New-Indy Catawba LLC
P.O. Box 7
5300 Cureton Ferry Road
Catawba, SC 29704
T 803-981-8000
www.new-indycb.com

RECEIVED
JUN 16 2020
BUREAU OF AIR QUALITY

FED EX No. 7706 8189 0381

June 12, 2020

Katharine Buckner
Sandhills and Pulp & Paper Permitting Section
Engineering Services Division
SC DHEC – BAQ
2600 Bull Street
Columbia, SC 29201

Re: Construction Permit Application Addendum ("Hard Pipe" Option), Project Columbia, Construction Permit No. TV-2440-0005-DF

Dear Ms. Buckner,

Due to the 2020 COVID-19 pandemic, the original applications for the addendum to CP-DF were submitted electronically following SCDHEC's temporary electronic submission protocol. At the time of the electronic submission, it was understood that physical application packets would be sent at a later date. Per SCDHEC communication received on June 5, 2020, please find enclosed physical application packets for the addendum to CP-DF ("Hard Pipe" option).

- CP-DF Addendum submission package for April 16, 2020; includes:
  - CP-DF Addendum application cover letter (e-mail)
  - Confidential CP-DF Addendum application
  - Public CP-DF Addendum application
- CP-DF Addendum submission package for April 22, 2020; includes:
  - Update cover letter (e-mail)
  - Updates to Confidential versions of forms 2567 and 2569
  - Updates to Public versions of forms 2567 and 2569
  - Updates to form 2573

If you have any questions or require any additional information, please contact me via phone at 803-981-8010 or by email at mike.swanson@new-indycb.com.

Sincerely,

Mike Swanson
Environmental Manager, New-Indy Catawba LLC

cc: Catawba Electronic file: 205-Air_Permits

CONSTRUCTION PERMIT APPLICATION

RECEIVED
JUN 16 2020
BUREAU OF AIR QUALITY

PROJECT COLUMBIA ADDENDUM

NEW-INDY CATAWBA LLC – CATAWBA, SC MILL

APRIL 2020

PUBLIC COPY

Submitted by:

NEW INDY CONTAINERBOARD

New-Indy Catawba LLC – Catawba, SC Mill
5300 Cureton Ferry Road
Catawba, SC 29704

Submitted to:

dhec
S.C. Department of Health and Environmental Control

SC Department of Health and Environmental Control
Bureau of Air Quality – Division of Air Permitting
2600 Bull Street
Columbia, SC 29201

Digitally signed by Renee Cheng
Date: 2020.04.15 16:20:33 -04'00'

ALL4 Contact Information: info@all4inc.com | 610.933.5246 | www.all4inc.com

TABLE OF CONTENTS

Section Name **Page Number**

1. INTRODUCTION **1-1**

2. PROJECT DESCRIPTION **2-1**

3. EMISSIONS CALCULATIONS **3-1**

4. REGULATORY APPLICABILITY **4-1**

4.1 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 2 – AMBIENT AIR QUALITY STANDARDS 4-1

4.2 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 7 – PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT REQUIREMENTS 4-1

4.2.1 Baseline Emissions Changes 4-2
4.2.2 Projected Actual Emissions Changes 4-2
4.2.3 PSD Non-Applicability 4-3

4.3 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 7 – PREVENTION OF SIGNIFICANT DETERIORATION AIR DISPERSION MODELING REQUIREMENTS 4-7

4.4 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 8 – TOXIC AIR POLLUTANTS (TAP) 4-7

4.5 SOUTH CAROLINA REGULATION 61-62.70 - TITLE V OPERATING PERMIT PROGRAM 4-8

4.6 40 CFR 60, SUBPART BB – STANDARDS OF PERFORMANCE FOR KRAFT PULP MILLS AND SUBPART BBA – STANDARDS FOR PERFORMANCE OF KRAFT PULP MILLS AFFECTED SOURCES FOR WHICH CONSTRUCTION, RECONSTRUCTION, OR MODIFICATION COMMENCED AFTER MAY 23, 2013 4-8

4.7 40 CFR 63, SUBPART S – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FROM THE PULP AND PAPER INDUSTRY .. 4-8

4.8 40 CFR 51, SUBPART BB—DATA REQUIREMENTS FOR CHARACTERIZING AIR QUALITY FOR THE PRIMARY SO_2 NAAQS (SO_2 DATA REQUIREMENTS RULE OR SO_2 DRR) 4-9

LIST OF FIGURES

Figure 1 Process Flow Diagram for Wastewater Treatment Area 4-10
Figure 2 U.S.G.S Map 4-11

LIST OF TABLES

Table 1 Baseline Actual Emissions 4-4
Table 2 Projected Actual Emissions 4-5
Table 3 Net Emissions Increase 4-6

LIST OF APPENDICES

ATTACHMENT A – Application Forms

ATTACHMENT B – Emissions Calculations - PSD Applicability

ATTACHMENT C – Emissions Factors - Bleached and Unbleached Pulp Production

ATTACHMENT D – Emissions Factors - Coated Paper and Linerboard Production

ATTACHMENT E – JULY 2010 - JUNE 2012 Baseline Actual Production

ATTACHMENT F – H2SSIM and WATER9 Model Results

1.0 INTRODUCTION

New-Indy Catawba LLC (New-Indy) operates a pulp and paper mill located in Catawba, South Carolina (Mill). On December 31, 2018 New-Indy Containerboard acquired the Mill from Resolute Forest Products. New-Indy plans to convert the Mill from bleached paper grades (lightweight coated paper and market pulp) to manufacturing unbleached or brown paper (linerboard and market pulp). New-Indy refers to this investment as Project Columbia.

Project Columbia features the conversion of the Kraft fiberline from manufacturing bleached paper grades to unbleached paper grades. The project includes converting the No. 3 coated paper machine to manufacture linerboard and the pulp dryer to process unbleached pulp. The project also includes retiring the bleach plant, chlorine dioxide plant, thermo-mechanical pulping (TMP) process, No. 1 paper machine, No. 1 coater, No. 2 coater and the No. 1 power boiler. Construction permit DF (c/p-DF) was issued for the project by the South Carolina Department of Health and Environmental Control (SCDHEC) in July 2019.

This addendum to the June 2019 construction permit application has been prepared to address changes in the project scope since the issuance of c/p-DF in July 2019, as required by permit condition J.3. This addendum does not address aspects of the project or c/p-DF that are not impacted by the changes in project scope.

2.0 PROJECT DESCRIPTION

After the issuance of c/p-DF the Mill began evaluating the pulping process condensate (foul condensate) treatment options available under 40 CFR Part 63, Subpart S. The current Mill configuration (operating as a bleached pulp mill) uses a steam stripper to treat foul condensates and comply with Subpart S. Following the conversion to brown paper grades, the Mill intends to shut down the condensate steam stripper and instead hard pipe the collected foul condensates to the wastewater treatment system to comply with Subpart S.

The Mill will install a new hard pipe (new ID 9802) from the foul condensate collection tank (ID 9800) directly to the aerated stabilization basin (aerated biotreatment, ID 2901). The new hard pipe will discharge the foul condensates below the liquid surface of the existing aerated stabilization basin (ASB) to allow biological treatment to begin immediately. The methanol loading in the foul condensate is expected to be approximately one-half the current level following the conversion to unbleached pulp production. The total volume of mill wastewater is also expected to be reduced by approximately 50% following the conversion to unbleached pulp production.

There are no physical changes planned to the wastewater treatment system other than the new hard pipe. The existing condensate stream stripper (ID 9801) will be retired in place following the conversion to unbleached pulp production.

3.0 EMISSIONS CALCULATIONS

The emissions from each emissions unit are calculated using published emissions factors from the National Council for Air and Stream Improvement (NCASI) or the U.S. Environmental Protection Agency (USEPA), unless more representative stack test data were available. Detailed citations for each emissions factor are provided with the calculations in Attachments C and D.

The emissions factors for the Kraft mill non-condensable gas (NCG) system have been updated to reflect the shutdown of the condensate steam stripper following the conversion to unbleached pulp production. This change results in a reduction in sulfur dioxide (SO_2), nitrogen oxides (NO_X), volatile organic compounds (VOC), carbon monoxide (CO), total reduced sulfur (TRS) and hydrogen sulfide (H_2S) emissions from the combustion of the stripper off gases (SOG) in the combination boilers.

The change in emissions from the wastewater treatment system due to the new hard pipe have been calculated using emissions models from NCASI for H_2S and USEPA for methanol. The NCASI H2SSIM model was used to estimate the increase in H_2S and TRS emissions from the ASB by modeling the ASB before and after the new hard pipe and assigning the predicted increase in emissions to the new hard pipe. Similarly, the USEPA WATER9 model was used to estimate the methanol and VOC emissions from the ASB before and after the new hard pipe. The H2SSIM and WATER9 model results are presented in Attachment F.

There are no other changes in the emissions factors from the June 2019 construction permit application related to c/p-DF. All emissions factors and the basis of all adjustments to the emissions factors related to the Kraft mill are presented in Attachment C.

4.0 REGULATORY APPLICABILITY

4.1 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 2 – AMBIENT AIR QUALITY STANDARDS

Standard No. 2 regulates maintenance of the national ambient air quality standards. New-Indy has reviewed the SCDHEC modeling guidance entitled "Guidance Concerning Other Information Used for Permitting Requirements in Demonstrating Emissions Do Not Interfere With Attainment or Maintenance of any State or Federal Standard" (February 28, 2017). Per the guidance, "a project involving a net facility-wide emissions decrease for a pollutant satisfies permitting review requirements. The netting calculation must be applied on a pollutant by pollutant basis. Facility-wide emission decreases, expressed in tons per year, could be calculated using current allowable to future allowable emissions or the netting methodologies in the PSD regulation."

The change in foul condensate treatment reduces the SO_2, NO_X and CO emissions from the combustion of SOG in the combination boilers by approximately 1,100, 200 and 20 tons per year, respectively compared to the levels in c/p-DF. There are no changes in emissions of particulate matter ($PM/PM_{10}/PM_{2.5}$) or lead due to the project. New-Indy believes this demonstrates the project will not interfere with attainment or maintenance of State or Federal Standards following the guidance of the SCDHEC.

4.2 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 7 – PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT REQUIREMENTS

Standard No. 7 applies to construction of a new major stationary source or a "project" conducted at an existing major stationary source located in an area designated as attainment or unclassifiable in 40 CFR 81.341. The Mill is considered a major stationary source because it emits or has the potential to emit 100 tons per year or more of a regulated New Source Review (NSR) pollutant as defined in SC Reg. 61-62.5, Standard No. 7. The Mill is located in York County, which is classified as attainment or unclassifiable for all pollutants. Because it includes physical changes to the Mill, Project Columbia is a "project" as defined in Standard No. 7(b)(40). New-Indy is updating the PSD applicability calculations with this addendum to include the hard pipe portion of Project Columbia.

4.2.1 Baseline Emissions Changes

New-Indy updated the 24-month baseline period selected for the existing emissions units that are part of Project Columbia to July 2010 through June 2012 to remain within the 10-year lookback period specified in Standard No. 7(b)(4)(ii). The baseline production rates are presented in Attachment E. New-Indy selected the same baseline period for all pollutants to simplify the PSD applicability analysis, although Standard No. 7(b)(4)(ii)(d) allows New-Indy to select a different 24-month baseline period for each pollutant. No changes were made to the emissions factors used to calculate the baseline emissions.

New-Indy reviewed the baseline emissions from the No. 1 power boiler using the updated baseline period to confirm the baseline emissions do not exceed the current 10% annual capacity factor fossil fuel usage limitation under 40 CFR Part 63, Subpart DDDDD. The baseline emissions are limited to no more than 1,997,280 gallons per year of No. 6 fuel oil. The average annual No. 6 fuel oil consumption during the baseline was 1,155,910 gallons per year, or approximately six percent (6%) of design capacity. The baseline emissions are limited to no more than 328,500 mmBtu per year of natural gas. The average annual natural gas consumption during the baseline was 35,321 mmBtu, or approximately one percent (1%) of design capacity. Therefore, the No. 1 power boiler actual emissions during the baseline period require no adjustments.

4.2.2 Projected Actual Emissions Changes

The projected actual emissions from the Kraft mill NCG system have been updated to reflect the condensate steam stripper will be retired following the conversion to unbleached pulp. The wastewater treatment system projected actual emissions have also been updated to reflect treating the foul condensates using the hard pipe instead of the condensate steam stripper.

New-Indy will manage future annual VOC emissions from the Mill so that a significant emissions increase does not occur and a PSD construction permit is not required due to installing the hard pipe. As noted in the June 2019 permit application, the pulp mill is not capable of supplying the pulp required to operate the No. 2 and No. 3 paper machines and the pulp dryer simultaneously at design capacity. However, New-Indy may choose to operate the three machines in any combination based on market conditions and customer orders.

New-Indy has projected a daily production rate for the No. 2 paper machine of [redacted] air dried tons finished product per day (ADTFP/day) to reflect future management of the VOC emissions from the Mill. The No. 2 paper machine may be operated at its design capacity of [redacted]

ADTFP/day, combined with the No. 3 paper machine or the pulp dryer operating at less than design capacity.

4.2.3 PSD Non-Applicability

The changes in emissions from the Mill as a result of Project Columbia were compared to the significant emission rates in Standard No. 7(b)(49). Based on the emission calculations described above, presented in Attachment B and summarized in Tables 1, 2 and 3, Project Columbia is not subject to the PSD permitting requirements in paragraphs (j) though (r) of Standard No. 7.

The projected total daily paper mill production exceeds the projected pulp mill production by approximately 47 percent, eliminating any reasonable possibility of New-Indy exceeding the PSD significant emissions rate for VOC following the conversion to unbleached pulp and installation of the hard pipe. Therefore, consistent with the USEPA New Source Review Policy Memorandum dated December 7, 2017[1], New-Indy believes no production limits are required to demonstrate PSD permitting requirements are not applicable to Project Columbia for the pollutant VOC.

1 https://www.epa.gov/sites/production/files/2017-12/documents/nsr_policy_memo.12.7.17.pdf

Table 1
Baseline Actual Emissions

Emission Unit	Basis	VOC emissions tpy	CO emissions tpy	NO_x emissions tpy	SO_2 emissions tpy	TSP emissions tpy	PM_{10} emissions tpy	$PM_{2.5}$ emissions tpy	TRS emissions tpy	H_2S emissions tpy	LEAD emissions tpy	CO_2e emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JULY 2010 through JUNE 2012												
Kraft Mill NCG System	Modified	103.09	20.18	199.12	1,876.42				17.24	3.83		
Kraft Mill Bleach Plant	Retired	63.09	211.33						1.16			
ClO2 Plant	Retired	0.32										
Methanol Tank	Retired	1.75										
No. 1 Paper Machine - Coated Paper	Retired	22.77				0.41	0.41	0.41				
No. 2 Paper Machine - Coated Paper	Modified	36.01				0.64	0.64	0.64				
No. 2 Paper Machine - Brown Paper	Modified	0.00				0.00	0.00	0.00	0.00			
No. 3 Paper Machine - Coated Paper	Modified	53.56				0.96	0.96	0.96				
No. 3 Paper Machine - Linerboard	Modified	0.00				0.00	0.00	0.00	0.00			
Pulp Dryer - Bleached	Modified	23.18				0.67	0.67	0.67	1.15			
Pulp Dryer - Unbleached	Modified	0.00				0.00	0.00	0.00	0.00			
No. 1 Coater - Natural Gas	Retired	1.10	6.71	7.99	0.05	0.15	0.61	0.61			0.00	9,366
No. 2 Coater - Natural Gas	Retired	1.78	10.88	12.96	0.08	0.25	0.98	0.98			0.00	15,178
No. 3 On-Machine Coater - Natural Gas	Retired	1.81	11.07	13.18	0.08	0.25	1.00	1.00			0.00	15,440
Starch Silos	Retired					0.83	0.51	0.19				
TMP	Retired	190.24										
TMP Bleaching	Retired	1.61										
Woodyard	affected	4.14				90.12	13.52	0.90				
Power Boiler - Natural Gas	Retired	0.21	1.28	4.27	0.01	0.03	0.12	0.12			0.00	1,786
Power Boiler - No. 6 Oil	Retired	1.04	2.74	25.73	163.27	11.35	8.89	6.70			0.00	13,657
Wastewater System	Modified	521.52							127.61	5.83		
TOTAL BASELINE EMISSIONS		**1,027.2**	**264.2**	**263.2**	**2,039.9**	**105.7**	**28.3**	**13.2**	**147.2**	**9.7**	**0.00**	**55,428**

Table 2
Projected Actual Emissions

Emission Unit	Basis	VOC emissions tpy	CO emissions tpy	NO_x emissions tpy	SO_2 emissions tpy	TSP emissions tpy	PM_{10} emissions tpy	$PM_{2.5}$ emissions tpy	TRS emissions tpy	H_2S emissions tpy	LEAD emissions tpy	CO_2e emissions tpy
PROJECTED ACTUAL EMISSIONS (PAE)												
Kraft Mill NCG System	Modified	12.58	0.00	0.00	777.30				7.00	1.90		
Kraft Mill Bleach Plant	Retired	0.00	0.00						0.00			
ClO2 Plant	Retired	0.00										
Methanol Tank	Retired	0.00										
No. 1 Paper Machine - Coated Paper	Retired	0.00				0.00	0.00	0.00				
No. 2 Paper Machine - Coated Paper	Modified	0.00				0.00	0.00	0.00				
No. 2 Paper Machine - Brown Paper	Modified	18.76				0.05	0.05	0.05	0.74			
No. 3 Paper Machine - Coated Paper	Modified	0.00				0.00	0.00	0.00				
No. 3 Paper Machine - Linerboard	Modified	345.11				0.88	0.88	0.88	13.69			
Pulp Dryer - Bleached	Modified	0.00				0.00	0.00	0.00	0.00			
Pulp Dryer - Unbleached	Modified	93.40				0.24	0.24	0.24	3.70			
No. 1 Coater - Natural Gas	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
No. 2 Coater - Natural Gas	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
No. 3 On-Machine Coater - Natural Gas	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
Starch Silos	Retired					0.00	0.00	0.00				
TMP	Retired	0.00										
TMP Bleaching	Retired	0.00										
Woodyard	affected	4.21				105.00	15.75	1.05				
Power Boiler - Natural Gas	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
Power Boiler - No. 6 Oil	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
Wastewater System	Modified	592.66							128.92	9.96		
TOTAL PROJECTED EMISSIONS		**1,066.7**	**0.0**	**0.0**	**777.3**	**106.2**	**16.9**	**2.2**	**154.1**	**11.9**	**0.00**	**0**

Table 3
Net Emissions Increase

Emission Unit	Basis	VOC emissions tpy	CO emissions tpy	NO_X emissions tpy	SO_2 emissions tpy	TSP emissions tpy	PM_{10} emissions tpy	$PM_{2.5}$ emissions tpy	TRS emissions tpy	H_2S emissions tpy	LEAD emissions tpy	CO_2e emissions tpy
NSR APPLICABILITY - BAE-to-PAE												
TOTAL BASELINE EMISSIONS		1,027.2	264.2	263.2	2,039.9	105.7	28.3	13.2	147.2	9.7	0.00	55,428
TOTAL PROJECTED EMISSIONS		1,066.7	0.0	0.0	777.3	106.2	16.9	2.2	154.1	11.9	0.00	0
NET EMISSION INCREASE		**39.5**	**(264.2)**	**(263.2)**	**(1,262.6)**	**0.5**	**(11.4)**	**(11.0)**	**6.9**	**2.2**	**(0.0)**	**(55,428)**
NSR Threshold		**40**	**100**	**40**	**40**	**25**	**15**	**10**	**10**	**10**	**0.6**	**75,000**

4.3 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 7 – PREVENTION OF SIGNIFICANT DETERIORATION AIR DISPERSION MODELING REQUIREMENTS

Standard No. 7 also includes PSD air quality increments which apply to all increases and decreases in PSD pollutant emissions following the PSD minor source baseline date. In York County the minor source baseline dates are December 1, 1981 for PM_{10} and SO_2, April 5, 2001 for NO_X and March 3, 2017 for $PM_{2.5}$.

SCDHEC issued guidance concerning the PSD ambient air increments and air dispersion modeling demonstrations on February 27, 2017. In the guidance, SCDHEC suspended the requirement to model the change in PSD increment consumption. The new guidance requires facilities in counties where the minor source baseline date has been triggered to submit information to assess the consumption of the PSD increment.

As shown in Table 4 of Section 4.2.3, Project Columbia will result in a projected decrease in PM_{10}, $PM_{2.5}$, NO_X and SO_2 emissions from the Mill. New-Indy believes this demonstrates the project will not interfere with attainment or maintenance of State or Federal Standards following the SCDHEC guidance issued on February 28, 2017.

4.4 SOUTH CAROLINA REGULATION 61-62.5, STANDARD NO. 8 – TOXIC AIR POLLUTANTS (TAP)

Standard No. 8 regulates emissions or air toxics compounds emitted from new and existing sources. The Standard does not apply to fuel burning sources which burn only virgin or specification used oil. Section I.D(1) of the rule exempts sources subject to a Federal National Emission Standard for Hazardous Air Pollutants (NESHAP). The Mill is subject to Federal NESHAP for the pulp and paper source category (Subparts S and MM), industrial boilers (Subpart DDDDD) and reciprocating internal combustion engines (Subpart ZZZZ). Section I.D(2) exempts non-NESHAP sources after a facility-wide residual risk analysis is completed. USEPA published the results of facility-wide residual risk analyses for Subpart S sources on December 27, 2011, and for Subpart MM sources on December 30, 2017. The residual risk analyses completed by USEPA concluded there was no unacceptable risk from pulp and paper mills. Therefore, all sources at the Mill are exempt from Standard No. 8 under both D(1) and D(2).

The Mill emits two South Carolina TAPs which are not listed hazardous air pollutants (HAP), H_2S and methyl mercaptan. Both compounds are generated by the Kraft pulping process and are

components of TRS gases that are contained in low volume high concentration (LVHC) and high volume low concentration (HVLC) gases. Section I.D(3) allows sources to request an exemption for non-HAPs controlled by NESHAP controls to reduce HAPs.

The Mill treats the LVHC and HVLC gases by combustion in compliance with Subpart S, and for the applicable emission units, 40 CFR 60 Subpart BB. The Mill also complies with the condensate collection and treatment requirements under Subpart S. At the Mill, collected foul condensates are treated using the hard pipe (ID 9802) and the wastewater treatment system (ID 2901) to remove the HAPs and TRS compounds. By treating the foul condensates using the hard pipe, more than 96% of the HAPs and 94% of the TRS compounds are removed biologically in the wastewater treatment system (ID 2901). For these reasons, New-Indy believes H_2S and methyl mercaptan are exempt from compliance demonstrations under Standard No. 8.

4.5 SOUTH CAROLINA REGULATION 61-62.70 - TITLE V OPERATING PERMIT PROGRAM

The Mill currently operates under Title V Operating Permit TV-2440-0005. New-Indy will submit revised Title V permit application forms for these sources within one year of startup of the modified equipment. The revised Title V application will address monitoring, recordkeeping, and reporting requirements.

4.6 40 CFR 60, SUBPART BB – STANDARDS OF PERFORMANCE FOR KRAFT PULP MILLS AND SUBPART BBA – STANDARDS FOR PERFORMANCE OF KRAFT PULP MILLS AFFECTED SOURCES FOR WHICH CONSTRUCTION, RECONSTRUCTION, OR MODIFICATION COMMENCED AFTER MAY 23, 2013.

40 CFR Part 60, Subparts BB and BBa regulate emissions of PM and TRS from affected sources at Kraft Pulp Mills. The shutdown of the condensate stripper system will not change the applicability of Subpart BB or BBa, other than there will be no emissions from the condensate steam stripper. Wastewater treatment systems are not regulated under Subpart BB or BBa.

4.7 40 CFR 63, SUBPART S – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FROM THE PULP AND PAPER INDUSTRY

40 CFR Part 63, Subpart S regulates emissions of HAPs from pulping, bleaching, and condensate handling operations located at pulp and paper mills that are a major source of HAP. The Mill emits greater than 10 tons per year of individual HAP and greater than 25 tons per year of total HAP qualifying it as a major source for HAP emissions. The Mill is regulated by Subpart S.

The existing pulping process condensates generated in the digester system, turpentine recovery system, evaporator systems, and LVHC and HVLC closed collection systems at the Mill comply with the collection requirements in §63.446(c)(3) and the treatment requirements in §63.446(e)(5) for mills that perform bleaching. Following Project Columbia, the pulping process condensates will comply with the collection requirements in §63.446(c)(1) or (c)(3) and the treatment requirements in §63.446(e)(2) and (e)(3) or (e)(4) for mills that do not perform bleaching. The Mill will comply with the requirements in 63.446(e)(2) following the conversion to producing unbleached pulp using the new hard pipe (ID 9802) to discharge the pulping process condensates below the liquid surface of the wastewater treatment system aerated stabilization basin (ID 2901). The hard pipe will also comply with the closed collection system requirements in 63.446(d).

The current monitoring and recordkeeping under Subpart S for collection and treatment of the pulping process condensates will be different when using the hard pipe and wastewater treatment system for compliance. Following the conversion to unbleached pulp, the Mill will comply with the monitoring requirements for the hard pipe under §63.453(l) and the wastewater treatment system ASB under §63.453(j) and (p). The Mill intends to comply with §63.453(j)(2) and (3) and establish site-specific daily monitoring parameters under §63.453(n) during the initial performance test of the wastewater treatment system ASB performed under §63.457. The initial performance test of the ASB is required by §63.7(a)(2) to be completed within 180 days following the startup of the hard pipe for treating the pulping process condensates.

4.8 40 CFR 51, SUBPART BB—DATA REQUIREMENTS FOR CHARACTERIZING AIR QUALITY FOR THE PRIMARY SO_2 NAAQS (SO_2 DATA REQUIREMENTS RULE OR SO_2 DRR)

The Mill submitted facility-wide air dispersion modeling in November 2016 to comply with 40 CFR 51.1203(d). The projected actual SO_2 emissions following Project Columbia are expected to remain below the SO_2 emission rates included in the modeling analysis submitted in 2016. The Mill will continue to annually review the actual SO_2 emission rates against the 2016 model emission rates to determine if an updated modeling demonstration is necessary.

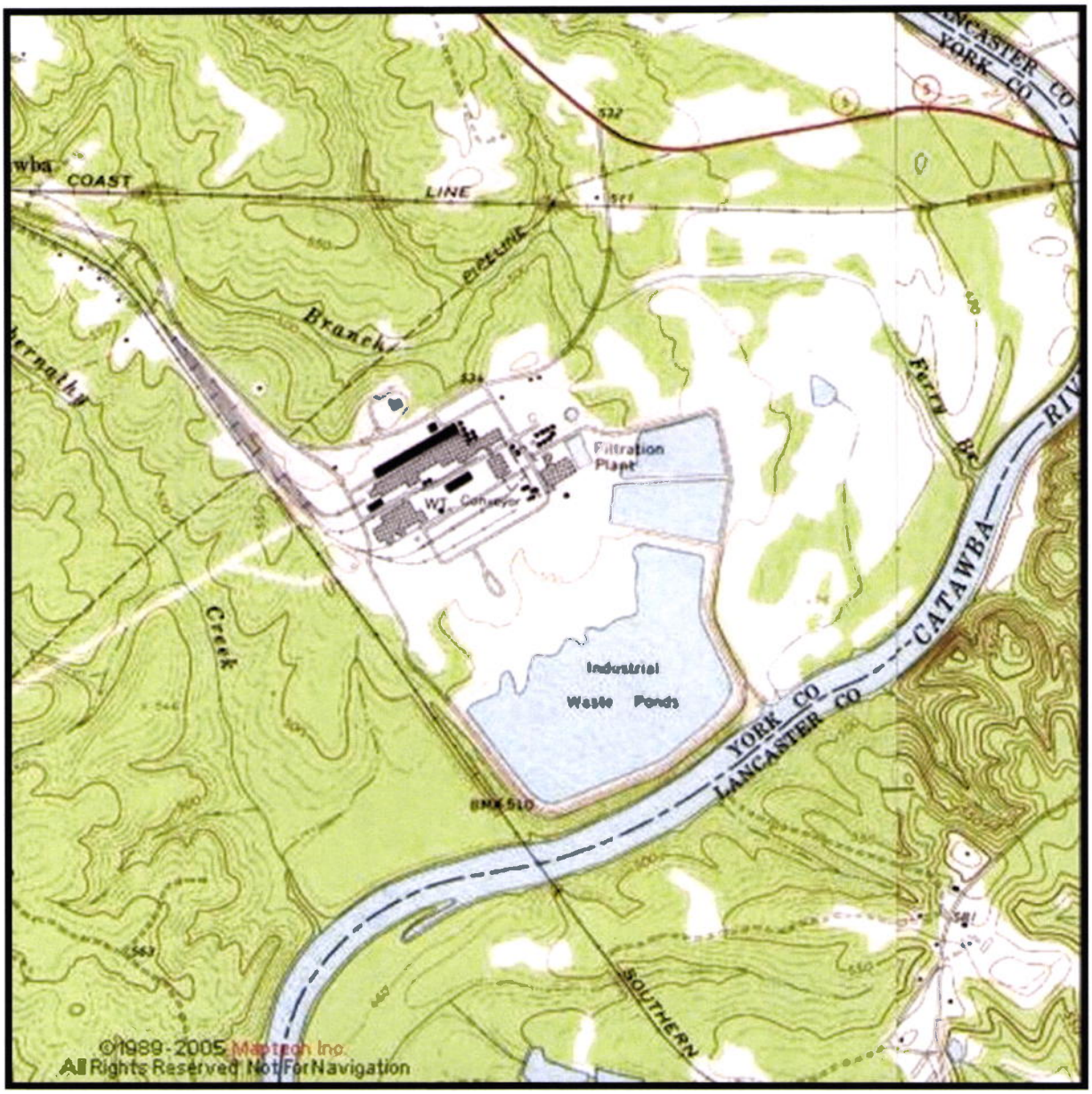
Legend

- Process Flow
- Waterfall
- Open Trench
- New Equipment

Note: This is a simplified process flow diagram based on preliminary design information.

PUBLIC	Wastewater Treatment System
NEW INDY CONTAINERBOARD	Simplified Process Flow Diagram New-Indy Catawba LLC Catawba, SC

Figure 2
USGS MAP
New-Indy – Catawba Mill



APPENDIX A - APPLICATION FORMS

RECEIVED
JUN 16 2020
BUREAU OF AIR QUALITY

dhec

Bureau of Air Quality
Expedited Review Request Instructions
Construction Permits

APPLICATION IDENTIFICATION		
Facility Name *(This should be the name used to identify the facility)* New-Indy Catawba LLC	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Request Date April 13, 2020

PRIMARY AIR PERMIT CONTACT			
Title/Position: Environmental Manager	Mr.	First Name: Mike	Last Name: Swanson
E-mail Address: mike.swanson@new-indycb.com		Phone No.: (803) 981-8010	Cell No.: ( ) -

SECONDARY AIR PERMIT CONTACT *(If the Department is unable to contact the primary air permit contact please provided a secondary contact.)*			
Title/Position:		First Name:	Last Name:
E-mail Address:		Phone No.:	Cell No.: ( ) -

Check One	Permit Type	Expedited Review Days*	Fee**
☒	Minor Source Construction Permit	30	$3,000
☐	Synthetic Minor Construction Permit	65	$4,000
☐	Prevention of Significant Deterioration (PSD) not impacting a Class I Area (no Class I modeling required)	120	$20,000
☐	Prevention of Significant Deterioration (PSD) Modification not impacting a Class I Area (no Class I modeling required) No BACT limit change but requires Public Notice	120	$5,000
☐	Prevention of Significant Deterioration (PSD) Modification not impacting a Class I Area (no Class I modeling required) Number of BACT Pollutants ☐ X $5,000 per BACT modification	120	Total Fee $ Maximum of $20,000
☐	Prevention of Significant Deterioration (PSD) impacting a Class I Area (Class I modeling required)	150	$25,000
☐	Prevention of Significant Deterioration (PSD) Modification impacting a Class I Area (Class I modeling required) No BACT limit change but requires Public Notice	150	$5,000
☐	Prevention of Significant Deterioration (PSD) Modification impacting a Class I Area (Class I modeling required) Number of BACT Pollutants ☐ X $5,000 per BACT modification	150	Total Fee $ Maximum of $25,000
☐	**Concrete** Minor Source Construction Permit Relocation Request	10	$1,500
☐	**Asphalt** Synthetic Minor Construction Permit Relocation Request	15	$3,500

*All days above are calendar days, but exclude State holidays, and building closure dates due to severe weather or other emergencies. Expedited days for asphalt and concrete also exclude weekends.

****DO NOT SEND PAYMENT UNTIL THE APPLICATION HAS BEEN ACCEPTED INTO THE EXPEDITED PROGRAM.** If chosen for expedited review, you will be notified by phone for verbal acceptance into the program. Fees must be paid within five business days of acceptance.

PRIMARY AIR PERMIT CONTACT SIGNATURE
I have read the most recent version of the Expedited Review Program Standard Operating Procedures and accept all of the terms and conditions within. I understand that it is my responsibility to ensure an application of the highest quality is submitted in a timely manner, and to address any requests for additional information by the deadline specified. I understand that submittal of this request form is not a guarantee that expedited review will be granted.

4/16/20

Signature of Primary Air Permit Contact | Date

RECEIVED
JUN 16 2020
BUREAU OF AIR QUALITY

dhec

Bureau of Air Quality
Construction Permit Application
Facility Information

FACILITY IDENTIFICATION	
SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Application Date April 13, 2020
Facility Name *(This should be the name used to identify the facility at the physical address listed below)* New-Indy Catawba LLC	Facility Federal Tax Identification Number *(Established by the U.S. Internal Revenue Service to identify a business entity)* 83-1904423

FACILITY PHYSICAL ADDRESS		
Physical Address: 5300 Cureton Ferry Road		County: York
City: Catawba	State: SC	Zip Code: 29704
Facility Coordinates *(Facility coordinates should be based at the front door or main entrance of the facility.)*		
Latitude: 34°50'37"N	Longitude: 80°53'25"W	☐ NAD27 *(North American Datum of 1927)* Or ☒ NAD83 *(North American Datum of 1983)*

CO-LOCATION DETERMINATION
Are there other facilities in close proximity that could be considered co-located? ☒ No ☐ Yes*
List potential co-located facilities, including air permit numbers if applicable:

**If yes, please submit co-location applicability determination details in an attachment to this application.*

COMMUNITY OUTREACH
What are the potential air issues and community concerns? Please provide a brief description of potential air issues and community concerns about the entire facility and/or specific project. Include how these issues and concerns are being addressed, if the community has been informed of the proposed construction project, and if so, how they have been informed. No issues or concerns. This project will lower air emissions for many pollutants.

FACILITY'S PRODUCTS / SERVICES	
Primary Products / Services *(List the primary product and/or service)* Linerboard/Pulp Manufacturing	
Primary SIC Code *(Standard Industrial Classification Codes)* 2631	Primary NAICS Code *(North American Industry Classification System)* 322130
Other Products / Services *(List any other products and/or services)*	
Other SIC Code(s):	Other NAICS Code(s):

AIR PERMIT FACILITY CONTACT *(Person at the facility who can answer technical questions about the facility and permit application.)*			
Title/Position: Environmental Manager	Salutation: Mr.	First Name: Mike	Last Name: Swanson
Mailing Address: PO Box 7			
City: Catawba		State: SC	Zip Code: 29704
E-mail Address: mike.swanson@new-indycb.com		Phone No.: (803) 981-8010	Cell No.:

Bureau of Air Quality
Construction Permit Application
Facility Information

The signed permit will be e-mailed to the designated Air Permit Contact. If additional individuals need copies of the permit, please provide their names and e-mail addresses.	
Name	**E-mail Address**
Steven Moore	steven.moore@all4inc.com

CONFIDENTIAL INFORMATION / DATA
Does this application contain confidential information or data? ☐ No ☒ Yes*

If yes, include a sanitized version of the application for public review and **ONLY ONE COPY OF CONFIDENTIAL INFORMATION SHOULD BE SUBMITTED*

LIST OF FORMS INCLUDED *(Identify all forms included in the application package)*	
Form Name	**Included (Y/N)**
Expedited Review Request (DHEC Form 2212)	☒ Yes ☐ No
Equipment/Processes (DHEC Form 2567)	☒ Yes
Emissions (DHEC Form 2569)	☒ Yes
Regulatory Review (DHEC Form 2570)	☒ Yes
Emissions Point Information (DHEC Form 2573)	☒ Yes ☐ No (If No, Explain)

OWNER OR OPERATOR			
Title/Position: Technical Manager	Salutation: Mr.	First Name: Charles	Last Name: Cleveland
Mailing Address: PO Box 7			
City: Catawba		State: SC	Zip Code: 29704
E-mail Address: pete.cleveland@new-indycb.com		Phone No.: 803-981-8206	Cell No.:
OWNER OR OPERATOR SIGNATURE			
I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions, which are found to be incorrect, may result in the immediate revocation of any permit issued for this application.			

Signature of Owner or Operator

04/16/2020
Date

PERSON AND/OR FIRM THAT PREPARED THIS APPLICATION *(If not the same person as the Professional Engineer who has reviewed and signed this application.)*			
Consulting Firm Name: ALL4			
Title/Position: Senior Project Manager	Salutation: Mr.	First Name: Steven	Last Name: Moore
Mailing Address: 630 Davis Drive, Suite 220			
City: Durham		State: NC	Zip Code: 27560
E-mail Address: steven.moore@all4inc.com		Phone No.: (919) 234-5981	Cell No.: (864) 616-4711
SC Professional Engineer License/Registration No. (if applicable):			

PERSON AND/OR FIRM THAT PREPARED THIS APPLICATION *(If not the same person as the Professional Engineer who has reviewed and signed this application.)*			
Consulting Firm Name: ALL4			
Title/Position: Senior Project Manager	Salutation: Mr.	First Name: Steven	Last Name: Moore
Mailing Address: 630 Davis Drive, Suite 220			
City: Durham		State: NC	Zip Code: 27560
E-mail Address: steven.moore@all4inc.com		Phone No.: (919) 234-5981	Cell No.: (864) 616-4711
SC Professional Engineer License/Registration No. (if applicable):			

PROFESSIONAL ENGINEER INFORMATION			
Consulting Firm Name: ALL4			
Title/Position: PE	Salutation: Ms.	First Name: Amy	Last Name: Marshall
Mailing Address: 630 Davis Drive, Suite 220			
City: Durham		State: NC	Zip Code: 27560
E-mail Address: amarshall@all4inc.com		Phone No.: (984) 777-3073	Cell No.:
SC License/Registration No.: 22147			
PROFESSIONAL ENGINEER SIGNATURE			
I have placed my signature and seal on the engineering documents submitted, signifying that I have reviewed this construction permit application as it pertains to the requirements of *South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards*.			

4/14/20

Signature of Professional Engineer Date

Bureau of Air Quality
Construction Permit Application
Equipment / Processes

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)* New-Indy Catawba LLC	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Application Date April 13, 2020

PROJECT DESCRIPTION
Brief Project Description (What, why, how, etc.): Modify Kraft pulp mill to manufacture unbleached pulp. Treat foul condensate using hard pipe and wastewater treatment system (aerated biotreatment) and retire condensate steam stripper.

ATTACHMENTS	
☒ Process Flow Diagram	Location in Application: Figure 1
☒ Detailed Project Description	Location in Application: Section 2

EQUIPMENT / PROCESS INFORMATION

Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
9801	☐ Add ☒ Remove ☐ Modify ☐ Other	Condensate Steam Stripper	[redacted]	9820, 2605, 3705	VOC, HAPs, TRS	Stripper Off Gases (SOGs) Collection System	2610S1, 2610S2
9802	☒ Add ☐ Remove ☐ Modify ☐ Other	Hard Pipe	[redacted]	2901	VOC, HAPs, TRS	Hard Pipe	None
2901	☐ Add ☐ Remove ☒ Modify ☐ Other	Aerated Biotreatment (Aerated Stabilization Basin)	[redacted]	None	VOC, HAPs, TRS	Aerated Biotreatment	Fugitive

PUBLIC COPY

CONTROL DEVICE INFORMATION					
Control Device ID	Action	Control Device Description	Maximum Design Capacity (Units)	Inherent/Required/Voluntary (Explain)	Destruction/Removal Efficiency Determination
9820	☐ Add ☐ Remove ☒ Modify ☐ Other	Stripper Off Gases (SOGs) Collection System		Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	99.9%
9802	☒ Add ☐ Remove ☐ Modify ☐ Other	Hard Pipe		Required to comply with 40 CFR Part 63, Subpart S	>95%
2901	☐ Add ☐ Remove ☒ Modify ☐ Other	Aerated Biotreatment		Required to comply with 40 CFR Part 63, Subpart S	>95%

RAW MATERIAL AND PRODUCT INFORMATION			
Equipment ID Process ID Control Device ID	Raw Material(s)	Product(s)	Fuels Combusted
9802	Foul Condensate	None	none
2901	Foul Condensate, Mill Wastewater	Treated Wastewater	none

MONITORING AND REPORTING INFORMATION					
Equipment ID Process ID Control Device ID	Pollutant(s)/Parameter(s) Monitored	Monitoring Frequency	Reporting Frequency	Monitoring/Reporting Basis	Averaging Period(s)
2901	Condensate Treatment	Daily	Semi-annual	40 CFR Subpart 63 Subpart S	15-days

PUBLIC COPY

Bureau of Air Quality
Construction Permit Application
Emissions

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)* New-Indy Catawba LLC	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Application Date April 13, 2020

ATTACHMENTS *(Check all the appropriate checkboxes if included as an attachment)*	
☒ Sample Calculations, Emission Factors Used, etc.	☒ Detailed Explanation of Assumptions, Bottlenecks, etc.
☒ Supporting Information: Manufacturer's Data, etc.	☐ Source Test Information
☒ Details on Limits Being Taken for PTE Emissions	☒ NSR Analysis

SUMMARY OF PROJECTED CHANGE IN FACILITY WIDE POTENTIAL EMISSIONS
(Calculated at maximum design capacity.)

Pollutants	Emission Rates Prior to Construction / Modification (tons/year)			Emission Rates After Construction / Modification (tons/year)		
	Uncontrolled	Controlled	PTE	Uncontrolled	Controlled	PTE
Particulate Matter (PM)	111,415	1,991	NA	111,340	1,799	NA
Particulate Matter <10 Microns (PM_{10})	77,797	1,252	NA	77,683	1,109	NA
Particulate Matter <2.5 Microns ($PM_{2.5}$)	65,298	993	NA	65,355	891	NA
Sulfur Dioxide (SO_2)	24,147	24,147	NA	21,131	21,131	NA
Nitrogen Oxides (NO_x)	3,630	3,630	NA	2,823	2,823	NA
Carbon Monoxide (CO)	3,601	3,601	NA	3,108	3,108	NA
Volatile Organic Compounds (VOC)	10,658	1,942	NA	8,738	1,374	NA
Lead (Pb)	14.3	14.3	NA	14.3	14.3	NA
Highest HAP Prior to Construction (CAS #: 67561)	6,955	917	NA	5,985	884	NA
Highest HAP After Construction (CAS #: 67561)	6,955	917	NA	5,985	884	NA
Total HAP Emissions*	7,331	1,129	NA	6,297	1,066	NA

Include emissions from exempt equipment and emission increases from process changes that were exempt from construction permits.
(*All HAP emitted from the various equipment or processes must be listed in the appropriate "Potential Emission Rates at Maximum Design Capacity" Table)

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		PTE	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
9802, 2901	Fugitive	TRS	See Attachment B	29.5	129	NA	NA	NA	NA
9802, 2901	Fugitive	H2S	See Attachment B	2.27	10.0	NA	NA	NA	NA
9802, 2901	fugitive	VOC	See Attachment B	135	593	NA	NA	NA	NA
9802, 2901	fugitive	Methanol	See Attachment B	135	593	NA	NA	NA	NA

Bureau of Air Quality
Construction Permit Application
Regulatory Review

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)*	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)*	Application Date
New-Indy Catawba LLC	2440 - 0005	April 13, 2020

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS
(If not listed below add any additional regulations that are triggered.)

Regulation	Applicable		Include all limits, work practices, monitoring, record keeping, etc.		
	Yes	No	Explain Applicability Determination	List the specific limitations and/or requirements that apply.	How will compliance be demonstrated?
Regulation 61-62.1, Section II(E) Synthetic Minor Construction Permits	☐	☒	Permitted paper mill production exceeds permitted pulp mill production by 47%		
Regulation 61-62.1, Section II(G) Conditional Major Operating Permits	☐	☒	Facility is Title V source		
Regulation 61-62.5, Standard No. 1 Emissions from Fuel Burning Operations	☐	☒	Applicable to fuel burning operations		
Regulation 61-62.5, Standard No. 2 Ambient Air Quality Standards	☒	☐	Applies to all sources	none	Modeling demonstration not required, future allowable emissions (tpy) lower than current allowable emissions (tpy)
Regulation 61-62.5, Standard No. 3 Waste Combustion and Reduction	☐	☒	NESHAP control devices exempt		
Regulation 61-62.5, Standard No. 4 Emissions from Process Industries	☐	☒	No PM emissions from modified sources		
Regulation 61-62.5, Standard No. 5 Volatile Organic Compounds	☐	☒	Not a regulated activity		
Regulation 61-62.5, Standard No. 5.2 Control of Oxides of Nitrogen	☐	☒	No burner modifications		
Regulation 61-62.5, Standard No. 7 Prevention of Significant Deterioration*	☐	☒	Modification is not subject to PSD		

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS *(If not listed below add any additional regulations that are triggered.)*					
Regulation	**Applicable**		**Include all limits, work practices, monitoring, record keeping, etc.**		
	Yes	**No**	**Explain Applicability Determination**	**List the specific limitations and/or requirements that apply.**	**How will compliance be demonstrated?**
Regulation 61-62.5, Standard No. 7.1 Nonattainment New Source Review*	☐	☒	Attainment area		
Regulation 61-62.5, Standard No. 8 Toxic Air Pollutants	☐	☒	All sources subject to NESHAP or included in NESHAP Subpart S Risk and Technology Review (RTR)		
Regulation 61-62.6 Control of Fugitive Particulate Matter	☐	☒	Applies to fugitive dust sources		
Regulation 61-62.68 Chemical Accident Prevention Provisions	☐	☒	Not a regulated activity		
Regulation 61-62.70 Title V Operating Permit Program	☒	☐	Facility has Title V operating permit		
40 CFR Part 64 - Compliance Assurance Monitoring (CAM)	☐	☒	NESHAP Subpart S sources		
40 CFR 60 Subpart A - General Provisions	☐	☒	Does not apply to hard pipe/wastewater		
40 CFR 60 Subpart BB/BBa – Kraft Pulp Mill NSPS	☐	☒	Does not apply to hard pipe/wastewater		
40 CFR 61 Subpart A - General Provisions	☐	☒	Not a regulated activity		
40 CFR 63 Subpart A - General Provisions	☒	☐	Applies to NESHAP Subpart S sources		
40 CFR 63 Subpart S – Pulp and Paper MACT	☒	☐	Applies to hard pipe/wastewater	HAP emission limits	Monitoring and testing established per 63.453(j)(2) and (3) and 63.453(l)

* Green House Gas emissions must be quantified if these regulations are triggered.

Bureau of Air Quality
Emission Point Information

A. APPLICATION IDENTIFICATION	
1. Facility Name: New-Indy Catawba LLC	
2. SC Air Permit Number (if known; 8-digits only): 2440 - 0005	3. Application Date: April 13, 2020
4. Project Description: Modify Kraft pulp mill to manufacture unbleached pulp. Treat foul condensate using hard pipe and wastewater treatment system (aerated biotreatment) and retire condensate steam stripper. No changes to modeled emission rates are required.	

B. FACILITY INFORMATION	
1. Is your company a Small Business? ☐ Yes ☒ No	2. If a Small Business or small government facility, is Bureau assistance being requested? ☐ Yes ☒ No
3. Are other facilities collocated for air compliance? ☐ Yes ☒ No	4. If Yes, provide permit numbers of collocated facilities:

C. AIR CONTACT			
Consulting Firm Name (if applicable):			
Title/Position: Environmental Manager	Salutation: Mr.	First Name: Mike	Last Name: Swanson
Mailing Address: P.O. Box 7			
City: Catawba		State: SC	Zip Code: 29704
E-mail Address: mike.swanson@new-indycb.com		Phone No.: (803) 981-8010	Cell No.:

D. EMISSION POINT DISPERSION PARAMETERS
Source data requirements are based on the appropriate source classification. Each emission point is classified as a point, area, volume, or flare source. Contact the Bureau of Air Quality for clarification of data requirements. Include sources on a scaled site map. Also, a picture of area or volume sources would be helpful but is not required. A user generated document or spreadsheet may be substituted in lieu of this form provided all of the required emission point parameters are submitted in the same order, units, etc. as presented in these tables.
Abbreviations / Units of Measure: UTM = Universal Transverse Mercator; °N = Degrees North; °W = Degrees West; m = meters; AGL = Above Ground Level; ft = feet; ft/s = feet per second; ° = Degrees; °F = Degrees Fahrenheit

E. POINT SOURCE DATA

(Point sources such as stacks, chimneys, exhaust fans, and vents.)

Emission Point ID	Description/Name	Point Source Coordinates Projection:				Release Height AGL (ft)	Temp. (°F)	Exit Velocity (ft/s)	Inside Diameter (ft)	Discharge Orientation	Rain Cap? (Y/N)	Distance To Nearest Property Boundary (ft)	Building		
		UTM E (m)	UTM N (m)	Lat (°N)	Long (°W)								Height (ft)	Length (ft)	Width (ft)

F. AREA SOURCE DATA

(Area sources such as storage piles, and other sources that have low level or ground level releases with no plumes.)

Emission Point ID	Description/Name	Area Source Coordinates Projection:				Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Angle From North (°)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)					

G. VOLUME SOURCE DATA

(Volume sources such as building fugitives that have initial dispersion vertical depth prior to release.)

Emission Point ID	Description/Name	Volume Source Coordinates Projection:				Release Height AGL (ft)	Initial Horizontal Dimension (ft)	Initial Vertical Dimension (ft)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)				

H. FLARE SOURCE DATA

(Point sources where the combustion takes place at the tip of the stack.)

Emission Point ID	Description/Name	Flare Source Coordinates Projection:				Release Height AGL (ft)	Heat Release Rate (BTU/hr)	Distance To Nearest Property Boundary (ft)	Building		
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)				Height (ft)	Length (ft)	Width (ft)

I. AREA CIRCULAR SOURCE DATA

Emission Point ID	Description/Name	Area Circular Source Coordinates Projection:				Release Height AGL (ft)	Radius of Area (ft)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)			

J. AREA POLY SOURCE DATA

Emission Point ID	Description/Name	Area Poly Source Coordinates Projection:		Release Height AGL (ft)	Number of Vertices
		UTM E (m)	UTM N (m)		

K. OPEN PIT SOURCE DATA

Emission Point ID	Description/Name	Open Pit Source Coordinates Projection:		Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Volume (ft^3)	Angle From North (°)
		UTM E (m)	UTM N (m)					

L. EMISSION RATES						
Emission Point ID	**Pollutant Name**	**CAS #**	**Emission Rate (lb/hr)**	**Same as Permitted (1)**	**Controlled or Uncontrolled**	**Averaging Period**
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		

(1) Any difference between the rates used for permitting and the air compliance demonstration must be explained in the application report.

APPENDIX B -
EMISSIONS CALCULATIONS - PSD APPLICABILITY

PUBLIC Emissions Calculations - Netting Analysis For Permitting

Emission Unit	Basis	Production		VOC (as VOC)		CO		NO_x	
		amount	UOM	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JULY 2010 through JUNE 2012									
Kraft Mill NCG System[A]	Modified		ADTP/day		103.09		20.18		199.12
Kraft Mill Bleach Plant[B]	Retired		ADTP/day		63.09		211.33		
ClO2 Plant[B]	Retired		ton/day		0.32				
Methanol Tank[B]	Retired				1.75				
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day		22.77				
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		36.01				
No. 2 Paper Machine - Brown Paper[C,D]	Modified		ADTFP/day		0.00				
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		53.56				
No. 3 Paper Machine - Linerboard[C,D]	Modified		ADTFP/day		0.00				
Pulp Dryer - Bleached[B]	Modified		ADTFP/day		23.18				
Pulp Dryer - Unbleached[C,D]	Modified		ADTFP/day		0.00				
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		1.10		6.71		7.99
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		1.78		10.88		12.96
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		1.81		11.07		13.18
Starch Silos[B]	Retired								
TMP[B]	Retired		ADTP/day		190.24				
TMP Bleaching[B]	Retired		ADTP/day		1.61				
Woodyard[B]	affected		Tons/day		4.14				
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.21		1.28		4.27
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		1.04		2.74		25.73
Wastewater System[F]	Modified		ADTP/day		521.52				
TOTAL BASELINE EMISSIONS					**1,027.2**		**264.2**		**263.2**
PROJECTED ACTUAL EMISSIONS (PAE)									
Kraft Mill NCG System[A]	Modified		ADTP/day		12.58		0.00		0.00
Kraft Mill Bleach Plant[B]	Retired		ADTP/day		0.00		0.00		
ClO2 Plant[B]	Retired		ton/day		0.00				
Methanol Tank[B]	Retired				0.00				
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day		0.00				
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		0.00				
No. 2 Paper Machine - Brown Paper[C,D,G]	Modified		ADTFP/day		18.76				
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		0.00				
No. 3 Paper Machine - Linerboard[C,D,G]	Modified		ADTFP/day		345.11				
Pulp Dryer - Bleached[B]	Modified		ADTFP/day		0.00				
Pulp Dryer - Unbleached[C,D,G]	Modified		ADTFP/day		93.40				
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
Starch Silos[B]	Retired								
TMP[B]	Retired		ADTP/day		0.00				
TMP Bleaching[B]	Retired		ADTP/day		0.00				
Woodyard[B]	affected		Tons/day		4.21				
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		0.00		0.00		0.00
Wastewater System[F]	Modified		ADTP/day		592.66				
TOTAL PROJECTED EMISSIONS					**1,066.7**		**0.0**		**0.0**
NSR APPLICABILITY - BAE-to-PAE									
TOTAL BASELINE EMISSIONS					1,027.2		264.2		263.2
TOTAL PROJECTED EMISSIONS					1,066.7		0.0		0.0
NET EMISSION INCREASE					**39.5**		**(264.2)**		**(263.2)**
NSR Threshold					**40**		**100**		**40**

PUBLIC Emissions Calculations - Netting Analysis For Permitting

Emission Unit	Basis	Production		SO_2		TSP		PM_{10}	
		amount	UOM	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JULY 2010 through JUNE 2012									
Kraft Mill NCG System[A]	Modified		ADTP/day		1,876.42				
Kraft Mill Bleach Plant[B]	Retired		ADTP/day						
ClO2 Plant[B]	Retired		ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day				0.41		0.41
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				0.64		0.64
No. 2 Paper Machine - Brown Paper[C,D]	Modified		ADTFP/day				0.00		0.00
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				0.96		0.96
No. 3 Paper Machine - Linerboard[C,D]	Modified		ADTFP/day				0.00		0.00
Pulp Dryer - Bleached[B]	Modified		ADTFP/day				0.67		0.67
Pulp Dryer - Unbleached[C,D]	Modified		ADTFP/day				0.00		0.00
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.05		0.15		0.61
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.08		0.25		0.98
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		0.08		0.25		1.00
Starch Silos[B]	Retired						0.83		0.51
TMP[B]	Retired		ADTP/day						
TMP Bleaching[B]	Retired		ADTP/day						
Woodyard[B]	affected		Tons/day				90.12		13.52
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.01		0.03		0.12
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		163.27		11.35		8.89
Wastewater System[F]	Modified		ADTP/day						
TOTAL BASELINE EMISSIONS					**2,039.9**		**105.7**		**28.3**
PROJECTED ACTUAL EMISSIONS (PAE)									
Kraft Mill NCG System[A]	Modified		ADTP/day		777.30				
Kraft Mill Bleach Plant[B]	Retired		ADTP/day						
ClO2 Plant[B]	Retired		ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day				0.00		0.00
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				0.00		0.00
No. 2 Paper Machine - Brown Paper[C,D,G]	Modified		ADTFP/day				0.05		0.05
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				0.00		0.00
No. 3 Paper Machine - Linerboard[C,D,G]	Modified		ADTFP/day				0.88		0.88
Pulp Dryer - Bleached[B]	Modified		ADTFP/day				0.00		0.00
Pulp Dryer - Unbleached[C,D,G]	Modified		ADTFP/day				0.24		0.24
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
Starch Silos[B]	Retired						0.00		0.00
TMP[B]	Retired		ADTP/day						
TMP Bleaching[B]	Retired		ADTP/day						
Woodyard[B]	affected		Tons/day				105.00		15.75
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.00		0.00		0.00
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		0.00		0.00		0.00
Wastewater System[F]	Modified		ADTP/day						
TOTAL PROJECTED EMISSIONS					**777.3**		**106.2**		**16.9**
NSR APPLICABILITY - BAE-to-PAE									
TOTAL BASELINE EMISSIONS					2,039.9		105.7		28.3
TOTAL PROJECTED EMISSIONS					777.3		106.2		16.9
NET EMISSION INCREASE					**(1,262.6)**		**0.5**		**(11.4)**
NSR Threshold					**40**		**25**		**15**

[redacted]

PUBLIC **Emissions Calculations - Netting Analysis For Permitting**

Emission Unit	Basis	Production		$PM_{2.5}$		TRS		H_2S	
		amount	UOM	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JULY 2010 through JUNE 2012									
Kraft Mill NCG System[A]	Modified		ADTP/day				17.24		3.83
Kraft Mill Bleach Plant[B]	Retired		ADTP/day				1.16		
ClO2 Plant[B]	Retired		ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day		0.41				
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		0.64				
No. 2 Paper Machine - Brown Paper[C,D]	Modified		ADTFP/day		0.00		0.00		
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		0.96				
No. 3 Paper Machine - Linerboard[C,D]	Modified		ADTFP/day		0.00		0.00		
Pulp Dryer - Bleached[B]	Modified		ADTFP/day		0.67		1.15		
Pulp Dryer - Unbleached[C,D]	Modified		ADTFP/day		0.00		0.00		
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.61				
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.98				
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		1.00				
Starch Silos[B]	Retired				0.19				
TMP[B]	Retired		ADTP/day						
TMP Bleaching[B]	Retired		ADTP/day						
Woodyard[B]	affected		Tons/day		0.90				
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.12				
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		6.70				
Wastewater System[F]	Modified		ADTP/day				127.61		5.83
TOTAL BASELINE EMISSIONS					**13.2**		**147.2**		**9.7**
PROJECTED ACTUAL EMISSIONS (PAE)									
Kraft Mill NCG System[A]	Modified		ADTP/day				7.00		1.90
Kraft Mill Bleach Plant[B]	Retired		ADTP/day				0.00		
ClO2 Plant[B]	Retired		ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day		0.00				
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		0.00				
No. 2 Paper Machine - Brown Paper[C,D,G]	Modified		ADTFP/day		0.05		0.74		
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day		0.00				
No. 3 Paper Machine - Linerboard[C,D,G]	Modified		ADTFP/day		0.88		13.69		
Pulp Dryer - Bleached[B]	Modified		ADTFP/day		0.00		0.00		
Pulp Dryer - Unbleached[C,D,G]	Modified		ADTFP/day		0.24		3.70		
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00				
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00				
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		0.00				
Starch Silos[B]	Retired				0.00				
TMP[B]	Retired		ADTP/day						
TMP Bleaching[B]	Retired		ADTP/day						
Woodyard[B]	affected		Tons/day		1.05				
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.00				
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		0.00				
Wastewater System[F]	Modified		ADTP/day				128.92		9.96
TOTAL PROJECTED EMISSIONS					**2.2**		**154.1**		**11.9**
NSR APPLICABILITY - BAE-to-PAE									
TOTAL BASELINE EMISSIONS					13.2		147.2		9.7
TOTAL PROJECTED EMISSIONS					2.2		154.1		11.9
NET EMISSION INCREASE					**(11.0)**		**6.9**		**2.2**
NSR Threshold					**10**		**10**		**10**

PUBLIC Emissions Calculations - Netting Analysis For Permitting

Emission Unit	Basis	Production		LEAD		CO_2e	
		amount	UOM	factor lb/UOM	emissions tpy	factor lb/UOM	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JULY 2010 through JUNE 2012							
Kraft Mill NCG System[A]	Modified		ADTP/day				
Kraft Mill Bleach Plant[B]	Retired		ADTP/day				
ClO2 Plant[B]	Retired		ton/day				
Methanol Tank[B]	Retired						
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day				
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				
No. 2 Paper Machine - Brown Paper[C,D]	Modified		ADTFP/day				
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				
No. 3 Paper Machine - Linerboard[C,D]	Modified		ADTFP/day				
Pulp Dryer - Bleached[B]	Modified		ADTFP/day				
Pulp Dryer - Unbleached[C,D]	Modified		ADTFP/day				
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		9,366
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		15,178
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		15,440
Starch Silos[B]	Retired						
TMP[B]	Retired		ADTP/day				
TMP Bleaching[B]	Retired		ADTP/day				
Woodyard[B]	affected		Tons/day				
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.00		1,786
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		0.00		13,657
Wastewater System[F]	Modified		ADTP/day				
TOTAL BASELINE EMISSIONS					**0.00**		**55,428**
PROJECTED ACTUAL EMISSIONS (PAE)							
Kraft Mill NCG System[A]	Modified		ADTP/day				
Kraft Mill Bleach Plant[B]	Retired		ADTP/day				
ClO2 Plant[B]	Retired		ton/day				
Methanol Tank[B]	Retired						
No. 1 Paper Machine - Coated Paper[B]	Retired		ADTFP/day				
No. 2 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				
No. 2 Paper Machine - Brown Paper[C,D,G]	Modified		ADTFP/day				
No. 3 Paper Machine - Coated Paper[B]	Modified		ADTFP/day				
No. 3 Paper Machine - Linerboard[C,D,G]	Modified		ADTFP/day				
Pulp Dryer - Bleached[B]	Modified		ADTFP/day				
Pulp Dryer - Unbleached[C,D,G]	Modified		ADTFP/day				
No. 1 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0
No. 2 Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0
No. 3 On-Machine Coater - Natural Gas[B]	Retired		mmBtu/day		0.00		0
Starch Silos[B]	Retired						
TMP[B]	Retired		ADTP/day				
TMP Bleaching[B]	Retired		ADTP/day				
Woodyard[B]	affected		Tons/day				
Power Boiler - Natural Gas[B]	Retired		mmBtu/day		0.00		0
Power Boiler - No. 6 Oil[E]	Retired		1,000 gal/day		0.00		0
Wastewater System[F]	Modified		ADTP/day				
TOTAL PROJECTED EMISSIONS					**0.00**		**0**
NSR APPLICABILITY - BAE-to-PAE							
TOTAL BASELINE EMISSIONS					0.00		55,428
TOTAL PROJECTED EMISSIONS					0.00		0
NET EMISSION INCREASE					**(0.0)**		**(55,428)**
NSR Threshold					**0.6**		**75,000**

APPENDIX C - EMISSIONS FACTORS - BLEACHED AND UNBLEACHED PULP PRODUCTION

PUBLIC TAB A - New-Indy Catawba Emission Factors for Incineration of Kraft Mill NCG Gases.

[redacted]

PUBLIC TAB A - New-Indy Catawba Emission Factors for Incineration of Kraft Mill NCG Gases.

[redacted]

PUBLIC TAB F - NCASI Condensate and WWTP Methanol Concentration

[redacted]

TABLE 2 NON-KRAFT WWTP INFLUENT CONCENTRATIONS FOR METHANOL

TYPE OF PULPING	REF.	NO. OF MILLS SAMPLED	METHANOL	
			RANGE	AVERAGE
Bleached Sulfite	NCASI 1994a	2	15 to 79	47.4
Semi-Chemical	NCASI 1994a	1		27.1
Deinked Tissue	NCASI*	1		2.7
Deinked Newsprint	NCASI*	1		7.8
Wastepaper, Board	NCASI*	1		1.0
Wastepaper, Corrugated	NCASI*	1	0.8 to 2.1	1.5
Groundwood, Newsprint	NCASI*	1		0.7

*NCASI WWTP Sampling Database – Unpublished

TABLE 3 METHANOL CONTENT OF KRAFT MILL CONDENSATES AND BLEACH PLANT EFFLUENTS (SOFTWOOD AND HARDWOOD)

	NO. OF MILLS SAMPLED	METHANOL, lb/ADTUBP		
		RANGE	MEAN	MEDIAN
Unbleached Kraft Mill Condensates[1]	3	11.3 to 16.2	13.4	12.7
Bleached Kraft Mill Condensates[1] (including mills with O_2 delignification)	15	16.5 to 27.0	21.1	21.4
Bleach Plant Effluents[2]	lab study	4.0 to 6.5	5.0	4.9

[1] includes all pulp mill and evaporator area condensates (NCASI 1995)
[2] includes methanol that entered the bleach plant with pulp or the ClO_2 liquor and methanol generated during bleaching (NCASI 1994b)

3.3 Otherwise use the toxic chemical

This would be the sum of all the methanol used at the manufacturing site. A 10,000 lb/yr reporting threshold applies for this category. Ancillary or other uses of methanol could include methanol used in printing inks, solvents, antifreeze, and methanol-based ClO_2 generation processes.

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

4.1 ___ (Enter two-digit code from instruction package.)

At any given time, methanol may be present at the mill-site in various stored liquid streams which include purchased mixtures containing methanol, black liquors stored in tanks, and pulp storage vats. Methanol may also be present in trace quantities in wastewater treatment plants. For a kraft mill, in the absence of mill-specific information, the estimates given in Table 4 for methanol concentration in liquids may be used. The wastewater treatment plant (WWTP) influent methanol concentrations at several non-kraft pulp and paper producing facilities were summarized in Table 2. The WWTP

All rights reserved

PUBLIC TAB G - NCASI WWTP H2S Concentration

[redacted]

TABLE 2 KRAFT WWTP INFLUENT CONCENTRATIONS OF HYDROGEN SULFIDE (NCASI WWTP Sampling Database - Unpublished)

TYPE OF PULPING	NO. OF MILLS SAMPLED	CONCENTRATION, ppb	
		Range	Average
Bleached Kraft	12	71 – 15,700	4520
Unbleached Kraft	7	617 - 4306	2402
Sulfite + Recycle	2	238 - 1287	763
TMP + Recycle	2	5039 - 5320	5180
Hard-piped Condensates	8	12,100 – 102,825	69,000

Sample Calculation for Threshold Determination:

A kraft mill produces 1100 ADTUBP/day. At this mill, brown stock washer vent gases are collected and treated in an incineration device. The pulping process generates 3300 lb BLS/ADTUBP which is fired in DCE furnaces and 0.275 ton CaO is regenerated in the lime kiln per ADTUBP. The mill operates a 500 x 10^6 Btu/hr wood-fired boiler and a 50 tpd tall oil plant. The final product is 1000 tons of bleached paper per day. The mill operates all 365 days/yr and discharges 20 x 10^6 gpd from the pulp mill.

Consider two cases of condensate collection and handling. In Case 1, the mill operates a steam stripper. In Case 2, the mill "hard-pipes" a 1 MGD of its condensates to the AST system. Assume this mill does not have its own condensate hydrogen sulfide data and uses the mean value of 69.0 mg/L of hydrogen sulfide shown in Table 3 as being present in all condensates at the mill. For Case 1, the mill with a steam stripper, the condensate hydrogen sulfide is divided between the amount in the stripper off-gases and the amount sewered to the WWTP. For Cases 2 and 3, all of the condensate will be sewered to the WWTP.

Table 4 shows the amounts of hydrogen sulfide emitted from several major operations at this example mill as estimated using factors given in Table 1. Table 3 also shows the amount of hydrogen sulfide manufactured and present in (1) in uncontrolled NCGs and (2) in WWTP untreated effluents. For this example mill, based on the total amount of hydrogen sulfide manufactured and either emitted, present in strong liquor or released to the WWTP, a SARA 313 report does have to be filed as the amount exceeds 25,000 lb/yr.

All rights reserved

PUBLIC TAB H - NCASI Methanol and TRS in LVHC GASES

[redacted]

NCASI
IMPACT SCIENCE. SOLUTIONS.

February 20, 2019

TO: Bob Tourville, New Indy Containerboard

FROM: Zach Emerson, NCASI

SUBJECT: Methanol and TRS Content of LVHCs at Bleached and Unbleached Chemical Pulp Mills

At your request, NCASI staff evaluated the underlying emissions data in the NCASI Pulp and Paper Air Toxics Database (2016 release version). The goal was to determine if the factors for methanol and total reduced sulfur (TRS) in Kraft Mill low volume high concentration gases (LVHCs, i.e. digester + evaporator noncondensible gases (NCGs)) differed significantly between bleached and unbleached pulp mills.

Background

Methanol and TRS are lignin degradation compounds generated in the digester during Kraft pulping. The extent of formation varies and depends upon several process factors, including cooking time, chemical use and temperature. It is expected that a black liquor and pulp mixture cooked to a higher Kappa number (i.e., more residual lignin and cooked less aggressively) will contain lower amounts of methanol and TRS compounds. As bleaching-grade pulps are typically cooked to a lower Kappa number, the resulting digester gases, black liquor and pulp would be expected to have higher amounts of methanol and TRS compounds than for unbleached pulp manufacturing.

Given TRS and methanol masses in LVHCs are attributable to their presence in digester off-gases and in weak liquor, it is reasonable to expect that the LVHC content of these chemicals would be higher at bleached pulp mills than at unbleached pulp mills. Below are the results of an analysis of NCASI information that examines this hypothesis.

Analysis

The Master Summary Table of the NCASI Air Toxics Database (2015 release version) presents various NCG loading factors for methanol and for TRS; however, it combines the LVHC measurements at bleached and unbleached mills into a single dataset to calculate an average. Individual test event data are available in the Detailed Sheets of the database. This database compiles emissions information for many compounds at many process units and is made available to NCASI members on the NCASI Website. Information from the following file was used in this analysis:

- Table A6a and A6b – Kraft Pulp Mill NCGs (September 2018).xls

The underlying reports for each facility were reviewed to determine if the facility manufactured bleached or unbleached pulp. The data was then segregated into the following four sets:

- LVHCs at Bleached Pulp Mills – Methanol
- LVHCs at Unbleached Pulp Mills – Methanol
- LVHCs at Bleached Pulp Mills – TRS
- LVHCs at Unbleached Pulp Mills - TRS

Note there were five LVHC data points for which there is no hydrogen sulfide data; these facilities were excluded from the analysis, as TRS could not be estimated. There was one TRS outlier measurement for both unbleached and bleached LVHCs, as well.

Table 1 presents calculated methanol factors for LVHCs at bleached and unbleached facilities. A total of 14 LVHCs at bleached mills and 5 LVHCs at unbleached mills are included.

Table 1: Comparison of Methanol LVHC Factors at Bleached and Unbleached Facilities

Methanol	Mass Load Factor (lb of Methanol/ADTUBP)	
	At Bleached Facilities	At Unbleached Facilities
Mean	0.68	0.05
Median	0.19	0.06
Standard Deviation	1.1	0.04
Count	14	5
Range	<0.01 to 3.5	<0.01 to 0.11

The mean and median methanol emission factors for LVHCs at bleached and unbleached facilities are quite different, with the mean bleached methanol factor being higher than the mean unbleached factor.

Table 2 presents calculated TRS factors for LVHCs at bleached and unbleached facilities. A total of 7 LVHCs at bleached mills and 4 LVHCs at unbleached mills are included.

Table 2: Comparison of TRS LVHC Factors at Bleached and Unbleached Facilities

Total Reduced Sulfur	Mass Load Factor (lb of S/ADTUBP)	
	At Bleached Facilities	At Unbleached Facilities
Mean	1.2	0.91
Median	1.0	0.84
Standard Deviation	1.1	0.68
Count	7	4
Range	0.09 to 3.3	0.28 to 1.7

The mean and median TRS factors for bleached and unbleached LVHCs are also different, with the mean bleached LVHC TRS mass load factor being higher than the mean unbleached LVHC factor.

The results of this analysis support the hypothesis that the mass loads of methanol and TRS in low volume high concentration gases are lower at unbleached pulp mills than at bleached pulp mills. NCASI will evaluate making this change in the NCASI Air Toxics Database.

If you have any questions concerning this analysis, please feel free to contact me.

NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, INC.
402 SW 140th Terrace
Newberry, FL 32669-3000
(352) 331-1745
(352) 331-1766
ncasi.org

PUBLIC TAB I - NCASI Condensate Nitrogen Concentration - NCASI TB 802 - Souhern Kraft Mill Condensates - mixed Pine/Hardwood

[redacted]

PUBLIC TAB J - NCASI WWTP Emission Factors

[redacted]

PUBLIC TAB K - NCASI TRS Generation Bleached .vs. Unbleached Kraft Pulping - NCASI TB804, Table 3.1.

[redacted]

TB 804 - Laboratory batch digester.

Technical Bulletin No. 804 3

Table 3.1. Kraft Pulping Results

	Linerboard		Bleachable	
Species	Douglas fir		Douglas fir	
W.L. Active Alkali	16.8%		18.7%	
W.L. Sulfidity	30%		30%	
H Factor	400[a]		1850[b]	
Total Yield	56.6%		47.3%	
Rejects	6.4%		1.2%	
Kappa	96		28	
Black Liquor				
Residual AA	2.9 g/L		3.1 g/L	
Na_2S (HS^-)	0.136 mol/L[c]	10.6 lb/ODTP	0.153 mol/L[c]	11.9 lb/ODTP
MM	0.0018 mol/L	0.69 lb/ODTP	0.0069 mol/L	2.65 lb/ODTP
DMS	0.00065 mol/L	0.32 lb/ODTP	0.0023 mol/L	1.15 lb/ODTP
DMDS	0.000066 mol/L	0.05 lb/ODTP	0.00023 mol/L	0.17 lb/ODTP
$Na_2S_2O_3$	0.0015 mol/L	0.24 lb/ODTP	0.0017 mol/L	0.27 lb/ODTP
Na_2SO_4	0.0007 mol/L	0.1 lb/ODTP	0.0009 mol/L	0.13 lb/ODTP
Black Liquor Solids	12.7%		15.1%	
Black Liquor Heating Value	6630 Btu/lb		6650 Btu/lb	

[a] One hour heatup, 30 min. at 170°C.
[b] One hour heatup, 108 min. at 170°C.
[c] Values shown in table were determined by titrimetric method. Corresponding values measured by headspace sampling and gas chromatography were 0.147 and 0.163 mol/L for linerboard and bleachable grades, respectively.

APPENDIX D - EMISSIONS FACTORS – COATED PAPER AND LINERBOARD PRODUCTION

PUBLIC TAB D - NCASI Linerboard Machine Emssion Factors

[redacted]

APPENDIX E -
JULY 2010 - JUNE 2012 BASELINE ACTUAL PRODUCTION

PUBLIC TAB M - New-Indy Catawba Monthly Production

[redacted]

APPENDIX F -
H2SSIM AND WATER9 MODEL RESULTS

PUBLIC

H2SSIM Model - Steam Stripper

[redacted]

PUBLIC

H2SSIM Model – Hard Pipe

[redacted]

PUBLIC

WATER9 Model - Steam Stripper

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

PUBLIC

WATER9 Model – Hard Pipe

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]