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BAQ Air Permitting Division

<b>Company Name:</b>	New-Indy Catawba LLC	<b>Permit Writer:</b>	Katharine K Buckner
<b>Agency Air Number:</b>	2440-0005	<b>Date:</b>	July 22, 2024
<b>Permit Number:</b>	CP-50000061 v1.0		

**DATE APPLICATION RECEIVED:** March 23, 2023

**FACILITY DESCRIPTION**

SIC CODE: 2611 - Pulp Mills, 2621 – Paper Mills, 2631- Paperboard Mills  
NAICS CODE: 322110 – Pulp Mills, 322120 – Paper Mills, 322130 – Paperboard Mills

New-Indy Catawba LLC (New-Indy) operates an integrated pulp and paper mill located in Catawba, South Carolina. The original pulp mill was constructed in 1959. Previously, the facility produced bleached pulp and operated 3 paper machines and one pulp dryer. In 2019, the pulp production was converted from bleached to unbleached and utilized one paper machine and one pulp dryer. A second paper machine at the mill is currently idled. New-Indy Catawba is comprised of seven distinct process areas that include the following: the woodyard area, the kraft pulp mill area, the paper mill area, the chemical recovery area, the utilities area, the waste treatment area, and a miscellaneous area.

Southern pine logs and chips are received at the woodyard. Logs are debarked and chipped. The chips are screened prior to storage for use within the pulping process. Likewise, purchased wood chips received are screened, and processed as needed, prior to use within the pulping processes.

The kraft (sulfate) process area is used to produce pulp. Pulp from the kraft process is produced from “cooking” wood chips in the continuous digester in a caustic solution at an elevated temperature and pressure. The pulp slurry from the continuous digester is sent to the blow tank, then to one of two parallel pulping lines, each consisting of an enclosed deshive refiner and a three-stage drum displacement washer system and associated filtrate tanks. Weak black liquor from the washer filtrate tanks is stored before being recycled to chemical recovery. Rejects from the refiners are sent to the screw presses, with filtrate being screened and stored before being recycled to chemical recovery. Washed pulp is stored and then sent to the paper mill area. With the exception of the pulp storage tanks after pulp washing, the kraft pulp mill sources are currently collected and routed to the high volume, low concentration (HVLC) or low volume, high concentration (LVHC) systems, and emissions are controlled through combustion in the Nos. 1 or 2 Combination Boilers.

Linerboard (the outside layer of a corrugated container) is produced in the paper mill area in one state-of-the-art paper machine. Unbleached market pulp is produced on the pulp dryer. A second paper machine at the Mill is currently idled.

Weak black liquor is concentrated in the Nos. 1-3 Evaporator Sets and is then fired in the recovery furnaces (chemical recovery area) that burn the organics extracted from the chips and recover cooking chemicals. The causticizing area utilizes the chemicals recovered by the recovery furnaces, and after adding lime, provides the cooking chemicals for the kraft process.

Emissions from the Evaporator Sets, Turpentine Recovery System, and the existing Steam Stripper Feed Tank are collected in the LVHC gas collection system and combusted in the Nos. 1 or 2 Combination Boilers. Emissions from several weak black liquor tanks are collected in the HVLC system and combusted in the Nos. 1 or 2 Combination Boilers. Evaporator condensates are segregated, with the combined condensates being recycled to the Brownstock washer system or sewer. Currently, foul condensates are treated in a dual control device configuration: foul



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condensates are treated in the existing condensate steam stripper system, with the remaining flow being directed to the aerated stabilization basin (ASB) via the Hard Pipe.

Steam and electricity are produced for facility-wide use by two combination boilers. The recovery furnaces also generate steam.

A waste treatment area receives wastewater and mill waste (solid waste) from the various previously mentioned areas of the facility. Wastewater undergoes biological treatment to remove the dissolved organic wastes prior to discharge into the receiving stream. Mill solid waste is deposited in an on-site landfill.

The miscellaneous areas include everything that is not captured in one of the aforementioned process operating areas, such as facility roads and the pulp storage tanks.

**PROJECT DESCRIPTION**

New-Indy has submitted this construction application in accordance with the SCDHEC Consent Order to Correct Undesirable Levels of Air Contaminants, signed November 23, 2022 (Consent Order), the terms of which also include requirements of the EPA Consent Decree entered in Civil Case No. 0:21-cv-02053-SAL, *United States of America v. New-Indy Catawba, LLC, dated November 16, 2022 (Consent Decree)*.

New-Indy has submitted a construction application to construct new equipment, modify existing equipment, and make changes to existing treatment scenarios as follows:

- Install a new low-pressure (LP) steam foul condensate stripper system. The new steam stripper will have a capacity of 850 gallons per minute. This LP stripper system will process the pulping process condensates (foul condensate) for compliance with 40 CFR 63, Subpart S. Approximately 98% of TRS compounds and 95% of methanol are expected to be removed from the foul condensate stream. Methanol will be condensed into a liquid (stripper rectified liquid (SRL)) from the stripper off gases and combusted along with the black liquor in the Nos. 2 and 3 Recovery Furnaces (ID Nos. 2505 and 5105). The SRL addition is limited to 2% by volume, which is representative of approximately 1% by volume pure methanol. No changes are anticipated in black liquor firing as a result of this project. New LVHC gases from the SRL condenser system, stripper feed tank, and SRL methanol tank will be combusted in the No. 3 Recovery Furnace. The LVHC system will include a 1.0 million Btu/hr natural gas ignitor for combustion of the LVHC gases when black liquor firing is less than 50% of capacity. The existing Nos. 1 and 2 Combination Boilers (ID Nos. 2605 and 3705) will serve as back-up control for the new LP Stripper's LVHC gases when the No. 3 Recovery Furnace cannot take the LVHC gases. These new LVHC gases will be collected in the existing LVHC Collection System and sent to the existing LVHC Scrubber before being combusted in either of the boilers. When the SRL condenser system is not in operation, the Nos. 1 and 2 Combination Boilers will combust the stripper off-gases (SOGs). The "cleaned" condensates will be recycled to the Brownstock Washers (ID 5230), as needed, or discharged to the wastewater treatment plant (WWTP).

The new stripper project does not impact the generation of HVLC gases and associated emissions. None of the HVLC sources are being modified as a result of this project. HVLC gases will continue to be collected by the HVLC Collection System and combusted in either of the combination boilers. The HVLC gases will not be discussed further due to these sources not being modified or affected as a result of this project.



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- Operate the existing steam stripper (ID 9801) as a backup to the new low-pressure steam stripper. The existing steam stripper will be operated in one of two modes, as described below, to process the foul condensate and remove total reduced sulfur (TRS) compounds and methanol; and
- Changes to the No. 3 Recovery Furnace to combust existing LVHC gases collected in the existing LVHC collection system. The Nos. 1 and 2 Combination Boilers will serve as backup control for the LVHC gases following this Project. When these LVHC gases are combusted in the combination boilers, a caustic scrubber will be operated to provide 50% removal of the sulfur prior to combustion.

The new LP Steam Stripper System (equipment ID 9803) includes: new 80,400 gallon Steam Stripper Feed Tank, new 850 gallons/minute Steam Stripper, 6.5 gallons/minute methanol condenser, and a new 1,300 gallon Stripper SRL Methanol Tank.

The existing Steam Stripper System includes: existing 40,000 gallon Foul Condensate Collection Tank (equipment ID 9800) and existing 850 gallon/minute Condensate Steam Stripper (equipment ID 9801).

The operation of foul condensate steam strippers is dependent on the pollutants to be removed. Currently, New-Indy operates the existing foul condensate steam stripper for the removal of methanol (methanol mode), for compliance with 40 CFR 63, Subpart S. In this operating mode, three control schemes are being used in parallel, where a maximum of approximately 350 gallons per minute (gpm) of the foul condensate is treated in the steam stripper, the remainder of the foul condensate is treated in the aerated stabilization basin (ASB), and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) is added prior to the hardpipe to chemically oxidize the hydrogen sulfide into either elemental sulfur or sulfate. New-Indy has actual testing and operating data of the existing steam stripper operating in the methanol removal mode.

Foul condensate steam strippers can also be operated for the removal of TRS compounds (TRS mode). In this operating mode the vendor has estimated the existing steam stripper could achieve approximately 98% TRS and 45% methanol removal efficiencies while treating the entirety of the foul condensate generated, up to a maximum of 850 gpm. New-Indy has limited trial data from operating in TRS mode. Preliminary data shows that treating 850 gpm can be sustained for a few hours. Testing of the existing stripper will be required to verify the removal efficiencies when operating in TRS mode. When operating in TRS mode, further methanol treatment through biological desecruction will be accomplished by routing the stripped condensates to the existing hard pipe system that discharges the condensate below the liquid surface of the existing ASB. When operating in methanol mode, stripped condensates will be recycled to the Brownstock Washers (EU ID 02, equipment ID 5230), as needed, or discharged to the ASB via the sewer. The emission estimates are based on the maximum rates from either the TRS mode or Methanol mode.

*[Note: In the current TV operating permit, the existing stripper is described as an 800 gallon/minute stripper. With this project, the capacity of the existing steam stripper will be shown as a maximum of 850 to 350 gallon per minute, depending on operating mode. Also, the facility relayed, via email on June 13, 2023, that the Foul Condensate Collection Tank (EU ID 09, equipment ID 9800) had been replaced. The replacement tank was installed in 2000 and has a 40,000 gallon capacity. The old tank was 180,000 gallons and was taken out of service in 2000. The capacity*



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*and installation date of this tank will be corrected in the TV operating permit when this construction permit is incorporated.]*

Other existing equipment involved in this project are: SOG Collection System (equipment ID 9820), LVHC Collection System (equipment ID 5260), LVHC System Caustic Scrubber (equipment ID 5260C), Nos. 2 and 3 Recovery Furnaces (equipment IDs 2505 and 5105), Nos. 1 and 2 Combination Boilers (equipment IDs 2605 and 3705), Aerated Stabilization Basin (ASB) (equipment ID 2901), Hard Pipe (equipment ID 9802), and associated control devices.

### DETAILED DESCRIPTION

NOTE:

- HVLC gases are not impacted by the new stripper project and are not depicted in the scenarios outlined below. The HVLC gases will continue to be collected in the HVLC Collection System and combusted in one or the other of the Nos. 1 or 2 combination boilers. HVLC gases are not burned in both combination boilers at the same time.
- The chemical treatment of the foul condensates in the Hardpipe using a chemical oxidant [e.g. hydrogen peroxide ( $H_2O_2$ )] continuously operates, is operational during all scenarios described below and provides  $H_2O_2$  if needed to maintain a rolling ninety-minute average oxidation reduction potential (ORP) reading above 0 millivolts (mV) before it is discharged to the ASB. It is only depicted in the scenarios where untreated foul condensate is sent to the ASB.

#### Scenario 1A - The new low pressure (LP) Steam Stripper System online, new LVHC gases to No. 3 Recovery Furnace

The new LP Steam Stripper System operates with the rectified methanol system operating. The rectified methanol (SRL) system will condense methanol from the SOGs from the new LP Stripper. The condensed or rectified methanol is referred to as SRL, stripper rectified liquid. The SRL will be added to the black liquor up to a rate of approximately 2% by volume, which is representative of approximately 1% by volume pure methanol and burned with the black liquor in either Recovery Furnace. Pure methanol addition to the black liquor feed of no more than 1% by volume is consistent with the recommended safety standards from the Black Liquor Recovery Boiler Advisory Committee (BLRBAC).

When operating in SRL mode, a new exhaust stream of LVHC off-gases from the rectified methanol system will be vented into the existing LVHC Collection System and routed to the No. 3 Recovery Furnace for control. The new LVHC gases come from the SRL condenser system, stripper feed tank, and SRL methanol tank. The existing LVHC gas scrubber will not be used when the LVHC gases are being combusted in the No. 3 Recovery Furnace because the salt fume in the recovery furnace provides the expected sulfur control. The cleaned condensates will be recycled for use in the brownstock washers as needed or sent to the WWTP.

#### Scenario 1A: Primary control scenario – using the new LP Steam Stripper System and methanol condenser:

1A. New LP Stripper System with condenser emits LVHC gases and discharges Cleaned Condensate

- i.  $\xrightarrow{\text{SOG gases}}$  new Methanol Condenser - emits liquid methanol and LVHC gases
  1.  $\xrightarrow{\text{liquid Methanol}}$  existing Recovery Furnace No. 2 or 3
  2.  $\xrightarrow{\text{LVHC gases}}$  existing Recovery Furnace No. 3



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- ii.  $\xrightarrow{\text{cleaned condensates}}$  recycled to the Brownstock Washers or sewered to WWTP

Scenario 1B - The new LP Steam Stripper online, SRL online, new LVHC gases to either No. 1 or No. 2 Combination Boiler

The new LP Steam Stripper will be operating with the rectified methanol system operating. The rectified methanol system will condense methanol from the new LP stripper's off-gases (SOGs). The condensed or rectified methanol is referred to as SRL. The SRL will be added to the black liquor at a rate up to 2% by volume and burned with the black liquor in either Recovery Furnace.

When the No. 3 Recovery Furnace cannot receive the LVHC gases, the LVHC from the new SRL condenser system will be combusted in either the No. 1 or No. 2 Combination Boiler. When the SRL condenser system is online, the LVHC gases will pass through the existing LVHC caustic scrubber prior to being combusted in either of the combination boilers. The LVHC scrubber removes approximately 50% of the sulfur from the gas stream. The stripped condensates will be recycled for use in the brownstock washers as needed or sent to the WWTP.

Scenario 1B: Backup control scenario to 1A - when the LVHC cannot be sent to Recovery Furnace No. 3, scenarios 1A.i.1. and 1A.ii. remain operational:

- 1B. New LP Stripper System  $\xrightarrow{\text{SOG gases}}$  existing Caustic Scrubber  $\xrightarrow{\text{LVHC gases}}$  existing Combination Boiler Nos. 1 or 2

Scenario 1C - The new LP Steam Stripper online, SRL offline, new LVHC gases to either No. 1 or No. 2 Combination Boiler

The new LP Steam Stripper will be operating without the rectified methanol system operating. Under this scenario, the SOGs are collected in the existing SOG Collection System and sent to either of the existing Combination Boilers to combust the TRS stripped from the foul condensate. The cleaned condensate from the stripper will be collected and recycled to the Brownstock Washers as needed or sent to WWTP. The existing LVHC gases will continue to be sent to the existing LVHC scrubber and on to either of the existing Combination Boilers for combustion.

Scenario 1C: Backup control scenario to 1A and 1B - when the methanol condenser/SRL system is not operating, SOGs are combusted in either of the No. 1 or No. 2 Combination Boiler:

- 1C. New LP Stripper System, SRL is offline:

- i.  $\xrightarrow{\text{SOG gases}}$  existing Combination Boilers Nos. 1 or 2
- ii.  $\xrightarrow{\text{cleaned condensates}}$  recycled to the Brownstock Washers or sewered to WWTP

Scenario 2 - The existing (backup) Stripper online

The existing backup Stripper will operate when the new LP Steam Stripper System is offline. The existing backup Stripper can be operated in either A) Methanol mode where a maximum of approximately 350 gpm of foul condensate is treated in the stripper with the remaining foul condensate sent to the ASB for further methanol removal or B) TRS

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mode where it is estimated that 98% of the TRS and approximately 45% methanol can be removed from the foul condensate. The chemical treatment using H<sub>2</sub>O<sub>2</sub> will continue to be used during either of these operating modes if needed. The SOGs from the stripper will be combusted in either of the existing Nos. 1 or 2 Combination Boilers. The existing LVHC gases will continue to be sent to the existing LVHC scrubber and on to either of the existing Combination Boilers for combustion.

Scenario 2A – New LP Steam Stripper is offline (not operating); Existing, backup steam stripper operating in methanol mode, no methanol condensing:

In this mode, a portion of the foul condensate is treated in the backup stripper for methanol removal. The stripped condensate is recycled to the Brownstock Washers (EU ID 02, Equipment ID 5230), as needed, or discharged to the ASB via the sewer. The remaining untreated foul condensate is treated with H<sub>2</sub>O<sub>2</sub> to chemically oxidize the H<sub>2</sub>S into either elemental sulfur or sulfate, then sent to the ASB via the hardpipe for further methanol treatment. This mode is also the current required operation of the existing, backup stripper prior to the installation of the new LP steam stripper.

2A. Backup Stripper System operating in methanol mode

- i.  $\xrightarrow{\text{SOG gases}}$  existing Combination Boiler Nos. 1 or 2
- ii.  $\xrightarrow{\text{cleaned condensates}}$  recycled to the Brownstock Washers or sewered to WWTP
- iii. Foul condensate  $\xrightarrow{\text{hydrogen peroxide addition}}$  hard piped to ASB, below the liquid level

Scenario 2B – New LP Steam Stripper is offline (not operating); Existing, backup steam stripper operating in TRS mode:

All foul condensates are treated in the existing, backup stripper for TRS removal with a portion of methanol also being removed. The remaining methanol in the stripped condensates will be treated in the ASB. Although required to currently operate the existing stripper in methanol mode, this may be an operating scenario in the future.

2B. Backup Stripper System operating in TRS mode

- i.  $\xrightarrow{\text{SOG gases}}$  existing Combination Boiler Nos. 1 or 2
- ii.  $\xrightarrow{\text{stripped condensates}}$  hard piped to ASB, below the liquid level

Scenario 3 - No Stripper online





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When neither stripper is online, the foul condensate will be treated with hydrogen peroxide before being discharged to the ASB. This scenario is limited to 460 hours per year as required by the EPA's Consent Decree.

Scenario 3: Backup control scenario to all scenarios above, no stripper is operating:

3. Foul condensates treated with hydrogen peroxide then discharged via the hard pipe below the liquid level to ASB.

iii. Foul condensate <sup>hydrogen peroxide addition</sup> hard piped to ASB, below the liquid level

**SOURCE TEST REQUIREMENTS**

• LVHC scrubber performance indicator:

The basis for this testing is to verify the effectiveness of the LVHC scrubber by verifying the uncontrolled and controlled SO<sub>2</sub> emissions and emission factors used when burning existing LVHC gases. LVHC gases contain TRS, which, when combusted, convert to SO<sub>2</sub> on approximately a one-to-one ratio. At times, during the operation of the new LP stripper, either existing Combination Boiler (No. 1 or No. 2) will be utilized when the No. 3 Recovery Furnace cannot receive the LVHC gases. To reduce the amount of SO<sub>2</sub> emissions from the boilers from combustion of the exiting LVHC and new LVHC (i.e., SRL condenser SOG) gases, these gases will first pass through the existing LVHC caustic scrubber. The LVHC caustic scrubber is estimated to remove 50% of the TRS from the LVHC gases that pass through it, based on a vendor guarantee. To confirm the operation of the LVHC scrubber is necessary to meet the SO<sub>2</sub> emission rates and to verify the design specifications SO<sub>2</sub> emission factors relied upon for the PSD evaluation, initial stack tests shall be performed within 180 days, once all LVHC (new and existing) is collected in the LVHC Collection System and can be combusted in one of the combination boilers. A stack test for verification of SO<sub>2</sub> emissions factors and emission rates will be performed while burning existing and new LVHC and utilizing the caustic scrubber. Another stack test for verification of SO<sub>2</sub> emissions factors and emission rates will be performed while burning existing and new LVHC without the use of the caustic scrubber. The combination boiler that would yield the maximum SO<sub>2</sub> emissions should be used for this testing. The facility shall provide justification on which boiler provides the maximum emissions in the stack test plan and copy the Air Permitting Division Director. Detailed calculations that document the estimated LVHC removal efficiency shall also be submitted in the final test report and copy the Air Permitting Division Director.

• Nos. 1 and 2 Combination Boilers source testing for SO<sub>2</sub> when combusting SOGs:

The object of this source testing is to verify the SO<sub>2</sub> emissions, in lb/ADTP and lb/hr, when either of the combination boilers are used to combust SOGs. The Combination Boilers will be used to combust the SOGs from the new stripper when the SRL methanol condenser is offline or when the backup stripper is used. When the SRL methanol condenser is offline, the new LVHCs are not generated. However, the existing LVHC gases will be sent to the existing LVHC scrubber and then to either of the existing Combination Boilers for combustion. Source testing shall be performed for SO<sub>2</sub> in either Combination Boiler, for the following scenarios:

- For the new stripper in operation, when existing LVHC gases are controlled in the existing LVHC scrubber and combined with the new SOGs (SRL condenser offline) and are being controlled in either Combination



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Boiler, an initial source test for SO<sub>2</sub> emissions in lb/hr and the SO<sub>2</sub> emission factor in lb/ADTP shall be documented.

- For the backup stripper, when the new stripper is offline, existing LVHC gases are controlled in the existing LVHC scrubber and are combined with the SOGs and are being controlled in either Combination Boiler, an initial source test for SO<sub>2</sub> emissions in lb/hr and the SO<sub>2</sub> emission factor in lb/ADTP shall be performed.
- For when the new stripper is offline, an initial source test shall also be performed to determine the contribution from combusting the existing scrubbed LVHC gases in either Combination Boiler to the SO<sub>2</sub> emissions, in lb/hr and the SO<sub>2</sub> emission factor in lb/ADTP.

The contribution of each stripper's SOGs will be calculated as the SO<sub>2</sub> emissions from the testing performed in the selected combination boiler when combusting the existing scrubbed LVHC gases and the SOGs minus the SO<sub>2</sub> emissions from the testing performed for the existing scrubbed LVHC gases only from that same selected combination boiler. The combination boiler that would yield the maximum emissions should be used for this testing. The facility shall provide justification on which boiler provides the maximum emissions in the stack test plan and copy the Air Permitting Division Director. Detailed calculations shall also be submitted in the final test report and copy the Air Permitting Division Director.

- **New LP Steam Stripper performance**

TRS, H<sub>2</sub>S, and methanol design parameters for the new steam stripper were based on actual testing of the foul condensate. To verify methanol, TRS, and H<sub>2</sub>S design parameters, the facility will perform an initial performance test (IPT) for liquid sampling and analysis of TRS, H<sub>2</sub>S, and methanol in and out of the new stripper for lb/hr and lb/ADTP. With this test the facility is required to establish operating and monitoring parameters that have a strong relationship with the proper operation of the new stripper. The facility will submit a plan to address operating and monitoring parameters that will be monitored during the test and provide a report that addresses the relationship between the representative operating and monitoring parameters and percent removal of methanol, TRS, and H<sub>2</sub>S, and the TRS, H<sub>2</sub>S, and methanol emissions and the records to be maintained for predicting emissions for demonstrating ongoing compliance with project emissions. Eight consecutive semiannual performance tests will be required (no sooner than 270 days from the previous test), followed by two annual performance tests, then once every five years thereafter where data from these tests will be used to update the relationship between the operating and monitoring parameters and percent removal of TRS, H<sub>2</sub>S, and methanol.

A removal efficiency guarantee for methanol and TRS using the new stripper was provided by the vendor. Methanol removal, as well as removal of TRS VOC [i.e., methyl mercaptan (MMC), dimethyl sulfide (DMS), and dimethyl disulfide (DMDS)] from the performance testing, will be used as a representative for VOC removal. As provided by the facility:

VOC emissions from the pulping condensates are determined as the sum of the following pollutants: methanol, acetaldehyde, methyl ethyl ketone, propionaldehyde, and TRS VOCs. Methanol and the TRS VOCs comprise more than 95% of the total VOC emissions in the pulping condensates to be treated. The removal efficiency of the remaining VOC compounds (i.e., acetaldehyde, methyl ethyl ketone, and propionaldehyde) across the steam stripper is assumed to be at or above the removal efficiency of methanol. Methanol is highly soluble in water, is less volatile, and more difficult to remove than acetaldehyde, methyl ethyl ketone, and propionaldehyde as evident by the Henry's law constants that represent the volatility of each compound in water at lower concentrations. The higher the Henry's Law value, the more volatile the compound is. From





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40 CFR 63 Appendix C, the Henry's law constants in atm/mole fraction at 25 C are as follows, showing that methanol is the least volatile of these compounds:

- o Acetaldehyde: 4.87
- o Methanol: 0.289
- o Methyl ethyl ketone: 7.22
- o Propionaldehyde: 3.32

• Existing, backup Steam Stripper performance

TRS, H<sub>2</sub>S, and methanol design parameters for the existing (backup) steam stripper were based on actual testing of the foul condensate. To verify TRS, H<sub>2</sub>S, and methanol design parameters and emissions, during the first scheduled operating time of the existing steam stripper after startup of the new steam stripper, the facility will perform an initial performance test (IPT) in and out of the existing, backup steam stripper for lb/hr and lb/ADTP. With this test the facility is required to establish operating and monitoring parameters that have a strong relationship with the proper operation of the existing stripper. The facility will submit a plan to address operating and monitoring parameters that will be monitored during the test and provide a report that addresses the relationship between the representative operating and monitoring parameters and percent removal of methanol, TRS, and H<sub>2</sub>S, and the TRS, H<sub>2</sub>S, and methanol emissions and the records to be maintained for predicting emissions for demonstrating ongoing compliance with project emissions. Since the existing stripper will be a back up to the new stripper, it will not be operating most of the time and will not have a firm preventative maintenance schedule. Instead, a readiness testing procedure and schedule will be developed during the IPT that will ensure the backup stripper is in good operating condition when it is needed to operate. The procedure will be submitted to the Air Permitting Division Director for approval.

**SPECIAL CONDITIONS, MONITORING, LIMITS**

- The reporting period for this permit will be January 1-June 30 and July 1-December 31, with reports due by July 31<sup>st</sup> and January 31<sup>st</sup>, respectively.
- New-Indy shall operate at least one of the strippers at all times during which unbleached kraft pulp is being produced at the mill and foul condensate is being generated other than for periods of scheduled and unscheduled downtime where neither stream stripper is operational. The downtime, when no stripper is operating, shall not exceed 576 hours annually for the first year and 460 hours annually thereafter. The first year began upon the effective date of EPA's Consent Decree, November 16, 2022. The owner or operator shall provide notice to the Department at least 48 hours prior to any planned downtime and within 24 hours of unplanned downtime for which the primary stripper will not be operational (and for the existing stripper when it should be operating but will not be).

Until the termination of the Consent Order between the Department and New-Indy executed November 23, 2022, New-Indy must provide notification to the public at least 48 hours prior to any planned downtime and within 24 hours of unplanned downtime for which the primary stripper will not be operational (and for the existing stripper when it should be operating but will not be).

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Reference to the allowed downtime of 576 hours for the first year is not included in the construction permit since the first year has already passed.

- No. 3 Recovery Furnace and SO<sub>2</sub> emissions:

The No. 3 Recovery Furnace will combust existing and new LVHC gases and SRL condensed from the stripper off gases. The existing LVHC gases consist of emissions from the three existing multi-effect evaporator sets, the existing turpentine recovery system, and existing steam stripper feed tank. These gases will be routed to the No. 3 Recovery Furnace prior to the new LVHC gases. The new LVHC gases come from the SRL condenser system, stripper feed tank, and SRL methanol tank. The new LVHC gases will be routed to the No. 3 Recovery Furnace once the new stripper and supporting equipment are installed and operational. SRL condensed from the stripper off gases will be burned along with the black liquor in the two recovery furnaces.

The LVHC gases and condensed SRL contain TRS which when combusted convert to SO<sub>2</sub> on approximately a one-to-one ratio. However, the facility has said that approximately 99% of the sulfur from the combustion of the TRS will be absorbed within the salt fume inside the recovery furnace. To confirm the salt fume absorbs the sulfur and keeps it from forming SO<sub>2</sub>, the facility is required to install, calibrate, maintain, and operate a SO<sub>2</sub> CEMS on the outlet of the No. 3 Recovery Furnace. The CEMS must be operated and maintained according to the appropriate Performance Specifications and Quality Assurance Procedures in 40 CFR 60, Appendices B & F. The SO<sub>2</sub> CEMS shall be in place and operational prior to combusting any LVHCs and the methanol in the Recovery Furnace. SO<sub>2</sub> CEMS data shall be collected during normal operation from the No. 3 Recovery Furnace. The SO<sub>2</sub> CEMS will be used to collect data as described below.

- Baseline data on sulfur dioxide emissions from the No. 3 Recovery Furnace will be obtained prior to combusting any LVHCs or SRL and collected for 90 operating days.
- Existing LVHCs Only: After obtaining the baseline SO<sub>2</sub> emissions data, the facility can begin combusting the existing LVHC gases. SO<sub>2</sub> emissions from the No. 3 Recovery Furnace during combustion of existing LVHCs shall be collected for 90 operating days. Any periods when the existing LVHC gases are not routed to the No. 3 Recovery Furnace shall be excluded from the data and operating days.
- LVHCs and SRL: After obtaining the existing LVHCs Only SO<sub>2</sub> emissions data, the facility can begin combusting the new and existing LVHC gases and SRL in the No. 3 Recovery Furnace and collect data for 90 operating days. Any periods when the existing LVHC gases are not routed to the No. 3 Recovery Furnace shall be excluded from the data and operating days.

After the required data acquisition, the owner/operator shall submit a report summarizing the baseline SO<sub>2</sub> data and SO<sub>2</sub> data from each of the other two collection periods, an analysis and comparison of this data to the emission factors and emission rates used in the PSD evaluation for this project, and conclusions about the performance of the No. 3 Recovery Furnace. This report shall be submitted within 60 days after completion of the data acquisition for the LVHC and SRL data collection period.

TRS gases in the flue gas can be an indicator of incomplete combustion. Therefore, data from the TRS CEMS, on the No. 3 Recovery Furnace, shall be collected simultaneously and analyzed and compared to the data from the SO<sub>2</sub> CEMS for all collection periods, and conclusions made about the performance of the No. 3 Recovery Furnace.



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Both No. 2 and No. 3 Recovery Furnaces will combust black liquor containing SRL. However, of the two recovery furnaces, only the No. 3 Recovery Furnace will combust LVHC gases. Since the No. 3 Recovery Furnace is the larger of the two recovery furnaces and it will receive the higher loading of the sulfur containing compounds potentially resulting in higher SO<sub>2</sub> emissions than the No. 2 Recovery Furnace, it was decided an SO<sub>2</sub> CEMS will be required on the No. 3 Recovery Furnace for confirmation the salt fume absorbs the sulfur and keeps it from forming SO<sub>2</sub>.

Additionally, no modifications are planned for the No. 2 Recovery Furnace with this project. The SRL is added to the black liquor which is burned by both recovery furnaces at no more than 2% by volume of black liquor. The total maximum emissions increase of SO<sub>2</sub> estimated for Nos. 2 and 3 Recovery Furnaces is small, at 2.4 tpy. Any increase in SO<sub>2</sub> emissions from the No. 2 Recovery Furnace, itself, may not be detectable by a CEMS. Therefore, the use of SO<sub>2</sub> CEMS will not be required on the No. 2 Recovery Furnace.

In 2006, the project permitted under PSD c/p-DA, was in part to modify the No. 3 Recovery Furnace (RF) to increase the firing of black liquor solids which resulted in the establishment of SO<sub>2</sub> BACT limits for the No. 3 Recovery Furnace of “≤ 50.0 ppmv @8% O<sub>2</sub> (dry basis) and/or ≤ 551.0 tpy (three 1-hour averages)”, with periodic stack testing used to demonstrate compliance with the 50.0 ppmv limit. Due to concerns with the 50.0 ppmv limit being met in between stack tests, the SO<sub>2</sub> CEMS will also be used as a monitoring device for demonstrating compliance with this limit for at least five (5) years following startup for the new stripper. In an attempt to be consistent with the existing condition, 3 hour block averages of the CEMS data was originally required. However, the facility provided information on the variability in process conditions and/or operations of a recovery furnace that indicated 3 hour block averages would not consistently meet the 50.0 ppm limit. The variabilities in SO<sub>2</sub> concentrations can occur during startup, shutdown, planned maintenance for sootblowing (water washing to prevent fouling and plugging in the tubes in the heat exchange section), black liquor loading to the furnace, sulfidity of the black liquor, etc. Additionally, NCASI Technical Bulletin No. 604 presented data from a one year study of several SO<sub>2</sub> CEMS equipped recovery furnaces. The study also showed variability of SO<sub>2</sub> concentrations in short-term but able to meet limits in the long-term. Also, in the application for the PSD c/p-DA, data from the EPA RACT/BACT/LAER Clearinghouse (RBLC) was presented. Most of the data presented did not indicate the averaging times for the respective ppmv limits, except for one where the limits and averaging times given were: 75 ppm @8% O<sub>2</sub> (ANNUAL), 571 TPY; 110 ppm @8%O<sub>2</sub> (3-HR). This seems to indicate that the averaging time for the 50 ppmv limit should be on an annual basis and not a short term 3-hr average. Therefore, the SO<sub>2</sub> CEMS data will be used to demonstrate compliance with the ≤ 50.0 ppmv @8% O<sub>2</sub> (dry basis) limit based on a rolling annual average (average of 365 day, 24 hour block averages) and 551.0 tons per year. The facility shall continue to operate and maintain the SO<sub>2</sub> CEMS in accordance with the appropriate Performance Specifications and Quality Assurance Procedures in 40 CFR 60, Appendices B & F.

Once normal operation has resumed and operation of the new stripper has begun the facility may submit a request for the Department’s consideration to remove the SO<sub>2</sub> CEMS, after five (5) years of operation.

- The No. 3 Recovery Furnace and NO<sub>x</sub> emissions  
SRL will be added to the Black Liquor before combustion in the Recovery Furnaces. Emissions of ammonia and NO<sub>x</sub> from burning the SRL are based on: Nitrogen is naturally present in wood and converts to ammonia in the pulping process. Ammonia, present in the black liquor, is discharged with the pulping process gases. When these gases are condensed, the condensate will contain ammonia and upon stripping, ammonia is present in the off-gases. Upon combustion, a portion of the ammonia in the SOGs or in condensed methanol converts to NO<sub>x</sub> resulting in NO<sub>x</sub>



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emissions from the combustion source. To verify the performance guarantee and emission rates for NO<sub>x</sub>, data from the existing NO<sub>x</sub> CEMS will be used.

The No. 3 Recovery Furnace is equipped with a NO<sub>x</sub> CEMS. The facility will collect data from the NO<sub>x</sub> CEMS prior to combusting and during combustion of SRL and LVHC gases in the No. 3 Recovery Furnace. This data will be compared and analyzed to verify the performance guarantee, in lb/TBLS, and emission rates of NO<sub>x</sub>, in lb/hr. NO<sub>x</sub> CEMS data shall be collected during normal operation of the No. 3 Recovery Furnace. A report shall be submitted of the summary results of this comparison and analysis along with conclusions about the performance of the No. 3 Recovery Furnace. This report shall be submitted within 60 days after the completion of the NO<sub>x</sub> CEMS data acquisition from the initial combusting of SRL and LVHC gases (post-change period).

Both No. 2 and No. 3 Recovery Furnaces will combust black liquor containing SRL. However, of the two recovery furnaces, only the No. 3 Recovery Furnace will combust LVHC gases. Since the No. 3 Recovery Furnace is already equipped with a NO<sub>x</sub> CEMS, is the larger of the two recovery furnaces, and it will receive the higher loading of ammonia than the No. 2 Recovery Furnace, the existing NO<sub>x</sub> CEMS on the No. 3 Recovery Furnace will be used to verify the performance guarantee and emission rates for NO<sub>x</sub>.

Additionally, no modifications are planned for the No. 2 Recovery Furnace with this project. The SRL is added to the black liquor which is burned by both recovery furnaces at no more than 2% by volume of black liquor. The total maximum emissions increase of NO<sub>x</sub> estimated for Nos. 2 and 3 Recovery Furnaces is 13.4 tpy. The No. 2 Recovery Furnace is not currently subject to any regulations that limit NO<sub>x</sub> emissions, and the NO<sub>x</sub> emissions increase from the No. 2 Recovery Furnace is small. Therefore, a NO<sub>x</sub> CEMS will not be required for the No. 2 Recovery Furnace.

In relation to the PSD analysis, since the total NO<sub>x</sub> emission rate for the project was greater than 50% of the significant emission rate, the facility is required to track the NO<sub>x</sub> emissions on an annual basis for five years after regular operations are resumed and submit reports if the annual emissions would exceed the baseline emissions by the significant amount.

- Addition of SRL to Black Liquor  
SRL addition to black liquor is limited to a maximum of 2% by volume, which is representative of approximately 1% by volume pure methanol. Pure methanol addition to the black liquor feed of no more than 1% by volume is consistent with the recommended safety standards from the Black Liquor Recovery Boiler Advisory Committee (BLRBAC). Emission estimates of NO<sub>x</sub> and ammonia have been estimated using the 2% by volume amount. The amount, by volume, of SRL added to the black liquor shall be recorded on a daily basis and semiannual reports of the recorded values shall be submitted.
- No. 3 Recovery Furnace demonstration of TRS and H<sub>2</sub>S emission rates and performance guarantees  
The No. 3 Recovery Furnace is equipped with TRS CEMS for determining excess emissions as required by 40 CFR 60, Subpart BB. The existing TRS CEMS will be used to verify the emission rates (lb/hr) and performance guarantees (lb/ADTP) for TRS and H<sub>2</sub>S. For 60 operating days data will be collected from the TRS CEMS before the SRL and LVHC gases are combusted in the No. 3 Recovery Furnace. For 60 operating days after beginning combustion of the SRL and LVHC gases, data from the TRS CEMS will also be collected. When the data collection period for the post-change is complete, a report shall be submitted that includes:



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- A summary of the before and after data collected from the TRS CEMS
- Analysis and comparison of the data to the emission rates and performance guarantees relied upon in the PSD evaluation for this project
- Conclusions on the operation of the No. 3 Recovery Furnace with respect to the emission rates and performance guarantees for TRS and H<sub>2</sub>S

The report shall be submitted within 60 days after the completion of the TRS CEMS data acquisition from the initial combusting of SRL and LVHC gases (post-change period).

Also, since the TRS CEMS will be used for demonstrating compliance, the facility will be required to calibrate, operate, and maintain the TRS CEMS in accordance with the appropriate Performance Specifications and Quality Assurance Procedures in 40 CFR 60, Appendices B & F.

• **Steam Balances**

Emissions were estimated from increased utilization of the combination boilers for providing steam to the new and existing, backup strippers. The facility provided the following:

The steam is supplied to the production processes (i.e., digesters, evaporators, paper machines) from all of the steam generators in the following hierarchy: (1) the Nos. 2 and 3 Recovery Furnaces are base-loaded firing black liquor and (2) the Nos. 1 and 2 Combination Boilers are swing-loaded units, firing the most cost-effective fuel, biomass, first. The biomass is burned at the maximum amount available, followed by natural gas and then fuel oil to meet the overall steam demand, as needed. The Mill requires some natural gas firing in the combination boilers to meet the typical steam demands for production processes. The steam stripper is not a production process; however, as any additional steam is generated from burning natural gas and No. 6 fuel oil, it was assumed that any steam used in the current/existing stripper and any steam needed to operate the new stripper would be generated from fossil-fuel firing.

To verify the increased usage of the combination boilers when supplying steam to the two strippers, records of the fossil fuel usage in each boiler, steam in and steam out for each stripper, and any other information necessary to determine emissions from the boilers. This data shall be collected within 90 days after this project is complete and each stripper is operational. For each stripper, the increased boiler usage, in million Btu/hr, shall be calculated along with PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, Pb, and CO<sub>2e</sub> emissions. Reports of the calculated values along with the recorded data shall be submitted 30 days after the end of the data collection period.

- The facility will be continuously operating the Chemical Oxidation Treatment System. When no stripper is operating, this system treats the unstripped foul condensates with hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). H<sub>2</sub>O<sub>2</sub> is effective at odor reduction and chemically oxidizes H<sub>2</sub>S into either elemental sulfur or sulfate depending on the pH (National Council for Air and Stream Improvement (NCASI), Technical Bulletin No. 949, Section 5.3.1). Since the system continuously operates, H<sub>2</sub>O<sub>2</sub> will be added to any of the stripped condensates as needed.

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- In addition to PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and VOC emissions that will be tracked for PSD analysis purposes where the PSD analysis results for these pollutants were greater than 50% of the significant emission, other pollutants of concern, H<sub>2</sub>S and TRS, shall also be tracked in the same manner.

## EMISSIONS

New-Indy estimated emissions from this project based on several steam stripper operating scenarios. The emission estimates were based on worst case scenarios using conservative operating times, but with a maximum of 460 hours/year with no stripper operating:

- 90% of the time the new stripper will be operational.
- 4.75% of the time the backup stripper will be operational.
- 5.25% of the time (460 hours/year) no stripper will be operational with all foul condensate pretreated with hydrogen peroxide prior to discharging via the hard pipe into the ASB.

However, New-Indy expects the new stripper to operate greater than 90% of the time, which coincides with the 10% threshold for determining excess emissions under §63.446(g).

Emissions were estimated from the following steam stripper operating scenarios and are based on the worst case operating percentages above:

- The new LP Steam Stripper and SRL are in operation, LVHC gases routed to the No. 3 Recovery Furnace, and "cleaned" condensate discharged to ASB if not needed at brownstock washers, emissions occur from:
  - o The combustion of the condensed methanol with the black liquor in the Nos. 2 and 3 Recovery Furnaces
  - o The combustion of the new LVHC gases in No. 3 Recovery Furnace
  - o ASB due to "cleaned" condensate discharged from the new stripper. No foul condensate is sent to the hard pipe since the new LP steam stripper will handle the entirety of the foul condensate. Process wastewater from other areas of the mill is currently sent to the ASB.
- The new LP Steam Stripper and SRL are in operation, LVHC gases routed to the Nos. 1 or 2 Combination Boilers, and cleaned condensate discharged to ASB if not needed at brownstock washers, emissions occur from:
  - o The combustion of the condensed methanol with the black liquor in the Nos. 2 and 3 Recovery Furnaces
  - o The combustion of the new LVHC gases in Nos. 1 or 2 Combination Boilers. The LVHC gases pass through the existing LVHC scrubber prior to being combusted.
  - o ASB due to the discharge of "cleaned" condensate from the new stripper. No foul condensate is sent to the hard pipe since the new LP steam stripper will handle the entirety of the foul condensate. Process wastewater from other areas of the mill is currently sent to the ASB.
- The new LP Steam Stripper is operating but the new rectified methanol system is offline, and cleaned condensate is discharged to the ASB if not needed at brownstock washers, emissions occur from:
  - o Combustion of the stripper off gases in the Nos. 1 or 2 Combination Boilers
  - o ASB due to the discharge of "cleaned" condensate from the new stripper. No foul condensate is sent to the hard pipe since the new LP steam stripper will handle the entirety of the foul condensate. Process wastewater from other areas of the mill is currently sent to the ASB.
- The existing, backup Steam Stripper, in methanol mode, will be used when the new steam stripper is offline, emissions occur from:





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- Combustion of the stripper off gases in the Nos. 1 or 2 Combination Boilers
- ASB due to a portion of the foul condensate is treated in the backup stripper and the stripped condensate is discharged from the backup stripper.
- ASB due to the remaining portion of the foul condensate that is not treated in the stripper is sent for treatment in the ASB. The remaining untreated foul condensate is treated with H<sub>2</sub>O<sub>2</sub> to chemically oxidize the H<sub>2</sub>S into either elemental sulfur or sulfate, then sent to the ASB via the hardpipe for further methanol treatment.

- The existing, backup Steam Stripper, in TRS mode, will be used when the new steam stripper is offline, emissions occur from:

- Combustion of the stripper off gases in the Nos. 1 or 2 Combination Boilers
- ASB due to stripped condensate discharged from the backup stripper. TRS is stripped from the foul condensate when the existing steam stripper operates. The stripped condensate will contain methanol and will be sent to the ASB in the hardpipe for further treatment.

- When no stripper is operating, emissions occur from:

- Foul condensate is sent to the ASB after treatment with hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). H<sub>2</sub>O<sub>2</sub> is effective at odor reduction. It chemically oxidizes H<sub>2</sub>S and other speciated TRS into either elemental sulfur or sulfate depending on the pH (NCASI, Technical Bulletin No. 949, Section 5.3.1).
- addresses the emissions from sending the foul condensate, after pretreatment with hydrogen peroxide, to the ASB via the hard pipe.

Other emissions from this project include:

- Combustion of the existing LVHC gases from the Nos. 1-3 evaporator sets, the turpentine recovery process, and the existing steam stripper feed tank in:
  - The No. 3 Recovery Furnace as primary, or
  - The Nos. 1 or 2 Combination Boiler as backup. The emissions will pass through the existing LVHC scrubber prior to entering the boilers. These LVHC gases are currently sent to the LVHC scrubber then boilers.
- New natural gas Ignitor in the No. 3 Recovery Furnace to assist with combusting the newly routed LVHC gases when the black liquor load is less than 50%.
- Increase in natural gas and No. 6 fuel oil combustion in the Nos. 1 and 2 Combination Boilers for steam production for use in the new LP steam stripper.
- Natural gas and No. 6 fuel oil combustion in the Nos. 1 and 2 Combination Boilers for steam production for use in the existing steam stripper.

The operating scenarios of the steam strippers are detailed below:

Stripper Operating Scenario	Operating Time		LVHC Control Operating Scenario	Operating Time	
	%	hours		%	hours
New LP Stripper Online	90%	7,884.0	No. 3 Recovery Furnace available for LVHC	75%	6,570.0
Backup Stripper Online	4.75%	416.0	LVHC to No. 1 or No. 2 Combination Boiler	25%	2,190.0
No Stripper Online	5.25%	460.0			



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New LP Stripper System Operating Scenarios							
Operating Time		Operating Configuration	Operating Configuration Time		Controls	Controls Operating Time	
%	hours		%	hours		%	hours
90%	7,884.0	SRL Online <sup>(a)</sup>	95%	7,489.8	SRL Methanol to Nos. 2 or 3 Recovery Furnace	100.0%	7,489.8
		SRL Online	95%	7,489.8	SRL LVHC to No. 3 Recovery Furnace	75.0%	5,617.4
					SRL LVHC to Nos. 1 or 2 Combination Boiler <sup>(c)</sup>	25.0%	1,872.5
		SRL Offline	5%	394.2	SOGs <sup>(b)</sup> to Nos. 1 or 2 Combination Boiler	100.0%	394.2
No foul condensate discharged to the hard pipe. "Cleaned" condensate will be sent to the ASB <sup>(d)</sup> when not needed at the brownstock washers.							

Notes:

- (a) SRL Online refers to the new Methanol Condenser when it is operating and producing the stripper rectified liquid (SRL).
- (b) SOGs are stripper off gases.
- (c) LVHC Gases are sent to the existing caustic scrubber for sulfur removal prior to combustion in either Combination Boiler. Only one boiler at a time is used as the control.
- (d) ASB is the aerated stabilization basin.

Existing, Backup Stripper System Operating Scenario							
Operating Time		Operating Configuration	Operating Configuration Time		Controls	Controls Operating Time	
%	hours		%	hours		%	hours
4.75%	416.0	Existing Backup Stripper	100%	416.0	SOGs <sup>(a)</sup> to Nos. 1 or 2 Combination Boiler <sup>(b)</sup>	100.0%	416.0
		Condensate stripped of TRS and some methanol will be discharged via the hard pipe below the liquid surface level in the ASB. <sup>(c)</sup>					

Notes:

- (a) SOGs are stripper off gases.
- (b) SOGs are sent for combustion in either Combination Boiler. Only one boiler at a time is used as the control.
- (c) ASB is the aerated stabilization basin.



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Existing, Backup Stripper Operational Mode Conditions			
Operational Mode	Condensate Treatment	Removal Efficiency	
		Methanol	TRS
Methanol Mode	<ul style="list-style-type: none"> <li>Maximum 350 gallons per minute to Stripper. Cleaned condensate either recycled to Brownstock Washers or sewer to WWTP</li> <li>Remaining (maximum 500 gallons per minute) foul condensate flow hardpiped to ASB with H<sub>2</sub>O<sub>2</sub> treatment</li> </ul>	> 90%	>98%
TRS Mode	<ul style="list-style-type: none"> <li>Maximum 850 gallons per minute to Stripper</li> <li>No foul condensate flow to hardpipe, only stripped condensate hardpiped to the ASB</li> </ul>	>45%	>98%

No Stripper online Operating Scenario							
Operating Time		Operating Configuration	Operating Configuration Time		Controls	Controls Operating Time	
%	hours		%	hours		%	hours
5.25%	460.0	Neither stripper is online	100%	460.0	Hydrogen Peroxide addition then discharge to ASB <sup>(a)</sup> through the hard pipe	100.0%	460.0

Notes:  
 (a) ASB is the aerated stabilization basin.

**PSD ANALYSIS**

Following is general information pertaining to the baseline actual emission (BAE) calculations and the projected actual (PAE)/potential to emit (PTE) calculations for the PSD analysis:

- New-Indy anticipates the new stripper to operate approximately 99% of the time if not more. However, worst case scenarios are presented and are based on the new stripper operating 90% of the time, which coincides with the §63.446(g) for determining excess emissions.
- Emissions from bark/wood waste combustion in the combination boilers was not included in the BAE or PAE/PTE emission calculations based on the following provided by the facility:

The steam is supplied to the production processes (i.e., digesters, evaporators, paper machines) from all of the steam generators in the following hierarchy: (1) the Nos. 2 and 3 Recovery Furnaces are base-loaded firing black liquor and (2) the Nos. 1 and 2 Combination Boilers are swing-loaded units, firing the most cost-effective fuel, biomass, first.



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New-Indy burns all the biomass available in the combination boilers because biomass is the most cost-effective fuel on a million Btu basis. Thus, biomass is burned at the maximum amount available, followed by natural gas and then fuel oil to meet the overall steam demand, as needed. For this PSD analysis, the amount of biomass usage was the same for both the BAE and the PAE/PTE. The steam requirements of the steam strippers would have no impact on the mill deciding to increase or decrease the bark firing rates in the combination boilers. Therefore, estimating emissions from burning biomass was not included in the analysis. Due to the larger capacity of the new steam stripper and different potential operating scenarios for the existing stripper, generation of steam necessary to operate the steam strippers are considered affected by the project, and this additional incremental steam would be provided by burning natural gas and No. 6 fuel oil. BAE and PAE rates for this portion of total steam have been calculated.

The Mill requires some natural gas firing in the combination boilers to meet the typical steam demands for production processes. The steam stripper is not a production process; however, as any additional steam is generated from burning natural gas and No. 6 fuel oil, it was assumed that any steam used in the current/existing stripper and any steam needed to operate the new stripper would be generated from fossil-fuel firing.

- For the PSD analysis, the facility considered the existing stripper as an existing source instead of a new source. New sources in operation less than 2 years would use zero for the BAE. However, the facility provided the following justification for considering the existing stripper as an existing source for the PSD analysis:

The current stripper was installed in 2000 and is included in the current Title V Operating Permit (No. TV-2440-0005). The current stripper treated foul condensates consistent with bleached papermaking operations until bleached operations ceased on September 5, 2020. The current stripper has been treating foul condensates generated from the post-Project Columbia equipment/operations since May 3, 2021, as required by the SCDHEC Consent Order to Correct Undesirable Levels of Air Contaminants. There are no physical modifications planned for the current stripper with the proposed New Condensate Stripper Project ("Project"), although the current stripper will be demoted to operate strictly as a backup to the new condensate stripper and will be operated to process all of the foul condensate (TRS mode) or up to 350 gpm (methanol mode), with an expected removal of the total reduced sulfur (TRS) compounds of 98% and methanol compounds from 45- 90%, respectively. Note: In TRS mode, further methanol treatment through biological destruction will be accomplished by routing the stripped condensates to the existing Hardpipe system that discharges the stripped condensates below the liquid surface of the existing ASB. In methanol mode the remaining untreated foul condensate not treated in the steam stripper is treated with H<sub>2</sub>O<sub>2</sub> to chemically oxidize the H<sub>2</sub>S into either elemental sulfur or sulfate, then sent to the ASB via the hardpipe for further methanol treatment. Since the existing steam stripper has been in operation since 2000 and was not shut down for more than 2 years [U.S. Environmental Protection Agency (EPA) presumptive guidance<sup>1</sup>] it is considered an "existing source" for the purposes of evaluating prevention of significant deterioration (PSD).

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<sup>1</sup> October 9, 1979 Letter from William A. Spratlin, Jr. U.S. EPA Region VII Chief, Air Support Branch Air and Hazardous Materials Division. Note: This guidance has also been upheld in more recent policy letters, with additional guidance on what factors to address if a unit has been shutdown for greater than 2 years but the shutdown was not intended to be permanent.



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<b>Agency Air Number:</b>	2440-0005	<b>Date:</b>	July 22, 2024
<b>Permit Number:</b>	CP-50000061 v1.0		

When ordered by SCDHEC to restart the existing stripper in April 2021, the Mill performed general cleaning and maintenance activities as well as general startup activities (e.g., connections to steam and foul condensate lines) prior to the startup on May 3, 2021. There were no other activities performed between cessation of bleached operations and May 3, 2021.

- For the two Combination Boilers and the new Recovery Furnace No. 3 Ignitor, neither methane, nitrous oxide, nor CO<sub>2e</sub> emissions were estimated since the project does not trigger PSD.
- When the new stripper is operating, the foul condensate will be stripped and the outlet liquid from the stripper is considered “clean” condensate. It is no longer subject to regulation and can be used other places in the mill.
- When the backup, existing stripper is operational, it will operate in TRS or methanol modes. For TRS mode, the backup stripper will operate to remove TRS and some of the methanol. For this operating mode the outlet liquid from the stripper is referred to as “stripped” condensate and is subject to further treatment requirements. This stripped condensate will be sent via the hard pipe to the ASB to treat the remaining methanol. For methanol mode, the backup stripper will operate to remove TRS and methanol from a portion of the foul condensate. For this operating mode the outlet liquid from the stripper is referred to “cleaned” condensate and is no longer subject to further regulation and can be used other places in the mill. The remaining portion of untreated foul condensate not treated in the backup steam stripper is treated with H<sub>2</sub>O<sub>2</sub> to chemically oxidize the H<sub>2</sub>S into either elemental sulfur or sulfate, then sent to the ASB via the hardpipe for further methanol treatment.

**Baseline Actual Emissions (BAE)**

The BAE are based on the period following the conversion of the mill to manufacturing unbleached paper grades, March 2021 through February 2023. Production data for this time period was provided and showed the 24 consecutive month average as 1,365 ADTP/day. The affected sources included in the BAE are the existing steam stripper and combustion of SOGs in the Combination Boilers, existing LVHC gases from the LVHC Collection System combusted in the Combination Boilers, fuel use in the Combination Boilers for supplying steam to the existing stripper, and ASB.

- Sulfur Dioxide, SO<sub>2</sub> – SO<sub>2</sub> emissions from burning, in the Combination Boilers, the SOGs from the existing steam stripper and the LVHC collection system gases are based on average emission factors developed from source testing for SO<sub>2</sub> performed in October 2021. The LVHC portion of the SOGs was determined using the emission factors presented in the construction application for the conversion from bleached to unbleached paper grades, construction permit -DF.
- Sulfuric Acid, H<sub>2</sub>SO<sub>4</sub> – H<sub>2</sub>SO<sub>4</sub> emissions are based on the emission factor from NCASI Technical Bulletin No. 858, Table 10.
- Nitrogen Oxides, NO<sub>x</sub> and Carbon Dioxide, CO – NO<sub>x</sub> and CO emissions from burning, in the Combination Boilers, the SOGs from the existing steam stripper are based on the emission factors presented in the construction application for the conversion from bleached to unbleached paper grades, construction permit -DF.



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- Volatile Organic Compounds, VOCs – An emission factor was developed for VOCs from the existing condensate stripper and is based on the actual amount of methanol stripped from the foul condensate using the average daily values from 40 CFR 63, Subpart S monitoring. These stripper off gases are combusted in either of the Nos. 1 or 2 Combination Boilers for a 98% destruction efficiency. The non-methanol VOC emissions from the ASB, including TRS compounds that are VOC, from existing treatment of Mill process wastewater and the foul condensate not treated in the existing steam stripper are calculated using the U.S. EPA WATER9 Model. For methanol emissions from the ASB, a spreadsheet version of the WATER9 calculations from the NCASI was used to calculate the fractions biodegraded and emitted developed from Procedure 5 (Multiple Zone Concentration Measurements) in 40 CFR Part 63, Appendix C, Form XIII ("NCASI Form XIII calculation spreadsheet"). The WATER9 Model and Form XIII calculation utilize site-specific liquid concentration data, the site-specific configuration of the treatment unit [including the area or length of unit, liquid depth, wind speed, aeration type (i.e., mechanical aeration)], and the total amount of aeration to calculate the emissions rate in grams per second (g/s). Emission factors were developed converting to pounds then by dividing by the actual production during the site specific sampling event. The VOC emissions from the existing LVHC gases collected were determined using the controlled emission factor presented in the construction application for the conversion from bleached to unbleached paper grades, construction permit -DF.

The data from the Subpart S monitoring did include some values where the facility was out of compliance with the required total amount of methanol to be treated between the stripper and the ASB. Only the values for the amount treated in the stripper were used to develop the existing stripper emission factor for VOC for the BAE. Since the total treated was less than the required amount, the use of the data from the out of compliance periods results in a conservative emission factor.

Models, other than WATER9, were not explored because, as provided by the facility:

The emissions methodology and liquid testing methods were proposed and negotiated as part of the initial performance test (IPT) plan for 40 CFR 63 Subpart S submitted to the U.S. EPA and the South Carolina Department of Health and Environmental Control (SCDHEC) on June 16, 2021, as well as in follow-up questions and responses (multiple submittals between August 2021 and October 2021) that culminated with an approved plan from SCDHEC on October 25, 2021. In addition, the final IPT plan and subsequent correspondence addressed items or questions related to the emissions methodology that were posed in the (1) Order to Correct Undesirable Level of Air Contaminants (Order) issued by the SCDHEC on May 7, 2021; (2) the June 2, 2021 Information Request issued by U.S. EPA pursuant to Section 114(a)(1) of the Clean Air Act (CAA) (U.S. EPA Information Request); and (3) follow-up questions from SCDHEC provided via email on June 8 and 9, 2021.

New-Indy Catawba worked closely with U.S. EPA and SCDHEC and consulted with the nationally recognized organization for pulp and paper facilities (i.e., NCASI) to develop the approved emissions methodology. New-Indy Catawba is utilizing the following models for estimating emissions from the aerated stabilization basin (ASB), which is the affected portion of the wastewater treatment system with the new stripper project:





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- Methanol: 40 CFR Part 63 Appendix C procedure 5 (Form XIII calculation workbook), which is the U.S. Environmental Protection Agency (U.S. EPA) approved method for compliance with treatment of pulping condensates in a biotreatment unit.
  - Hydrogen sulfide (H<sub>2</sub>S): Hydrogen Sulfide Emissions Simulator, or "H<sub>2</sub>SSIM" model, developed by NCASI (Note: for scenarios with peroxide addition in the Hardpipe, concentrations entering the ASB are reduced by 99%).
  - Methyl mercaptan (MMC), dimethyl sulfide (DMS), dimethyl disulfide (DMDS): EPA WATER9 (Note: for scenarios with peroxide addition in the Hardpipe, concentrations entering the ASB are reduced by 99% for MMC and by 90% for DMS. No reductions are assumed for DMDS and the MMC that is reduced is assumed to be converted to DMDS, for an overall increase in the concentration of DMDS entering the ASB from the Hardpipe).
  - Acetaldehyde, propionaldehyde, and methyl ethyl ketone: EPA WATER9 model
- Hydrogen Sulfide, H<sub>2</sub>S, and Total Reduced Sulfur Compounds, TRS - Data from source testing the Combination Boilers when burning SOGs and LVHC in June 2021 were used to develop average emission factors for H<sub>2</sub>S and TRS. H<sub>2</sub>S emissions from the ASB from treatment of Mill process wastewater and the foul condensate not treated in the existing steam stripper are calculated using the NCASI Hydrogen Sulfide Emissions Simulator, or "H<sub>2</sub>SSIM" Model, which utilizes site-specific wastewater configuration, site-specific liquid test results for H<sub>2</sub>S, and site-specific data inputs [e.g., temperature, dissolved oxygen (DO), pH]. H<sub>2</sub>SSIM inputs are based on May and July 2022 sampling data for H<sub>2</sub>S in the foul condensate, as well as dissolved oxygen (DO) data for the ASB taken during NESHAP Subpart S performance testing during the baseline period. The baseline emissions for methyl mercaptan (MMC), dimethyl disulfide (DMDS), and dimethyl sulfide (DMS) are calculated using WATER9 based on May and July 2022 sampling of the foul condensate. Foul condensate sample results from the May and July 2022 testing are representative of the concentrations before chemical oxidant was added. The Mill has been chemically oxidizing the contents of the hard pipe prior to entry into the ASB since June 2021. For calculating BAE of H<sub>2</sub>S and TRS emissions from the ASB, the May and July 2022 foul condensate samples were adjusted as follows to account for the effects of the chemical oxidant:
    - H<sub>2</sub>S concentrations in the hard pipe effluent were reduced by 99%.
    - DMS concentrations in the hard pipe effluent were reduced by 90%.
    - MMC concentrations in the hard pipe effluent were reduced by 99% and assumed to be converted to DMDS.
    - DMDS concentrations are assumed to not be reduced by chemical oxidant. DMDS concentrations in the hard pipe effluent were increased to account for the oxidation of MMC to DMDS.

These adjustments are based on NCASI Technical Bulletin No. 949, Section 5.3.1 for Hydrogen Peroxide and additional bench scale study results and curves provided by NCASI.

- Steam Baseline – products of combustion, NO<sub>x</sub>, CO, VOC, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, Lead, and CO<sub>2</sub>, are based on the actual heat input from fossil fuels to both combination boilers for the steam required to operate the existing steam stripper. With the combination boilers baseloaded with biomass, any additional steam is generated from burning natural gas and No. 6 fuel oil, and any steam used in the current/existing stripper is generated from fossil-fuel firing. The boiler efficiencies for each fossil fuel were used to determine the additional Btu's needed to supply the necessary steam to the existing steam stripper. Based on how the combination boilers are operated by being



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baseloaded with biomass and additional steam demands supplemented with fossil fuel, there is no site specific test data for firing natural gas or fuel oil alone. Therefore, AP-42 emission factors for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOC from natural gas (Table 1.4-2) and No. 6 fuel oil (Tables 1.3-1 and 1.3-2) combustion were used to estimate emissions from the existing Nos. 1 and 2 Combination Boilers. CO<sub>2</sub> emissions from these combustion sources were estimated using 40 CFR 98, Table C-1. Lead emissions from natural gas were calculated from emission factor in AP-42, Table 1.4-2. Lead from the combustion of No. 6 fuel oil was estimated using U.S. EPA document "Estimating Air Toxic Emissions from Coal and Oil Combustion Sources" [EPA-450/289-001] for Uncontrolled Residual Oil-fired Utility Boilers (Table 4-1). The use of this document is consistent with the emissions calculated for the past two Title V renewal applications. The heat content used for natural gas was 1,000 Btu/scf and for No. 6 fuel oil was 150,000 Btu/gal.

**Projected Actual Emissions (PAE) and Potential to Emit (PTE)**

The maximum production rate of 2,700 air dried tons pulp per day (ADTP/day) was used in calculating the PAE and PTE, where applicable. However, the Department is not acting on or approving a production increase with this construction permit. PAE emissions were calculated for the existing steam stripper, existing foul condensate hard pipe, exiting ASB, existing LVHC collection system gases, and steam required for the existing steam stripper. The future emissions from the new steam stripper system and the generation of steam to operate the new steam stripper system were estimated as PTE.

- New Stripper System will be operated to remove methanol. The operating modes include:
  - SRL combustion in Nos. 2 or 3 Recovery Furnaces – SRL is added to the black liquor, which is combusted in the Nos. 2 and 3 Recovery Furnaces. Emissions from the combustion of SRL in the recovery furnaces were estimated. The SRL is expected to contain approximately 40% of the TRS, based on information provided by the vendor. Approximately 99% of the sulfur from the combustion of the TRS will be absorbed within the salt fume inside the recovery furnaces.
  - LVHC combustion in No. 3 Recovery Furnace or in Nos. 1 or 2 Combination Boilers – will contain about 60% of the TRS in the stripper off gases.
  - When the methanol condenser is not operating, SOGs will be combusted in Nos. 1 or 2 Combination Boilers.
    - SO<sub>2</sub>, TRS, H<sub>2</sub>S – Samples of the foul condensate entering the existing stripper were taken July 21-27, 2021. This data was analyzed for hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide; the sum of these being total reduced sulfur compounds (TRS). The maximum of the daily average parts per million results (ppm) were converted to the equivalent sulfur content basis as the sulfur foul condensate loading. An emission factor, in terms of lb sulfur per air dried tons pulp (lb S/ADTP), was developed, then converted, using the molecular weight, to an emission factor for each pollutant, lb pollutant/ADTP, and used to calculate the emissions, along with the 40%/60% split (based on vendor design/estimate information) between the TRS/H<sub>2</sub>S condensed into the SRL and that vented into the LVHC system. These factors, along with the maximum production rate of 2,700 ADTP/day, were used to develop the design parameters and potential emissions for the new stripper for SO<sub>2</sub>, TRS, and H<sub>2</sub>S. TRS and H<sub>2</sub>S gases sent to the Recovery Furnace are assumed to be 99% absorbed by the sodium fume in the furnace with the remainder converted to SO<sub>2</sub>. Control efficiencies of 99.9% for TRS and H<sub>2</sub>S and 99% for SO<sub>2</sub> are used in the calculations.



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When the methanol condenser is not operating, all the SOGs (all the stripped TRS/H<sub>2</sub>S) are combusted in either of the Nos. 1 or 2 Combination Boilers. The SO<sub>2</sub> emission factor derivation is the same but without using the split between amount condensed into SRL and the amount vented to the LVHC system.

- VOC – the facility provided this explanation of the VOC emission factor for the new stripper:

The VOC emissions factor used to estimate the new stripper emissions is based on industry values supplied by the vendor designing the new stripper. The vendor supplied emissions of MeOH are 16 lb MeOH/ODTP [16 lb MeOH/ODTP × (0.9 ODTP/ADTP) = 14.4 lb MeOH/ADTP]. This was conservatively assumed to be 16 lb VOC/ADTP to account for small amounts of the other VOC's in the foul condensate.

The methanol condenser was conservatively estimated to condense 90% of the methanol from the stripper-off-gases for burning the liquid methanol (aka stripper rectified liquid or SRL) in the recovery furnaces [16.0 lb VOC/ODTP × 0.9 ODTP/ADTP) = 14.4 lb VOC/ADTP]. The remaining methanol (10% or 16.0 lb VOC/ADTP × (10 ÷ 100) = 1.60 lb VOC/ADTP) is incinerated in the No. 3 recovery furnace when the condenser is operating, or in the combination boilers when the condenser is down.

- NO<sub>x</sub>, CO – Emission factors are the same factors used in construction permit -DF (aka. Project Columbia) and the 2020 Title V modification application.
- Existing, Backup Stripper – includes combustion of the stripper off gases in either No. 1 or 2 Combination Boiler. Emission factors were derived by the same methodology as that used for the new Stripper when the methanol condenser is not operating.
  - SO<sub>2</sub>, TRS, H<sub>2</sub>S – factors for this operating scenario were develop using the same methodology as the new Stripper without the methanol condenser operating.
  - NO<sub>x</sub>, CO – Emission factors are the same factors used in construction permit -DF and the 2020 Title V modification application.
  - VOC – the facility provided the explanation on the VOC emission factor for the backup stripper:

The new stripper and the backup stripper will both remove the same amounts of TRS and H<sub>2</sub>S from the foul condensate, generating the same amounts of SO<sub>2</sub> when controlled. The backup stripper will remove 45% of the methanol from the foul condensate when operated in TRS mode and will remove greater than 90% methanol from the foul condensate when operating in Methanol mode. The worst case VOC emissions factor for SOGs from the backup stripper is when operating in Methanol mode (16.0 lb VOC/ODTP) which assumes all VOC are captured in the SOG. The VOC emissions factor for the backup stripper SOG in TRS mode has been adjusted to reflect 45% of the methanol being stripped from the condensate [16.0 lb VOC/ADTP × (45 ÷ 100) = 7.20 lb VOC/ADTP].

- Aerated Stabilization Basin (ASB) – the same methodology was used to calculate VOC emissions for the different operating scenarios. The worst-case operating scenario for the backup stripper for VOC is in Methanol mode. For methanol mode, the backup stripper will operate to remove TRS and methanol from a portion of the foul



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condensate. For this operating mode the outlet liquid from the stripper is referred to as “cleaned” condensate and is no longer subject to further regulation and can be used other places in the mill. The remaining portion of untreated foul condensate that is not treated in the backup steam stripper is treated with H<sub>2</sub>O<sub>2</sub> to chemically oxidize the H<sub>2</sub>S into either elemental sulfur or sulfate, then sent to the ASB via the hardpipe for further methanol treatment. For operation in TRS mode, the stripped condensate from the backup stripper will be sent to the ASB through the hardpipe to biologically treat the remaining methanol. There are no plans to utilize the hardpipe and ASB for compliance with treatment of the pulping condensates under 40 CFR 63, Subpart S.

- VOC, TRS compounds that are VOC, H<sub>2</sub>S - The non-methanol VOC emissions from the ASB from treatment of Mill process wastewater and the foul condensate not treated in the existing steam stripper are calculated using the U.S. EPA WATER9 Model. H<sub>2</sub>S emissions were calculated using NCASI’s H<sub>2</sub>SSIM model. Input data to these models were obtained from testing liquid samples from the wastewater treatment system. Methanol results of NESHAP Subpart S performance tests, from July 2021 through October 2022, and the design methanol value (i.e. 16.0 lb/ODTP) for the foul condensates were used to develop an emission factor for methanol. Three predominate VOC compounds, acetaldehyde, methyl ethyl ketone, and propionaldehyde, were also analyzed during those performance tests and emission factors derived from this information. For methanol emissions from the ASB, a spreadsheet version of the WATER9 calculations from the NCASI was used to calculate the fractions biodegraded and emitted developed from Procedure 5 (Multiple Zone Concentration Measurements) in 40 CFR Part 63, Appendix C, Form XIII (“NCASI Form XIII calculation spreadsheet”). The WATER9 Model and Form XIII calculation utilize site-specific liquid concentration data, the site-specific configuration of the treatment unit [including the area or length of unit, liquid depth, wind speed, aeration type (i.e., mechanical aeration)], and the total amount of aeration to calculate the emissions rate in grams per second (g/s).

The average of the pulp production during the testing periods was used in developing the emission factors for the ASB inlet and the maximum pulp production (i.e., 2,700 ADTP/d) was used in developing the emissions factors for the hardpipe. The VOC emission factor is the sum of the factors for methanol, acetaldehyde, methyl ethyl ketone, propionaldehyde, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide.

- LVHC Collection System – LVHC gases currently collected in the LVHC collection system include those from the Evaporator Sets, Turpentine Recovery System, and the Steam Stripper Feed Tank. The primary combustion source for these gases will be the No. 3 Recovery Furnace or either existing Combination Boiler (No. 1 or No. 2) as backup. Although the LVHC gases from the new SRL condenser will also be collected in this system, the emission factor derivation has been discussed under the new stripper system above.
  - SO<sub>2</sub> emission factors from construction permit -DF (aka. Project Columbia) were conservatively used over the SO<sub>2</sub> emission factor derived from the information from the stack tests performed in October 2021. The maximum rates from testing both boilers combusting NCGs+SOGs and NCGs only were used along with a 20% control efficiency of SO<sub>2</sub> by bark ash<sup>2</sup>, and the 50% control by the LVHC scrubber to back calculate the maximum uncontrolled emission factor for SO<sub>2</sub>, in lb/ADTP, for use in estimating the

<sup>2</sup> National Council for Air and Stream Improvement, Inc. (NCASI). 2009. *Sulfur capture in combination bark boilers – An update*. Special Report No. 09-02. Research Triangle Park, N.C.: National Council for Air and Stream Improvement, Inc.



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projected actual emissions. The NCG gases were split into LVHC and HVLC using a ratio of controlled factors from the application for construction permit -DF.

- For the existing LVHC streams, the VOC factor is based on the “VOC as VOC” factor used in the Title V renewal application. This factor is for bleached pulp. New-Indy received guidance from NCASI on the percent difference of this factor between bleached and unbleached and used the result as the unbleached VOC factor for the sources collected in the LVHC collection system. The emission factor for combustion in the Combination Boilers takes into account the destruction efficiency and is the same factor used in construction permit -DF.
  - TRS and H<sub>2</sub>S emission factors were derived from the stack tests results performed in June 2021. The maximum rates from testing both boilers combusting NCGs+SOGs and NCGs only were used along with the 50% control by the LVHC scrubber to back calculate the maximum uncontrolled emission factor for TRS and H<sub>2</sub>S in lb/ADTP, for use in estimating the projected actual emissions. The NCG gases were split into LVHC and HVLC using a ratio of controlled factors from the application for construction permit -DF.
  - H<sub>2</sub>SO<sub>4</sub> emissions were calculated using the H<sub>2</sub>SO<sub>4</sub> factor from NCASI Technical Bulletin No. 858, Table 10.
- New LVHC Ignitor in No. 3 Recovery Furnace, - rated at 1.0 million Btu/hr and combusts natural gas only.
    - Emission factors from AP-42, Tables 1.4-1 and 1.4-2 were used to estimate PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, and lead.
    - The CO<sub>2</sub> emission factor was obtained from 40 CFR 98, Tables C-1.
- Nos. 1 and 2 Combination Boilers - increased fossil fuel usage for operation of either stripper. The steam requirements for the new stripper and the backup stripper were provided by the vendor and adjusted for the thermal efficiency of the combination boilers firing natural gas and No. 6 fuel oil. The projected No. 6 fuel oil usage reflects the highest No. 6 fuel oil usage occurring during the previous 10 years, as a percentage of total fossil fuel heat input. The highest fuel oil usage was during calendar year 2014 and accounted for 18.4% of the fossil fuel heat input.
    - Natural Gas combustion –
      - Emission factors from AP-42, Tables 1.4-1 and 1.4-2 were used to estimate PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, and lead.
    - No. 6 Fuel Oil –
      - Emission factors from AP-42, Tables 1.3-1, -2, -3, and -4 were used to estimate PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOC. The sulfur content used in the calculations, to which the facility is currently limited, was 2.1%.
      - Lead emissions were estimated using EPA document “Estimating Air Toxic Emissions from Coal and Oil Combustion Sources” [EPA-450/2-89-001] for Uncontrolled Residual Oil-fired Utility Boilers, Table 4-1. The lead factor and source is consistent with the two past TV renewal applications.
    - The CO<sub>2</sub> emission factors for both natural gas combustion and No. 6 fuel oil combustion were obtained from 40 CFR 98, Tables C-1.

**PSD ANALYSIS RESULTS**

As shown in the table below, the PSD analysis did not result in PSD being triggered. However, the results of the analysis showed that PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and VOC were greater than 50% of the significant emission rate. Record keeping is required as specified in S.C. Regulation 61-62.5, Standard No. 7(R)(6)(d).



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Summary of PSD Applicability											
Tons/year											
Pollutant	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	H <sub>2</sub> SO <sub>4</sub>	TRS	H <sub>2</sub> S	VOC	Pb
Baseline Actual Emissions	1.11	1.02	0.96	737.01	123.72	25.22	1.23	12.81	3.61	233.11	1.10E-4
Projected Actual Emissions	13.33	10.34	8.37	645.80	147.54	62.81	2.43	16.76	5.59	259.89	2.06E-3
<b>New Emissions Change (PAE - BAE)</b>	12.22	9.32	7.41	-91.21	23.82	37.60	1.20	3.95	1.98	26.79	1.95E-3
<b>PSD Significant Emissions Rates</b>	25	15	10	40	40	100	7	10	10	40	0.6
<b>PSD Significant?</b>	No	No	No	No	No	No	No	No	No	No	No

**PROJECT EMISSIONS**

The project emissions for each pollutant are based on the operating scenarios with the worst case emissions, as follows:

- PM, PM<sub>10</sub>, PM<sub>2.5</sub>, Lead (Pb), CO<sub>2</sub> – the worst case emissions for both lb/hr and tpy for uncontrolled and potential to emit (PTE) come from the use of the natural gas ignitor in the No. 3 Recovery Furnace and the use of No. 6 fuel oil in the boiler that provides steam to the new stripper. There are no controls used for these pollutants from these combustion scenarios.
- SO<sub>2</sub> – the worst case uncontrolled lb/hr and tpy emissions correspond to the new stripper operating with SOGs burned in one of the combination boilers; burning of LVHC, without using the LVHC scrubber, in one of the combination boilers with the steam supplied by the boilers to the stripper based on No. 6 fuel oil use. Controlled and PTE lb/hr and tpy emissions correspond to the new stripper operating with SOGs burned in one of the combination boilers; burning of LVHC, after routing through the LVHC scrubber, in one of the combination boilers with the steam supplied by the boilers to the stripper based on No. 6 fuel oil use.
- NO<sub>x</sub> – the worst case uncontrolled and PTE lb/hr and tpy emissions correspond to the new stripper operating with SOGs burned in one of the combination boilers, use of the natural gas ignitor in the No. 3 Recovery Furnace and the use of No. 6 fuel oil in the boiler that provides steam to the new stripper. There are no controls used for NO<sub>x</sub> from these combustion scenarios.
- CO – the worst case uncontrolled and PTE lb/hr and tpy emissions correspond to the SRL being combusted in the No. 3 Recovery Furnace, use of the natural gas ignitor in the No. 3 Recovery Furnace and the use of natural gas in the boiler that provides steam to the new stripper. There are no controls used for CO from these combustion scenarios.
- VOC – the worst case uncontrolled lb/hr and tpy emissions are based on the new stripper operating, other than foul condensate discharges to the ASB, LVHC burned in the No. 3 Recovery Furnace, the ignitor on the No. 3 Recovery Furnace, and the increase in natural gas usage by one of the combination boilers for providing steam to the stripper. The controlled and PTE lb/hr emissions correspond with the ASB with no stripper operating, LVHC combusted in the





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No. 3 Recovery Furnace, and the natural gas ignitor on the No. 3 Recovery Furnace. The controlled and PTE tpy emissions correspond with the maximum downtime for the strippers where treatment will be in the ASB, the remainder of time with the operations of each stripper, combustion of the LVHC in the No. 3 Recovery Furnace, the ignitor on the No. 3 Recovery Furnace, and the increases in natural gas usage by one of the combination boilers for providing steam to each of the strippers.

- TRS – the worst case uncontrolled lb/hr and tpy emissions are based on the backup stripper operating with SOG burned in one of the combination boilers, emissions from the ASB for the backup stripper operation, and LVHC burned in the No. 3 Recovery Furnace. The controlled and PTE lb/hr emission rates correspond to no stripper online and the LVHC gases combusted in one of the combination boilers. The controlled and PTE tpy emission rates correspond to the maximum downtime for the strippers where treatment will be in the ASB, the remainder of time with the operations of each stripper, and combustion of the LVHC in one of the combination boilers.
- H<sub>2</sub>S – the worst case uncontrolled lb/hr and tpy emissions and controlled and PTE lb/hr are based on the backup stripper operating with SOG burned in one of the combination boilers, emissions from the ASB for the backup stripper operation, and LVHC burned in one of the combination boilers. The controlled and PTE tpy emission rates correspond with the maximum downtime for the strippers where treatment will be in the ASB, the remainder of time with the operations of each stripper, and LVHC combusted in the one of the combination boilers.
- H<sub>2</sub>SO<sub>4</sub> – the worst case emissions for both lb/hr and tpy for Uncontrolled, Controlled, and Potential to Emit (PTE) are based on the combustion of the LVHC gases. The lb/hr rate is the same whether combusting in the No. 3 Recovery Furnace or one of the Combination Boilers. The tpy rate includes both combustion scenarios. There is no difference between uncontrolled and PTE. There are no controls used for H<sub>2</sub>SO<sub>4</sub> for these combustion scenarios.

PROJECT EMISSIONS						
Pollutant	Uncontrolled		Controlled		PTE	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
PM	14.9	65.1	---	---	14.9	65.1
PM <sub>10</sub>	10.8	47.3	---	---	10.8	47.3
PM <sub>2.5</sub>	8.1	35.6	---	---	8.1	35.6
SO <sub>2</sub>	1,020.9	4,471.5	690.6	3,024.8	690.6	3,024.8
NO <sub>x</sub>	75.84	332.17	---	---	75.84	332.17
CO	16.4	71.9	---	---	16.4	71.9
VOC	1,833.74	8,031.77	247.49	375.4	247.49	375.4
TRS	294.6	1,290.1	9.18	21.96	9.18	21.96
H <sub>2</sub> S	83.21	364.48	1.86	7.74	1.86	7.74
H <sub>2</sub> SO <sub>4</sub>	0.55	2.43	---	---	0.55	2.43
Pb	2.58E-03	1.13E-02	---	---	2.58E-03	1.13E-02
CO <sub>2</sub>	15,388	67,398	---	---	15,388	67,398

**OPERATING PERMIT STATUS**



**STATEMENT OF BASIS**  
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 BAQ Air Permitting Division

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This facility operates under a Title V Operating Permit; issued on May 7, 2019; effective on July 1, 2019; expires on June 30, 2024. A timely Title V operating permit renewal application was received on December 4, 2023. The application was deemed complete, and an application shield granted effective December 18, 2023.

This construction permit will undergo a 30-day public notice period in accordance with SC Regulation 61-62.1, Section II(N). To incorporate this construction permit into the Title V operating permit, a minor permit modification shall be submitted.

<b>REGULATORY APPLICABILITY REVIEW</b>	
<b>Regulations</b>	<b>Comments/Periodic Monitoring Requirements</b>
Section II(E) – Synthetic Minor	<u>Not Applicable</u> The PSD analysis did not result in the need for limits to avoid applicability of PSD.
Standard No. 7	<p><u>Not applicable</u></p> <p>PSD applicability was assessed for this project by using the hybrid test since this project involves new and existing emission units. The PSD applicability analysis was completed for applicable NSR regulated air pollutants, to include PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, TRS, H<sub>2</sub>S, and H<sub>2</sub>SO<sub>4</sub> mist. The facility only provided emissions of CO<sub>2</sub> and not the PSD pollutant CO<sub>2</sub>e since the project did not trigger PSD. Projected actual emissions (PAE) were calculated for the following existing sources:</p> <ul style="list-style-type: none"> <li>- Backup Steam Stripper System</li> <li>- Existing ASB and Foul Condensate Hard Pipe</li> <li>- Existing Evaporator Sets, Turpentine Recovery System, and Steam Stripper Feed Tank LVHC gases</li> <li>- Existing Nos. 2 and 3 Recovery Furnaces</li> <li>- Existing Nos. 1 and 2 Combination Boilers for the additional steam required to operate the existing Steam Stripper System</li> </ul> <p>Potential to emit (PTE) emissions were calculated for the new LP Steam Stripper System and the existing Nos. 1 and 2 Combination Boilers for the additional steam required to operate the new LP Steam Stripper System.</p> <p>Baseline actual emissions (BAE) for all existing sources and pollutants were calculated based on the 24-month period following conversion of the mill to unbleached paper grades starting in March 2021 and extending through February 2023.</p> <p>The PSD analysis did not result in PSD being triggered. However, the results of the analysis showed that PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and VOC were greater than 50% of the significant emission rate. Record keeping is required as specified in S.C. Regulation 61-62.5, Standard No. 7(R)(6)(d).</p> <p>Also see the discussion under PSD Analysis above.</p>
Standard No. 1	No. 1 and No. 2 Combination Boilers (IDs 2605, 3705)



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**REGULATORY APPLICABILITY REVIEW**

Regulations	Comments/Periodic Monitoring Requirements
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	<ul style="list-style-type: none"> <li>• <u>Applicable, no change</u> – These Boilers are currently subject to this regulation as existing sources based on the installation dates. Both were installed prior to February 11, 1971. This project does not change any of the limitations, testing, monitoring, recordkeeping, or reporting as covered in the TV Operating Permit, effective July 1, 2019.</li> </ul> <p><u>No. 2 and No. 3 Recovery Furnaces (IDs 2505 and 5105)</u></p> <ul style="list-style-type: none"> <li>• <u>Not Applicable, no change</u> – The Recovery Furnaces are not subject to this regulation because these units are direct fired sources versus indirect fired sources, which are covered by Std. 1. This project does not result in a change to this determination.</li> </ul> <p><u>New Ignitor in No. 3 Recovery Furnace</u></p> <ul style="list-style-type: none"> <li>• <u>Not Applicable</u> – The new 1.0 million Btu/hr natural gas Ignitor, to be installed in the No. 3 Recovery Furnace, is not subject to this regulation because the ignitor provides direct heating of the LVHC gases entering the furnace. Std No. 1 is applicable to indirect fired sources where the material being heated is not contacted by and adds no substance to the products of combustion. Therefore, this regulation does not apply to the new Ignitor.</li> </ul>
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Standard No. 4	<p><u>New LP Steam Stripper and SRL Condenser (ID 9803)</u> <u>New Steam Stripper Feed Tank (ID 9804) and new Steam Stripper Rectified Liquid (SRL) Methanol Tank (ID 9805)</u></p> <ul style="list-style-type: none"> <li>• <u>Applicable:</u> <ul style="list-style-type: none"> <li>○ Section IX, Opacity – the new LP stripper, new SRL condenser, new steam stripper feed tank, and new steam stripper SRL tank are subject to an opacity limit of 20% since it will be constructed after December 31, 1985.</li> </ul> </li> <li>• <u>Not Applicable:</u> <ul style="list-style-type: none"> <li>○ Section VIII, PM – This section does not apply to the new LP steam stripper, new SRL condenser, new steam stripper feed tank, or new steam stripper SRL tank because these sources do not emit particulate matter.</li> <li>○ Section XI, TRS – The requirements of this section apply to named sources installed prior to September 24, 1976. Therefore, this regulation does not apply to the new LP Steam Stripper System (Stripper and Condenser) since these sources will be constructed after September 24, 1976. Also, the requirements of this section do not apply to the new Tanks since these tanks will be constructed after September 24, 1976.</li> </ul> </li> </ul> <p><u>Existing Foul Condensate Collection Tank (ID 9800), Existing Steam Stripper (ID 9801), Existing Stripper Off Gases (SOGs) Collection System (ID 9820)</u></p> <ul style="list-style-type: none"> <li>• <u>Applicable, no change:</u></li> </ul>
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<b>REGULATORY APPLICABILITY REVIEW</b>	
<b>Regulations</b>	<b>Comments/Periodic Monitoring Requirements</b>
	<p>- Section IX, Opacity – the existing stripper and the SOGs collection system are currently subject to an opacity limit of 20% since these sources were constructed after December 31, 1985.</p> <ul style="list-style-type: none"> <li>• <u>Not Applicable, no change:</u> <ul style="list-style-type: none"> <li>- Section VIII, PM – This section does not apply to the existing Steam Stripper nor the existing SOGs Collection System because these sources do not emit particulate matter.</li> <li>- Section XI, TRS – The requirements of this section do not apply to the existing Steam Stripper nor the existing SOGs Collection System since these sources were constructed after September 24, 1976.</li> </ul> </li> </ul> <p><u>Existing Hard Pipe (ID 9802)</u> <u>Existing Chemical Oxidation Treatment System (ID 9802)</u></p> <ul style="list-style-type: none"> <li>• <u>Not Applicable:</u> <ul style="list-style-type: none"> <li>- Section VIII, PM – This section does not apply to the existing hard pipe nor the chemical oxidation treatment system because these sources do not emit particulate matter.</li> <li>- Section IX, Opacity – Neither the hard pipe nor the chemical oxidation treatment system exhaust to the air. Both sources discharge liquid below the liquid level of the respective discharge points.</li> <li>- Section XI, TRS – The requirements of this section do not apply to the existing hard pipe nor the chemical oxidation treatment system since these sources were constructed after September 24, 1976.</li> </ul> </li> </ul> <p><u>No. 2 Recovery Furnace (ID 2505)</u></p> <ul style="list-style-type: none"> <li>• <u>Applicable, no change:</u> <ul style="list-style-type: none"> <li>- Section III, Opacity – The existing No. 2 Recovery Furnace is currently subject to the 40% opacity limitation of this regulation. This project does not result in a change in this limitation.</li> <li>- Section XI, TRS – The existing No. 2 Recovery Furnace is currently subject to this regulation as an affected source since it was installed prior to September 24, 1976. The combustion of the condensed methanol does not change any of the applicable requirements of this section. The applicable requirements from this Section are: <ul style="list-style-type: none"> <li>▪ TRS less than or equal to 20 ppmvd corrected to 8% oxygen, averaged over 12 hours,</li> <li>▪ Continued use of TRS CEMs for monitoring of excess emissions.</li> </ul> </li> </ul> </li> <li>• <u>Not Applicable, no change:</u> <ul style="list-style-type: none"> <li>○ Section VIII, PM – Kraft Pulp and Paper sources identified in Section III are not subject to this section.</li> </ul> </li> </ul>



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<b>REGULATORY APPLICABILITY REVIEW</b>	
<b>Regulations</b>	<b>Comments/Periodic Monitoring Requirements</b>
<p style="text-align: center;">Standard No. 3 (state only)</p>	<p><u>No. 3 Recovery Furnace (ID 5105)</u></p> <ul style="list-style-type: none"> <li>• <u>Applicable, no change:</u> <ul style="list-style-type: none"> <li>- Section III, Opacity – The existing No. 3 Recovery Furnace is currently subject to the 40% opacity limitation of this regulation. This project does not result in a change in this limitation.</li> </ul> </li> <li>• <u>Not Applicable, no change:</u> <ul style="list-style-type: none"> <li>- Section VIII, PM – Kraft Pulp and Paper sources identified in Section III are not subject to this section.</li> <li>- Section XI, TRS – The No. 3 Recovery Furnace is not subject to the requirements of this section since it was installed after the applicability date of Sept. 24, 1976.</li> </ul> </li> </ul> <p><u>Existing LVHC Collection System (ID 5260)</u></p> <ul style="list-style-type: none"> <li>• <u>Applicable, no change:</u> <ul style="list-style-type: none"> <li>- Section III, Opacity – The existing LVHC Collection System is subject to an opacity limit of 20% since this source was constructed after December 31, 1985.</li> </ul> </li> <li>• <u>Not Applicable, no change:</u> <ul style="list-style-type: none"> <li>- Section VIII, PM – This section does not apply to the existing LVHC Collection System because this source does not emit particulate matter.</li> <li>- Section XI, TRS – The requirements of this section do not apply to the existing LVHC Collection System since this source was constructed after September 24, 1976.</li> </ul> </li> </ul>
<p style="text-align: center;">Standard No. 3 (state only)</p>	<p><u>Not applicable</u></p> <ul style="list-style-type: none"> <li>• Section I.J.1 of this regulation provides exemptions from being subject to this regulation for Industrial Furnaces (i.e., Recovery Furnaces) and Boilers when burning only black liquor, only total reduced sulfur (TRS) compounds, or only black liquor and/or TRS compounds and/or virgin fuel. Also exempt are total reduced sulfur control devices burning only gaseous TRS and virgin fuel. Further, this section also states “Gaseous process streams containing TRS compounds that are regulated in accordance with Section XI of Regulation 61-62.5, Standard No. 4, Emissions from Process Industries, and/or 40 CFR 60, Subpart BB, Standards of Performance for Kraft Pulp Mills, are also not subject to this standard.             <ul style="list-style-type: none"> <li>○ The No. 2 Recovery Furnace (ID 2505) primarily burns black liquor and occasionally burns virgin fuel and therefore, is exempt from this regulation.</li> <li>○ The No. 3 Recovery Furnace (ID 5105) primarily burns black liquor and occasionally burns virgin fuel and therefore, is exempt from this regulation. This project adds the combustion of the LVHC (TRS containing) gaseous stream from the existing Evaporator Sets, existing Turpentine Recovery System, existing Steam Stripper Feed Tank, and the new SRL</li> </ul> </li> </ul>



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Regulations	Comments/Periodic Monitoring Requirements
	<p>Condenser System in the No. 3 Recovery Furnace, which also meets the exemption from this regulation as specified in the paragraph above. Additionally, the combustion of the LVHC (TRS containing) gaseous stream in the No. 3 Recovery Furnace can be exempt from this regulation because the No. 3 Recovery Furnace is subject to NSPS BB.</p> <ul style="list-style-type: none"> <li>○ The No. 1 and No. 2 Combination Boilers (IDs 2605 and 3705) currently burn the gaseous TRS for control and have been previously exempted from this regulation. The Combination Boilers will continue to burn the gaseous TRS as a backup control scenario to the No. 3 Recovery Furnace and thus remain exempt from this regulation.</li> </ul> <p>• Section I.J.3. of this regulation allows "A facility with an emission unit and/or control device that complies with all the requirements of an applicable Maximum Achievable Control Technology (MACT) Standard under 40 CFR 63, including testing and reporting requirements, may request an exemption from this standard." New-Indy is requesting an exemption from Std No. 3 for the combustion of the condensed methanol with the black liquor in either Recovery Furnace.</p> <p>New-Indy supplied the following justification for the exemption request:</p> <p>During development of the Pulp and Paper MACT regulations at 40 CFR 63, Subpart S, U.S. EPA reviewed the practice of combusting methanol condensed from stripper-off-gases. The U.S. EPA determined that the methanol condensate "does not appear to contain metal or chlorinated organic HAP's ..." (61 Fed. Reg. 9397) (emphasis added). The U.S. EPA also found that burning methanol condensate "will not increase the potential environmental risk over the burning of the steam stripper vent gases prior to condensation." U.S. EPA reaffirmed this conclusion in 2011 during its Residual Risk and Technology Review (RTR) of the Pulp and Paper (Subpart S) MACT. In the final RTR rule, U.S. EPA stated: "We conclude based on the Residual Risk Assessment cited here that the risks from the subpart S pulp and papermaking source category are acceptable and that the current standard protects the public health with an ample margin of safety. Consequently, we are re-adopting the MACT standards for subpart S pursuant to our 112(f)(2) review." (77 Fed. Reg. 55705)</p> <p>Therefore, the combustion of black liquor and condensed methanol from stripper-off-gases in the recovery furnaces mill qualifies for the exemption from Standard No. 3 provided in Section 1.J.3.</p> <p>After review of this request by the Standard No. 3 workgroup, it was determined that combusting condensed methanol with the black liquor in either Recovery Furnace is exempt from the requirements of this rule. The combustion of condensed methanol</p>





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	was addressed in the development of Subpart S, and it was determined there would be no increase in the potential environmental risk over burning the steam stripper vent gases prior to condensation. This conclusion is reaffirmed in the 2011 Residual Risk and Technology Review of Subpart S.
Standard No. 5	<u>Not applicable</u> This facility does not operate or have any of the processes described under the various Parts of this regulation.
Standard No. 5.2	<p><u>No. 1 and No. 2 Combination Boilers (IDs 2605, 3705)</u></p> <ul style="list-style-type: none"> <li>• <u>Not applicable, no change:</u> The two Combination Boilers are not subject to this rule since both units were installed prior to the effective date of this regulation, June 25, 2004, and the burners have not been replaced. This project does not result in a change to this determination.</li> </ul> <p><u>No. 2 and No. 3 Recovery Furnaces (IDs 2505 and 5105)</u></p> <ul style="list-style-type: none"> <li>• <u>Not Applicable, no change:</u> The No. 2 and No. 3 Recovery Furnaces are not subject to this rule since both units were installed prior to the effective date of this regulation, June 25, 2004, and the burners have not been replaced. Also, Recovery Furnace No. 3 has been through a Nonattainment LAER determination for NOx under c/p-DA (issued in 2006) after the effective date of this regulation. This project does not result in changes to this determination.</li> </ul> <p><u>New Ignitor in No. 3 Recovery Furnace</u></p> <ul style="list-style-type: none"> <li>• <u>Not Applicable:</u> The new 1.0 million Btu/hr natural gas Ignitor, to be installed in the No. 3 Recovery Furnace, is not subject to this regulation because the NOx emissions are less than 5.0 tpy (Section I(B)(3)).</li> </ul>
61-62.6	<u>Applicable</u> This facility will be subject to the state-wide requirements. No fugitive (PM) dust emissions are expected.
40 CFR 60 and 61-62.60	<p><u>Subpart A – §60.14 Modification</u></p> <ul style="list-style-type: none"> <li>• <u>Not Applicable:</u> Any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification. Changes occurring with this project are:           <ol style="list-style-type: none"> <li>a. Combusting the methanol condensate in Nos. 2 and 3 Recovery Furnaces</li> <li>b. Combusting the LVHCs from the new SRL condenser system, existing evaporator sets, existing turpentine recovery system, and the existing steam stripper feed tank in the No. 3 Recovery Furnace</li> </ol> </li> </ul>



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	<p>c. Addition of the 1.0 million Btu/hr natural gas ignitor in the No. 3 Recovery Furnace</p> <p>d. Combustion of LVHCs in Nos. 1 or 2 Combination Boiler</p> <p>e. Combustion of the SOGs from the new stripper in Nos. 1 or 2 Combination Boiler</p> <p>However, according to §60.14(e)(5), modifications do not include the addition or use of any system or device whose primary function is the reduction of air pollutants. Justification provided by the facility why the changes above are not considered modifications:</p> <p style="padding-left: 40px;">The purpose for combustion of the rectified methanol (liquid) in the Nos. 2 and 3 Recovery furnaces, combustion of the LVHC system gases in the No. 3 Recovery Furnace, and installation of the natural gas ignitor in the No. 3 Recovery Furnace is explicitly for the destruction of total reduced sulfur (TRS) and hazardous air pollutant (HAP) emissions for the new condensate stripper system and existing LVHC system gases as required under 40 CFR 60, Subpart BBa and 40 CFR 63, Subpart S.</p> <p>Therefore, neither Recovery Furnace is undergoing a modification with respect to this project. The existing requirements from SC Reg 61-62.5, Std No. 4 for the No. 2 Recovery Furnace and NSPS Subpart BB for the No. 3 Recovery Furnace will continue to apply.</p> <p>Modifications are not occurring to the Nos. 1 or 2 Combination Boilers. Both boilers currently combust LVHCs collected in the LVHC Collection System and SOGs from the existing stripper. Combustion of the new LVHC stream from the condenser in these boilers is for the reduction of air pollutants. Combustion of the new stripper off gases is also for the reduction of air pollutants. Therefore, neither of the Combination Boilers is being modified with respect to this project.</p> <p><u>Subpart BBa - Kraft Pulp Mill Affected Sources For Which Construction, Reconstruction, Or Modification Commenced After May 23, 2013</u></p> <ul style="list-style-type: none"> <li>• <u>New LP Steam Stripper System (ID 9803), existing LVHC Collection System (ID 5260)</u> – for the purposes of this regulation, the LP steam stripper system includes low pressure steam stripper and SRL (methanol) condenser</li> </ul> <p><u>Not applicable sections</u> §60.282a, Standard for filterable particulate matter – none of the PM nor opacity limitations apply to condensate stripper systems.</p>



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	<p>§60.285a, Test methods and procedures – the control device for the processes is the recovery furnace, which is not subject to 40 CFR 60, Subpart BBa. The recovery furnace is subject to testing under 40 CFR 60, Subpart BB.</p> <p><u>Applicable</u></p> <ul style="list-style-type: none"> <li>- As defined in this regulation, the condensate stripper system includes the column and associated condenser used to strip the TRS from the condensate streams within the kraft pulp mill (§60.281a).</li> <li>- Uncontrolled TRS emissions from the Condensate Stripper System shall not be in excess of 5 ppmv, dry basis, corrected to 10% oxygen. However, the emissions from the Condensate Stripper System are collected in a LVHC closed vent system meeting the requirements of §63.450 and             <ul style="list-style-type: none"> <li>o For the primary control scenario, emissions from the steam stripper are primarily combusted in the No. 3 Recovery Furnace which is subject to 40 CFR 60 Subparts BB (60.283a(a)(1)(ii)).</li> <li>o In one backup operating scenario, gases from the stripper will be sent to the condenser to condense methanol and LVHC gases emitted from the condenser routed through the existing LVHC Collection System then the LVHC scrubber for TRS removal before combustion in either of the boilers. The Subpart BBa requirements for this backup configuration are:                 <ul style="list-style-type: none"> <li>▪ The LVHC Collection System (ID 5260) shall meet the requirements of §63.450 for a LVHC closed vent system. (60.283a(a)(1)(iii))</li> <li>▪ No temperature monitoring is required. For NSPS Subpart BB, in ADI Applicability Determination Index #0200009, EPA concluded that "...the combustion temperature monitoring requirement in 40 C.F.R. Sec. 60.284(b)(1) is applicable only to incinerators used for TRS control" and that "Subpart BB would not require &lt;facility&gt; to monitor the combustion temperature in the boiler." Further, the preamble to NSPS Subpart BBa addresses the temperature monitoring in Section V.E, and that temperature monitoring is only required when an incinerator is used as the combustion device. The reasoning behind this is that boilers, lime kilns and recovery furnaces normally operate at temperatures higher than 1,200 °F.</li> <li>▪ No source testing is required. The use of the boilers to combust TRS gases demonstrates compliance with this regulation. Plus, there is no TRS limit to demonstrate compliance with through source testing.</li> <li>▪ Excess emissions from the condensate stripper system shall be reported. Excess emissions are those not routed through the closed-vent system. (60.284a(d)(3)(iii))</li> </ul> </li> </ul> </li> </ul>



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	<ul style="list-style-type: none"> <li>• <u>New LP Steam Stripper (ID 9803) only, existing Stripper Off Gases (SOGs) Collection System (ID 9820)</u> - for this backup operating scenario only the new low pressure steam stripper will be used. The SRL (methanol) condenser is offline. <u>Applicable</u></li> <li>- The condensate stripper system includes the column used to strip the TRS from the condensate streams within the kraft pulp mill (§60.281 a).               <ul style="list-style-type: none"> <li>o In this backup operating scenario, the SRL condenser will not be used. The SOGs will be collected in the SOG Collection System then combusted in either of the Combination Boilers. The existing LVHC scrubber is not used in this configuration.</li> </ul> <p>The Subpart BBa requirements for this backup configuration are:</p> <ul style="list-style-type: none"> <li>▪ The SOGs Collection System shall meet the requirements of §63.450 for a LVHC closed vent system. (60.283a(a)(1)(iii))</li> <li>▪ No temperature monitoring is required. For NSPS Subpart BB, in ADI Applicability Determination Index #0200009, EPA concluded that "...the combustion temperature monitoring requirement in 40 C.F.R. Sec. 60.284(b)(1) is applicable only to incinerators used for TRS control" and that "Subpart BB would not require &lt;facility&gt; to monitor the combustion temperature in the boiler." Further, the preamble to NSPS Subpart BBa addresses the temperature monitoring in Section V.E, and that temperature monitoring is only required when an incinerator is used as the combustion device. The reasoning behind this is that boilers, lime kilns and recovery furnaces normally operate at temperatures higher than 1,200 °F.</li> <li>▪ No source testing is required. The use of the boilers to combust TRS gases demonstrates compliance with this regulation. Plus, there is no TRS limit to demonstrate compliance with through source testing.</li> <li>▪ Excess emissions from the condensate stripper system shall be reported. Excess emissions are those not routed through the closed-vent system. (60.284a(d)(3)(iii))</li> </ul> </li> <li>• <u>New Steam Stripper Feed Tank (ID 9804) and new Steam Stripper Rectified Liquid (SRL) Methanol Tank (ID 9805)</u> <u>Not Applicable</u> <ul style="list-style-type: none"> <li>o These tanks are not listed affected sources in this regulation nor included in the definition of Condensate Stripper System.</li> </ul> </li> </ul>



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	<ul style="list-style-type: none"> <li>• <u>Existing, backup Steam Stripper (ID 9801), existing Stripper Off Gases (SOGs) Collection System (ID 9820)</u> - only the existing, backup steam stripper will be used. Requirements from BBa are the same as those for the new stripper where the SOGs exhaust directly to the Nos. 1 or 2 Combination Boilers. <u>Applicable</u> <ul style="list-style-type: none"> <li>- Changes that occurred under construction permit -DF were considered modifications under §60.14. Based on that, the existing Stripper became subject to Subpart BBa.</li> <li>- The condensate stripper system includes the column used to strip the TRS from the condensate streams within the kraft pulp mill (§60.281 a).               <ul style="list-style-type: none"> <li>o In this backup operating scenario, the SOGs will be collected in the SOG Collection System then combusted in either of the Combination Boilers. The existing LVHC scrubber is not used in this configuration.</li> </ul> </li> </ul> <p>The Subpart BBa requirements for this backup configuration are:</p> <ul style="list-style-type: none"> <li>▪ The SOGs Collection System shall meet the requirements of §63.450 for a LVHC closed vent system. (60.283a(a)(1)(iii))</li> <li>▪ No temperature monitoring is required. For NSPS Subpart BB, in ADI Applicability Determination Index #0200009, EPA concluded that "...the combustion temperature monitoring requirement in 40 C.F.R. Sec. 60.284(b)(1) is applicable only to incinerators used for TRS control" and that "Subpart BB would not require &lt;facility&gt; to monitor the combustion temperature in the boiler." Further, the preamble to NSPS Subpart BBa addresses the temperature monitoring in Section V.E, and that temperature monitoring is only required when an incinerator is used as the combustion device. The reasoning behind this is that boilers, lime kilns and recovery furnaces normally operate at temperatures higher than 1,200 °F.</li> <li>▪ No source testing is required. The use of the boilers to combust TRS gases demonstrates compliance with this regulation. Plus, there is no TRS limit to demonstrate compliance with through source testing.</li> <li>▪ Excess emissions from the condensate stripper system shall be reported. Excess emissions are those not routed through the closed-vent system. (60.284a(d)(3)(iii))</li> </ul> </li> <li>• <u>Existing Nos. 2 and 3 Recovery Furnaces (IDs 2505 and 5105)</u> <u>Not Applicable</u> <ul style="list-style-type: none"> <li>o The Nos. 2 and 3 Recovery Furnaces were installed prior to the applicability date of May 23, 2013. Therefore, this regulation does not apply.</li> </ul> </li> </ul>



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	<p>○ Neither the new use of the Nos. 2 and 3 Recovery Furnaces for combustion of rectified methanol nor the new use of the No. 3 Recovery Furnace for combustion of LVHC (TRS gases) entails a modification, as a change in the method of operation, for these sources. The combustion of the rectified methanol and LVHC is explicitly for the destruction of TRS emissions and is allowed by:</p> <p align="center">§60.14(e) The following shall not, by themselves, be considered modifications under this part:            (5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.</p> <p align="center">Therefore, Subpart BBa does not apply to the Nos. 2 and 3 Recovery Furnace.</p> <p><u>Subpart BB – Kraft Pulp Mills</u></p> <ul style="list-style-type: none"> <li>• <u>New LP Steam Stripper System (ID 9803)</u> – includes low pressure steam stripper and SRL (methanol) condenser</li> <li>• <u>New Steam Stripper Feed Tank (ID 9804) and new Steam Stripper Rectified Liquid (SRL) Methanol Tank (ID 9805)</u>  <u>Not Applicable</u> <ul style="list-style-type: none"> <li>○ This equipment is not subject to this regulation since it will be installed outside of the applicability date ranges of after September 24, 1976, and on or before May 23, 2013.</li> </ul> </li> <li>• <u>Existing LVHC Collection System (ID 5260)</u>  <u>Not Applicable</u> <ul style="list-style-type: none"> <li>○ The use of a LVHC Collection System is not addressed in this regulation.</li> </ul> </li> <li>• <u>Existing, backup Steam Stripper (ID 9801)</u>  <u>Not Applicable</u> <ul style="list-style-type: none"> <li>○ The existing backup steam stripper underwent a modification under c/p-DF (issued in July 2019) due to the change in the method of operation of the digester to produce pulp for unbleached paper and increase in emissions. Therefore, the existing backup stripper has been subject to Subpart BBa since that time.</li> </ul> </li> <li>• <u>Existing No. 2 Recovery Furnace (ID 2505)</u>  <u>Not Applicable, no change</u></li> </ul>





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	<p>o The No. 2 Recovery Furnace was installed prior to the applicability date of September 24, 1976. Therefore, this regulation does not apply.</p> <p>The new use of the No. 2 Recovery Furnace for combustion of rectified methanol entails modification. The combustion of rectified methanol with the black liquor in this furnace does not entail a modification, as a change in the method of operation, of this source. The combustion of the rectified methanol is explicitly for the destruction of TRS emissions and is allowed by:</p> <p>§60.14(e) The following shall not, by themselves, be considered modifications under this part:</p> <p>(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.</p> <p>Therefore, there is no change in the applicability to the No. 2 Recovery Furnace with respect to Subpart BB.</p> <p>• <u>Existing No. 3 Recovery Furnace (ID 5105)</u> <u>Applicable, no change</u></p> <p>o The No. 3 Recovery Furnace was installed within the applicability date ranges of after September 24, 1976 and on or before May 23, 2013 and is subject as an affected source to the requirements of this regulation. The use of the No. 3 Recovery Furnace as a control device for the combustion of condensed methanol and LVHC does not change any of the applicable requirements of this section.</p> <p>Therefore, there is no change in applicability for the No. 3 Recovery Furnace with respect to Subpart BB. The applicable requirement from Subpart BB are:</p> <ul style="list-style-type: none"> <li>• PM emissions less than or equal to 0.044 gr/dscf corrected to 8% oxygen. Monitoring in accordance with 40 CFR 63, Subpart MM will be used to demonstrate compliance with this limit.</li> <li>• Opacity less than or equal to 35% with continuous monitoring system. Monitoring in accordance with 40 CFR 63, Subpart MM will be used to demonstrate compliance with this limit.</li> <li>• TRS emissions less than or equal to 5 ppmv on a dry basis, corrected to 8% oxygen, based on 12 hour averages, continuously monitored using TRS CEMs, for determining periods of excess emissions. Additionally, the</li> </ul>



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	<p>facility is required to calibrate, operate, and maintain, according to the appropriate Performance Specifications and Quality Assurance Procedures in 40 CFR 60, Appendices B, the TRS CEMS do demonstrate compliance with the limit.</p> <p>Although not required by Subpart BB, to demonstrate compliance with the limit, the facility will also be required to calibrate, operate, and maintain, according to the appropriate Performance Specifications and Quality Assurance Procedures in 40 CFR 60, Appendices F, the TRS CEMS.</p> <p><u>Subpart D – Fossil Fuel Fired Steam Generators</u></p> <ul style="list-style-type: none"> <li>• <u>Nos. 1 and 2 Combination Boilers (IDs 2605 and 3705)</u> <ul style="list-style-type: none"> <li>Not applicable           <ul style="list-style-type: none"> <li>○ This regulation does not apply to the Nos. 1 and 2 Combination Boilers because the boilers were installed prior to the applicability date of this regulation. Sources that commenced construction or modification after August 17, 1971 are subject to this rule. The Combination Boilers were installed in 1959 and 1968, respectively, and no modifications have been made to either boiler.</li> <li>○ The combustion of the TRS gases is not considered a modification and is allowed by:               <p style="margin-left: 40px;">§60.14(e) The following shall not, by themselves, be considered modifications under this part:</p> <p style="margin-left: 40px;">(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.</p> </li> </ul> </li> </ul> </li> </ul> <p><u>Subpart Kb – Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) ...Construction, Reconstruction, or Modification Commenced After July 23, 1984 and on or before October 4, 2023</u></p> <ul style="list-style-type: none"> <li>• <u>New LP Steam Stripper Feed Tank (ID 9804), New LP Steam Stripper Rectified Liquid (SRL) Methanol Tank (ID 9805)</u> <ul style="list-style-type: none"> <li>Not applicable           <ul style="list-style-type: none"> <li>○ These tanks are not subject to this regulation. Although these tanks are being installed after the applicability date of this regulation, these tanks are process tanks, whereas these tanks collect material from one part of the process before sending it to another part of the process. Therefore, these tanks are not storage tanks to which this regulation applies.</li> </ul> </li> </ul> </li> </ul>



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	<ul style="list-style-type: none"> <li>• <u>Existing Foul Condensate Collection Tank (ID 9800)</u>  <u>Not applicable</u> <ul style="list-style-type: none"> <li>○ This tank is not subject to this regulation. Although this tank was installed after the applicability date of this regulation, this tank is a process tank, whereas this tank collects material from one part of the process before sending it to another part of the process. Therefore, this tank is not a storage tank to which this regulation applies.</li> </ul> </li> </ul> <p><u>Subpart Kc – Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)</u>            This rule has been proposed but not yet promulgated. However, as provided in the October 4, 2023 proposed rule, affected sources are volatile organic liquid (VOL) storage vessels that commence construction, reconstruction, or modification after October 4, 2023.</p> <ul style="list-style-type: none"> <li>• <u>New LP Steam Stripper Feed Tank (ID 9804), New LP Steam Stripper Rectified Liquid (SRL) Methanol Tank (ID 9805)</u>  <u>Not applicable</u> <ul style="list-style-type: none"> <li>○ These tanks will not be subject to this regulation. These tanks are process tanks, whereas these tanks collect material from one part of the process before sending it to another part of the process. Therefore, these tanks are not storage tanks to which this regulation applies.</li> </ul> </li> <li>• <u>Existing Foul Condensate Collection Tank (ID 9800)</u>  <u>Not applicable</u> <ul style="list-style-type: none"> <li>○ This tank is not subject to this regulation. This tank is a process tank, whereas this tank collects material from one part of the process before sending it to another part of the process. Therefore, this tank is not a storage tank to which this regulation applies.</li> </ul> </li> </ul>
40 CFR 61 and 61-62.61	<p><u>Not applicable</u>            None of the Subparts of this regulation apply to the Mill. There are no Part 61 subparts that apply to this project.</p>
40 CFR 63 and 61-62.63	<p><u>Subpart S – NESHAPs from the Pulp and Paper Industry (MACT S)</u>  <u>Not applicable sections</u>            §63.444 - Standards for the pulping system at sulfite processes.            - This facility does not use the sulfite pulping process. This facility uses the kraft pulping process. Therefore, this section does not apply.</p> <p>§63.445 - Standards for the bleaching system.            - The facility does not have a bleaching system. Therefore, this section does not apply.</p>



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	<p>§63.447 – Clean condensate alternative</p> <ul style="list-style-type: none"> <li>- The facility is complying with the requirements of §63.446 for Standards for kraft pulping process condensates. Therefore, this section does not apply.</li> </ul> <p>§63.459 - Alternative standards.</p> <ul style="list-style-type: none"> <li>- This section is applicable to the specific facilities mentioned here. This facility is not one of those cited. Therefore, this section does not apply.</li> </ul> <p><u>Applicable</u></p> <p>§63.446, Standards for kraft pulping process condensates, addresses the handling and treatment of pulping condensates, also called foul condensates, for which this project is about.</p> <p>The new LP Steam Stripper will be used for compliance with this section of MACT S. The pulping process condensates from each of the following equipment systems, that in total contain a total HAP mass of 7.2 pounds per ton of ODP (oven dried pulp) shall be collected (63.446(b),63.446(c)(3)):</p> <ul style="list-style-type: none"> <li>- digester system</li> <li>- turpentine recovery system</li> <li>- evaporator system from: <ul style="list-style-type: none"> <li>o The vapors from each stage where weak liquor is introduced (feed stages); and</li> <li>o Each evaporator vacuum system for each stage where weak liquor is introduced (feed stages).</li> </ul> </li> <li>- HVLC collection system; and</li> <li>- LVHC collection system</li> </ul> <p>The pulping process condensates from these equipment systems shall be treated to remove 6.6 pounds per ton of ODP (oven dried pulp) (63.446(e)(4)). Also, the pulping process condensates shall be conveyed in a closed collection system as required by 63.446(d). The HAP removed using the new steam stripper will be collected in closed vent systems that meet the requirements of 63.450 (63.446(f), 63.443(c)) and will be combusted in either the No. 3 Recovery Furnace or one of the Combination Boilers (63.446(f), 63.443(d)(4)(i))) by introducing the HAP emission stream with the primary fuel or into the flame zone.</p> <p>Excess emissions reported under 63.455 shall not be a violation of 63.446(e)(4) provided the time of excess emissions divided by the total process operating time in a semi-annual reporting period does not exceed 10 percent. The facility estimated the use of the new stripper at least 90% of the time, a worst case scenario, which coincides with the excess emission reporting requirement.</p>



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	<p>The facility may use the backup stripper as a compliance option for MACT S. Therefore, initial performance testing and ongoing compliance testing for methanol from the backup stripper is included in the permit to address compliance with respect to applicability of MACT S.</p> <p><u>Subpart MM – NESHAP for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semicemical Pulp Mills (MACT MM)</u></p> <ul style="list-style-type: none"> <li>• <u>No. 1 and No. 2 Recovery Furnaces (IDs 2505, 5105)</u>  <u>Applicable, no change</u> <ul style="list-style-type: none"> <li>○ These Furnaces are currently subject to this regulation. However, this project does not affect the applicability of this regulation.</li> </ul> </li> </ul> <p><u>Subpart DDDDD – HAP Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters:</u></p> <ul style="list-style-type: none"> <li>• <u>No. 1 and No. 2 Combination Boilers (IDs 2605, 3705)</u>  <u>Applicable, no change</u> <ul style="list-style-type: none"> <li>○ These Boilers are currently subject to this regulation. However, this project does not affect the applicability of this regulation.</li> </ul> </li> </ul> <p><u>Subpart EEEE – Organic Liquids Distribution (non-gasoline)</u></p> <ul style="list-style-type: none"> <li>• <u>New LP Steam Stripper Rectified Liquid (SRL) Methanol Tank (ID 9805)</u>  <u>Not applicable</u> <ul style="list-style-type: none"> <li>○ This regulation applies to organic liquids distribution operations at major sources of HAP. The new methanol tank being installed under this project is not subject to this rule because it is considered part of the Mill's steam stripper system as defined under 40 CFR 63, Subpart S. EPA confirmed through ADI Control Number M050008, that Subpart EEEE excludes from its affected source tanks that are part of an affected source under another 40 CFR 63 subpart.</li> </ul> </li> </ul>
61-62.68	<p><u>Not applicable</u>          The facility does not use or store any chemicals subject to this regulation.</p>
40 CFR 64 (CAM)	<p>CAM applies to a process when the PTE exceeds Title V threshold limits (PTE &gt;10.0/25.0 TPY HAP or &gt;100.0 TPY criteria pollutants), after controls, and the pollutant has applicable limitations. Sources can be exempt from CAM provided the emission limitations or standards were proposed after November 15, 1990.</p> <ul style="list-style-type: none"> <li>• <u>Not applicable</u> <ul style="list-style-type: none"> <li>- ID 09, new Low-Pressure (LP) Steam Stripper System</li> <li>- ID 09, backup, existing Steam Stripper</li> </ul> </li> </ul>



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	<ul style="list-style-type: none"> <li>○ For the purposes of NSPS Subpart BBa (NSPS BBa):               <ul style="list-style-type: none"> <li>▪ the LP steam stripper system includes the new low pressure steam stripper and the SRL (methanol) condenser (both with equipment ID 9803).</li> <li>▪ the existing Steam Stripper System includes the stripper (equipment ID 9801).</li> </ul> </li> <li>○ For purposes of 40 CFR 63 Subpart S (MACT S):               <ul style="list-style-type: none"> <li>▪ the new LP steam stripper system includes the low pressure steam stripper (equipment ID 9803), associated stripper feed tank (equipment ID 9804), and the condenser (equipment ID 9803). A methanol rectification process is not part of this steam stripper system.</li> <li>▪ the existing Steam Stripper System includes the stripper (equipment ID 9801) and stripper feed tank (equipment ID 9800).</li> </ul> </li> </ul> <p>Both the new Low-Pressure (LP) Steam Stripper System and backup, existing Steam Stripper are subject to TRS limitations in NSPS BBa, both use add on control devices to meet the limitations (No. 3 Recovery Furnace or No. 1 or No. 2 Combination Boiler), and both have pre-controlled TRS emissions greater than 100.0 tpy. However, NSPS BBa was proposed after 1990. Therefore, CAM does not apply to the new Steam Stripper System or the backup, existing Steam Stripper.</p> <p>Also, both the new Low-Pressure (LP) Steam Stripper System and backup, existing Steam Stripper are subject to HAP limitations in MACT S, both use add on control devices to meet the limitations (No. 3 Recovery Furnace or No. 1 or No. 2 Combination Boiler), and both have pre-controlled HAP emissions greater than 10.0/25.0 tpy. However, MACT S was proposed after 1990. Therefore, CAM does not apply to the new Steam Stripper System or the backup, existing Steam Stripper and existing stripper feed tank.</p>

<b>AMBIENT AIR STANDARDS REVIEW</b>	
<b>Regulations</b>	<b>Comments/Periodic Monitoring Requirements</b>
Standard No. 2	Applicable This facility has demonstrated compliance through modeling or other information. See modeling summary dated November 20, 2023.
Standard No. 8 (state only)	Applicable This facility has demonstrated compliance through modeling or other information. See modeling summary dated November 20, 2023.





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PERIODIC MONITORING					
ID	Pollutant/Parameter	Limit	Monitoring Frequency	Reporting Frequency	Monitoring Basis/Justification
9801, 9803	Hours of operation and hours of downtime for each stripper	≤ 460 hours annually after November 15, 2023	Daily	Semiannual	S.C. Regulation 61-62.1, Section II(J)(2)
9802	Oxidation Reduction Potential (ORP)	Maintain ORP ≥ 0 millivolts, 90 minute rolling average	Continuously	Semiannual	S.C. Regulation 61-62.1, Section II(J)(2)
9803, 9804, 9805, 2505, 5105	SRL, Black Liquor feed rates to Recovery Furnaces	≤ 2% vol. of SRL to black liquor	Daily	Semiannual	Emission calculations and PSD analysis were based on the addition of 2% by volume of SRL to the black liquor
5260, 9800, 9801, 9803 - Stripper, 9803 - Condenser, 9804, 9805, 9820	Visual Inspections	20% Opacity	Semiannual	Semiannual	Periodic Monitoring as a Title V source. Opacity not expected from these sources.
9803 - Stripper, 9803 - Condenser, 5260, 9820	Excess Emissions	TRS (Scenario 1A):  < 5ppmv, dry basis @ 10% O <sub>2</sub> -or- gases collected in LVHC or HVLC closed vent system and combusted in Recovery Furnace (subject to NSPS BB or BBa)	Continuous monitoring of: 1. All 12-hour average TRS concentrations above 5 ppmv, dry basis, @ 10% O <sub>2</sub> 2. All times gases not routed to closed vent system to control device 3. Each malfunction occurrence, actions to minimize emissions, and corrective actions	Semiannual	40 CFR 60, Subpart BBa



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PERIODIC MONITORING					
ID	Pollutant/ Parameter	Limit	Monitoring Frequency	Reporting Frequency	Monitoring Basis/ Justification
9803 – Stripper, 9803 - Condenser, 5260, 9820 (Scenarios 1B, 1C)  Or  9801, 9820 (Scenario 2A and 2B)	Excess Emissions	TRS (Scenarios 1B, 1C, 2A, and 2B)  < 5ppmv, dry basis @ 10% O <sub>2</sub> -or- gases collected in LVHC or HVLC closed vent system and combusted in Boiler (not subject to NSPS BB or BBa)	Continuous monitoring of: 1. All times gases not routed to closed vent system to control device 2. Each malfunction occurrence, actions to minimize emissions, and corrective actions	Semiannual	40 CFR 60, Subpart BBa
2505, 5105, 2605, 3705	Production rate records, fuel usage records, and other records necessary to determine PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> , and VOC emissions from fossil fuel and SRL combustion	PM <sub>10</sub> <15.0 TPY, PM <sub>2.5</sub> <10.0 TPY, NO <sub>x</sub> <40.0 TPY, VOC <40.0 TPY	Annual	For 5 years following resumption of operations after the completion of this project, if annual emissions exceed BAE detailed in this project, submit report with 60 days after end of such year	Results of the PSD analysis showed these pollutants over the significant emissions levels by >50%. Keep records for 5 years following resumption of operations after the completion of this project



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PERIODIC MONITORING					
ID	Pollutant/ Parameter	Limit	Monitoring Frequency	Reporting Frequency	Monitoring Basis/ Justification
2505, 5105, 2605, 3705	Production rate records and other records necessary to determine	TRS <10.0 TPY, H2S < 10.0 TPY	Annual	For 5 years following resumption of operations after the completion of this project, if annual emissions exceed BAE detailed in this project, submit report with 60 days after end of such year	Periodic Monitoring as a Title V source. S.C. Regulation 61-62.1, Section II(J)(2)
2505	TRS	Less than or equal to 20 ppmvd corrected to 8% oxygen, averaged over 12 hours	Continuously monitored using TRS CEMs	Any excess emissions	Periodic Monitoring as a Title V source. S.C. Regulation 61-62.1, Section II(J)(2)
2505, 5105	Opacity	Less than or equal to 40%, each	Monitoring in accordance with 40 CFR 63, Subpart MM will be used to demonstrate compliance with this limit.	Semiannual	Periodic Monitoring as a Title V source. S.C. Regulation 61-62.1, Section II(J)(2)
5105	PM	Less than or equal to 0.044 gr/dscf corrected to 8% oxygen	Monitoring in accordance with 40 CFR 63, Subpart MM will be used to demonstrate compliance with this limit.	Semiannual	Periodic Monitoring as a Title V source. S.C. Regulation 61-62.1, Section II(J)(2)



<b>Company Name:</b>	New-Indy Catawba LLC	<b>Permit Writer:</b>	Katharine K Buckner
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PERIODIC MONITORING					
ID	Pollutant/ Parameter	Limit	Monitoring Frequency	Reporting Frequency	Monitoring Basis/ Justification
5105	Opacity	Less than or equal to 35%	Continuous and in accordance with 40 CFR 63, Subpart MM will be used to demonstrate compliance with this limit.	Semiannual	Periodic Monitoring as a Title V source. S.C. Regulation 61-62.1, Section II(J)(2)
5105	TRS	Less than or equal to 5 ppmv on a dry basis, corrected to 8% oxygen, based on 12 hour averages	continuously monitored using TRS CEMs	Any excess emissions	40 CFR 60, Subpart BB
9803 - Stripper System	HAP, methanol as surrogate in pulping process condensates	<ul style="list-style-type: none"> <li>- Collect 7.2 lb/ton ODP of pulping process condensates</li> <li>- Treat to remove 6.6 lb/ton ODP</li> <li>- Conveyed in closed vent systems</li> <li>- Combust in either No. 3 Recovery Furnace or one of the Combination Boilers</li> </ul>	Continuous: Process wastewater feed rate; the steam feed rate; and the process wastewater column feed temperature	Semiannual: malfunctions, excess emissions	40 CFR 63, Subpart S



**STATEMENT OF BASIS**  
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<b>Company Name:</b>	New-Indy Catawba LLC	<b>Permit Writer:</b>	Katharine K Buckner
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<b>PERIODIC MONITORING</b>					
ID	Pollutant/ Parameter	Limit	Monitoring Frequency	Reporting Frequency	Monitoring Basis/ Justification
9801 – existing Stripper System (as alternative compliance)	HAP, methanol as surrogate in pulping process condensates	<ul style="list-style-type: none"> <li>- Collect 7.2 lb/ton ODP of pulping process condensates</li> <li>- Treat to remove 6.6 lb/ton ODP</li> <li>- Conveyed in closed vent systems</li> <li>- Combust in one of the Combination Boilers</li> </ul>	Continuous: Process wastewater feed rate; the steam feed rate; and the process wastewater column feed temperature	Semiannual: malfunctions, excess emissions	40 CFR 63, Subpart S

**PUBLIC NOTICE**

This construction permit has undergone a 30-day public notice period, in accordance with SC Regulation 61-62.1, Section II(N). The comment period was open from May 13, 2024 to June 20, 2024 and the draft permit was placed on the BAQ website during that time period. Comments were received during the comment period.

**CHANGES AFTER THE PUBLIC NOTICE PERIOD**

- In the project statement of the construction permit, the acronym HVLC was spelled out, high volume, low concentration.
- In the project statement of the construction permit, under Scenario 3, added the citation for the EPA consent decree at the end of the sentence - Civil Case No. 0:21-cv-02053-SAL, United States of America v. New-Indy Catawba, LLC, dated November 16, 2022.
- In Condition B.17, the TRS as H<sub>2</sub>S limit was corrected to 20 ppm for the No. 2 Recovery Furnace, which is an old design furnace as indicated in the regulation.
- The requirements of the Consent Order between the Department and New-Indy executed November 23, 2022, will terminate six months following operation of the new stripper and completion of the actions set forth in the approved PER for the proper functioning and management of the WWTF. Stripper downtime notifications to the public will terminate when the Consent Order is terminated. Language has been included in Condition B.1 indicating such.

**SUMMARY AND CONCLUSIONS**



<b>Company Name:</b>	New-Indy Catawba LLC	<b>Permit Writer:</b>	Katharine K Buckner
<b>Agency Air Number:</b>	2440-0005	<b>Date:</b>	July 22, 2024
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It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.