODTP collection requirement required by §63.446(c)(3). The EPA advises you that while this monitoring frequency is acceptable for confirming stripper efficiency, it is unacceptable for demonstrating compliance with the collection requirement. Please submit an AMP request to my office which either justifies your monitoring frequency or proposes daily monitoring of the stripper feed condensate MeOH concentration.

This AMP was coordinated with the EPA Region 4 Enforcement and Compliance Assurance Division, the EPA's Offices of Enforcement and Compliance Assurance and Air Quality Planning and Standards. If you have any questions about this approval, please contact Tracy Watson at (404) 562-8998, or by email at watson.marion@epa.gov.

Sincerely,

KENNETH MITCHELL

Digitally signed by KENNETH MITCHELL
Date: 2021.09.29 13:05:20 -04'00'

For Caroline Y. Freeman,
Director
Air and Radiation Division

cc: Sara Ayres, EPA OECA
Melissa Fortenberry, MDEQ
Ashley Kimes, IP Columbus Mill
Andrew Mills, R4 ECAD
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