



STATE OF MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE  
GOVERNOR

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ACTING COMMISSIONER

**AVX Tantalum Corporation  
York County  
Biddeford, Maine  
A-664-71-G-R/A**

**Departmental  
Findings of Fact and Order  
Air Emission License**

After review of the air emissions license renewal and amendment applications, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

**I. REGISTRATION**

**A. Introduction**

AVX Tantalum Corporation (AVX) has applied to renew and amend the Air Emission License permitting the operation of emission sources associated with their tantalum capacitor manufacturing facility. The capacitors are used in a variety of electronic devices such as pacemakers, hearing aides, medical implants, military equipment, and for aerospace applications.

The renewal includes the previously licensed fuel burning and process equipment. The amendment requests the replacement of three burners in the existing boilers to allow for the firing of natural gas in addition to the licensed #2 fuel oil.

The equipment addressed in this license is located at 401 Hill Street, Biddeford, Maine.

**B. Emission Equipment**

The following equipment is addressed in this air emission license:

AUGUSTA  
17 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0017  
(207) 287-7688 FAX: (207) 287-7826  
RAY BLDG., HOSPITAL ST.

BANGOR  
106 HOGAN ROAD, SUITE 6  
BANGOR, MAINE 04401  
(207) 941-4570 FAX: (207) 941-4584

PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04679-2094  
(207) 764-0477 FAX: (207) 760-3143

**Boilers**

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type</u>	<u>Manufacture and Installation Year</u>	<u>Stack #</u>
Boiler 1	2.5	18 gal/hr	#2 fuel oil	1992	38
		2451 scf/hr	Nat'l gas		
Boiler 2	2.5	18 gal/hr	#2 fuel oil	1996	49
		2451 scf/hr	Nat'l gas		
Boiler 3	7.0	50.7 gal/hr	#2 fuel oil	1984	37
		6863 scf/hr	Nat'l gas		

Note: The firing of natural gas is new to the license.

**Generator**

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate (gal/hr)</u>	<u>Kilowatts</u>	<u>Fuel Type</u>	<u>Manufacture and Installation Year</u>
Generator 1	1.31	13.95	100	Propane	2009

**Process Equipment**

<u>Equipment</u>	<u>Production Type</u>	<u>Pollution Control Equipment</u>	<u>Stack #</u>
Pyrolysis Oven 1	Batch Operations	N/A	51a
Pyrolysis Oven 2	Batch Operations	N/A	51b
Pyrolysis Oven 3	Batch Operations	N/A	51c
Deflash Machine	Batch Operations	Fabric Filters	43
Deflash Machine	Batch Operations	Fabric Filters	45
Deflash Machine	Batch Operations	Fabric Filters	50
Misc. Isopropanol Use	General Use	N/A	N/A
Silver Dip Process	Batch Operations	N/A	N/A
Marking Operations	General Use	N/A	N/A
Vapor Degreaser	General Use	N/A	N/A

Note: The cold cleaning degreaser listed in the previous license has been removed.

C. Application Classification

The renewal and amendment applications for AVX include the licensing of existing licensed equipment and the modification of the boilers' burners to allow for natural gas firing. The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as defined in the Department's regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Sig. Level</u>
PM	5.4	4.3	- 1.1	100
PM <sub>10</sub>	5.4	4.3	- 1.1	100
SO <sub>2</sub>	14.1	14.1	0	100
NO <sub>x</sub>	19.5	19.5	0	100
CO	1.1	2.4	+1.3	100
VOC	10.1	10.2	+0.1	50

The modification is determined to be a minor modification and has been processed in conjunction with the renewal through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

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 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

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 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

Before proceeding with the control requirements for each unit, a general process description is provided to identify where the equipment fits into the process.

### Process Description

AVX manufactures tantalum capacitors. The core of the capacitor, known as the pellet, is formed in the pressing operation by compacting tantalum powder mixed with polyethylene-glycol binder around a thin wire electrode in die molds of various sizes. The pellet is rinsed in de-ionized water to remove the polyethylene glycol binder and hot air dried. The pellets are heated to fuse the powder into a more cohesive sintered structure. The sintering is conducted in an electric furnace which is evacuated and purged with helium a number of times prior to heating to prevent combustion of the tantalum. After cooling, the pellets are removed from the furnace, and a small Teflon washer is placed onto the wire electrode. The pellets are then tack-welded onto a stainless steel frame to facilitate handling through the remaining process operations. The frames are carefully heated to shrink-fit the Teflon washer to form a tight seal around the pellet electrode.

The next process is called "formation." The frames are lowered over dip trays, and the pellets are dipped in a solution of either dilute nitric, phosphoric, or sulfuric acid/ethylene glycol, and a current is impressed through the electrode. This causes an electrolytic reaction that forms a tantalum oxide coating on the pellets and imparts the desired electrical characteristics to the capacitor core. The pellets proceed to a manganese-nitrate/nitric acid solution and through a drying stage followed by a pyrolysis stage. In the pyrolysis stage steam is used to heat and react with the manganese nitrate/nitric acid. Following pyrolysis, the pellets go through a "healing" process in which they are dipped in dilute acetic acid or sulfuric acid/ethylene glycol rinses followed by additional heating to repair any minor cracks which may have formed during pyrolysis. The pellets are dipped in an aqueous slurry of carbon black with an ammonium-hydroxide buffer, then dried. The pellets proceed to the silver dip process where they are dipped in a slurry of metallic silver and high flash-point organic solvent. Currently, 2-butoxyethylacetate is used, but this is subject to potential substitution with other low volatility solvents. The silver dip process completes the formation and manufacturing of the capacitor core.

In the remaining operations, highly automated machinery removes the pellet from the frame, welds the wire lead onto one side of the metal rail or "lead frame," and glues the pellet to the other end of the lead frame using conductive silver epoxy. The frame is then heated to cure the epoxy adhesive. The lead frames proceed to

another automated machine which presses a thermo-set epoxy plastic material onto the frame. This serves as a mold to form the capacitor body. Once the capacitor bodies are removed from the molds, they proceed to "de-flashing" which is an abrasive blasting process to remove any surplus plastic material from the capacitor body. At this stage the capacitors are marked using highly transfer-efficient stamp-type labeling machines and packed for shipment.

Ancillary operations include the use of isopropanol primarily for drying capacitors used in medical implants and for some miscellaneous cleaning of process equipment. The product specifications for medical use require a cleaning stage using a sodium bicarbonate solution which is subsequently rinsed in de-ionized water. The capacitors are then placed in a 500 ml beaker of isopropanol and soaked for a specified time.

B. Boilers 1, 2, and 3

AVX operates three boilers to provide process steam and heat to the facility. Boilers 1 and 2 are each rated at 2.5 MMBtu/hr and Boiler 3 is rated at 7.0 MMBtu/hr. The boilers were installed in 1992, 1996, and 1984, respectively, and each exhausts through its own stack. All three boilers currently fire #2 fuel oil meeting the requirements of ASTM D396 (maximum sulfur content of 0.5%). AVX has requested to allow the boilers to fire natural gas in addition to the #2 fuel oil.

AVX is proposing to replace the current burners on Boilers 1 and 2 with Riello dual fuel burners RLS70E and Boiler 3 with Riello dual fuel burner RLS130E. The burners will be sized to meet the current capacity of each boiler.

Due to the size of each boiler (under 10 MMBtu/hr), the boilers are not subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, which sets forth requirements for units greater than 10 MMBtu/hr manufactured after June 9, 1989.

1. BACT/BPT Findings

AVX submitted a BACT analysis for the addition of natural gas as an allowable fuel in the three boilers. The replacement of the burners with new dual fuel burners will improve efficiency and reduce fuel consumption. The firing of natural gas will also reduce actual emissions. Proper combustion and maintenance practices shall be used in the operation of the boilers.

The BACT/BPT emission limits for the boilers were based on the following:

#2 Fuel Oil

- PM/PM<sub>10</sub> – 0.08 lb/MMBtu based on BACT
- SO<sub>2</sub> – based on firing ASTM D396 compliant #2 fuel oil (0.5% sulfur);  
0.5 lb/MMBtu
- NO<sub>x</sub> – 0.3 lb/MMBtu based on previous licenses
- CO – 5 lb/1000 gal, AP-42, Table 1.3-1, dated 5/10
- VOC – 0.34 lb/1000 gal, AP-42, Table 1.3-3, dated 5/10
- Opacity – 06-096 CMR 101: Visible emissions from each boiler firing fuel oil shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period.

Natural gas

- PM/PM<sub>10</sub> – 0.08 lb/MMBtu based on BACT
- SO<sub>2</sub> – 0.6 lb/MMscf: AP-42, Table 1.4-2 (dated 7/98)
- NO<sub>x</sub> – 100 lb/MMscf: AP-42, Table 1.4-1 (dated 7/98)
- CO – 84 lb/MMscf: AP-42, Table 1.4-1 (dated 7/98)
- VOC – 5.5 lb/MMscf: AP-42, Table 1.4-2 (dated 7/98)
- Opacity – 06-096 CMR 101: Visible emissions from each boiler firing natural gas shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

The BACT/BPT emission limits for the boilers are the following:

Unit	Fuel	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler 1 (2.5 MMBtu/hr)	#2 fuel	0.20	0.20	1.26	0.75	0.09	0.01
	nat'l gas	0.20	0.20	0.002	0.25	0.21	0.01
Boiler 2 (2.5 MMBtu/hr)	#2 fuel	0.20	0.20	1.26	0.75	0.09	0.01
	nat'l gas	0.20	0.20	0.002	0.25	0.21	0.01
Boiler 3 (7.0 MMBtu/hr)	#2 fuel	0.56	0.56	3.53	2.10	0.25	0.02
	nat'l gas	0.56	0.56	0.004	0.69	0.58	0.04

In order to allow for fuel flexibility without increasing emissions, AVX shall be limited to 56,000 MMBtu/yr based on a 12 month rolling total. This Btu fuel heat content limit is equivalent to the current #2 fuel oil limit of 400,000 gallons/yr or 54,901,961 scf/yr of natural gas.

*Periodic Monitoring*

Periodic monitoring for the boilers shall include recordkeeping to document MMBtu/yr fuel use both on a monthly and 12 month rolling total basis. Documentation shall include the type of fuel used. Records shall be maintained to document compliance with the 56,000 MMBtu/yr annual fuel limit.

2. 40 CFR Part 63 Subpart JJJJJ

Boilers 1, 2, and 3 are subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ). The units are rated under 10 MMBtu/hr and are thus not subject to PM, CO, or mercury emission limits from 40 CFR Part 63 Subpart JJJJJ.

For informational purposes, a summary of the applicable federal 40 CFR Part 63 Subpart JJJJJ requirements are listed below. The Maine Department of Environmental Protection has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however AVX is still subject to the requirements.

- a. An initial notification must be submitted to EPA no later than September 17, 2011. [40 CFR Part 63.11225(a)(2)]
- b. A boiler tune-up program shall be implemented to include the tune-up of the applicable boilers by March 21, 2012. [40 CFR Part 63.11196(a)(1)]
- c. A Notification of Compliance Status shall be submitted to EPA no later than 120 days after conducting the initial boiler tune-up. [40 CFR Part 63.11225(a)(4)] The Notification of Compliance Status form developed by EPA may be used to submit the required information. This notice can be found near the bottom of the page on the following website: <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>.
- d. After the initial tune-up and initial compliance report has been submitted, the facility shall implement a biennial boiler tune-up program and submit biennial compliance reports. The following are requirements of the boiler tune-up program:
  - i. Each biennial tune-up shall be conducted no more than 25 months after the previous tune-up. [40 CFR Part 63.11223(a)]
  - ii. Each biennial tune-up shall include the following, as applicable:
    - (a) Inspection of the burner, cleaning/replacing any component of the burner, as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; however, the burner must be inspected at least once every 36 months. [40 CFR Part 63.11223(b)(1)]

- (b) Inspection of the flame pattern, and adjustment of the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]
  - (c) Inspection of the system controlling the air-to-fuel ratio, to ensure proper calibration and that it is functioning properly. [40 CFR Part 63.11223(b)(3)]
  - (d) Optimization of total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]
  - (e) Measurement of concentration in the effluent stream of CO in parts per million (ppm), by volume, and oxygen in volume percent, before and after adjustments are made. [40 CFR Part 63.11223(b)(5)]
- iii. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of start-up. [40 CFR Part 63.11223(b)(7)]
- e. Records shall be maintained consistent with the requirements of 40 CFR Part 63 Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]: copies of compliance reports; identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned; documentation of fuel type(s) used monthly by each boiler; the occurrence and duration of each malfunction of the boiler; and actions taken during periods of malfunction to minimize emissions and actions taken to restore the malfunctioning boiler to its usual manner of operation.

C. Emergency Generator 1

AVX has a propane fired emergency generator. The unit is an Olympian 100 kW generator manufactured in 2009 with a maximum capacity of 1.31 MMBtu/hr (13.95 gal/hr firing rate, 147 hp).

1. BPT Findings

The BPT emission limits for the emergency generator were based on the following:

PM/PM<sub>10</sub> – Maine DEP guidance for propane fired boilers dated Aug. 26, 2006: 0.05 lb/MMBtu (0.07 lb/hr)

SO<sub>2</sub> - Santa Barbara County Air Pollution Control District, Technical Information for SO<sub>x</sub> Gaseous Emission Factors (equivalent to mass balance): 0.017 lb/MMBtu (0.022 lb/hr)

NO<sub>x</sub> – manufacturer's data: 1.18 g/bhp-hr (0.38 lb/hr)

CO – manufacturer's data: 1.56 g/bhp-hr (0.51 lb/hr)

VOC - manufacturer's data: 0.03 g/bhp-hr (0.01 lb/hr)

Opacity - *Visible Emissions*, 06-096 CMR 101 (as amended): Visible emissions from Emergency Generator 1 shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a 3-hour period.

2. 40 CFR Part 60, Subpart JJJJ

The federal regulation 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines* is applicable to the emergency generator since the unit was ordered after June 16, 2006 and manufactured after January 1, 2009. By meeting the requirements of Subpart JJJJ, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

Emergency Definition:

Emergency stationary internal combustion engine is defined in 40 CFR Part 60, Subpart JJJJ as any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. Stationary SI ICE used for peak shaving are not considered emergency stationary ICE. Stationary ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.

40 CFR Part 60, Subpart JJJJ Requirements:

The generator shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 CFR Part 60, Subpart JJJJ, Table 1.

A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4237]

The generator shall be operated and maintained according to the manufacturer's written instructions or procedures developed by AVX that are approved by the engine manufacturer. AVX may only change those settings that are permitted by the manufacturer. [40 CFR §60.4243]

The generator shall be limited to 100 hours/year for maintenance and testing. The emergency engine may operate up to 50 hours per year in

non-emergency situations, but those 50 hours are included in the 100 hours allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR §60.4243(d)]

D. Pyrolysis Ovens and Pre-dryers

AVX operates three pyrolysis ovens, along with the pre-dryers. The pre-dryers and pyrolysis ovens are used in the process once the pellets (the cores of the capacitors) are formed. The pellets go through a nitric acid/manganese nitrate solution and then are dried in the pre-dryers. The pyrolysis ovens follow the pre-dryers, using steam to heat and react with the nitric acid/manganese nitrate.

The pre-dryers and pyrolysis ovens emit relatively small quantities of NO<sub>x</sub> and no additional add-on NO<sub>x</sub> controls are economically justified. NO<sub>x</sub> emissions shall be minimized by minimizing the chemical usage and maximizing operational efficiency.

The BPT requirements for the pre-dryers and the pyrolysis ovens include the following:

AVX shall operate the pyrolysis ovens and pre-dryers in accordance with the facility's written procedures and work practices, based on manufacturer recommendations.

AVX shall not exceed an annual NO<sub>x</sub> emission limit of 11 ton/yr from the pyrolysis ovens and pre-dryers, based on a 12 month rolling total, demonstrated by recordkeeping including monthly records of chemical use.

E. De-flash Machines

The three de-flash machines utilize a blasting process where abrasives remove the excess plastic material from the capacitor once the capacitor is removed from its mold. The de-flash machines emit small quantities of particulate matter and are equipped with dust collectors rated at greater than 95% efficiency.

The BPT requirements for the de-flash machines include the following:

Particulate emissions from the de-flash machines shall be vented through fabric filter dust collectors and the de-flash machines shall be maintained so as to prevent PM leaks. Particulate matter emissions from the operation of the de-flash machines shall be limited to a total of 2 tons/year, on a 12 month rolling total basis. Records, including media usage and control equipment

efficiency estimates, shall be maintained to document compliance with the particulate matter limit.

Opacity from each of the de-flash machine exhausts shall not exceed 20% on a 6 minute block average basis, except for no more than 1 six minute block average in a 1 hour period.

#### F. VOC Processes

AVX uses small quantities of VOC containing material throughout the facility for various processes including, but not limited to, the following:

##### *Silver Dip Process*

The silver dip process consists of dipping the pellets into a slurry of metallic silver and high flash-point organic solvent as the final step of producing the capacity core. The Department has determined that the silver dip process does not meet the definition of coating in *Surface Coating Facilities*, 06-096 CMR 129 (as amended) since the process is not used to apply a "protective, decorative, or functional film". Instead, the silver deposition is one stage in the formation of the capacitor itself. Therefore, the silver dip process is not subject to the requirements of 06-096 CMR 129 (as amended). However, the VOC emissions from the process shall be included in the total facility VOC license limit.

##### *Marking Operation*

The marking operation consists of marking the capacitors prior to shipment. The marking operation includes an automated stamping system for ink transfer efficiency optimization. AVX uses approximately three gallons of ink per year in the marking operations and is therefore exempt from 06-096 CMR 129 (as amended) per 06-960 CMR 129, Section (1)(E)(1), which exempts coating units, lines, or operations using less than 50 gallons of coating per year. VOC emissions from the marking operation shall be included in the total facility VOC license limit.

##### *Isopropanol*

AVX uses small amounts of isopropanol for drying medical implant capacitors and also for miscellaneous cleaning of equipment. In order to minimize emissions, the beakers are only filled when in immediate use, and are emptied into a sealed container immediately after use. VOC emissions from the isopropanol use shall be included in the total facility VOC license limit.

##### *Vapor Degreaser*

AVX operates a vapor degreaser. The vapor degreaser is subject to *Solvent Cleaners*, 06-096 CMR 130 (as amended). VOC emissions from

the solvent usage in the vapor degreaser shall be included in the total facility VOC license limit.

The BPT requirements for the VOC processes at the facility include the following:

AVX shall close all containers containing VOC material when not in immediate use.

AVX shall maintain records of ink and thinner use to document that actual coatings use as applied from the marking operations are below 50 gallons per year.

AVX shall maintain monthly records of the total solvent used in the vapor degreaser (added and removed). The vapor degreaser shall be operated in accordance with 06-096 CMR 130 (as amended).

AVX shall not exceed an annual VOC emission limit of 10 ton/yr from facility process operations, based on a 12 month rolling total. Monthly records of VOC use shall be included as part of the VOC compliance demonstration.

G. Annual Emissions

AVX shall be restricted to the following annual emissions on a 12 month rolling total, based on 56,000 MMBtu/year limit for the boilers, 500 hours/year of generator operation, and process emission limits:

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

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Boilers*	2.24	2.24	14.10	8.40	2.31	0.15
Generator 1	0.02	0.02	0.01	0.1	0.13	0.002
Pyrolysis Oven	-	-	-	11.0	-	-
De-Flash	2.0	2.0	-	-	-	-
Misc. VOC	-	-	-	-	-	10.0
<b>Total TPY</b>	<b>4.3</b>	<b>4.3</b>	<b>14.1</b>	<b>19.5</b>	<b>2.4</b>	<b>10.2</b>

\* Boiler emissions were based on worst-case emissions. PM, SO<sub>2</sub>, and NO<sub>x</sub> calculated using #2 oil factors and CO and VOC calculated using natural gas factors.

### III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115 (as amended), the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Modeling is not required for a renewal if the total emissions of any pollutant released do not exceed the following and there are no extenuating circumstances:

<b>Pollutant</b>	<b>Tons/Year</b>
PM	25
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	100
CO	250

Based on the total facility licensed emissions, AVX is below the emissions level required for modeling.

### 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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-664-71-G-R/A subject to the following conditions.

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

### STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples,

conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).

- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353-A. [06-096 CMR 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been

necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:

1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or

2. pursuant to any other requirement of this license to perform stack testing.

B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

C. submit a written report to the Department within thirty (30) days from date of test completion.

[06-096 CMR 115]

(12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and

B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[06-096 CMR 115]

(13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for

the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]

- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

#### SPECIFIC CONDITIONS

(16) **Boilers 1, 2, and 3**

A. Fuel

1. AVX may fire natural gas or #2 fuel oil which meets the requirements of ASTM D396 in Boilers 1, 2, and 3.
2. AVX shall be limited to 56,000 MMBtu/yr total for the three boilers on a 12 month rolling total.
3. AVX shall keep fuel records documenting the amount and type of fuel (#2 fuel oil and natural gas) fired on a monthly and 12 month rolling total basis, and the calculations documenting compliance with the 56,000 MMBtu/yr limit.

B. Emissions shall not exceed the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>Origin and Authority</u>
Boiler 3	PM	0.08	06-096 CMR 115, BACT

C. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Unit	Fuel	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler 1 (2.5 MMBtu/hr)	#2 fuel	0.20	0.20	1.26	0.75	0.09	0.01
	nat'l gas	0.20	0.20	0.002	0.25	0.21	0.01
Boiler 2 (2.5 MMBtu/hr)	#2 fuel	0.20	0.20	1.26	0.75	0.09	0.01
	nat'l gas	0.20	0.20	0.002	0.25	0.21	0.01
Boiler 3 (7.0 MMBtu/hr)	#2 fuel	0.56	0.56	3.53	2.10	0.25	0.02
	nat'l gas	0.56	0.56	0.004	0.69	0.58	0.04

D. Visible Emissions

1. Visible emissions from each boiler firing fuel oil shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101]
2. Visible emissions from each boiler firing natural gas shall not exceed 10% opacity on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101]

(17) **Emergency Generator 1**

- A. Emergency Generator 1 shall fire only propane fuel. [06-096 CMR 115, BPT]
- B. Emergency Generator 1 is limited to 500 hours per year total operation, based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115]
- C. Emergency Generator 1 emissions shall not exceed the following [06-096 CMR 115, BPT]:

Emission Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator 1	0.07	0.07	0.022	0.38	0.51	0.01

- D. Visible emissions from the emergency generator shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a 3-hour period. [06-096 CMR 101]
- E. Emergency Generator 1 shall meet the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following:

1. The emergency generator shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 CFR Part 60, Subpart JJJJ, Table 1.
2. A non-resettable hour meter shall be installed and operated on the emergency generator. [40 CFR §60.4237 and 06-096 CMR 115, BPT]
3. The emergency generator shall be limited to 100 hours/year for maintenance and testing. The emergency generator may operate up to 50 hours per year in non-emergency situations, but those 50 hours are included in the 100 hours allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. The limits are based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours [40 CFR §60.4243(d) and 06-096 CMR 115]
4. The emergency generator shall be operated and maintained according to the manufacturer's written instructions or procedures developed by AVX that are approved by the engine manufacturer. AVX may only change those settings that are permitted by the manufacturer. [40 CFR §60.4243]

**(18) Pyrolysis Ovens and Pre-dryers**

- A. AVX shall operate the pyrolysis ovens and pre-dryers in accordance with the facility's written procedures and work practices, based on manufacturer recommendation. [MEDEP Chapter 115, BPT]
- B. AVX shall not exceed an annual NO<sub>x</sub> emission limit of 11.0 ton/yr from the pyrolysis ovens and pre-dryers, based on a 12 month rolling total, demonstrated by recordkeeping including monthly records of chemical use. [MEDEP Chapter 115, BPT]

**(19) De-flash Machines**

- A. Particulate matter emissions from the de-flash machines shall be vented through fabric filter dust collectors and the de-flash machines shall be maintained so as to prevent PM leaks. [MEDEP Chapter 115, BPT]
- B. Particulate matter emissions from the de-flash machines shall be limited to a total of 2 tons/year, based on a 12 month rolling total, demonstrated by recordkeeping including monthly records of media use and the control efficiency estimate of the fabric filters.

- C. Opacity from each of the de-flash machine exhausts shall not exceed 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1 hour period. [MEDEP Chapter 115, BPT]

(20) **VOC Processes**

- A. AVX shall close all containers containing VOC material when not in immediate use. [MEDEP Chapter 115, BPT]
- B. AVX shall maintain usage records of ink and thinner to document that actual coatings use, as applied, from the marking operations are below the 06-096 CMR 129 threshold of 50 gallons per year. [MEDEP 06-096 CMR 129 and CMR 115, BPT]
- C. AVX shall maintain monthly records of the total solvent used in the vapor degreaser (added and removed). The vapor degreaser shall be operated accordance with the applicable requirements of 06-096 CMR 130 (as amended). [MEDEP 06-096 CMR 130 and CMR 115, BPT]
- D. AVX shall not exceed an annual VOC emission limit of 10.0 ton/yr from facility process operations, based on a 12 month rolling total. Monthly records of VOC use shall be included as part of the VOC compliance demonstration.

- (21) AVX may add or remove equipment from the pyrolysis, pre-drying, or de-flash operations as long as the installation or removal of the components does not result in noncompliance with any terms of the emission license or any representations made in the air emission license application. [MEDEP Chapter 115, BPT]

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(22) AVX shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 1<sup>st</sup> DAY OF July, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Patricia W. AHO*  
PATRICIA W. AHO, ACTING COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 3, 2011

Date of application acceptance: February 7, 2011

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

