

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

B185551638

FACILITY: Menominee Acquisition Corporation		SRN / ID: B1855
LOCATION: 144 FIRST STREET, MENOMINEE		DISTRICT: Upper Peninsula
CITY: MENOMINEE		COUNTY: MENOMINEE
CONTACT: Daniel Burlingame , Environmental Engineer		ACTIVITY DATE: 12/06/2019
STAFF: Michael Conklin	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Targeted inspection for FY 2020.		
RESOLVED COMPLAINTS:		

**Facility: Dunn Paper – Menominee Mill (SRN: B1855)**  
**Location: 144 First Street, Menominee, MI 49858**  
**Contact(s): Daniel Burlingame, Environmental Health and Safety Engineer**  
**Chris Rockey, Process Engineer**

**Regulatory Authority**

*Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.*

**Facility Description**

Dunn Paper – Menominee Mill (Dunn Paper) is a paper mill that specializes in producing specialty papers of different coatings and tensile properties from purchased pulp. The facility’s products are used in the food service industry as well as for packaging and labeling.

Dunn Paper is considered a true minor source for all criteria pollutants and an area source for hazardous air pollutants (HAPs) following the issuance of Permit To Install (PTI) No. 83-15. Prior to the permit being issued, the source was considered major for HAPs and was subject to Renewable Operating Permit (ROP) No. MI-ROP-B1855-2011. PTI No. 83-15 restricted Boiler #3 (EUBOILER#3) to natural gas-fired only, have a maximum heat input capacity of 12.5 MMBtu/hr (full rated capacity of 99 Mmbtu/hr), and removed all coal capabilities. Additionally, the permit added an 86 MMBtu/hr natural gas-fired backup boiler (EUBUBOILER) and added MACT language in for 40 CFR Part 63, Subpart JJJJ under FGPROCESS and 40 CFR Part 63, Subpart ZZZZ under EUFIREPUMP.

After PTI No. 83-15 was issued, the facility was still subject to the Title V program because it remained subject to 40 CFR Part 63, Subpart JJJJ since the facility was considered major for HAPs following the compliance date of December 5, 2005 for the MACT standard. The EPA released a memorandum in 1995, titled *Potential to Emit for MACT Standards – Guidance on Timing Issues*, stating that sources who are major for HAPs on the first compliance date are required to comply permanently with the MACT standard. The memorandum also states a source that is required to comply with a MACT standard applicable to major sources will also be required to obtain a Part 70 permit. For this reason, Dunn Paper’s Title V permit was renewed on August 30, 2016, and issued MI-ROP-B1855-2016.

On January 25, 2018, the EPA released a memorandum withdrawing the “once-in-always-in” policy for major sources of HAPs under section 112 of the Clean Air Act. The guidance states that sources classified as major for HAPs may be reclassified as an area source when the facility limits its potential to emit below major source thresholds. With the issuance of PTI No. 83-15, Dunn Paper’s potential to emit is below major source thresholds and is no longer subject to 40 CFR Part 63, Subpart JJJJ and the Title V permit program. The company may request to void their ROP and receive a source-wide PTI.

Additional federal regulations the source is subject to includes the RICE NESHAP, 40 CFR Part 63 Subpart ZZZZ, for EUFIREPUMP and the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60 Subpart Dc, for EUBUBOILER. The boilers at the source are not subject to the area source NESHAP (40 CFR Part 63 Subpart JJJJJJ) since they’re designated natural gas-fired only. Prior to the issuance of PTI No. 83-15, EUBOILER#1 and EUBOILER#3 were subject to the major source MACT standard for Industrial, Commercial and Institutional Boilers and Process Heaters, 40 CFR Part 63 Subpart DDDDD. With the facility becoming an area source in 2015, by the issuance of PTI No. 83-15, the facility

never triggered the “once-in-always-in” policy since the effective date of the regulation for existing units was in 2016.

### Process Description

The paper making process begins with adding pulp and water to mixing tanks where it is blended to proper consistency. Chemical additives such as dyes, fillers, preservatives, waterproofing agents, and pH controls may be added depending on the desired product. Next, the mixed pulp is pumped to the refiners that further process the mixed pulp to the desired characteristics. After the refiners, the mixed pulp is pumped into the paper machine headbox and then flows onto a moving belt of fine-mesh wire, where most of the water is removed and the paper begins to form. The mixed pulp then moves through a series of high pressure, synthetic rollers that further remove moisture from the material. Next, the product enters the dryer section where the mixed pulp is weaved through a series of steam heated, synthetic rollers that evaporate the remaining moisture. At the end, the paper then passes through the calendar rollers of the machine where the paper is compacted to a uniform thickness and smoothness. Boilers can provide power for the facility and heat for drying via steam generation.

### Emissions

Pollutants emitted from the combustion of natural gas-fired boilers include nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and trace amounts of sulfur dioxide. NOx is formed and emitted primarily through one of three mechanisms: thermal, fuel, and prompt. Thermal NOx formation occurs in the high temperature zone, near the burners, by the reaction of nitrogen (N2) and oxygen (O2) molecules in the combustion air. Fuel NOx formation occurs through the reaction of nitrogen molecules in the fuel and the oxygen molecules in the combustion air. This form of NOx formation is low when burning natural gas since there is a low nitrogen content in the fuel. Prompt NOx is formed through the reaction of nitrogen molecules in the combustion air and hydrocarbon radicals from the natural gas. Higher temperatures of burning and longer residence time results in higher NOx emissions. CO and VOC emissions are directly related to combustion efficiency. Higher combustion temperatures, longer residence times, and well mixing of fuel and combustion air results in greater combustion efficiency and lower emissions of CO and VOCs. Emissions of sulfur oxides are low since processed natural gas contains a very low sulfur content. PM emissions are also low since natural gas is a gaseous fuel. Nitrous oxide and methane emissions are related to the combustion temperature and amount of excess oxygen.

For the paper making process, chemical additives can be added to the pulp to give it the desired qualities. Throughout the drying process, some of the chemicals can be emitted with the water vapor to the atmosphere. Chemical additives such as resins, dyes, and defoamers can contain VOC and HAP compounds.

### Emissions Reporting

Dunn Paper is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS). The following table lists the source total emissions for the reporting year 2018.

Pollutant	Emissions (TPY)
NOx	1.67
CO	1.56
Lead	<1
PM10	1.4
PM2.5	1.4
SO <sub>2</sub>	<1
VOC	10.2

### Compliance History

The facility has not received any violation notices in the past five years. The facility was last inspected in December 2017 and was found to be in compliance with all applicable air quality rules and federal regulations at that time.

### Inspection

On December 6, 2019, I conducted an unannounced inspection on Dunn Paper. I arrived at the office building and met with Environmental Health and Safety Engineer, Daniel Burlingame, and Process Engineer, Chris Rocky. I explained to Mr. Burlingame and Mr. Rocky that the purpose of the inspection was to ensure compliance with MI-ROP-B1855-2016 and all other applicable air pollution control rules and federal regulations. Mr. Burlingame began with the company as the new environmental engineer a few days prior to the inspection. The former environmental engineer, Taylor Hewitt, left the company in August 2019. In the intermittent, Mr. Rocky has been handling air quality responsibilities.

The inspection began with explaining to Mr. Burlingame the air quality requirements for the facility and providing a copy of the facility's ROP. Additional information regarding air quality requirements and permit information were identified on EGLE's website for Mr. Burlingame to review. Next, a tour of the facility was provided, and a review of the emission units identified in MI-ROP-B1855-2016.

#### ***EUBOILER#1***

This emission unit is a two burner, natural gas-fired boiler with a steam rated capacity of 70,000 pounds per hour. This boiler provides steam for paper drying and facility heating. The boiler is only allowed to burn natural gas and is required to keep records of annual fuel usage. In a follow-up email, Mr. Burlingame provided monthly fuel usage records for November 2017 through November 2019. For 2018, the boiler fired 369 MCF of natural gas. For January 2019 through November 2019, the boiler fired 346 MCF of natural gas.

#### ***EUBOILER#3***

This emission unit is a Wickes coal and natural gas-fired boiler. The boiler has a rated heat input capacity of 99 MMBtu/hr, but is currently permitted to not exceed 12.5 MMBtu/hr. This boiler is restricted to only operate on natural gas with the 12.5 MMBtu/hr start up burner. During the inspection, it was observed that the gas line to the burner was disconnected and blocked off. The boiler has not operated in the past few years. It was also observed that the hoppers for the coal feeders were removed per the requirements of PTI No. 83-15 (SC III.2).

#### ***EUBUBOILER***

This emission unit is a natural gas-fired boiler with a maximum heat input capacity of 86 MMBtu/hr. This boiler operates as a back-up boiler to EUBOILER#1. The boiler was permitted under PTI No. 83-15 and is subject to 40 CFR Part 60 Subpart Dc, the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units. This boiler has a material limit of only burning pipeline quality natural gas. The boiler also has a requirement to install and operate a device to monitor the natural gas usage on a continuous basis. Records of natural gas usage are to be kept monthly. It was explained during the inspection that this emission unit is a portable boiler that is brought in on an as needed basis for additional steam capacity. A backup boiler was last used at the facility during the period of 2/4/15 – 3/5/15 and burned 74.95 MCF of natural gas according to MAERS.

#### ***EUZEPWASHER***

The parts washer has an air/vapor interface of approximately 6 square feet. Emissions from the parts cleaner are exhausted to the general in-plant environment and controlled by an attached cover. During the inspection, the parts cleaner was not in use and the cover was kept closed. Instructions above the parts washer were observed. Some of the instructions observed were: "Close cover when not cleaning parts", "Drain clean parts for 15 seconds or until dripping ceases", and "Store solvent in closed container and do not allow evaporation to the atmosphere" (SC III.1). An SDS sheet of the degreaser was provided in a follow-up email. The degreaser used in the parts washer is from Zep Inc and is material "ZEP DYNA 143 OBS". The degreaser is in compliance with the material limits stated in SC II.1 and II.2.

#### ***EUFIREPUMP***

This emission unit is a diesel-fired Cummins fire pump engine, model V-504-F2 rated at 0.9 MMBtu/hr. The engine is equipped with a non-resettable hour meter to track the number of hours the engine operates. At the time of the inspection, the hour meter read 130 hours (SC IV.1 and SC VI.5). Maintenance and readiness testing sheets were provided for the engine (SC VI.3 and VI.4). The hours on the engine prior to start-up and after shut-down are recorded.

#### ***FGPROCESS***

This flexible group makes up the the paper machine and the converting processes. Mr. Rocky provided a tour and explanation of the paper machine, along with points of emissions. The process begins with purchased pulp, tissues, and/or paper towel fed into the pulper tanks. Chemical additives such as bleach,

talc, adhesion aids, release aids, and dyes may be added to provide desired product qualities. The mixed pulp is then pumped into “chests” that are used for storage and flow control. The pulp is then fed into the refiners for additional fibrillation before entering the headbox of the paper machine.

Emissions from the paper machine to the atmosphere occur at the dry end of the process. The first dryer consists of steam heated rollers with drying emissions drawn up through the hood and out the stack. The second point of emissions is the “yankee dryer” that features a large steam heated roller and two natural gas burners for additional drying capabilities. Each of the burners have a maximum heat input capacity of 5 MMBtu/hr. Natural gas combustion and paper drying emissions are collected under a hood and routed through a stack out the roof.

The converting portion of the paper making process includes the dry wax machines, bag machines, core machine, calendar stack machine, auto rewind machines, and dilts rewinder machine. Dry wax machine #1, #2, and #5 use hot paraffin wax to coat sheets of paper. A hood and dry filters are used to control emissions before exiting to the atmosphere. The surface coating wax is not a major concern of emissions as the filters are primarily used to trap liquid wax before it exits the stack as a solid state and conglomerates. The other converting machines use adhesive glue to make desired products. Any emissions are vented to the general-in-plant environment.

Within MI-ROP-B1855-2016, FGPROCESS is subject to 40 CFR Part 63, Subpart JJJJ. This MACT standard is for facilities that coat paper and other web substrates that are major sources of HAPs. Facilities are required to comply with the subpart by limiting organic HAP emissions from web-coating lines. Dunn Paper has chosen the option to limit the content of each coating applied during the month to 4% by weight organic HAP on a “as-purchased” basis. MACT Subpart JJJJ allows the subject source to use the VOC content of the material in lieu of the organic HAP content. The VOC content of the coatings is provided by manufacturer safety data sheets (SDS). Mr. Burlingame provided the SDSs and a spreadsheet demonstrating compliance with MACT Subpart JJJJ for 2018 and 2019. Records indicate that each coating used at the facility is below the 4% VOC limit. Monthly usage in pounds of coating is being tracked each month. Dunn Paper continues to remain in compliance with MACT Subpart JJJJ by submitting semiannual compliance reports. As stated above, the source is technically no longer subject to MACT Subpart JJJJ and may wish to remove these conditions through an ROP modification.

The paper machine and converting emission units in this flexible group operate under Rule 290 as permit exempt processes. In a follow-up email, Mr. Burlingame provided Rule 290 compliance spreadsheets for the years 2018 and 2019. The records indicate that the facility is not in compliance with Rule 290 (SC VI.1). The paper machine and converting processes both utilize a glue material (R-1027LS) that contains ethylene oxide. This compound has an IRSL of 0.0002 micrograms per cubic meter and is not allowed to be emitted while complying with the Rule 290 permit exemption (ITSL and IRSL greater than or equal to 0.04 micrograms per cubic meter). The company notes in the spreadsheet that having this compound emitted excludes the emission unit from being exempt per Rule 290.

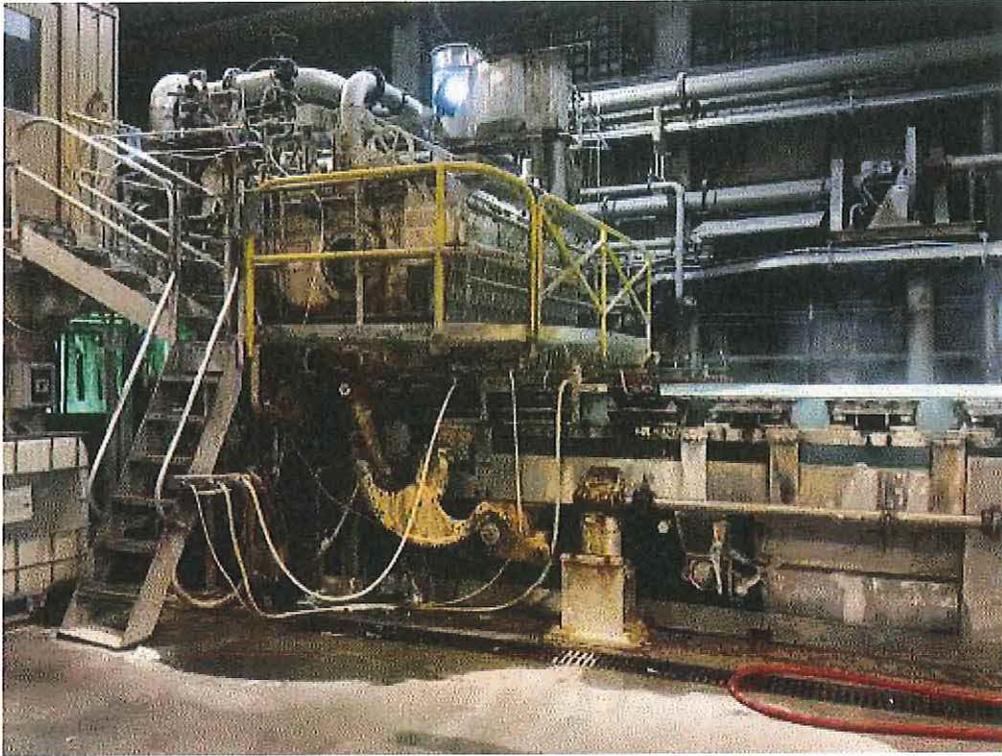
In addition, records indicate that the facility is emitting over 1,000 lbs/month of sodium hypochlorite contained in the bleach. Rule 290 specifies that a source must emit less than or equal to 1000 lbs/month of a chemical with an ITSL greater than or equal to 2.0 micrograms per cubic meter. Chlorinated bleach can form emissions of chloroform, dioxins, furans, and other chlorinated organics that are toxic air contaminants (TACs) or hazardous air pollutants (HAPs). Overall, records are indicating that total uncontrolled emissions are greater than 1,000 pounds per month and chemicals that are not compatible with Rule 290 are being emitted. These emission units are no longer meeting the permit exemption and the facility will need to submit a PTI application for FGPROCESS.

#### *Future Plans*

Dunn Paper does not plan to make any changes to the facility soon. There are plans, however, to install an emergency generator. The company is currently gathering load capacity needs to determine the size of the generator needed. It was explained to the company that they would need a PTI before installing and operating the emergency engine if the size was above the permit exemption for internal combustion engines.

#### Compliance

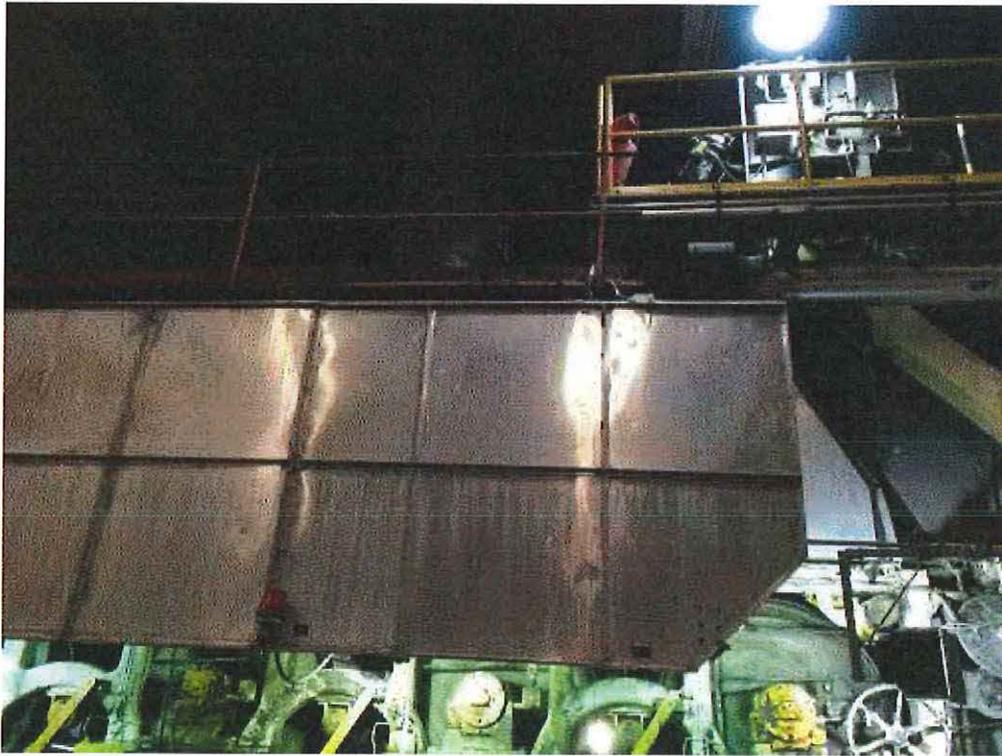
Based on this inspection, Dunn Paper is not in compliance with MI-ROP-B1855-2016. The facility will need a Permit to Install for FGPROCESS in order to comeback into compliance.



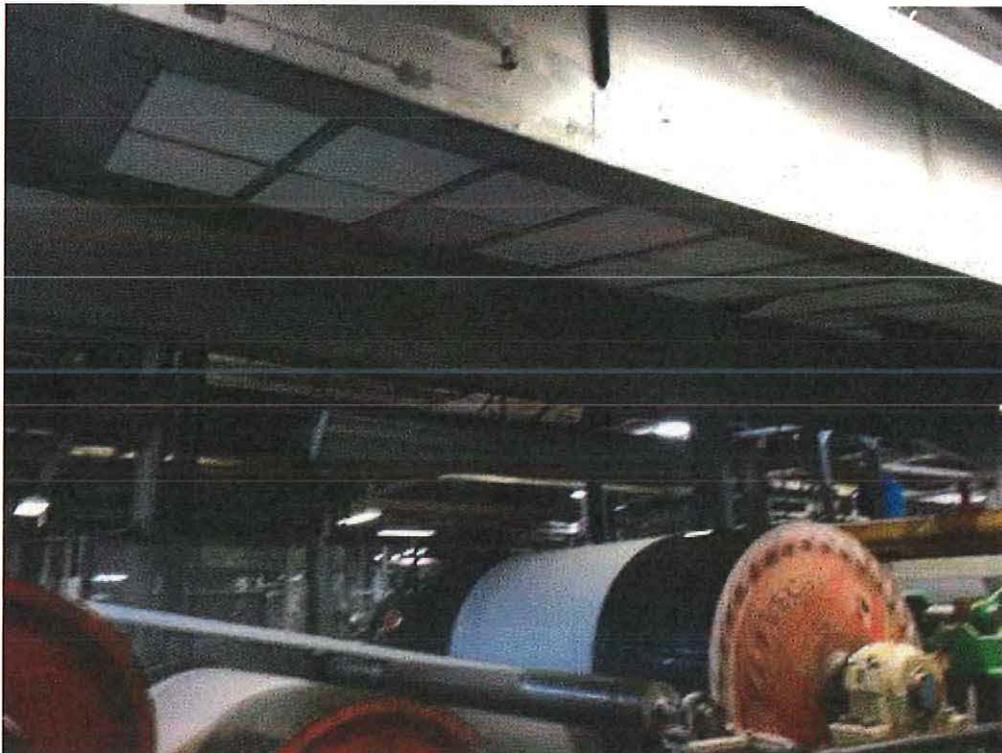
**Image 1(Headbox)** : Headbox of the paper machine.



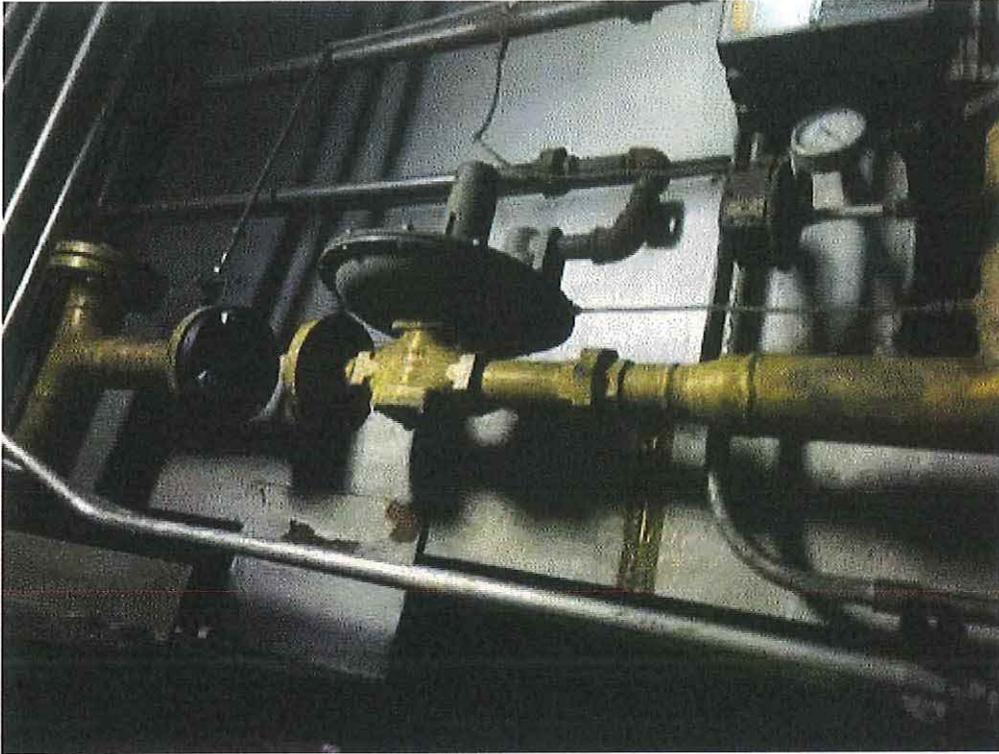
**Image 2(Dryer)** : Dry end of the paper machine.



**Image 3(Stack)** : Stack for first dryer of paper machine.



**Image 4(Dry Waxer)** : Surface coating for waxed paper products. Dry filters used above.



**Image 5(EUBOILER3)** : Disconnected gas line for EUBOILER3.



**Image 6(EUBOILER1)** : Natural gas-fired boiler with a rated steam capacity of 70,000 lbs/hr.



**Image 7(EUFIREPUMP)** : Hour meter on EUFIREPUMP.

NAME Michael Berlin

DATE 1/13/2020

SUPERVISOR ESJ