

**STATEMENT OF BASIS****Page 1 of 14**BAQ Engineering Services Division  
2600 Bull Street, Columbia, SC 29201  
Phone: 803-898-4123 Fax: 803-898-4079**Company Name: AVX Corporation**  
**Permit Number: TV-1340-0002****Permit Writer: Fatina A Washburn Clark**  
**Date: April 17, 2013****DATE APPLICATION RECEIVED:** September 13, 2010**DATE OF LAST INSPECTION:** April 10, 2012 - No Violations**FACILITY DESCRIPTION:** The Myrtle Beach facility is located in Horry County in northeastern South Carolina. The facility is located approximately two kilometers inland from the Atlantic Ocean at U.S. Highway 17 and 17th Avenue South. This site is bordered by the South Carolina National Guard, the Myrtle Beach Jetport, and a residential neighborhood.

The facility produces electronic capacitors for various clients in the electronics industry. There are two manufacturing areas at the facility: the main production building (MB1) and the new manufacturing building (MB2). The main production building, MB1, was originally constructed in 1949 and the main facility as exists today was constructed beginning in approximately 1985. The new manufacturing building, MB2, was subsequently constructed beginning in 1998. Operations in each of these buildings are divided into various departments.

Operations in the MB1 complex include Raw Materials Manufacturing, Slip Manufacturing, Metals Department, Chip Manufacturing Automated Process (CMAP) Buildup, CMAP Support Department, Kiln Room, Termination Department, Plating Department, and other supporting processes. MB2 contains a subset of those operations found in MB1, such as CMAP Buildup, CMAP Support, and kiln room operations.

**PROJECT DESCRIPTION:** The facility wishes to renew their Title V permit.**CHANGES SINCE LAST OP ISSUANCE:** The Title V permit expired on July 31, 2006. The facility submitted the proper renewal application on January 30, 2006. The facility submitted revised application on September 19, 2006, requesting Conditional Major status primarily due to the delisting of glycol ethers. The facility submitted another revised application requesting minor source status on August 1, 2007 and revised August 17, 2007. This further change in status was primarily due to change in site mission and reduction of production. On February 8, 2008, the facility described a new proposed process to the Bureau and the department decided not to issue the minor source operating permit since the proposed construction activity would classify the facility as a major source for volatile organic compound (VOCs) and Hazardous Air Pollutants (HAPs). The construction permit application 1340-0002-CZ was received on May 14, 2008. On August 28, 2008, the facility withdrew this construction permit application. On September 25, 2008, the Bureau requested the facility to source test the control device and revise the air toxics modeling in order to determine the most appropriate permitting path. In February 2009, the facility conducted a source test to determine the efficiency of the pollution control devices used to destroy VOC emissions from the "CMAP build-up" machines. In June 2009, the facility conducted source tests to determine the emissions rate of total hydrocarbons (THC) from its metals department and burn-out oven exhausts. In July 2009, the Bureau reviewed air dispersion modeling analyses submitted by the facility to determine compliance with state air toxics standards. The Bureau made a determination that since the facility had undergone a 112(g) determination for part of the facility, the facility could not apply for any type of operating permit other than a Title V, even though the current uncontrolled emissions for the facility were below the major source HAP thresholds of 10 tons per year (TPY) of a single HAP and 25 TPY of total HAPs. The revised Title V renewal application was received on September 13, 2010. This completely revised renewal included the most recent equipment and production inventories as well as incorporating the results of the 2009 source testing efforts. Additional information was required and a modified renewal application and supplements were received on April 1, 2011, May 12, 2011, September 12, 2011 and October 19, 2011, January 9, 2012, April 18, 2012, and February 13, 2013, respectively.**SOURCE TEST REQUIREMENTS:** The adsorber/desorber/thermal oxidizer system (ID 017, CD-AD-1, -AD-2, AD-3, TO-1) shall be periodically tested every three years or when process or design conditions change to warrant additional testing to ensure capture and destruction efficiencies are being met. An initial test shall be conducted within 180 days of the effective date of this renewal permit and every three years thereafter.

The Thin Film Scrubber (ID 020, CD-TFS) shall be periodically tested every three years or when process or design conditions change to warrant additional testing to ensure removal efficiencies are being met. An initial test shall be conducted within 180 days of the effective date of this renewal permit and every three years thereafter.

The Department may reevaluate the frequency of testing at the next renewal period based on the results and compliance with the above mentioned source tests.

**STATEMENT OF BASIS****Page 2 of 14**

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The facility shall continue to monitor the parameters outlined in original 112(g) for this project and any revisions requested with this renewal. These are:

- Continuously monitor the combustion chamber temperature of the thermal oxidizer and record the value at least once per day (when in operation). The combustion chamber temperature will be maintained between 1,400 and 1,800 degrees Fahrenheit. The facility will continue to employ an alarm feature to provide notification if the combustion chamber temperature deviates from the prescribed range. The facility will maintain a log book on site that includes the time and date of alarms and to record corrective actions taken as a result of the alarm.
- Continuously monitor the pressure drop across the adsorption unit and record the value at least once per day (when in operation). The pressure drop will be maintained between 1.0 and 5.0 inches of water (gauge).
- Continuously monitor the temperature of the desorption unit and record the value at least once per day (when in operation). The temperature will be maintained between 350 and 500 degrees Fahrenheit.
- The log books will include the date, time, nature and duration of each time the adsorber/desorber system or thermal oxidizer system is bypassed for equipment malfunction or failure or for other reasons such as the performance of planned maintenance. The log books will also note instances (including the reason) when the adsorption/desorption system or thermal oxidizer are not in operation.
- Solvent cleaning operations in the MB2 facility using solvents that meet any one or more of the following requirements are exempt from any additional work practice or housekeeping requirements:
  - a. Cleaning solvent solutions that are classified as an aqueous cleaning solvent, that is a solvent having a water content equal to or greater than 80% by weight.
  - b. Hydrocarbon-based cleaning solvents with a maximum composite vapor pressure of 7 mmHg at 20 degrees C and that contain no Hazardous Air Pollutants (HAPs) or ozone depleting compounds as defined by 40 CFR 82.
  - c. Cleaning solvents that are comprised of less than 1% by weight of VOCs or HAPs for non-carcinogens, and 0.1% by weight of VOCs or HAPs for carcinogens.
  - d. Cleaning materials that are used exclusively for janitorial purposes.
- For each cleaning solvent used in cleaning operations in the MB2 facility that is exempt according to one or more of the four criteria specified above or for any semi-aqueous cleaning solvents used for flush cleaning operations, the owner/operator shall maintain records including, but not limited to, the following:
  - a. The name of each cleaning solvent used;
  - b. Data and/or calculations that demonstrate that the flush cleaning solvent is semi-aqueous or that the hand-wipe cleaning solvent complies with one of the four composition requirements in the above condition; and
  - c. Annual records of the volume of each solvent used to be determined from facility purchase records, usage records, or any other records for which the Bureau grants approval.
- For each cleaning solvent that does not conform to the composition/vapor pressure requirements above, the owner/operator shall retain records including, but not limited to, the following:
  - a. The identity and amount (in gallons) of each cleaning solvent used each month at the various MB2 processes for which use of conforming solvents is impractical; and,
  - b. A list of the processes or operations for which use of conforming solvents is impractical.
- The owner/operator, if utilizing hand-wipe cleaning operations in the MB2 facility shall, to the maximum extent practical, utilize cleaning solvent solutions that have a composite vapor pressure of 45 mmHg or less at 20 degrees C.
- For each cleaning solvent used for hand-wipe cleaning operations in the MB2 facility that does meet the 45 mmHg vapor pressure requirement, the owner/operator shall maintain records including, but not limited to, the following:
  - a. The name of each cleaning solvent used;
  - b. The composite vapor pressure of each cleaning solvent used;
  - c. Supporting documentation for the composite vapor pressure determination (such as vapor pressure test results, manufacturer provided data and/or calculations); and,
  - d. The amount (in gallons) of each cleaning solvent used each month.

**PUBLIC NOTICE:**

This Title V Permit will undergo a 30-day public notice period and a 45-day EPA comment period in accordance with SC Regulation 61-62.1, Section II(N). This permit was placed in *The Sun* newspaper on February 25, 2013. The comment period was open from February 25, 2013 to March 26, 2013 and was placed on the BAQ website during that time period. Comments were received during the comment period and have



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been address in the response to comment document.

**ADDITIONAL PUBLIC PARTICIPATION**

A joint public meeting will be held on March 14, 2013 at Fire Station No. 3. Postcards were sent out to a mailing list announcing a public meeting. There is also a DHEC website set up with information about AVX [www.scdhec.gov/avx](http://www.scdhec.gov/avx).

**EMISSIONS**

UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)					
Emission Unit ID	Equipment ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
014	All Sources	PM	0.13	0.58	AP-42, 5 <sup>th</sup> Ed., Section 11.12 – Cement Bin Loading, 1583 TPY
014	All Sources	PM <sub>10</sub>	0.09	0.37	AP-42, 5 <sup>th</sup> Ed., Section 11.12 – Cement Bin Loading, 1583 TPY
014	All Sources	PM <sub>2.5</sub>	0.09	0.37	AP-42, 5 <sup>th</sup> Ed., Section 11.12 – Cement Bin Loading, 1583 TPY
015	All Sources	VOC	5.59	24.48	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
015	All Sources	Bis(2-ethylhexyl)Phthalate	0.03	0.13	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
015	All Sources	Methanol	1.76E-03	7.70E-03	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
015	All Sources	Methyl Isobutyl Ketone	9.27E-04	4.06E-03	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
015	All Sources	Xylene	5.27E-03	0.02	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
016	All Sources	PM	0.27	1.19	AP-42, 5 <sup>th</sup> Ed., Section 11.12 – Cement Bin Loading, 3257 TPY
016	All Sources	PM <sub>10</sub>	0.17	0.77	AP-42, 5 <sup>th</sup> Ed., Section 11.12 – Cement Bin Loading, 3257 TPY
016	All Sources	PM <sub>2.5</sub>	0.17	0.77	AP-42, 5 <sup>th</sup> Ed., Section 11.12 – Cement Bin Loading, 3257 TPY
016	All Sources	VOC	1.41	6.16	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
016	All Sources	Bis(2-ethylhexyl)Phthalate	0.001	4.88E-03	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details



**STATEMENT OF BASIS**  
**Page 4 of 14**  
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**UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

<b>Emission Unit ID</b>	<b>Equipment ID</b>	<b>Pollutant</b>	<b>lb/hr</b>	<b>TPY</b>	<b>Method for Estimating Emissions</b>
016	All Sources	Ethyl Benzene	6.58E-05	2.88E-04	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
016	All Sources	Methanol	3.24E-04	1.42E-03	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
016	All Sources	Methyl Isobutyl Ketone	1.71E-04	7.49E-04	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
016	All Sources	Toluene	1.32E-04	5.76E-04	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
016	All Sources	Xylene (Mixed Isomers)	0.01	0.05	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAP	PM	0.01	0.03	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	PM <sub>10</sub>	0.01	0.03	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	PM <sub>2.5</sub>	0.01	0.03	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	NO <sub>x</sub>	0.10	0.44	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	SO <sub>2</sub>	0.001	0.003	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	CO	0.09	0.37	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	VOC	39.19	114.44	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf for the RTO and Production Records, Engineering Calculation for the process– see TV renewal application dated 5/12/2011 for details
017	CMAP	CO <sub>2</sub>	122.40	528.00	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	Nitrous Oxide (N <sub>2</sub> O)	0.002	0.01	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	Methane	0.002	0.01	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 1 MMBTU/hr, 1020 BTU/scf
017	CMAP	Ethyl Benzene	0.20	0.57	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details



**STATEMENT OF BASIS**

**Page 5 of 14**

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**UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

<b>Emission Unit ID</b>	<b>Equipment ID</b>	<b>Pollutant</b>	<b>lb/hr</b>	<b>TPY</b>	<b>Method for Estimating Emissions</b>
017	CMAP	Methanol	1.41	4.12	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAP	Bis(2-ethylhexyl)Phthalate	0.20	0.57	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAP	Methyl Isobutyl Ketone	0.74	2.17	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAP	Toluene	0.20	0.57	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAP	Xylene (Mixed Isomers)	0.20	0.57	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAPCLN	VOC	2.54	11.1	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAPCLN	Methanol	4.5E-03	0.021	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAPCLN	Methyl Isobutyl Ketone	2.53E-03	0.011	Production Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
017	CMAPFUG	VOC	0.597	1.74	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details
017	CMAPFUG	Ethyl Benzene	2.98E-03	0.009	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details
017	CMAPFUG	Bis(2-ethylhexyl)Phthalate	2.98E-03	0.009	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details
017	CMAPFUG	Methanol	2.15E-02	0.06	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details



**STATEMENT OF BASIS**  
**Page 6 of 14**  
 BAQ Engineering Services Division  
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**UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

<b>Emission Unit ID</b>	<b>Equipment ID</b>	<b>Pollutant</b>	<b>lb/hr</b>	<b>TPY</b>	<b>Method for Estimating Emissions</b>
017	CMAPFUG	Methyl Isobutyl Ketone	1.12E-02	0.03	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details
017	CMAPFUG	Toluene	2.98E-03	0.009	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details
017	CMAPFUG	Xylene (Mixed Isomers)	2.98E-03	0.009	Assumes 1% room fugitives and 0.5% post chip manufacturing - see TV renewal application dated 5/12/2011 and 9/5/11 for details
018	DD	PM	8.73	38.23	Material Recovery Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
018	DD	PM <sub>10</sub>	8.73	38.23	Material Recovery Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
018	DD	PM <sub>2.5</sub>	8.73	38.23	Material Recovery Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
019	All Sources (Paste)	VOC	2.62E-04	1.15E-03	Usage Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
019	All Sources (Cleaning)	VOC	1.18	5.17	Usage Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
019	All Sources (Cleaning)	Methanol	0.017	0.07	Usage Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
019	All Sources (Cleaning)	Methyl Isobutyl Ketone	0.01	0.04	Usage Records, Engineering Calculation – see TV renewal application dated 5/12/2011 for details
019	PBSBE	PM	1.86E-02	8.14E-02	Usage Records, Engineering Calculation – see TV renewal application dated 4/20/12 for details
019	PBSBE	PM <sub>10</sub>	1.86E-02	8.14E-02	Usage Records, Engineering Calculation – see TV renewal application dated 4/20/12 for details
019	PBSBE	PM <sub>2.5</sub>	1.86E-02	8.14E-02	Usage Records, Engineering Calculation – see TV renewal application dated 4/20/12 for details



**STATEMENT OF BASIS**

**Page 7 of 14**

BAQ Engineering Services Division

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**UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

Emission Unit ID	Equipment ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
019	PBSBE	Nickel	2.28E-03	1.00E-02	Usage Records, Engineering Calculation – see TV renewal application dated 4/20/12 for details
019	PBSBE	Lead	3.83E-04	1.68E-03	Usage Records, Engineering Calculation – see TV renewal application dated 4/20/12 for details
020	TFP	PM	0.79	3.44	Summation of HAP/TAP acids, HF and lead compounds.
020	TFP	PM <sub>10</sub>	0.79	3.44	Summation of HAP/TAP acids, HF and lead compounds.
020	TFP	PM <sub>2.5</sub>	0.79	3.44	Summation of HAP/TAP acids, HF and lead compounds.
020	TFP	VOC	0.47	2.07	Summation
020	TFP	Lead	0.01	0.03	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	Lead Zirconate Titanate	0.01	0.03	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	Hydrogen Fluoride	0.02	0.08	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	2-Ethanolamine	1.0E-01	4.5E-01	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	HCl	0.09	0.40	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	Nitric Acid	0.39	1.70	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	Phosphoric Acid	0.16	0.70	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
020	TFP	H <sub>2</sub> SO <sub>4</sub>	0.07	0.32	Usage Records, Engineering Calculation – see TV renewal application dated 9/5/11 for details
021	B201	PM	0.15	0.55	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	PM <sub>10</sub>	0.15	0.55	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	PM <sub>2.5</sub>	0.15	0.55	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	NO <sub>x</sub>	2.00	7.19	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	SO <sub>2</sub>	0.01	0.04	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	CO	1.68	6.04	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf



**STATEMENT OF BASIS**

**Page 8 of 14**

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**UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

Emission Unit ID	Equipment ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
021	B201	VOC	0.11	0.40	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	CO <sub>2</sub>	2400	8625	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Nitrous Oxide (N <sub>2</sub> O)	0.04	0.16	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Methane	0.05	0.17	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Lead	1.00e-05	3.59E-05	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-1 & 2; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Benzene	4.25E-05	1.51E-04	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-3; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Polycyclic Organic Matter	1.76E-06	6.34E-06	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-3; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Naphthalene	1.22E-05	4.38E-05	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-3; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Toluene	6.8E-05	2.44E-04	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-3; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Formaldehyde	1.50E-03	5.39E-03	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-3; 16.4 MMBTU/hr, 1020 BTU/scf
021	B201	Hexane	0.036	0.13	AP-42, 5 <sup>th</sup> Ed., Tables 1.4-3; 16.4 MMBTU/hr, 1020 BTU/scf
021	SS	PM	0.002	0.01	AP-42, 5 <sup>th</sup> Ed., Section 12.19; SMAW Welding Process
021	SS	PM <sub>10</sub>	0.002	0.01	AP-42, 5 <sup>th</sup> Ed., Section 12.19; SMAW Welding Process
021	SS	PM <sub>2.5</sub>	0.002	0.01	AP-42, 5 <sup>th</sup> Ed., Section 12.19; SMAW Welding Process
021	SS	Lead	2.13E-05	9.32E-05	AP-42, 5 <sup>th</sup> Ed., Section 12.19; SMAW Welding Process
021	SS	Chromium	1.71E-06	7.48E-06	AP-42, 5 <sup>th</sup> Ed., Section 12.19; SMAW Welding Process
021	SS	Manganese	1.11E-04	4.86E-04	AP-42, 5 <sup>th</sup> Ed., Section 12.19; SMAW Welding Process
021	ST	VOC	0.50	2.19	Summation
021	ST	Ethylidene Dichloride	0.11	0.48	Vendor Model
021	ST	Trichloroethylene (Trichloroethene)	0.3	1.32	Vendor Model
021	ST	Vinyl Chloride	0.09	0.39	Vendor Model

**CONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

Emission Unit ID	Equipment ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
014	RMMPG	PM	3.96E-05	1.73E-04	100% capture, 99.97% control efficiency
014	RMMPG	PM <sub>10</sub>	2.60E-05	1.12E-04	100% capture, 99.97% control efficiency





**STATEMENT OF BASIS**

**Page 9 of 14**

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**Permit Number: TV-1340-0002**

**Permit Writer: Fatina A Washburn Clark**

**Date: April 17, 2013**

**CONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

Emission Unit ID	Equipment ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
014	RMMPG	PM <sub>2.5</sub>	2.60E-05	1.12E-04	100% capture, 99.97% control efficiency
017	CMAP	VOC	0.21	0.60	99% capture, 98.5% control efficiency, 5840 hours/year PLUS fuel combustion VOCs
017	CMAP	Ethyl Benzene	2.94E-03	0.01	99% capture, 98.5% control efficiency, 5840 hours/year
017	CMAP	Methanol	2.12E-02	0.06	99% capture, 98.5% control efficiency, 5840 hours/year
017	CMAP	Bis(2-ethylhexyl)Phthalate	2.94E-03	8.58E-03	99% capture, 98.5% control efficiency, 5840 hours/year
017	CMAP	Methyl Isobutyl Ketone	1.12E-02	0.03	99% capture, 98.5% control efficiency, 5840 hours/year
017	CMAP	Toluene	2.94E-03	0.01	99% capture, 98.5% control efficiency, 5840 hours/year
017	CMAP	Xylene (Mixed Isomers)	2.94E-03	0.01	99% capture, 98.5% control efficiency, 5840 hours/year
018	DD	PM	0.04	0.19	100% capture, 99.5% control efficiency
018	DD	PM <sub>10</sub>	0.04	0.19	100% capture, 99.5% control efficiency
018	DD	PM <sub>2.5</sub>	0.04	0.19	100% capture, 99.5% control efficiency
020	TFP	PM	0.03	0.12	Summation of HAP/TAP acids, HF and lead compounds.
020	TFP	PM <sub>10</sub>	0.03	0.12	Summation of HAP/TAP acids, HF and lead compounds.
020	TFP	PM <sub>2.5</sub>	0.03	0.12	Summation of HAP/TAP acids, HF and lead compounds.
020	TFP	VOC	0.24	1.05	Summation
020	TFP	Lead	6.67E-05	2.92E-04	100% capture, 99% control efficiency
020	TFP	Lead Zirconate Titanate	6.04E-05	2.65E-04	100% capture, 99% control efficiency
020	TFP	Hydrogen Fluoride	1.75E-04	7.67E-04	100% capture, 99% control efficiency
020	TFP	2-Ethanolamine	5.19E-02	2.30E-01	100% capture, 50% control efficiency
020	TFP	HCl	9.18E-04	4.02E-03	100% capture, 99% control efficiency
020	TFP	Nitric Acid	3.88E-03	1.70E-02	100% capture, 99% control efficiency
020	TFP	Phosphoric Acid	1.59E-03	6.98E-03	100% capture, 99% control efficiency
020	TFP	H <sub>2</sub> SO <sub>4</sub>	7.21E-04	3.16E-03	100% capture, 99% control efficiency



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<b>FACILITY WIDE EMISSIONS</b>		
<b>Pollutant</b>	<b>Uncontrolled Emissions</b>	<b>Controlled Emissions</b>
	<b>TPY</b>	<b>TPY</b>
PM	4.41E+01	2.17E+00
PM <sub>10</sub>	4.35E+01	1.75E+00
PM <sub>2.5</sub>	4.35E+01	1.75E+00
NO <sub>x</sub>	7.63E+00	N/A
SO <sub>2</sub>	4.30E-02	N/A
CO	6.41E+00	N/A
VOC	1.68E+02	5.29E+01
Lead	3.18E-02	2.10E-03
Hydrogen Fluoride	8.00E-02	7.67E-04
CO <sub>2</sub>	9.15E+03	N/A
Nitrous Oxide (N <sub>2</sub> O)	1.70E-01	N/A
Methane	1.80E-01	N/A
2-Ethanolamine	4.50E-01	2.30E-01
Benzene	1.51E-04	N/A
Bis(2-Ethylhexyl)Phthalate	7.14E-01	1.52E-01
Chromium	7.48E-06	N/A
Ethyl Benzene	5.79E-01	1.93E-02
Ethylidene Dichloride	4.80E-01	N/A
Formaldehyde	5.39E-03	N/A
HCl	4.00E-01	4.02E-03
Hexane	1.30E-01	N/A
Lead Zirconate Titanate	3.00E-02	2.65E-04
Manganese	4.86E-04	N/A
Methanol	4.28E+00	2.2E-01
Methyl Isobutyl Ketone	2.26E+00	1.16E-01
Naphthalene	4.38E-05	N/A
Nickel	1.00E-02	N/A
Nitric Acid	1.70E+00	1.70E-02
Phosphoric Acid	7.00E-01	6.98E-03
Polycyclic Organic Matter	6.43E-06	N/A
H <sub>2</sub> SO <sub>4</sub>	3.20E-01	3.16E-03
Toluene	5.80E-01	1.98E-02
Trichloroethylene (Trichloroethene)	1.32E+00	N/A
Vinyl Chloride	3.90E-01	N/A
Xylene (Mixed Isomers)	6.49E-01	8.90E-02
Total HAPS	1.51E+01	3.22E+00



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**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<b>South Carolina Regulation 61-62.1 through 62.99: Air Pollution Regulations (PROJECT ONLY)</b>			
<b>Section II(E): Synthetic Minor</b>	X		The previous permit renewal estimated emissions above the 250 TPY threshold for VOCs. The project activities previously permitted under construction permits 1340-0002-CS/CT established a synthetic minor limit of < 40 TPY for all activities associated with the New Manufacturing Facility, otherwise known as MB2. Due to current operations, the total facility wide VOC emissions are approximately 172 TPY, which is below the 250 TPY facility wide threshold. Therefore, AVX is no longer a major source and is therefore no longer subject to past permit emission restrictions to avoid triggering the Prevention of Significant Deterioration (PSD) regulations. The facility, however, has requested a federally enforceable facility wide limitation of less than 250 TPY.
<b>Section II(G): Conditional Major</b>		X	The facility is a potentially major source for VOCs and has not agreed to any federally enforceable limits for this pollutant.
<b>Standard 1: Fuel Burning Operations</b>	X		The boiler, B201, is subject to this standard. As such, the boiler is limited to 20% opacity, a PM limit of 0.6 lb/MMBTU and an SO <sub>2</sub> limit of 3.5 lb/MMBTU. Compliance with these limits are accomplished by visible emissions reporting for opacity, restricted to pipeline quality natural gas for SO <sub>2</sub> and demonstration by calculation for PM.
<b>Standard 2: Ambient Air Quality Standards</b>	X		This facility has demonstrated compliance through modeling; see modeling summary dated May 9, 2012. No operational restriction has been established to ensure compliance with the modeled emission rates.
<b>Standard 3: Waste Combustion/Reduction (state only)</b>	X		The Thermal Oxidizer is subject to this standard. As such, the thermal oxidizer must comply with the industrial incinerator requirements of 20% opacity and a PM limit of 0.5 lb/MMBTU. The facility is exempt from the waste analysis requirements due to special knowledge of the waste. The facility has been exempted from the operator training requirements for incinerators. The periodic testing requirement has been waived for this facility. The continuous monitoring outlined in the condition regarding pressure, temperature and continuous alarm monitoring shall satisfy the daily monitoring requirements of this standard..
<b>Standard 3.1: HMI Waste Incinerators</b>		X	No medical waste incineration occurring at this facility.



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Regulation	Applicable		Comments																																																						
	Yes	No																																																							
<b>Standard 4:</b> Emissions from Process Industries	X		<p>The following emission sources have opacity limits (including any fugitives) and Particulate Matter (PM) allowable emissions rates (based on a process weight rate in tons per hour) imposed by this standard:</p> <table border="1"> <thead> <tr> <th>ID</th> <th>Opacity (%)</th> <th>PM Allowable (lb/hr)</th> <th>Process Weight Rate (tons/hr)</th> <th>Uncontrolled PM Emissions (lb/hr)</th> <th>Controlled PM Emissions (lb/hr)</th> </tr> </thead> <tbody> <tr><td>14</td><td>20%</td><td>3.22</td><td>0.7</td><td>0.13</td><td>3.9E-05</td></tr> <tr><td>15</td><td>20%</td><td>N/A</td><td>88.4</td><td>N/A</td><td>N/A</td></tr> <tr><td>16</td><td>20%</td><td>2.91</td><td>0.6</td><td>0.27</td><td>0.27</td></tr> <tr><td>17</td><td>20%</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></tr> <tr><td>18</td><td>20%</td><td>0.20</td><td>0.011</td><td>8.73</td><td>0.04</td></tr> <tr><td>19</td><td>20%</td><td>2.97</td><td>0.62</td><td>3.55E-03</td><td>3.55E-03</td></tr> <tr><td>20</td><td>20%</td><td>0.318</td><td>0.022</td><td>0.75</td><td>0.0074</td></tr> <tr><td>21</td><td>20%</td><td>1.83</td><td>0.30</td><td>0.002</td><td>0.002</td></tr> </tbody> </table> <p>All processes can comply with the limits based on production rates except for the Thin Film Process (TFP), ID020. The TFP must continue to operate and maintain the Thin Film Scrubber in order to comply with the limit. Periodic testing of the scrubber efficiency will be required.</p>	ID	Opacity (%)	PM Allowable (lb/hr)	Process Weight Rate (tons/hr)	Uncontrolled PM Emissions (lb/hr)	Controlled PM Emissions (lb/hr)	14	20%	3.22	0.7	0.13	3.9E-05	15	20%	N/A	88.4	N/A	N/A	16	20%	2.91	0.6	0.27	0.27	17	20%	N/A	N/A	N/A	N/A	18	20%	0.20	0.011	8.73	0.04	19	20%	2.97	0.62	3.55E-03	3.55E-03	20	20%	0.318	0.022	0.75	0.0074	21	20%	1.83	0.30	0.002	0.002
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<b>Standard 5:</b> Volatile Organic Compounds		X	None of the processes, which are regulated by the regulation, apply.																																																						
<b>Standard 5.1:</b> BACT/LAER For VOC (state only)		X	The facility was built before July 1, 1979. The facility's baseline VOC emissions as of the promulgation of this standard was 608 tons per year (based on 1978 emissions inventory data). The facilities current PTE of VOC emissions are 172 tons per year. The facility is limited to less than 708 tons per year before they would be subject BACT/LAER.																																																						
<b>Standard 5.2:</b> Control of Oxides of Nitrogen			The boiler was permitted to construct before 06/25/2004 and the burner assembly has not been replaced. The remaining sources fall under one of the seventeen exemptions from this standard – emergency power generators.																																																						
<b>Standard 7:</b> Prevention of Significant Deterioration		X	The facility is no longer a major PSD source but has requested emission limitations of less than 250 TPY VOCs.																																																						
<b>Standard 7(c):</b> Ambient Air Increments	X		There are no baselines established for PM <sub>10</sub> , SO <sub>2</sub> , or NO <sub>x</sub> in Horry County.																																																						
<b>Standard 7.1:</b> Standards for Non Attainment Areas		X	The facility is not located in an area of nonattainment.																																																						
<b>Standard 8:</b> Toxic Air Pollutants (state only)	X		This facility has demonstrated compliance through modeling for all TAPs; see modeling summary dated May 9, 2012.																																																						
<b>Regulation 61-62.6:</b> Control of Fugitive Particulate Matter		X	There are no sources of fugitive dust from this process.																																																						
<b>Regulation 61-62.60:</b> SC Designated Facility Plan and NSPS	X		The boiler, B201, is subject to Subparts A and Dc. As such, the natural gas fired boiler must comply with monthly fuel usage and semiannual reporting requirements.																																																						
<b>Regulation 61-62.61:</b> NESHAP		X	None of the processes, which are regulated by the regulation, apply.																																																						



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**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<p><b>Regulation 61-62.63:</b> NESHAP For Source Categories</p>	X		<p>Under the Clean Air Act Amendments of 1990, EPA is required to regulate large or "major" industrial facilities that emit one or more of 188 listed hazardous air pollutants (air toxics). On July 16, 1992, EPA published a list of industrial source categories that emit one or more of these hazardous air pollutants. EPA is required to develop standards for listed industrial categories of "major" sources (those that have the potential to emit 10 tons/year or more of a listed pollutant or 25 tons/year or more of a combination of pollutants) that will require the application of stringent controls, known as maximum achievable control technology (MACT).</p> <p>The section 112(g) provision is designed to ensure that emissions of toxic air pollutants do not increase if a facility is constructed or reconstructed before EPA issues a MACT or air toxics regulation for that particular category of sources or facilities.</p> <p>In effect, the 112(g) provision is a transitional measure to ensure that facilities adequately protect the public from toxic air pollutants until EPA issues a MACT standard that applies to the facility in question.</p> <p>Construction projects 1340-0002-CS and -CT were subject to a Case-by-Case MACT under 112(g). The Case by Case MACT determination was submitted on 05/12/2000. The facility proposed to use the existing adsorber/desorber (AD-4) and thermal oxidizer (TO-1) as the Maximum Achievable Control Technology for this process. The control system captures 90% of the emissions in AD-4. Of those emissions, approximately 95% will be captured by TO-1 and 99% of the VOC and HAP emissions destroyed.</p> <p>Eventhough the facility is no longer a major source of HAPs, the facility must continue to comply with the requirements in the 112(g) determination and the existing monitoring requirements as described in the Special Conditions, Monitoring, Limits section as outlined in the May 6, 1995 "once in, always in" policy. The US EPA proposed, in essence to reverse this policy on December 16, 2006 (72 FR 69), however, this proposal has not been finalized. Should it become final in the future, the facility may request to be reclassified as an area source.</p>



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	Yes	No	
<b>Regulation 61-62.63:</b> NESHAP For Source Categories (con't)			The emergency diesels are subject to Subpart A and ZZZZ. As such, they must comply with all applicable requirements by the compliance date of May 3, 2013.  The plating operations are subject to Subpart A and WWWWWW. As such they must comply with all applicable revisions. The compliance date has passed and an NOCS was submitted on 7/22/11. Specific conditions are contained in the permit.  The boiler is not subject to Subpart JJJJJ since it only burns natural gas.
<b>Regulation 61-62.68:</b> Chemical Accident Prevention		X	The facility does not store any chemicals above the threshold quantities.
<b>Regulation 61-62.70:</b> Title V	X		The facility is subject to 40 CFR 63, Subparts A & B and has undergone a 112(g) determination for a portion of the facility. As such, the facility is required to hold a Title V permit eventhough the facility is now an area source of HAPs.
<b>Regulation 61-62.72:</b> Acid Rain		X	None of the sources are an industrial utility unit.
<b>Regulation 61-62.96:</b> Nitrogen Oxides (NO <sub>x</sub> ) and Sulfur Dioxide (SO <sub>2</sub> ) Budget Trading Program		X	None of the sources are an industrial utility unit. Therefore they do not have to participate in the NO <sub>x</sub> Budget Trading Program.
<b>Regulation 61-62.99:</b> Nitrogen Oxides (NO <sub>x</sub> ) Budget Program Requirements for Stationary Sources Not In the Trading Program		X	None of the sources are a kiln with NO <sub>x</sub> emissions greater than 1 ton per day.
<b>Federal Regulations (PROJECT ONLY)</b>			
NSPS (Part 60) Subpart(s)	X		See explanations above for SC Regulation 61-62.60.
NESHAP (Part 61) Subpart(s)		X	See explanations above for SC Regulation 61-62.61.
MACT (Part 63) Subpart(s)	X		See explanations above for SC Regulation 61-62.63.
Area Source Standards (Part 63) Subpart(s)	X		See explanations above for SC Regulation 61-62.63.
Compliance Assurance Monitoring (CAM) (Part 64)	X		CAM applies to Unit ID 17. A CAM plan was submitted as part of this application.

**SUMMARY AND CONCLUSIONS**

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.