



DEPARTMENT ORDER

**Cianbro Fabrication and Coating  
Corporation  
Somerset County  
Pittsfield, Maine  
A-794-71-I-A**

**Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #1**

**FINDINGS OF FACT**

After review of the air emission license amendment application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

A. Introduction

Cianbro Fabrication and Coating Corporation (Cianbro) was issued Air Emission License A-794-71-H-R on January 11, 2019, for the operation of emission sources associated with their metal fabrication and coatings facility.

Cianbro has requested an amendment to their license in order to document the installation and operation of a steel plate processing unit at their facility, and to update the conditions in their air emission license to reflect this change.

The equipment addressed in this license amendment is located at 335 Hunnewell Avenue, Pittsfield, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license amendment:

**Process Equipment**

<b>Equipment</b>	<b>Production Rate</b>	<b>Pollution Control Equipment</b>
Plate Processor	2 tons of plate/hour	Baghouse

C. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the date this license was issued.

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the “Significant Emission” levels as defined in the Department’s *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Significant Emission Levels
PM	2.5	2.5	--	100
PM <sub>10</sub>	2.5	2.5	--	100
SO <sub>2</sub>	0.2	0.2	--	100
NO <sub>x</sub>	6.9	9.2	2.3	100
CO	4.0	4.0	--	100
VOC	49.9	49.9	--	50

This modification is determined to be a minor modification and has been processed as such.

#### D. Facility Classification

With the annual volatile organic compounds (VOC) limit associated with the paint booths, the condition that limits the type of metal plate that can be cut with the plate processor plasma torch, and the annual operating hour limit on the plate processor plasma torch, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because the licensed emissions are below the major source thresholds for criteria air pollutants (CAP); and
- As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

Emissions of VOC and HAP are licensed above 80% of the major source threshold. Therefore, this facility is classified as an “80% Synthetic Minor” for the purpose of determining the minimum required compliance inspection frequency in accordance with Maine’s Compliance Monitoring Strategy.

## II. BEST PRACTICAL TREATMENT (BPT)

### A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental, and energy impacts.

**B. Process Description**

Cianbro is installing a plate processing unit at their facility in Pittsfield to improve the efficiency of their operation when processing (cutting) mild steel plate during fabrication. The plate processor utilizes a plasma torch to cut mild steel and can accommodate pieces having a thickness of up to 80 mm (3.15 inches). To protect it from weather, the plate processing unit will be installed inside of an existing three-sided structure at the facility that is designated as the Canopy Area.

When the unit's plasma torch is in operation, fumes and particulate matter generated by the process will be captured and ducted into a baghouse that will also be located inside the Canopy Area. The baghouse will be used to control PM emissions from the plate processing unit and will be operated 100% of the time that the plasma torch is being used. The baghouse will be vented to atmosphere.

**C. Plate Processing Unit**

The plate processing unit being installed is a Peddinghaus HSFDB-2500 that was manufactured in 2010. It is capable of performing multiple mechanical operations such as drilling and tapping, countersinking, milling, part marking, and cutting of metal plate. It can handle metal plates weighing up to 20,000 lbs, and its plasma torch can cut through metal up to 3.15 inches (80 mm) thick.

Air pollutants generated by the plate processor are particulate matter (PM, PM<sub>10</sub>) and nitrogen oxides (NO<sub>x</sub>) and are only produced when the plasma torch is being used to cut plate. The other mechanical operations performed by the plate processor do not generate CAP.

**1. BACT Discussion**

Plasma cutting uses electrically ionized gas (plasma) to cut through materials such as steel, aluminum, brass and copper. Fumes and gases generated by plasma cutting depend on the method of cutting (dry or wet), cutting speed, thickness of the metal being cut, alloy contents of the metal being cut, and ventilation conditions. (AP-42 Chapter 12, *Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel*). Cianbro intends to utilize the plasma torch on the plate processor exclusively for dry cutting mild steel plate for their fabrication shop projects.

BACT for the operation of the plasma torch includes optimizing the variables and settings for the cutting operation to minimize the potential to generate emissions. Cianbro shall be required to prepare and implement a written plan that includes operating instructions and procedures that specify good operating and maintenance practices for the plasma cutting operation and for the baghouse. Where applicable, the plan shall identify specific practices, settings and adjustments for minimizing the generation of pollutants.

The following is a BACT analysis for control of emissions from the plate processing unit.

a. Particulate Matter (PM, PM<sub>10</sub>)

Cianbro has proposed to install a baghouse to control PM and PM<sub>10</sub> generated when dry cutting mild steel plate on the plate processor. The baghouse shall be put into operation whenever the plasma torch is used to cut steel plate. Fumes generated in the cutting zone during the plasma torch operation will be captured and vented to the baghouse where almost all of the PM and PM<sub>10</sub> contained in the fumes will be removed from the exhaust stream. The cleaned exhaust stream will then exit the baghouse and be vented to atmosphere.

Cianbro has also elected to take an annual operating hour limit in the air emission license for the plasma torch to further reduce their potential to emit PM and PM<sub>10</sub>. The plasma torch will be limited to a total of 520 operating hours per year.

The Department finds that BACT for the control of PM and PM<sub>10</sub> from the plate processing unit's plasma torch cutting operation shall be the proper setup, operation, and maintenance of the plasma cutting operation and the baghouse, the utilization of a baghouse having a minimum overall control efficiency of 99.9%, and the implementation of an operating hour limit of 520 hours per year for the operation of the plasma torch.

b. Nitrogen Oxides (NO<sub>x</sub>)

With the annual operating hour limit on the plasma torch and the physical limitations of the plate processing unit, the amount of NO<sub>x</sub> emissions capable of being produced when dry cutting mild steel plate with a plasma torch are minimal. Therefore, add-on controls such as scrubbers or electrostatic precipitators are not economically feasible. BACT for control of NO<sub>x</sub> from the plasma torch when dry cutting mild steel plate shall be the proper setup and operation of the torch with all cutting variables (amperage, cutting speed, etc.) optimized for the specific piece being cut.

c. Emission Limits

The BACT emission limits for the plate processor are for the dry cutting of mild steel plate 3.15 inches (80 mm) thick with a plasma torch and are based on the following:

Pollutant	Emission Factor	Origin and Authority
PM / PM <sub>10</sub>	230 g/min	AP-42, Chapter 12, <i>Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel</i> , by Broman B. et al; 06-096 C.M.R. ch. 115, BACT
NO <sub>x</sub>	66 g/min	
Visible Emissions		06-96 C.M.R. ch. 101(3)(B)(3)

2. Visible Emissions

Visible emissions from the baghouse shall not exceed 10 percent opacity on a six (6) minute block average basis. Cianbro shall take corrective action if visible emissions from the baghouse exceeds five (5) percent opacity. [06-096 C.M.R. ch. 101(3)(B)(3)]

3. Periodic Monitoring

Periodic monitoring for the plate processor shall include recordkeeping to document the dates of operation and the number of hours operated whenever the plasma torch is used. The records shall be kept on both a monthly and a calendar year basis.

Periodic monitoring for the baghouse shall include recordkeeping to document maintenance of the baghouse. Cianbro shall keep a maintenance log recording the date of all bag failures, routine baghouse inspections, and any maintenance and corrective actions performed.

D. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee. Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included. Maximum potential emissions were calculated based on the following assumptions:

- The boilers and heaters operating 8,760 hours per year;
- Operating the plate processor plasma torch 520 hours per year to dry cut mild steel; and
- A facility-wide VOC limit of 49.9 tpy.

Please note, this information provides the basis for fee calculation only and should not be construed to represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

**Total Licensed Annual Emissions for the Facility  
Tons/year  
(used to calculate the annual license fee)**

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>
Boilers #1 and #2	0.50	0.50	0.1	1.40	0.80	0.11
Heaters #1 and #2	1.97	1.97	0.1	5.45	3.14	0.42
Plate Processor	0.01	0.01	-	2.30	-	-
Coating Operations	-	-	-	-	-	49.40
<b>Total TPY</b>	<b>2.5</b>	<b>2.5</b>	<b>0.2</b>	<b>9.2</b>	<b>4.0</b>	<b>49.9</b>

<b>Pollutant</b>	<b>Tons/year</b>
Single HAP	9.9
Total HAP	24.9

**III. AMBIENT AIR QUALITY ANALYSIS**

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

<b>Pollutant</b>	<b>Tons/Year</b>
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license amendment.

## **ORDER**

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License Amendment A-794-71-I-A subject to the conditions found in Air Emission License A-794-71-H-R and the following conditions.

Severability. The invalidity or unenforceability of any provision of this License Amendment or part thereof shall not affect the remainder of the provision or any other provisions. This License Amendment shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

### **SPECIFIC CONDITIONS**

The following new specific condition shall be added to air emission license A-794-71-H-R (January 11, 2019) for Cianbro:

#### **(24) Plate Processing Unit**

- A. The plasma torch on the plate processing unit shall be limited to the cutting of mild steel plate having a maximum thickness of 3.15 inches (80 mm). [06-096 C.M.R. ch. 115, BACT]
- B. The plasma torch shall be limited to a maximum of 520 operating hours per year. [06-096 C.M.R. ch. 115, BACT]
- C. Fumes generated in the cutting zone during plasma torch operation shall be captured and vented to a baghouse. Cianbro shall operate and maintain the baghouse in accordance with the manufacturer's written instructions. [06-096 C.M.R. ch. 115, BACT]
- D. Visible emissions from the baghouse shall not exceed 10 percent opacity on a six (6) minute block average basis. Cianbro shall take corrective action if visible emissions from the baghouse exceeds five (5) percent opacity. [06-096 C.M.R. ch. 101(3)(B)(3)]

- E. The baghouse used to control the PM from the plate processing unit shall have an overall control efficiency of 99.9% or better. [06-096 C.M.R. ch. 115, BACT]
- F. Cianbro shall inspect the baghouse at least once a month and shall document the inspections in a maintenance log. Any issues noted during an inspection that would affect the baghouse's control efficiency shall be corrected before the baghouse is put back into service. The maintenance log shall also document all bag failures, as well as any routine and/or unscheduled maintenance performed, any corrective actions taken, and the dates on which they occurred. [06-096 C.M.R. ch. 115, BACT]
- G. Cianbro shall track and record the operating hours of the plasma torch on both a monthly and an annual basis in an operations log or similar method. Records shall include dates of operation and the number of hours operated for each time that the plasma torch is used. [06-096 C.M.R. ch. 115, BACT]
- H. Cianbro shall prepare and implement a written plan that includes operating instructions and procedures specifying good operating and maintenance practices for the plasma cutting operation and for the baghouse. Where applicable, the plan shall identify specific practices, settings, and adjustments for minimizing the generation of pollutants. [06-096 C.M.R. ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 23<sup>rd</sup> DAY OF FEBRUARY, 2021.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for  
MELANIE LOYZIM, ACTING COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-794-71-H-R.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: January 15, 2021

Date of application acceptance: January 19, 2021

Date filed with the Board of Environmental Protection:

This Order prepared by Patric J. Sherman, Bureau of Air Quality.

**FILED**  
**FEB 23, 2021**  
**State of Maine**  
**Board of Environmental Protection**