

From: [Shandia Deloach](#)
To: [APC Admin](#)
Subject: FW: [External] :FW: International Paper 32-0028 / 979323
Date: Tuesday, September 20, 2022 10:40:41 AM
Attachments: [image001.png](#)
[image003.png](#)
[image004.png](#)
[IP Morristown Permit Application LMC 8 30 2022.pdf](#)
[IP Morristown LMC Cover Letter.pdf](#)
Importance: High

I noted that this application was not sent to admin, so I am forwarding it along.
Shandia



Shandia Deloach | TDEC Environmental Protection Specialist 2
Division of Air Pollution Control

William R. Snodgrass TN Tower, 15th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243
p. 615-532-0608
Shandia.Deloach@tn.gov

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From: Meghan Skemp <mskemp@all4inc.com>
Sent: Wednesday, August 31, 2022 4:48 PM
To: Shandia Deloach <Shandia.Deloach@tn.gov>
Cc: Mike R Thompson <MikeR.Thompson@ipaper.com>; David Cook <James.Cook@ipaper.com>; Rachel Henn <rhenn@all4inc.com>
Subject: FW: [External] :FW: International Paper 32-0028 / 979323
Importance: High

Hi Shandia,

Please find attached the operation permit application for the LMC machine at IP Morristown.

Please let me know if you have any questions.

Thank you!

Meghan



Meghan Skemp / Senior Managing Consultant

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ALL4 // *Your environmental compliance is **clearly** our business.*

From: Shandia Deloach <Shandia.Deloach@tn.gov>

Sent: Tuesday, August 30, 2022 10:17 AM

To: Rachel Henn <rhenn@all4inc.com>

Cc: Meghan Skemp <mskemp@all4inc.com>

Subject: RE: International Paper 32-0028 / 979323

I apologize for not responding to you sooner. The application should be submitted within 30 day of initial startup.

Shandia



Shandia Deloach | TDEC Environmental Protection Specialist 2
Division of Air Pollution Control

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From: Rachel Henn <rhenn@all4inc.com>

Sent: Wednesday, August 24, 2022 11:17 AM

To: Shandia Deloach <Shandia.Deloach@tn.gov>

Cc: Meghan Skemp <mस्कemp@all4inc.com>

Subject: [EXTERNAL] RE: International Paper 32-0028 / 979323

Hi Shandia,

I am reaching out on behalf of Meghan here. I think a while back she asked about submittal timeframe. When is the timeframe to submit this application to operate in regards to equipment installation and/or operation? We submit this within so many days after installation, correct?

Thanks!



Rachel Henn / Managing Consultant

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From: Shandia Deloach <Shandia.Deloach@tn.gov>

Sent: Wednesday, August 10, 2022 12:58 PM

To: Meghan Skemp <mस्कemp@all4inc.com>

Cc: Rachel Henn <rhenn@all4inc.com>

Subject: RE: International Paper 32-0028 / 979323

It would be helpful for us if this information was submitted as a new application. The way things are processed in our system when processing a permitting action it is helpful to have all this information in one place and not have to reference previous applications in order to process the permitting action.



Shandia Deloach | TDEC Environmental Protection Specialist 1
Division of Air Pollution Control

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p. 615-532-0608
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From: Meghan Skemp <mskemp@all4inc.com>
Sent: Wednesday, August 10, 2022 9:43 AM
To: Shandia Deloach <Shandia.Deloach@tn.gov>
Cc: Rachel Henn <rhenn@all4inc.com>
Subject: [EXTERNAL] RE: International Paper 32-0028 / 979323

Shandia,

I wanted to confirm what information you were looking for upon the new equipment startup. Since the new press was originally planned to be installed in November 2021, the emissions in the operating permit application included the new press emission information. As long as we did that, it would make re-submitting any information on the new press, other than notification of operation, redundant. Are you looking for us to pull out the LMC press forms/emissions into a separate document and send those along? TDEC already has this information so I wanted to confirm exactly what you need from us. Thanks Meghan



Meghan Skemp / Senior Managing Consultant
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From: Shandia Deloach <Shandia.Deloach@tn.gov>
Sent: Wednesday, May 11, 2022 2:14 PM
To: Meghan Skemp <mskemp@all4inc.com>
Subject: RE: International Paper 32-0028 / 979323

You will need to submit an application after startup to add this source to the operating permit.
Shandia



Shandia Deloach | TDEC Environmental Protection Specialist 1
Division of Air Pollution Control

William R. Snodgrass TN Tower, 15th Floor
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From: Meghan Skemp <mskemp@all4inc.com>
Sent: Wednesday, May 4, 2022 3:18 PM
To: Shandia Deloach <Shandia.Deloach@tn.gov>
Subject: [EXTERNAL] RE: International Paper 32-0028 / 979323

Shandia,

We will have to submit an application to startup & operate? We submitted the combined construction and operating application for the LMC machine. Can you confirm we will have to submit another application?

Thanks Meghan



Meghan Skemp / Managing Consultant
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From: Shandia Deloach <Shandia.Deloach@tn.gov>

Sent: Thursday, April 21, 2022 1:46 PM

To: Meghan Skemp <mskemp@all4inc.com>

Subject: RE: International Paper 32-0028 / 979323

It seems you just had some questions in your response, not any specific comments. Answers to your questions are as follows:

Any SAR requirements will be delineated in permit conditions.

As this is not a combined permit there will need to be an application after startup to add this to conditional major permit.

As for demonstrating compliance with the visual emissions this is basically only required when there is a complaint.

I hope that this answers your questions.

Thanks,

Shandia



Shandia Deloach | TDEC Environmental Protection Specialist 1
Division of Air Pollution Control

William R. Snodgrass TN Tower, 15th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243
p. 615-532-0608

Shandia.Deloach@tn.gov

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From: Meghan Skemp <mskemp@all4inc.com>

Sent: Wednesday, April 20, 2022 2:58 PM

To: Shandia Deloach <Shandia.Deloach@tn.gov>; MikeR.Thompson@ipaper.com; Rachel Henn <rhenn@all4inc.com>

Cc: Doug S. Wright <Doug.S.Wright@tn.gov>; Jerry Swinea <Jerry.Swinea@tn.gov>; David Cook <James.Cook@ipaper.com>; Ross Kleiner <Ross.Kleiner@ipaper.com>

Subject: [EXTERNAL] RE: International Paper 32-0028 / 979323

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Good afternoon,

Please find attached our comments for TDEC on the draft air permit. Please reach out with any questions.

Thanks!

Meghan



Meghan Skemp / Managing Consultant

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From: Shandia Deloach <Shandia.Deloach@tn.gov>

Sent: Tuesday, April 12, 2022 8:09 AM

To: Meghan Skemp <mskemp@all4inc.com>; MikeR.Thompson@ipaper.com; Rachel Henn <rhenn@all4inc.com>

Cc: Doug S. Wright <Doug.S.Wright@tn.gov>; Jerry Swinea <Jerry.Swinea@tn.gov>

Subject: International Paper 32-0028 / 979323

Attached is a draft of your construction permit. Please review, comment, and get back to me by April 20, 2022.

Thanks,

Shandia



Shandia Deloach | TDEC Environmental Protection Specialist 1
Division of Air Pollution Control

William R. Snodgrass TN Tower, 15th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243
p. 615-532-0608

Shandia.Deloach@tn.gov

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August 31, 2022

Tennessee Department of Environment & Conservation
William R. Snodgrass TN Tower, 15th Floor
312 Rosa L. Parks Avenue
Nashville, TN 37243

**Re: International Paper – Morristown, TN
Application for Operation**

To whom it may concern,

International Paper (IP) owns and operates a container facility located at 5032 South Davy Crockett Parkway in Hamblen County, Morristown, TN (Facility). The Facility currently operates pursuant to Tennessee Department of Environment and Conservation (TDEC) Conditional Major Operating Permit No. 479994 and Construction Permit 979323.

Under the Construction Permit 979323, the Facility installed a Latitude Machinery Corporation 89" Three-Color Die Cutter Flexo Folder Gluer (Jumbo Flexo Folder) as part of the Corrugated Container Manufacturing and Flexographic Printing Operations. This application is requesting incorporation of this unit into the operating permit. The application contains a facility and project description, regulatory applicability analysis, applicable forms, and facility maps.

For any questions relating to this application, please reach out to Meghan Skemp at ALL4 at 281-937-7553x307 or mskemp@all4inc.com.

Sincerely,
ALL4 LLC

Meghan Skemp
Senior Managing Consultant

cc: Knoxville Environmental Field Office
Mike Thompson (IP Morristown)
Glenn Rives (IP Morristown)

CONDITIONAL MAJOR NON-TITLE V OPERATING PERMIT APPLICATION

INTERNATIONAL PAPER – MORRISTOWN FACILITY

SEPTEMBER 2022

Submitted by:

Submitted to:



International Paper
5032 S. Davy Crockett Parkway
Morristown, TN 37813

Tennessee Department of Environment & Conservation
312 Rosa L Parks Ave.
Nashville, TN 37243



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

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1. INTRODUCTION

International Paper (IP) owns and operates a container facility located at 5032 South Davy Crockett Parkway in Hamblen County, Morristown, TN (Facility). The Facility currently operates pursuant to Tennessee Department of Environment and Conservation (TDEC) Conditional Major Operating Permit No. 479994, with an initial issuance date of June 21, 2022.

Under construction permit 979323, issued on April 22, 2022, the Facility installed a Latitude Machinery Corporation 89" Three-Color Die Cutter Flexo Folder Gluer (Jumbo Flexo Folder) as part of the Corrugated Container Manufacturing and Flexographic Printing Operations. Additionally, the Facility removed one of the 86" Three-Color Printer Slotters (Source Number 32-0028-05) and one of the Jumbo Folder Gluers (Source Number 32-0028-10). This application serves as the operating permit application for the new Jumbo Flexo Folder. The Jumbo Flexo Folder was installed on August 10, 2022 and initial startup commenced on August 15, 2022, so this application is being provided within the 30 day window required by TDEC.

1.1 APPLICATION ORGANIZATION

IP has prepared this permit application in accordance with the TDEC operating permit application requirements, using the following format:

- **Section 1 – Introduction** – provides an introduction to the project and application.
- **Section 2 – Project Overview** – provides an overview of the Facility’s current configuration and operations as well as a description of the Jumbo Flexo Folder.
- **Section 3 – Potential to Emit Inventory** – contains a PTE emissions inventory for the Facility’s emissions units. Documentation describing the emissions estimation methods and the basis for the emissions rate calculations are provided in Appendix B.
- **Section 4 – Regulatory Requirements** – contains an analysis of the U.S. Environmental Protection Agency (U.S. EPA) and Tennessee air quality rules that are potentially applicable to the Jumbo Flexo Folder and to the Facility. This section includes a discussion of the applicability or non-applicability of each rule identified.
- **Appendix A – TDEC Permit Application Forms** – contains the applicable TDEC application forms for the operation of the Jumbo Flexo Folder.
- **Appendix B – PTE Emissions Inventory** – contains a summary of Facility-wide emissions and detailed emissions calculations of printing operations before and after the completion of this project.
- **Appendix C – Plot Plan** – contains a plot plan of the Facility.
- **Appendix D – Process Flow Diagram** – contains a process flow diagram (PFD) of the printing operations and additional pollutant emitting equipment.
- **Appendix E – Facility Map** – contains a site location map of the Facility.

1.2 FACILITY LOCATION AND JURISDICTION

The Facility is located in the city of Morristown, Hamblen County, Tennessee which is in the Eastern Tennessee-Southwestern Virginia Interstate Air Quality Control Region (AQCR) pursuant to 40 CFR §81.57. Within this AQCR, Hamblen County is in attainment or unclassifiable/attainment for all criteria pollutants, as designated in 40 CFR §81.343. A Facility site location map is included as Appendix E. The Facility is under the jurisdiction of the following State and Federal Agencies:

**Tennessee Department of Environment
and Conservation
Air Pollution Control Board
312 Rosa L. Parks Ave.
Nashville, TN 37243**

**United States Environmental Protection
Agency – Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303**

1.3 PROCESS DESCRIPTION

The Facility converts raw materials into corrugated boxes and boards. The Facility operates a number of emissions units detailed in the PFD in Appendix D, Figures D-1 and D-2 and the following paragraphs with their corresponding Source Numbers.

The Facility produces its own starch adhesive by mixing process water, resin, and starch. The starch is received in bulk and blown to a Starch Silo equipped with a bin vent filter. Additionally, the Facility receives paper rolls produced elsewhere as a raw material. The rolls and starch adhesive are fed in a continuous operation through a process unit referred to as a Corrugator.

The Corrugator forms a three-layered corrugated web which is held together with the starch-based adhesive. The corrugated web is trimmed, cut into sheets, and stacked. The corrugated sheets are either shipped to customers or routed through additional converting operations within the Facility. Additional converting operations may involve scoring, slitting, slotting, die cutting, printing, gluing, and/or folding – depending on customer specifications.

The Facility utilizes flexographic printing operations (Source Group ID: 32-0028-10) to perform the printing and converting operations to produce the final products of flat boards and boxes. The printing operations will include one 86" Three-Color Printer Slotter (32-0028-05), one 66" Two-Color Printer Slotter (32-0028-07), one Jumbo Folder Gluer (32-0028-10), one Two-Color Die Cutter (32-0028-09), and one Jumbo Flexo Folder. These machines fold, apply ink, glue, and make additional cuts to the corrugated sheets, converting them into boxes. Unlike the Corrugator which uses the starch-based adhesive, these converting operations use purchased adhesives in the gluing operations. The sheets that are sent to the Die Cutter undergo a similar converting process to the Jumbo Folder Gluer. However, the product from the Die Cutter is not converted into boxes using the adhesive processes. Instead, the sheets are converted into flat boards. The finished boxes and boards are banded and prepared for shipping as final product.

Additionally, the Facility operates two Waste Paper Collection Cyclones (32-0028-03 and 32-0028-04). The Cyclones collect corrugated scrap consisting of paper, paper dust, and mechanically shredded corrugated sheets. The scrap is pneumatically conveyed using a large

blower. The corrugated scrap rapidly loses momentum when hitting the inner side of the cyclone walls and then drop downwards towards a rectangular chute. The corrugated scrap is then transferred to the baler. Some paper dust can be carried out of the Cyclone by the exhaust air.

Additional ancillary equipment is operated at the Facility, including four small natural gas-fired space heaters. A single natural gas-fired high-pressure boiler (32-0028-01) generates steam for process use and heating at the Starch Silo. There is also a parts washer that is periodically used to clean parts from process units. Process water, which comes from cleaning the Corrugator and the flexographic printing operations, is drained and pumped to a wastewater treatment area. The wastewater does not contain any volatile organic compounds (VOC). All VOC emissions from ink and adhesive application are accounted for in the printing and adhesive processes and not emitted during cleaning. The parts washer and space heaters are considered insignificant and exempt from permitting per Tennessee Air Pollution Control Regulations Chapter 1200-03-09-.04.

2. PROJECT OVERVIEW

The Facility is proposing to operate the newly constructed Jumbo Flexo Folder as part of the Corrugated Container Manufacturing and Flexographic Printing Operations (Project). The Jumbo Flexo Folder was installed on August 10, 2022, and initial startup commenced on August 15, 2022. The Facility proposes that 32-0028-11 will be the corresponding Source Number for the Jumbo Flexo Folder. The Jumbo Flexo Folder (32-0028-11) folds, applies ink, glues, and performs additional cuts onto the sheets, converting them into boxes. The Facility permanently decommissioned one of the two 86" Three-Color Printer Slotters (32-0028-05) and one of the two Jumbo Folder Gluers (32-0028-10).

Table 2-1 summarizes the emissions current units at the Facility as of August 2022.

**Table 2-1
List of Emissions Units**

Source Group ID	Source Number	Emissions Unit Description
Source 01	32-0028-01	One 750 hp High Pressure Boiler
Source 10	32-0028-03	Waste Paper Collection Cyclone
	32-0028-04	Waste Paper Collection Cyclone
	32-0028-05	One 86" Three-Color Printer Slotter
	32-0028-07	One 66" Two-Color Printer Slotter
	32-0028-09	One Two-Color Die Cutter
	32-0028-10	One Jumbo Folder Gluer
	32-0028-11	Jumbo Flexo Folder (New)

3. POTENTIAL TO EMIT INVENTORY

The Facility proposes to remain a conditional major source with federally enforceable facility-wide emissions limits of 10.0 tons per month of VOC, 98.9 tons/year (tpy) of VOC, 9.9 tpy of any individual hazardous air pollutant (HAP), and 24.9 tpy of combined total HAP. The Facility will comply with these emissions limitations on a consecutive 12-month rolling total basis. Appendix B includes a facility-wide potential to emit (PTE) emissions rates summary, which includes the pre-project potential emissions and the changes to the flexographic printing operations. Table B-1 of Appendix B summarizes the facility-wide PTE emissions before and after the project. There is no change in VOC or HAP emitted from this Facility due to the addition of the Jumbo Flexo Folder.

PTE emissions rates for the pre-project printing operations including adhesive application, pH adjustor, and ink usage operations were estimated using the worst-case weight percentage of VOC, HAP, and pH adjustor for current materials and the maximum annual usage of ink and adhesive. The pre-project PTE emissions rates for the printing and adhesive operations are included in Table B-2 of Appendix B.

As demonstrated in Table B-3 the post-project facility-wide PTE emissions rates remain below the Title V major source threshold. The Facility will continue to comply with the VOC and HAP emissions limits to be classified as a conditional major source in the same manner as before the installation of the Jumbo Flexo Folder.

4. REGULATORY REQUIREMENTS

The Morristown Facility has reviewed the Federal and State of Tennessee air quality regulations for potentially applicable requirements. The following sections address regulations which could potentially be applicable due to this Project and that may have become applicable since the last Conditional Major Operating Permit was issued.

4.1.1 Federal Regulations

For the purpose of this application, potentially applicable Federal regulations are defined as:

- New Source Review (NSR)
- New Source Performance Standards (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)
- Compliance Assurance Monitoring (CAM)
- Chemical Accident Prevention Provisions

A discussion of each Federal requirement is addressed in the subsections below.

4.1.2 New Source Review

The Federal NSR program is codified in 40 CFR §§51.165, 51.166, 52.21, 52.24, and 40 CFR Part 51, Appendix S. NSR requirements potentially apply to all new stationary sources and modifications to these stationary sources. Within the NSR program, major stationary sources may need to be evaluated under the Nonattainment New Source Review (NNSR) provisions in areas designated as nonattainment with one or more National Ambient Air Quality Standards (NAAQS) or under the Prevention of Significant Deterioration (PSD) provisions in areas designated as in attainment or unclassifiable with the NAAQS. The Facility is located in Hamblen County. The current attainment status designation of this county, as identified in 40 CFR §81.343, is classified as better than national standards for all NAAQS. The Facility is currently classified as a minor source under the NSR program and will not meet the major source requirements with this project. Therefore, the Facility is not subject to NSR permitting regulations and will continue to comply with these regulations.

4.1.3 Standards of Performance for New Stationary Sources

U.S. EPA has promulgated standards of performance for specific sources of air pollution at 40 CFR Part 60, Subparts A through UUUU (referred to as New Source Performance Standards, or NSPS). The Facility operates a 750 horsepower (hp) natural gas-fired boiler that is considered a “new” unit because it was constructed after June 1989, and is, therefore, regulated by 40 CFR Part 60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units).

The Facility will continue to comply with all applicable Subpart Dc requirements including the fuel recordkeeping requirements. There are no additional proposed or promulgated NSPS requirements that apply to the Facility.

4.1.4 National Emission Standards for Hazardous Air Pollutants

NESHAP promulgated prior to the Clean Air Act Amendments (CAAA) of 1990, found at 40 CFR Part 61, apply to specific compounds emitted from certain listed processes.

40 CFR Part 61, Subpart M applies to facilities containing asbestos or asbestos-containing material. The Facility does not handle or use asbestos as part of its manufacturing process, nor does the project involve demolition or renovation activities involving the potential for friable asbestos materials. Furthermore, the Facility is not subject to any Part 61 requirements, and there are no proposed or promulgated Part 61 requirements triggered by this application.

Pursuant to the CAAA of 1990, process-specific NESHAP are promulgated in 40 CFR Part 63. The 40 CFR Part 63 NESHAP, referred to as Maximum Achievable Control Technology (MACT) standards, apply to certain identified source categories that are considered area sources or major sources of HAP. A major source of HAP is defined as a source with a facility-wide single HAP PTE of 10 tpy or more, or with a facility-wide total HAP PTE of 25 tpy or more. The Facility is an area source of HAP. An area source of HAP is a source that emits HAP but does not qualify as a major source.

Printing operations at the Facility are not subject to the requirements of 40 CFR Part 63, Subpart KK (National Emission Standards for the Printing and Publishing Industry) because the potential to emit HAP from the Facility is less than 10 tpy of any single HAP, or 25 tpy of total HAP. Similarly, the printing operations are not subject to 40 CFR Part 63, Subpart JJJJ (National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating) because the ink application does not meet the definition of a coating.

4.1.5 Compliance Assurance Monitoring

40 CFR Part 64 contains CAM requirements for applicable emissions units. This rule provides reasonable assurance that an emissions unit is in continuous compliance with applicable requirements for certain emissions units located at major sources subject to Title V permitting. 40 CFR Part 64 is not applicable because the Facility is not a Title V source.

4.1.6 Chemical Accident Prevention Provisions

The Facility is not subject to 40 CFR Part 68 because the Facility does not contain any substances above the threshold quantity from Table 1 in 40 CFR §68.130.

4.2 STATE OF TENNESSEE AIR POLLUTION CONTROL REGULATIONS

The following subsections briefly describe the sections of the Tennessee Air Pollution Control Regulations that may be applicable to the new and existing emissions units. Chapter 1200-03 implements the provisions of the Tennessee Air Quality Act. Chapters 1200-03-01 and 1200-03-02 contain general provisions and definitions, respectively, which apply to all emissions units. These two chapters are not discussed in detail in this permit application. A discussion of each State requirement is addressed in the subsections below.

4.2.1 Ambient Air Quality Standards, Chapter 1200-03-03

The Facility will continue to meet the Tennessee ambient air quality standards as described in the rule.

4.2.2 Visible Emissions Regulations, Chapter 1200-03-05

All emissions units at the Facility are subject to the Visible Emissions requirements of Chapter 1200-03-05. Visible emissions of all emissions units, including the Jumbo Flexo Folder, shall not exceed 20 percent for an aggregate of more than five minutes in any one hour, or more than 20 minutes in any 24-hour period.

4.2.3 Non-Process Emission Standards, Chapter 1200-03-06

The boiler is subject to emissions standards under Chapter 1200-03-.02 for particulate matter (PM) and Chapter 1200-03-06-.03 for nitrogen oxides (NO_x) and carbon monoxide (CO). The Facility will continue to comply with these standards.

4.2.4 Process Emission Standards, Chapter 1200-03-07

The Corrugated Container Manufacturing and Flexographic Printing Operation is subject to an emissions standard under Chapter 1200-03-07 for PM and will continue to be subject to this rule and will continue to comply with the Chapter 1200-03-07 conditions stated in the permit.

4.2.5 Fugitive Dust, Chapter 1200-03-08

The purpose of this rule is to ensure that reasonable precautions to prevent fugitive PM from becoming airborne are taken during the use of any roadway or during the handling, transportation, or storage of any materials.

Visible emissions of fugitive dust are not permitted beyond the property line of the Facility for more than five minutes per hour or 20 minutes per day. The Facility will continue to use good manufacturing practices to minimize fugitive emissions. Additionally, the Facility operates a series of cyclones that accept scrap corrugated material and bale it for sale. This process unit inherently reduces fugitive dust. The Facility will continue to comply with the provisions of this regulation.

4.2.6 Construction and Operating Permits, Chapter 1200-03-09

Chapter 1200-03-09 establishes procedures for obtaining construction and operating permits for new and modified emissions sources. TDEC's permitting rules include the requirements of the Federal PSD program because the State has been delegated the authority to implement its PSD program. This operating permit application package satisfies the requirements of this chapter by documenting project-related emissions and determining PSD applicability.

4.2.7 Required Sampling, Recording, and Reporting, Chapter 1200-03-10

This chapter describes the sampling facilities required for performing emissions measurements for new and existing emissions units, and requirements for those emissions units required to install and operate continuous monitoring systems. The regulation states that sampling can be requested by the Technical Secretary but does not require periodic sampling for existing facilities. Additionally, monitoring is not required unless requested by the Technical Secretary for the sources. The Facility currently complies, and will continue to comply, with the provisions of this regulation. The installation of the Jumbo Flexo Folder will not trigger any new requirements under this chapter because the Corrugated Container Manufacturing and Flexographic Printing Operation is already subject to these requirements.

4.2.8 Control of Sulfur Dioxide Emissions, Chapter 1200-03-14

The purpose of this chapter is to establish emissions limits for sulfur dioxide (SO₂) emissions for process and non-process emissions units. The boiler is subject to an SO₂ emissions limit under this chapter and will continue to comply with this limit.

4.2.9 New Source Performance Standards, Chapter 1200-03-16

TDEC has incorporated the Federal NSPS promulgated by U.S. EPA at 40 CFR Part 60. As discussed in Section 4.1.2, the boiler is subject to 40 CFR Part 60, Subpart Dc and will continue to comply with the applicable requirements.

4.2.10 Non-Applicable Standards

The remaining sections not previously addressed were considered not to be applicable. Table 4-2 summarizes the reasoning for non-applicability.

**Table 4-2
Non-Applicable Regulations**

Regulation	Reason for Non-Applicability
Chapter 1200-03-04 Open Burning	The Morristown Facility does not perform open burning where products are combusted and emitted directly to the atmosphere without passing through a stack.
Chapter 1200-03-11 Hazardous Air Contaminants	The Morristown Facility is not one of the named stationary source categories regulated by the provisions of this chapter.
Chapter 1200-03-18 Volatile Organic Compounds	The Morristown Facility is located in Hamblen County, which is not one of the named counties subject to the provisions of this chapter. The potential emissions of VOC from the Facility is also less than the 100 tpy threshold for various sections of this chapter that could potentially apply to facilities in other counties.

**APPENDIX A -
TDEC PERMIT APPLICATION FORMS**



DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor, Nashville, TN 37243
Telephone: (615) 532-0554, Email: Air.Pollution.Control@TN.gov

APC 101

NON-TITLE V PERMIT APPLICATION
EMISSION POINT DESCRIPTION

Type or print and submit for each stack or air contaminant source. Submit with the APC 100.					
GENERAL IDENTIFICATION AND DESCRIPTION					
1. Organization's legal name and SOS control number [as registered with the TN Secretary of State (SOS)] International Paper Company (000038672)					
2. Unique Source ID (name/number/letter which uniquely identifies this air contaminant source, like Boiler #1) 32-0028-11					
3. Unique Emission Point ID (name/number/letter which uniquely identifies this emission point, like Stack #1) 32-0028-11					
4. Brief description of air contaminant source (Attach a diagram if appropriate): The existing printing operations, which include two cyclones and four printing machines (e.g.; flexo folder gluers, die cutter, etc), and the new jumbo flexo folder gluer will emit Volatile Organic Compounds and Hazardous Air Pollutants.					
5. Emission point location	Latitude 36.148867	Longitude -83.279097	6. Distance to nearest property line (Ft.) 260 ft		
STACK AND EMISSION DATA					
7. Stack or emission point data: →	Height above grade (Ft.) N/A - Fugitive	Diameter (Ft.) N/A	Temperature (°F) N/A	% of time over 125°F N/A	Direction of exit (Up, down or horizontal) N/A
Data at exit conditions: →	Flow (actual Ft. ³ /Min.) N/A	Velocity (Ft. /Sec.) N/A	Moisture (Grains/Ft. ³) N/A		Moisture (Percent) N/A
Data at standard conditions: →	Flow (Dry std. Ft. ³ /Min.) N/A	Velocity (Ft. /Sec.) N/A	Moisture (Grains/Ft. ³) N/A		Moisture (Percent) N/A
8. Monitoring device and recording instrument (check all that apply):					
Opacity monitor <input type="checkbox"/>	SO ₂ monitor <input type="checkbox"/>	NO _x monitor <input type="checkbox"/>	Strip chart <input type="checkbox"/>	Electronic data logger <input type="checkbox"/>	Other (specify in comments) <input type="checkbox"/>
					No monitor (none) <input checked="" type="checkbox"/>
9. Control device. Description of proposed monitoring, recordkeeping, and reporting to assure compliance with emission limits. Include operating parameters of control device (flow rate, temperature, pressure drop, etc.). N/A					

10. Air contaminants. Emission estimates for each air contaminant emitted from this point should be based on stack sampling results or engineering calculations. Calculations should be attached on a separate sheet. (see instructions for more details)

Air contaminants	Average Emissions (Lbs./Hr.)	Maximum Emissions (Lbs./Hr.)	Concentration	Average Emissions (Ton/Yr.)	Potential Emissions (Ton/Yr.)	Emissions Estimation Method Code *	Control Devices *	Control Efficiency %
Particulate matter (PM)			**					
Sulfur dioxide (SO ₂)			***					
Carbon monoxide (CO)			PPM					
Volatile organic compounds (VOC)			PPM		7.74			
Nitrogen oxides (NO _x)			PPM					
Hydrogen fluoride (HF)								
Hydrogen chloride (HCl)								
Lead (Pb)								
Greenhouse gases (CO ₂ equivalents)								
Hazardous air pollutant (specify) Combined HAP					3.05			
Hazardous air pollutant (specify)								
Hazardous air pollutant (specify)								
Hazardous air pollutant (specify)								
Hazardous air pollutant (specify)								
Other (specify)								
Other (specify)								
Other (specify)								
Other (specify)								

11. Comments

Potential Emissions were calculated as a combination of all printing operations (Unique Source IDs: 32-0028-05, 32-0028-07, 32-0028-09, 32-0028-10, and 32-0028-11).

SIGNATURE

If this form is being submitted at the same time as an APC 100 form, then a signature is not required on this form. Date this form regardless of whether a signature is provided. If this form is NOT being submitted at the same time as an APC 100 form, then a signature is required.

Based upon information and belief formed after a reasonable inquiry, I, as the responsible person of the above mentioned facility, certify that the information contained in this application is accurate and true to the best of my knowledge. As specified in TCA Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

12. Signature**Date****Signer's name** (type or print)**Title****Phone number with area code**

Mike Thompson

General Manager

423-318-1201

- * Refer to the tables in the instructions for estimation method and control device codes.
- ** Exit gas particulate matter concentration units: Process – Grains/Dry Standard Ft³ (70°F), Wood fired boilers - Grains/Dry Standard Ft³ (70°F), all other boilers – Lbs. /Million BTU heat input.
- *** Exit gas sulfur dioxide concentrations units: Process – PPM by volume, dry bases, and boilers – Lbs. /Million BTU heat input



DEPARTMENT OF ENVIRONMENT AND CONSERVATION
 DIVISION OF AIR POLLUTION CONTROL
 William R. Snodgrass Tennessee Tower
 312 Rosa L. Parks Avenue, 15th Floor, Nashville, TN 37243
 Telephone: (615) 532-0554, Email: Air.Pollution.Control@TN.gov

APC 102

**NON-TITLE V PERMIT APPLICATION
 PROCESS OR FUEL BURNING SOURCE DESCRIPTION**

Type or print. Submit with the APC 100.			
GENERAL IDENTIFICATION AND DESCRIPTION			
1. Organization's legal name and SOS control number [as registered with the TN Secretary of State (SOS)] International Paper Company (000038672)			2. Emission Source Reference Number 32-0028-11
3. Is this air contaminant source subject to an NSPS or NESHAP rule? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list rule citation, including Part, Subpart, and applicable Sections:			
4. Unique Source ID (see instructions) 32-0028-11		5. Unique Emission Point ID (see instructions) 32-0028-11	
6. Description of air contaminant source The existing printing operations, which include two cyclones and four printing machines (e.g.; flexo folder gluers, die cutter, etc), and the new jumbo flexo folder gluer will emit Volatile Organic Compounds and Hazardous Air Pollutants.			
7. Type of air contaminant source (Check only one option to the right)			
Process Emission Source: For each process emission source, submit a separate application. (Check at right and complete lines 8, 9, and 14)			<input checked="" type="checkbox"/>
Process Emission Source with in process fuel: Products of combustion contact materials heated. For each process emission source, submit a separate application. (Check at right and complete lines 8 through 14)			<input type="checkbox"/>
Non-Process fuel burning source: Products of combustion do not contact materials heated. Complete this form for each boiler or fuel burner and complete a Non-Title V Emission Point Description Form (APC 101) for each stack. (Check at right and complete lines 10 through 14)			<input type="checkbox"/>
PROCESS EMISSION SOURCE DESCRIPTION AND DATA			
8. Type of operation: Continuous <input checked="" type="checkbox"/> Batch <input type="checkbox"/>		Normal batch time	Normal batches/day
9. Process material inputs and In-process solid fuels	Diagram reference	Input rates (pounds/hour)	
		Design	Actual
A. Ink	Appendix D	45.21	
B. Adhesives	Appendix D	18.08	
C. Corrugated Liner Board	Appendix D	125 Msf	
D.			
E.			
F.			
G.			
Totals			

* A simple process flow diagram must be attached.

DESCRIPTION OF BOILER, BURNER, ENGINE, OR OTHER FUEL BURNING SOURCE							
10. Boiler or burner data: (Complete lines 10 through 14 using a separate form for each boiler, burner, etc.)							
Serial Number				Type of firing***			
Rated horsepower		Rated input capacity (10 ⁶ BTU/Hr.)		Other rating (specify capacity and units)			
Date constructed		Date manufactured		Date of last modification (explain in comments below)			
** Source with a common stack will have the same stack number. *** Cyclone, spreader (with or without reinjection), pulverized (wet or dry bottom, with or without reinjection), other stoker (specify type, hand fired, automatic, or other type (describe below in comments).							
FUEL USED IN BOILER, BURNER, ENGINE, OR OTHER FUEL BURNING SOURCE							
11. Fuel data: (Complete for a process emission source with in process fuel or a non-process fuel burning source)							
Primary fuel type (specify)				Standby fuel type(s) (specify)			
Fuels used	Annual usage	Hourly usage		% Sulfur	% Ash	BTU value of fuel	(For APC use only) SCC code
		Design	Average				
Natural gas:	10 ⁶ Cu. Ft.	Cu. Ft.	Cu. Ft.	//////// ////////	//// ////	1,000	
#2 Fuel oil:	10 ³ Gal.	Gal.	Gal.		//// ////		
#5 Fuel oil:	10 ³ Gal.	Gal.	Gal.		//// ////		
#6 Fuel oil:	10 ³ Gal.	Gal.	Gal.		//// ////		
Coal:	Tons	Lbs.	Lbs.				
Wood:	Tons	Lbs.	Lbs.	//////// ////////	//// ////		
Liquid propane:	10 ³ Gal.	Gal.	Gal.	//////// ////////	//// ////	85,000	
Other (specify type & units):							
12. If Wood is used as a fuel, specify types and estimate percent by weight of bark							
13. If Wood is used with other fuels, specify percent by weight of wood charged to the burner.							

14. Comments**SIGNATURE**

If this form is being submitted at the same time as an APC 100 form, then a signature is not required on this form. Date this form regardless of whether a signature is provided. If this form is NOT being submitted at the same time as an APC 100 form, then a signature is required.

Based upon information and belief formed after a reasonable inquiry, I, as the responsible person of the above mentioned facility, certify that the information contained in this application is accurate and true to the best of my knowledge. As specified in TCA Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

15. Signature**Date****Signer's name** (type or print)**Title****Phone number with area code**

**APPENDIX B -
PTE EMISSIONS INVENTORY**

Table B-1
Potential Emissions Summary
International Paper Morristown Facility - Morristown, TN

Source	PM ^(a)	PM ₁₀ ^(a)	PM _{2.5} ^(a)	NO _x	SO ₂	CO	Lead	CO ₂ e	VOC	HAP ^(b)
	Tons per Year (tpy)									
Significant Emissions Units										
Printing Operations (Before Project)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.88	3.10
Printing Operations (After Project)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.74	3.05
Cyclones	43.25	43.25	43.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750 HP Boiler (natural gas with backup fuel oil)	3.30	3.30	3.30	20.74	39.17	19.12	2.75	35,789	1.38	0.39
Corrugator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.59	2.92
Insignificant Emissions Units ^(c)										
Starch Silo	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Parts Washer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00
Heaters	0.03	0.03	0.03	0.43	2.58E-03	0.36	2.15E-06	518.36	0.02	8.11E-03
PTE Summary										
Current Potential Emissions	46.80	46.80	46.80	21.17	39.17	19.48	2.75	36,307	12.15	6.42
Post Project Potential Emissions	46.80	46.80	46.80	21.17	39.17	19.48	2.75	36,307	12.01	6.37
NSR Major Source Threshold	100	100	100	100	100	100	100	100,000	100	25
Less than Major Source Threshold?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

^(a) International Paper Morristown conservatively assumes PM=PM₁₀=PM_{2.5}. Natural gas boiler and space heater PM emissions are the sum of filterable and condensable emissions. PM emissions for all other sources are filterable.

^(b) The sum of all hazardous air pollutants (HAP) as defined by Section 112(b) of the Clean Air Act. The highest individual HAP potential to emit is less than 10 tpy.

^(c) The starch silo, maintenance parts washer, and the heaters are insignificant emissions units per Tennessee Air Pollution Control Regulations Chapter 1200-03-09-.04. Their emissions are included in the facility-wide PTE for completeness purposes, but they are not included as emissions sources in this Application.

Table B-2
Pre-Project Printing Operations Potential Emissions ^(a)
International Paper Morristown Facility - Morristown, TN

Material	Maximum Ink Application Rate ^(c)	Units	Weight % Volatiles ^{(d),(e)}	Weight % HAP ^(e)	Potential Emissions			
					VOC		HAP	
					(lb/hr)	(tpy)	(lb/hr)	(tpy)
Ink	2.5	lb/MMin ²	2.84%	1.54%	1.31	5.73	0.71	3.10
pH Adjuster	2.5	lb/MMin ²	25.00%	0.00%	0.21	0.91	0.00	0.00
Adhesives	1	lb/MMin ²	1.54%	0.00%	0.28	1.24	0.00	0.00
Total					1.80	7.88	0.71	3.10

^(a) Printing Operations before the Project included two 86" Three-Color Printer Slotters, one 66" Two-Color Printer Slotter, two Jumbo Folder Gluers, and one Two-Color Die Cutter.

^(b) Based on maximum line speed with 100% coverage of ink, the following were used in the development of this table:

Parameter	Value
Maximum Paper Throughput (Msf/yr)	1,120,000
pH Adjuster Application (lb pH adjuster/1,000 lb ink applied) ^(f)	18
in ² /Msf	144,000
lb/ton	2,000
Operating Time (hour/yr)	8,760

^(c) Maximum ink application rate is based on all external box surfaces with approximately 100% coverage with print and graphics.

^(d) Weight % Volatiles of the pH adjuster is based on the Facility-provided safety data sheet.

^(e) Weight % VOC and HAP are based on worst case (highest) values of any ink used at the site which is based on vendor supplied compositions.

^(f) pH Adjuster Application based on pH adjuster usage from the 2020 ink inventory from a similar IP box converting facility.

Table B-3a
Post-Project Printing Operations Potential Emissions ^(a)
International Paper Morristown Facility - Morristown, TN

Material	Maximum Ink Application Rate ^(c)	Units	Weight % Volatiles ^{(d),(e)}	Weight % HAP ^(e)	Potential Emissions			
					VOC		HAP	
					(lb/hr)	(tpy)	(lb/hr)	(tpy)
Ink	2.5	lb/MMin ²	2.84%	1.54%	1.29	5.63	0.70	3.05
pH Adjuster	2.5	lb/MMin ²	25.00%	0.00%	0.20	0.89	0.00	0.00
Adhesives	1	lb/MMin ²	1.54%	0.00%	0.28	1.22	0.00	0.00
Total					1.77	7.74	0.70	3.05

^(a) Printing Operations after the Project include one 86" Three-Color Printer Slotter, one 66" Two-Color Printer Slotter, one Jumbo Folder Gluer, one Two-Color Die Cutter, and one Three-Color Jumbo Flexo Folder Press (LMC). The Facility removed one 86" Three-Color Printer Slotter and one Jumbo Folder Gluer and added the LMC for the Project.

^(b) Based on maximum line speed with 100% coverage of ink, the following were used in the development of this table:

Parameter	Value
Maximum Paper Throughput (Msf/yr)	1,100,000
pH Adjuster Application (lb pH adjuster/1,000 lb ink applied) ^(f)	18
ft ² /Msf	144,000
lb/ton	2,000
Operating Time (hour/yr)	8,760

^(c) Maximum ink application rate is based on all external box surfaces with approximately 100% coverage with print and graphics.

^(d) Weight % Volatiles of the pH adjuster is based on the Facility-provided safety data sheet.

^(e) Weight % VOC and HAP are based on worst case (highest) values of any ink used at the site which is based on vendor supplied compositions.

^(f) pH Adjuster Application based on pH adjuster usage from the 2020 ink inventory from a similar IP box converting facility.

Table B-3b
Jumbo Flexo Folder Potential Emissions
International Paper Morristown Facility - Morristown, TN

Material	Maximum Ink Application Rate ^(b)	Units	Weight % Volatiles ^{(c),(d)}	Weight % HAP ^(d)	Potential Emissions			
					VOC		HAP	
					(lb/hr)	(tpy)	(lb/hr)	(tpy)
Ink	2.5	lb/MMin ²	2.84%	1.54%	0.47	2.05	0.25	1.11
pH Adjuster	2.5	lb/MMin ²	25.00%	0.00%	0.07	0.32	0.00	0.00
Adhesives	1	lb/MMin ²	1.54%	0.00%	0.10	0.44	0.00	0.00
Total					0.64	2.82	0.25	1.11

^(a) Based on maximum line speed with 100% coverage of ink, the following were used in the development of this table:

Parameter	Value
Maximum Paper Throughput (Msf/yr)	400,000
pH Adjuster Application (lb pH adjuster/1,000 lb ink applied) ^(e)	18
in ² /Msf	144,000
lb/ton	2,000
Operating Time (hour/yr)	8,760

^(b) Maximum ink application rate is based on all external box surfaces with approximately 100% coverage with print and graphics.

^(c) Weight % Volatiles of the pH adjuster is based on the Facility-provided safety data sheet.

^(d) Weight % VOC and HAP are based on worst case (highest) values of any ink used at the site which is based on vendor supplied compositions.

^(e) pH Adjuster Application based on pH adjuster usage from the 2020 ink inventory from a similar IP box converting facility.

Table B-4
Cyclone Potential Emissions
International Paper Morristown Facility - Morristown, TN

Pollutant	Potential Emissions	
	(lb/hr) ^(c)	(tpy) ^(d)
PM/PM ₁₀ /PM _{2.5} ^(b)	16.10	43.25

^(a) Potential emissions rates were based on the parameters below:

Parameter	Value
Exhaust rate (cfm)	57,600
Number of cyclones	2
Grain Loading (gr/dscf)	0.01
Maximum short term baled material (lb/hr)	15,448.00
gr/lb	7,000
min/hr	60
lb/ton	2,000
hour/yr	8,760

^(b) Emissions calculations conservatively assume PM=PM₁₀=PM_{2.5}.

^(c) The hourly emissions rates were determined through the process weight rule as stated in Chapter 1200-03-07, Table 1. Interpolation of the data in the table for process weight rates up to 60,000 lb/hr shall follow this equation: $E = 4.10P^{0.67}$, where E = rate of emissions (lb/hr) and P = process weight rate (ton/hr).

^(d) The annual emissions rates were determined through conservatively assuming a grain loading value of 0.01 gr/dscf. The grain loading of the Cyclone Separator was provided by the manufacturer.

Table B-5a
750 HP Boiler Potential Emissions - Natural Gas
International Paper Morristown Facility - Morristown, TN

Pollutant	Emissions Factor (lb/MMscf)	Potential Emissions ^(a)	
		(lb/hr)	(tpy)
Criteria Pollutants ^(b)			
PM _{TOTAL} ^(c)	7.6	11.73	1.48
NO _X	50	2.22	9.74
SO ₂	0.6	0.03	0.12
CO	84	3.74	16.37
Lead	5.00E-04	2.22E-05	9.74E-05
VOC	5.5	0.24	1.07
N ₂ O	2.2	0.10	0.43
CO ₂	120,000	5,339	23,385
CH ₄	2.30	0.10	0.45
CO ₂ e	--	5,371	23,524
Hazardous Air Pollutants (HAP) ^(e)			
2-Methylnaphthalene	2.40E-05	1.07E-06	4.68E-06
3-Methylcholanthrene	1.80E-06	8.01E-08	3.51E-07
7,12-Dimethylbenz(a)anthracene	1.60E-05	7.12E-07	3.12E-06
Acenaphthene	1.80E-06	8.01E-08	3.51E-07
Acenaphthylene	1.80E-06	8.01E-08	3.51E-07
Anthracene	2.40E-06	1.07E-07	4.68E-07
Benz(a)anthracene	1.80E-06	8.01E-08	3.51E-07
Benzene	2.10E-03	9.34E-05	4.09E-04
Benzo(a)pyrene	1.20E-06	5.34E-08	2.34E-07
Benzo(b)fluoranthene	1.80E-06	8.01E-08	3.51E-07
Benzo(g,h,i)perylene	1.20E-06	5.34E-08	2.34E-07
Benzo(k)fluoranthene	1.80E-06	8.01E-08	3.51E-07
Chrysene	1.80E-06	8.01E-08	3.51E-07
Dibenzo(a,h)anthracene	1.20E-06	5.34E-08	2.34E-07
Dichlorobenzene	1.20E-03	5.34E-05	2.34E-04
Fluoranthene	3.00E-06	1.33E-07	5.85E-07
Fluorene	2.80E-06	1.25E-07	5.46E-07
Formaldehyde	7.50E-02	3.34E-03	0.01
Hexane	1.80E+00	0.08	0.35
Indeno(1,2,3-cd)pyrene	1.80E-06	8.01E-08	3.51E-07
Naphthalene	6.10E-04	2.71E-05	1.19E-04
Phenanthrene	1.70E-05	7.56E-07	3.31E-06
Pyrene	5.00E-06	2.22E-07	9.74E-07

Table B-5a
750 HP Boiler Potential Emissions - Natural Gas
International Paper Morristown Facility - Morristown, TN

Pollutant	Emissions Factor (lb/MMscf)	Potential Emissions ^(a)	
		(lb/hr)	(tpy)
Toluene	3.40E-03	1.51E-04	6.63E-04
Arsenic	2.00E-04	8.90E-06	3.90E-05
Barium	4.40E-03	1.96E-04	8.57E-04
Beryllium	1.20E-05	5.34E-07	2.34E-06
Cadmium	1.10E-03	4.89E-05	2.14E-04
Chromium	1.40E-03	6.23E-05	2.73E-04
Cobalt	8.40E-05	3.74E-06	1.64E-05
Copper	8.50E-04	3.78E-05	1.66E-04
Manganese	3.80E-04	1.69E-05	7.41E-05
Mercury	2.60E-04	1.16E-05	5.07E-05
Molybdenum	1.10E-03	4.89E-05	2.14E-04
Nickel	2.10E-03	9.34E-05	4.09E-04
Selenium	2.40E-05	1.07E-06	4.68E-06
Vanadium	2.30E-03	1.02E-04	4.48E-04
Zinc	2.90E-02	1.29E-03	5.65E-03
Total HAP		0.08	0.37

^(a) PTE rates based on parameters identified below.

Parameter	Value
Heat Input (MMBtu/hr)	45.38
Operating Time (hour/yr)	8,760
Btu/scf	1,020
Btu/MMBtu	1,000,000
lb/ton	2,000

^(b) Emissions factors are from U.S. EPA AP-42 Chapter 1.4 (July 1998), Tables 1.4-1 and 1.4-2.

^(c) Emissions calculations conservatively assume $PM = PM_{10} = PM_{2.5}$. Short term particulate is calculated using the total suspended particulate equation provided in TAPCR 1200-03-06.02(2) for non-process particulate emissions and provided below. The long term emissions are calculated using the emissions factors described in footnote (b).

$$E = 0.600 \left(\frac{10}{Q} \right)^{0.5566}$$

Where:

E = allowable particulate emissions in lb/MMBtu

Q = total heat input in MMBtu/hr

^(d) The carbon dioxide equivalent (CO₂e) PTE is based off the following factors from 40 CFR Part 98 Table A-1 to Subpart A of Part 98 Global Warming Potentials:

Pollutant	Global Warming Potential
CO ₂	1
CH ₄	25
N ₂ O	298

^(e) Emissions factors for HAP are from U.S. EPA AP-42 Chapter 1.4 (July 1998), Tables 1.4-3 and 1.4-4.

Table B-5b
750 HP Boiler Potential Emissions - Fuel Oil
International Paper Morristown Facility - Morristown, TN

Pollutant	Emissions Factor (lb/1000 gal)	Potential Emissions ^(a)	
		(lb/hr)	(tpy)
Criteria Pollutants ^(b)			
PM _{FIL} ^(c)	2	0.25	1.10
PM _{CON} ^(c)	1.3	0.16	0.72
PM _{TOTAL} ^(c)	N/A	0.41	1.82
NO _X	20	2.51	11.00
SO ₂	71	8.92	39.05
CO	5	0.63	2.75
VOC	0.556	0.07	0.31
CO ₂ e	22,300.00	2,800	12,265
Hazardous Air Pollutants (HAP) ^(b)			
Benzene	2.14E-04	2.69E-05	1.18E-04
Ethylbenzene	6.36E-05	7.99E-06	3.50E-05
Formaldehyde	3.30E-02	4.14E-03	0.02
Naphthalene	1.13E-03	1.42E-04	6.22E-04
1,1,1-Trichloroethane	2.36E-04	2.96E-05	1.30E-04
Toluene	6.20E-03	7.79E-04	3.41E-03
o-Xylene	1.09E-04	1.37E-05	6.00E-05
Acenaphthene	2.11E-05	2.65E-06	1.16E-05
Acenaphthylene	2.53E-07	3.18E-08	1.39E-07
Anthracene	1.22E-06	1.53E-07	6.71E-07
Benz(a)anthracene	4.01E-06	5.04E-07	2.21E-06
Benzo(b,k)fluoranthene	1.48E-06	1.86E-07	8.14E-07
Benzo(g,h,i)perylene	2.26E-06	2.84E-07	1.24E-06
Chrysene	2.38E-06	2.99E-07	1.31E-06
Dibenzo(a,h)anthracene	1.67E-06	2.10E-07	9.19E-07
Fluoranthene	4.84E-06	6.08E-07	2.66E-06
Fluorene	4.47E-06	5.61E-07	2.46E-06
Indo(1,2,3-cd)pyrene	2.14E-06	2.69E-07	1.18E-06
Phenanthrene	1.05E-05	1.32E-06	5.78E-06
Pyrene	4.25E-06	5.34E-07	2.34E-06
OCDD	3.10E-09	3.89E-10	1.71E-09
Total HAP		5.15E-03	0.02

Table B-5b
750 HP Boiler Potential Emissions - Fuel Oil
International Paper Morristown Facility - Morristown, TN

^(a) PTE rates based on parameters identified below.

Parameter	Value
Max Fuel Oil Fired (gal)	1,100,000
Fuel Oil Wt. % Sulfur	0.5
Operating Time (hour/yr)	8,760
lb/ton	2,000

^(b) Emissions factors are from U.S. EPA AP-42 Chapter 1.3 (May 2010), Tables 1.3-1, 1.3-2, 1.3-9, and 1.3-12.

^(c) Emissions calculations conservatively assume PM=PM₁₀=PM_{2.5}.

Table B-6
Corrugator Potential Emissions
International Paper Morristown Facility - Morristown, TN

Pollutant	Emissions Factor ^(b) (lb/Msf)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
VOC (as Carbon)	4.70E-03	0.59	2.59
HAP	5.31E-03	0.67	2.92

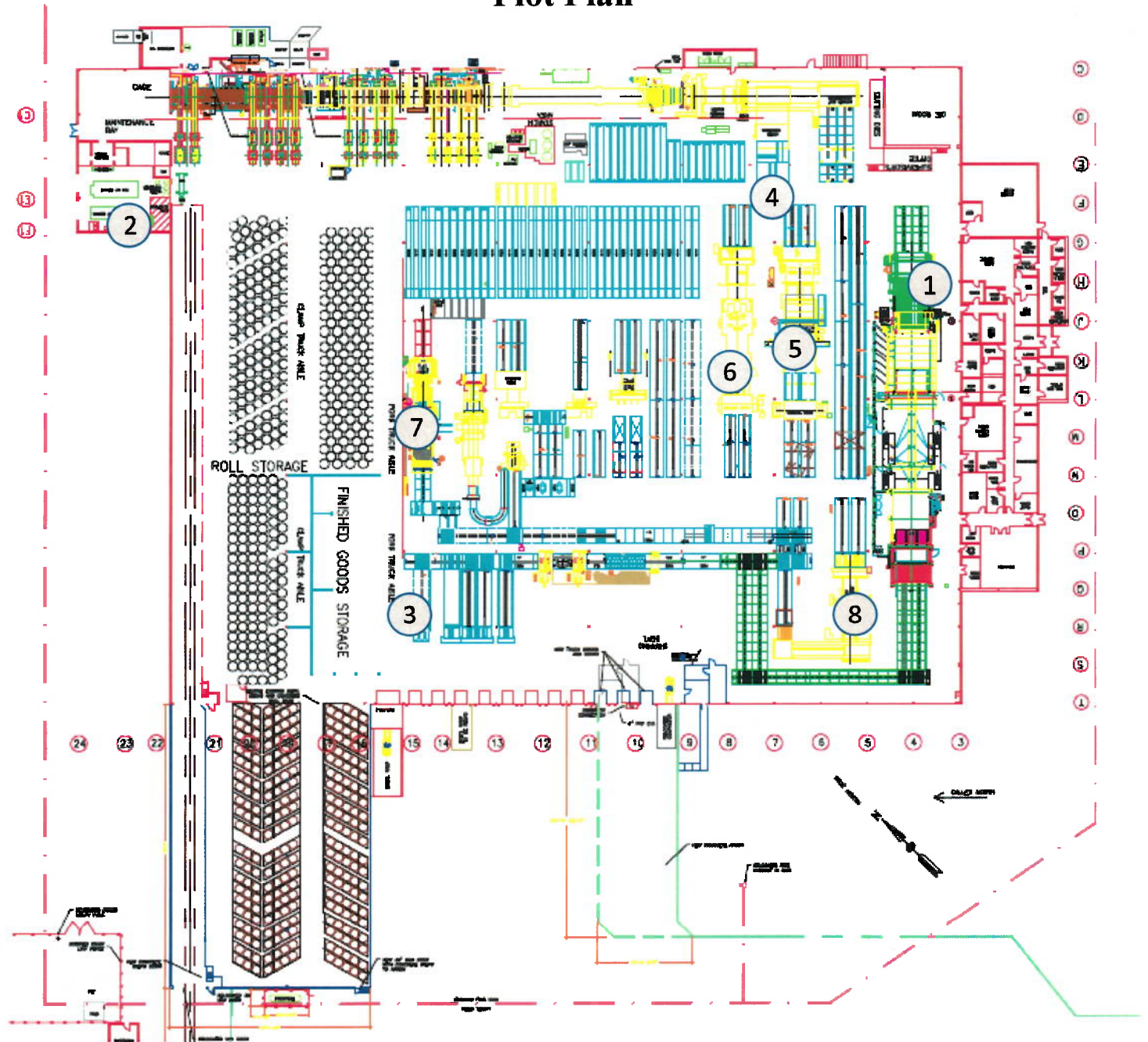
^(a) Based on maximum paper throughput capacity, the following were used in development of this table:

Parameter	Value
Maximum Paper Throughput (Msf/yr)	1,100,000
lb/ton	2,000
Operating Time (hour/yr)	8,760

^(b) Emissions factors are derived from the May 2018 emissions testing by National Council for Air and Stream Improvement, Inc. (NCASI) at a similar IP box converting facility.

**APPENDIX C -
PLOT PLAN**

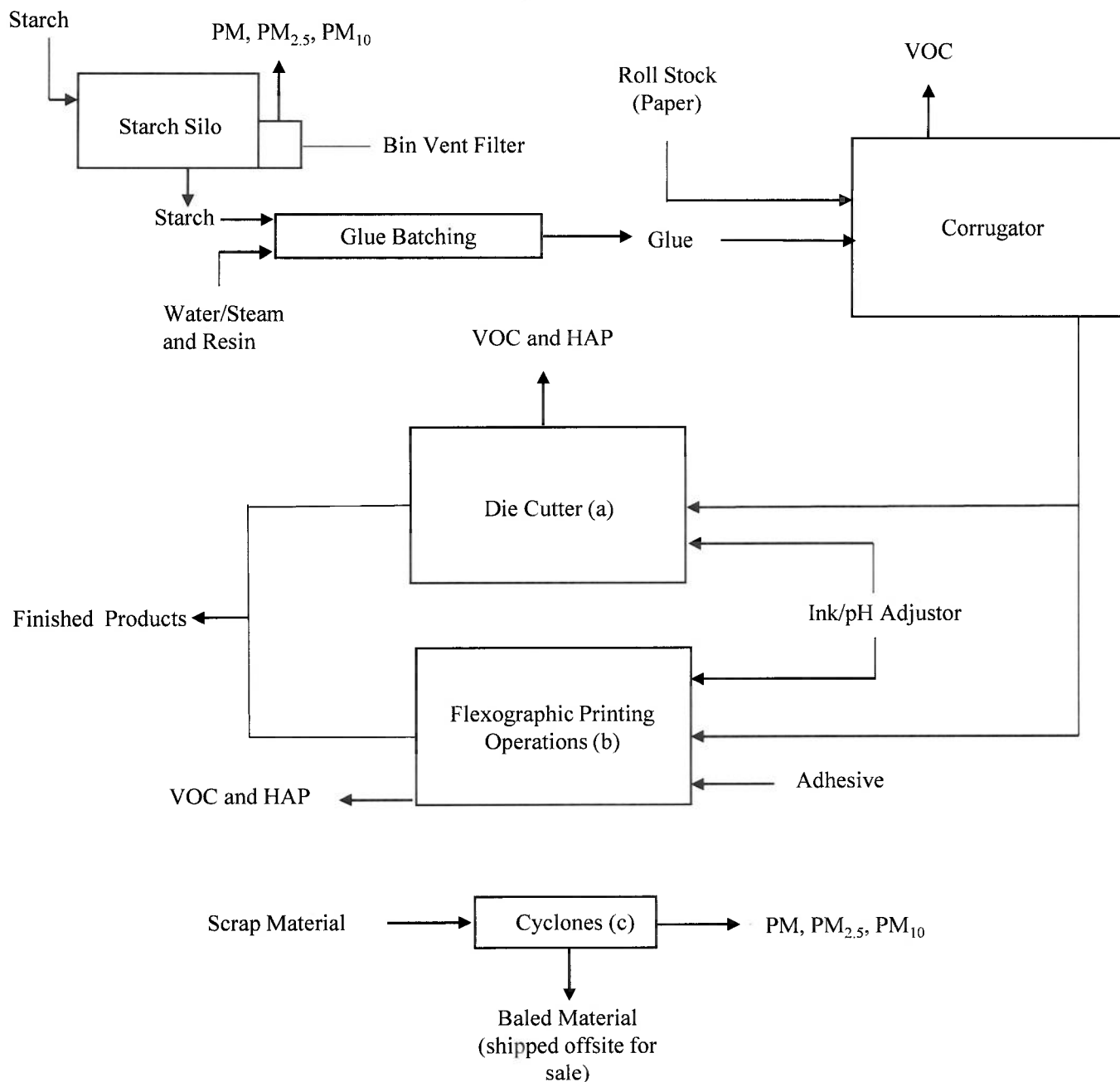
**Figure C-1
Plot Plan**



1. 89" Three-Color Die Cutter Flexo Folder Gluer (Source Number: 32-0028-11)
2. 750 hp High Pressure Boiler (Source Number: 32-0028-01)
3. Waste Paper Collection Cyclone (Source Number: 32-0028-03)
4. Waste Paper Collection Cyclone (Source Number: 32-0028-04)
5. 86" Three-Color Printer Slotters (Source Number : 32-0028-05) - Modified: removed 1 of 2 units
6. 66" Two-Color Printer Slotter (Source Number: 32-0028-07)
7. Two-Color Die Cutter (Source Number: 32-0028-09)
8. Jumbo Folder Gluer (Source Number: 32-0028-10) - Modified: removed 1 of 2 units

**APPENDIX D -
PROCESS FLOW DIAGRAMS**

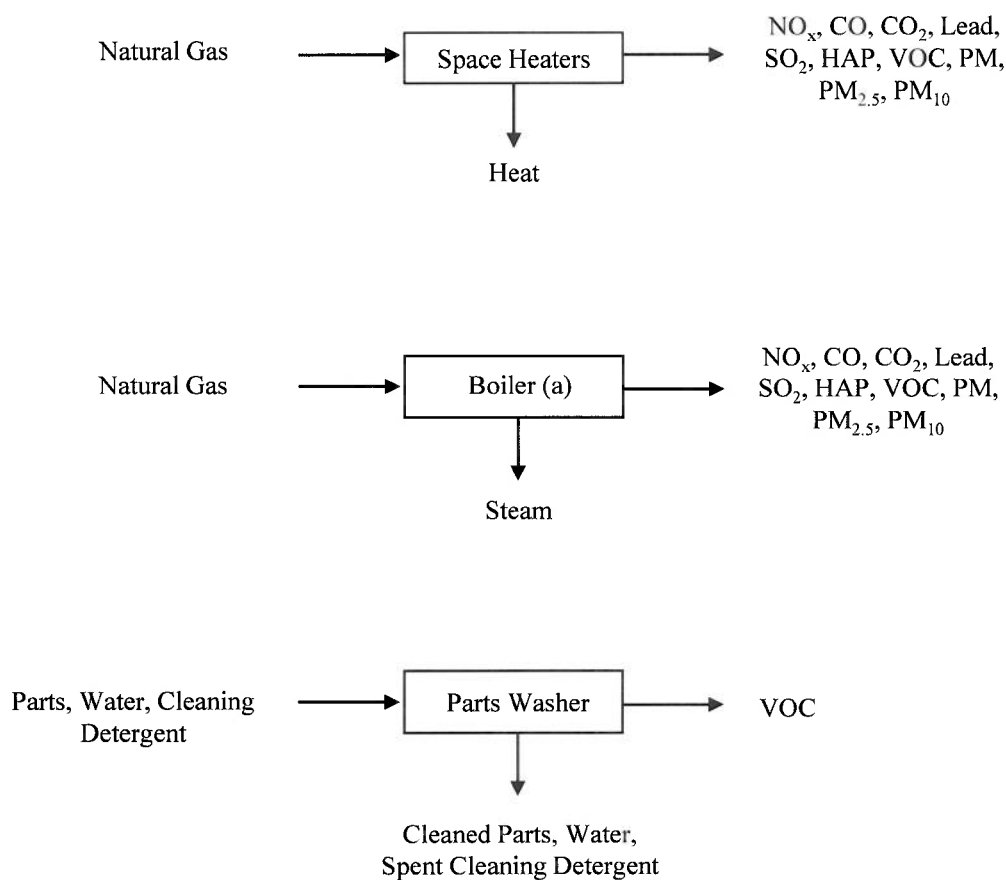
Figure D-1
Process Flow Diagram – Main Equipment



- (a) Source Number: 32-0028-09
- (b) Source Number: 32-0028-05, 32-0028-07, 32-0028-10, and 32-0028-11
- (c) Source Number: 32-0028-03, 32-0028-04

PM, PM _{2.5} , PM ₁₀ – Particulate Matter VOC – Volatile Organic Compounds HAP – Hazardous Air Pollutants

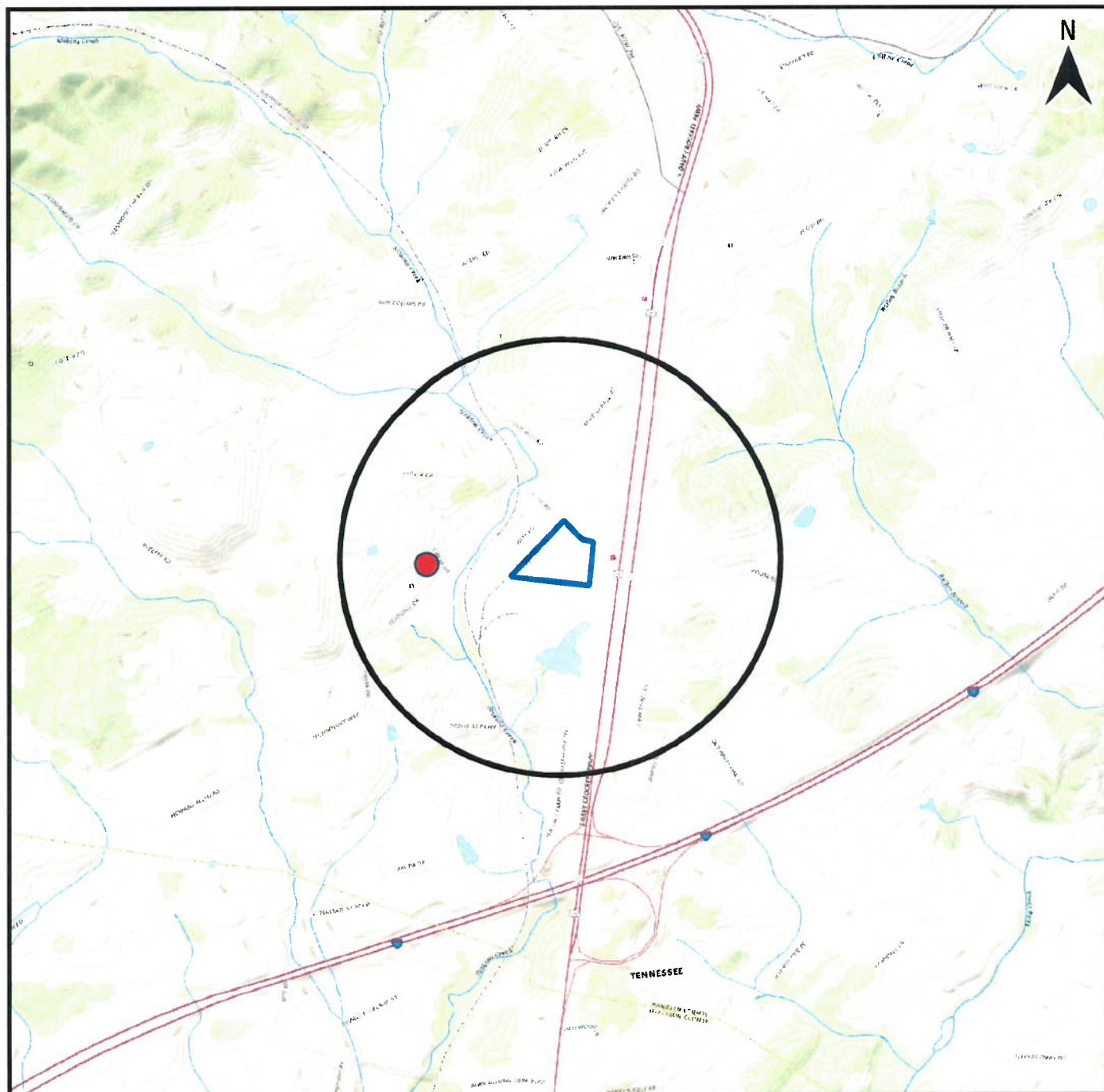
Figure D-2
Process Flow Diagram – Ancillary Equipment



(a) Source Number: 32-0028-01

PM, PM_{2.5}, PM₁₀ – Particulate Matter
VOC – Volatile Organic Compounds
HAP – Hazardous Air Pollutants

**APPENDIX E -
FACILITY MAP**



Legend

- Property Boundary
- 3,000 ft Radius
- Witt Baptist Church

0 250 500 m

Figure E-1
Site Location Map

International Paper
Morristown, Tennessee

DRAWN BY:

ALL4 LLC

DATE:

September 2022

PROJ NO.:

01183-0001.0

