

RESOLUTE ENVIRONMENTAL LLC

September 8, 2011

Ms. Fatina Ann Washburn Clark
Engineering Services Division, Bureau of Air Quality
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: Revised Title V Renewal Application Pages
AVX Corporation
Myrtle Beach, Horry County, SC

Dear Ms. Clark:

Per our communications following submittal of the May 2011 version of the AVX Title V renewal application, attached are revised application pages with the following noted changes:

1. Revised Form D – Corrected PM emission rate using updated emission factor for RMM and Metals departments (Units 14 and 16), corrected HAP emission rates for CMAP processing and fugitive losses (Unit 17), revised plating emissions using AP-42 uncontrolled emission factor (Unit 19), removed non-HAPs DGDE and 1-methoxy-2-propanol (Unit 20), and minor entry corrections.
2. Revised Form F – Incorporated Form D revisions (Units 14, 16, 17, 19, and 20).
3. Revised Form G – Copper Plating System (Hulik) replaces Fine Copper Termination (Unit 19).
4. Revised Table 7 – Updated SBE plating line inventory and Fine Copper Termination replaced by Copper Plating System (Unit 19).
5. Revised Tables 10 and 11 – Updated facility emission summaries (Units 14, 16, 17, 19, and 20).
6. Revised Tables 12 and 15 – Corrected PM emission factor from 0.72 to 0.73 lb/ton (Units 14 and 16).
7. Revised Table 16 – Corrected CMAP uncontrolled fugitive emission calculation (Unit 17).
8. Revised Table 21 – Revised SBE plating emission rates using AP-42 uncontrolled equation and added Standard 4 process weigh allowable emission rate (Unit 19).
9. Revised Table 22 – Removed DGDE and 1-methoxy-2-propanol from HAP group. Added Standard 4 process weigh allowable emission rate (Unit 20).
10. Revised Table 26 - Added Standard 4 process weigh allowable emission rate (Unit 21).

Please replace these pages in your copy of the May 2011 renewal application. Also enclosed is a compact disk containing the complete set of electronic air dispersion modeling files.

If you have any questions, please contact me at (919) 710-0009 or via email at gyoder@nc.rr.com.

Very truly yours,

RESOLUTE ENVIRONMENTAL, LLC



Gary T. Yoder
Principal

Cc: Larry Blue, AVX (via email)
Ralph Bryant, AVX (via email)
Max Justice, Parker Poe Adams & Bernstein LLP (via email)

Encl

**Title V Permit Application
 Emission Data for Regulated Pollutants – Form D
 Bureau of Air Quality
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Please Refer to Instruction / Definitions Pages Before Completing This Form

1. Emission Unit ID: (If the emission unit is on the Insignificant Activity List proceed to Forms G & F)	2. Exhaust Point ID (if applicable)	3. Pollutant:	4. CAS Number (if applicable):	5. Type of Pollutant:	6. Maximum Uncontrolled		7. Maximum Controlled	
					(lb/hr)	(TPY)	(lb/hr)	(TPY)
14 (Rev 09/05/11)	15A-1, 15B-1, 15C-1	PM	N/A	Criteria	0.13	0.58	3.96E-5	1.73E-4
14	15A-1, 15B-1, 15C-1	PM10	N/A	Criteria	0.09	0.37	2.6E-5	1.12E-4
14	15A-1, 15B-1, 15C-1	PM2.5	N/A	Criteria	0.09	0.37	2.6E-5	1.12E-4
15	Fugitive	VOC	N/A	Criteria	5.59	24.48	5.59	24.48
15	Fugitive	Methyl Isobutyl Ketone	108-10-1	Volatile HAP, TAP	9.27E-4	4.06E-3	9.27E-4	4.06E-3
15	Fugitive	Methyl alcohol	67-56-1	Volatile HAP, TAP	1.76E-3	7.70E-3	1.76E-3	7.70E-3
15	Fugitive	Bis(2-ethylhexyl) phthalate	117-81-7	Volatile HAP, TAP	0.03	0.13	0.03	0.13
15	Fugitive	Xylene	1330-20-7	Volatile HAP, TAP	5.26E-3	0.02	5.27E-3	0.02
16	MD1C-1, MD2C-1, MD3C-1	VOC	N/A	Criteria	1.41	6.16	1.41	6.16
16 (Rev 09/05/11)	MD1C-1, MD2C-1, MD3C-1	PM	N/A	Criteria	0.27	1.19	0.27	1.19
16	MD1C-1, MD2C-1, MD3C-1	PM10	N/A	Criteria	0.17	0.77	0.17	0.77
16	MD1C-1, MD2C-1, MD3C-1	PM2.5	N/A	Criteria	0.17	0.77	0.17	0.77
16	MD1C-1, MD2C-1, MD3C-1	Xylene	1330-20-7	Volatile HAP, TAP	0.01	0.05	0.01	0.05
16	MD1C-1, MD2C-1, MD3C-1	Bis(2-ethylhexyl) phthalate	117-81-7	Volatile HAP, TAP	0.001	4.88E-3	0.001	4.88E-3
16	MD1C-1, MD2C-1, MD3C-1	Toluene	108-88-3	Volatile HAP, TAP	1.32E-04	5.76E-4	1.32E-4	5.76E-4

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1. Emission Unit ID: (If the emission unit is on the Insignificant Activity List proceed to Forms G & F)	2. Exhaust Point ID (if applicable)	3. Pollutant:	4. CAS Number (if applicable):	5. Type of Pollutant:	6. Maximum Uncontrolled		7. Maximum Controlled	
					(lb/hr)	(TPY)	(lb/hr)	(TPY)
16	MD1C-1, MD2C-1, MD3C-1	Ethyl benzene	100-41-4	Volatiles HAP, TAP	6.58E-05	2.88E-4	6.58E-5	2.88E-4
16	MD1C-1, MD2C-1, MD3C-1	Methyl alcohol	67-56-1	Volatiles HAP, TAP	3.24E-04	1.42E-3	3.24E-4	1.42E-3
16	MD1C-1, MD2C-1, MD3C-1	Methyl Isobutyl Ketone	108-10-1	Volatiles HAP, TAP	1.71E-4	7.49E-4	1.71E-4	7.49E-4
17	NMFS-F1, NMFS-F2	VOC	N/A	Criteria	39.19	114.44	0.59	1.74
17	NMFS-F1, NMFS-F2	PM	N/A	Criteria	0.01	0.03	0.01	0.03
17	NMFS-F1, NMFS-F2	PM10	N/A	Criteria	0.01	0.03	0.01	0.03
17	NMFS-F1, NMFS-F2	PM2.5	N/A	Criteria	0.01	0.03	0.01	0.03
17	NMFS-F1, NMFS-F2	SO2	N/A	Criteria	0.001	0.003	0.001	0.003
17	NMFS-F1, NMFS-F2	NOx	N/A	Criteria	0.10	0.44	0.10	0.44
17	NMFS-F1, NMFS-F2	CO	N/A	Criteria	0.09	0.37	0.09	0.37
17 (Rev 09/05/11)	NMFS-F1, NMFS-F2	Methyl Isobutyl Ketone	108-10-1	Volatiles HAP, TAP	0.74	2.17	3.26E-2	1.12E-2
17 (Rev 09/05/11)	NMFS-F1, NMFS-F2	Methyl Alcohol	67-17-5	Volatiles HAP, TAP	1.41	4.12	2.12E-2	6.18E-2
17 (Rev 09/05/11)	NMFS-F1, NMFS-F2	Toluene	108-88-3	Volatiles HAP, TAP	0.20	0.57	2.94E-3	8.58E-3
17 (Rev 09/05/11)	NMFS-F1, NMFS-F2	Ethylbenzene	100-41-4	Volatiles HAP, TAP	0.20	0.57	2.94E-3	8.58E-3
17 (Rev 09/05/11)	NMFS-F1, NMFS-F2	Bis(2-ethylhexyl) phthalate	117-81-7	Volatiles HAP, TAP	0.20	0.57	2.94E-3	8.58E-3
17 (Rev 09/05/11)	NMFS-F1, NMFS-F2	Xylene	1330-20-7	Volatiles HAP, TAP	0.20	0.57	2.94E-3	8.58E-3
17	NMFS-F1	CO2	124-38-9	GHG	122.40	528.0	122.4	528.0



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1. Emission Unit ID: (If the emission unit is on the Insignificant Activity List proceed to Forms G & F)	2. Exhaust Point ID (if applicable)	3. Pollutant:	4. CAS Number (if applicable):	5. Type of Pollutant:	6. Maximum Uncontrolled		7. Maximum Controlled	
					(lb/hr)	(TPY)	(lb/hr)	(TPY)
17	NMFS-F1	N2O	10024-97-2	GHG	2.24E-3	9.68E-3	2.24E-3	9.68E-3
17	NMFS-F1	CH4	74-82-8	GHG	2.35E-3	1.01E-2	2.35E-3	1.01E-2
17 (Rev 09/05/11)	Fugitive	VOC	N/A	Criteria	3.14	12.85	3.14	12.85
17 (Rev 09/05/11)	Fugitive	Methyl Isobutyl Ketone	108-10-1	Volatile HAP, TAP	0.02	8.85E-2	0.02	8.85E-2
17 (Rev 09/05/11)	Fugitive	Methyl Alcohol	67-17-5	Volatile HAP, TAP	4.55E-2	0.17	4.55E-2	0.17
17 (Rev 09/05/11)	Fugitive	Toluene	108-88-3	Volatile HAP, TAP	2.98E-3	8.71E-3	2.98E-3	8.71E-3
17 (Rev 09/05/11)	Fugitive	Ethylbenzene	100-41-4	Volatile HAP, TAP	2.98E-3	8.71E-3	2.98E-3	8.71E-3
17 (Rev 09/05/11)	Fugitive	Bis(2-ethylhexyl) phthalate	117-81-7	Volatile HAP, TAP	2.98E-3	8.71E-3	2.98E-3	8.71E-3
17 (Rev 09/05/11)	Fugitive	Xylene	1330-20-7	Volatile HAP, TAP	2.98E-3	8.71E-3	2.98E-3	8.71E-3
18	NMFS-BH	PM	N/A	Criteria	8.73	38.23	0.04	0.19
18	NMFS-BH	PM10	N/A	Criteria	8.73	38.23	0.04	0.19
18	NMFS-BH	PM2.5	N/A	Criteria	8.73	38.23	0.04	0.19
19 (Rev 09/05/11)	Fugitive	VOC	N/A	Criteria	1.18	5.17	1.18	5.17
19	Fugitive	Methyl Isobutyl Ketone	108-10-1	Volatile HAP, TAP	0.01	0.04	0.01	0.04
19	Fugitive	Methyl Alcohol	67-56-1	Volatile HAP, TAP	0.017	0.07	0.017	0.07
19 (Rev 09/05/11)	7C-2A&7C-2B	PM	N/A	Criteria	3.55E-3	1.55E-2	3.55E-3	1.55E-2
19 (Rev 09/05/11)	7C-2A&7C-2B	PM10	N/A	Criteria	3.55E-3	1.55E-2	3.55E-3	1.55E-2
19 (Rev 09/05/11)	7C-2A&7C-2B	PM2.5	N/A	Criteria	3.55E-3	1.55E-2	3.55E-3	1.55E-2
19 (Rev 09/05/11)	7C-2A&7C-2B	Nickel	N/A	HAP, TAP	3.17E-3	1.39E-2	3.17E-3	1.39E-2
19 (Rev 09/05/11)	7C-2A&7C-2B	Lead	N/A	Criteria	1.02E-3	4.45E-3	1.02E-3	4.45E-3
20	NMFS-TFS	VOC	N/A	Criteria	0.47	2.07	0.24	1.05
20 (Rev 09/05/11)	NMFS-TFS	PM	N/A	Criteria	0.79	3.44	0.03	0.12
20 (Rev 09/05/11)	NMFS-TFS	PM10	N/A	Criteria	0.79	3.44	0.03	0.12

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1. Emission Unit ID: (If the emission unit is on the Insignificant Activity List proceed to Forms G & F)	2. Exhaust Point ID (if applicable)	3. Pollutant:	4. CAS Number (if applicable):	5. Type of Pollutant:	6. Maximum Uncontrolled		7. Maximum Controlled	
					(lb/hr)	(TPY)	(lb/hr)	(TPY)
20 (Rev 09/05/11)	NMFS-TFS	PM2.5	N/A	Criteria	0.79	3.44	0.03	0.12
20 (Rev 09/05/11)	NMFS-TFS	Lead compounds	N/A	Particulate HAP	0.02	0.06	1.27E-4	5.57E-4
20	NMFS-TFS	Hydrochloric Acid	7647-01-0	HAP, TAP	0.09	0.40	9.18E-4	4.02E-3
20	NMFS-TFS	Sulfuric Acid	7664-93-9	TAP	0.07	0.32	7.21E-4	3.16E-3
20	NMFS-TFS	Nitric Acid	7697-37-2	TAP	0.39	1.70	3.88E-3	1.70E-2
20	NMFS-TFS	Phosphoric Acid	7664-38-2	TAP	0.16	0.70	1.59E-3	6.98E-3
20	NMFS-TFS	2-ethanolamine	141-43-5	TAP	0.10	0.45	5.19E-2	0.23
20	NMFS-TFS	Hydrofluoric acid	7664-39-3	HAP, TAP	0.02	0.08	1.75E-4	7.67E-4
20 (Rev 09/05/11)	NMFS-TFS	DGDE	11109-77-4					
20 (Rev 09/05/11)	NMFS-TFS	1-Methoxy-2-propanol	107-98-2					
21	NMFS-B1	VOC	N/A	Criteria	0.11	0.40	0.11	0.40
21	NMFS-B1	NOx	N/A	Criteria	2.0	7.19	2.0	7.19
21	NMFS-B1	CO	N/A	Criteria	1.68	6.04	1.68	6.04
21	NMFS-B1	SO2	N/A	Criteria	0.01	0.04	0.01	0.04
21 (Rev 09/05/11)	NMFS-B1	PM	N/A	Criteria	0.15	0.55	0.15	0.55
21 (Rev 09/05/11)	NMFS-B1	PM10	N/A	Criteria	0.15	0.55	0.15	0.55
21 (Rev 09/05/11)	NMFS-B1	PM2.5	N/A	Criteria	0.15	0.55	0.15	0.55
21	NMFS-B1	CO2	124-38-9	GHG	2400	8625	2400	8625
21	NMFS-B1	N2O	10024-97-2	GHG	0.04	0.16	0.04	0.16
21	NMFS-B1	CH4	74-82-8	GHG	0.05	0.17	0.05	0.17
21	NMFS-B1	Lead	N/A	PM, HAP	1.0E-5	3.59E-5	1.0E-5	3.59E-5
21	NMFS-B1	Benzene	71-43-2	Volatile HAP, TAP	4.2E-5	1.51E-4	4.2E-5	1.51E-4
21	NMFS-B1	Polycyclic Organic Matter	N/A	Volatile HAP, TAP	1.76E-6	6.34E-6	1.76E-6	6.34E-6
21	NMFS-B1	Naphthalene	91-20-3	Volatile HAP, TAP	1.22E-5	4.38E-5	1.22E-5	4.38E-5
21	NMFS-B1	Toluene	108-88-3	Volatile HAP, TAP	6.8E-5	2.44E-4	6.8E-5	2.44E-4



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1. Emission Unit ID: (If the emission unit is on the Insignificant Activity List proceed to Forms G & F)	2. Exhaust Point ID (if applicable)	3. Pollutant:	4. CAS Number (if applicable):	5. Type of Pollutant:	6. Maximum Uncontrolled		7. Maximum Controlled	
					(lb/hr)	(TPY)	(lb/hr)	(TPY)
21	NMFS-B1	Formaldehyde	50-00-0	Volatile HAP, TAP	1.50E-3	5.39E-3	1.50E-3	5.39E-3
21	NMFS-B1	Hexane	110-54-3	Volatile HAP, TAP	0.036	0.13	0.036	0.13
21	SOLDER1	PM	N/A	Criteria	0.002	0.01	0.002	0.01
21	SOLDER1	PM10	N/A	Criteria	0.002	0.01	0.002	0.01
21	SOLDER1	PM2.5	N/A	Criteria	0.002	0.01	0.002	0.01
21	SOLDER1	Lead	N/A	PM, HAP	2.13E-5	9.32E-5	2.13E-5	9.32E-5
21 (Rev 09/05/11)	SOLDER1	Manganese	N/A	PM, HAP	1.11E-4	4.86E-4	1.11E-4	4.86E-4
21	SOLDER1	Chromium	N/A	PM, HAP	1.71E-6	7.48E-6	1.71E-6	7.48E-6
21	TOWER	VOC	N/A	Criteria	0.50	2.19	0.50	2.19
21	TOWER	1,1-Dichloroethane	75-34-3	Volatile HAP, TAP	0.11	0.48	0.11	0.48
21	TOWER	Trichloroethylene	79-01-6	Volatile HAP, TAP	0.30	1.32	0.30	1.32
21	TOWER	Vinyl chloride	75-01-4	Volatile HAP, TAP	0.09	0.39	0.09	0.39

1. Emission Unit ID:	2. Exhaust Point ID (if applicable)	3. Pollutant:	8. Estimation Method:	9. Comments:
14	15A-1, 15B-1, 15C-1	All	Engineering calculations through mass balance and EPA factors	PM emissions from vat loading are accounted for in grinders, mills and mixers
15	SM1	All	Engineering calculations through mass balance	None
16	MD1C-1, MD2C-1, MD3C-1	All	Engineering calculations through mass balance, EPA factors and engineering knowledge	None
17	NMFS-F1, NMFS-F2 and Fug.	All	Engineering calculations through source testing and mass balance	
18	NMFS-BH	All	Engineering calculations through engineering estimates and mass balances	None
19	NMF-PA / TP	All	Engineering calculations through mass balance, process knowledge and EPA factors	None
20	NMFS-TFS	All	Engineering calculations through process knowledge and mass balance	PM/PM10 assumed to equal acid mist and lead compounds



**Title V Permit Application
 Facility Wide Total Emissions – Form F
 Bureau of Air Quality
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**Please Refer to Instruction / Definitions Pages Before Completing This Form
 (Include Insignificant Activity Emissions in Facility Wide Totals)**

FACILITY WIDE TOTAL EMISSIONS			
1. Pollutant	2. CAS No. (If Applicable)	3. Uncontrolled Emissions (TPY)	4. Controlled Emissions (TPY)
PM	N/A	44.28 (Rev 09/05/11)	2.44 (Rev 09/05/11)
PM10	N/A	43.65	2.0
PM2.5	N/A	43.65	2.0
SO2	N/A	0.44	0.44
NOx	N/A	13.67	13.67
CO	N/A	7.71	7.71
VOC	N/A	170.11	56.4
CO2	N/A	9378	9378
N2O	N/A	0.17	0.17
Methane	N/A	0.18	0.18
Bis(2-ethylhexyl) phthalate (HAP, TAP)	117-81-7	0.72	0.15
Chromium,+6 (HAP, TAP)	N/A	7.48E-06	7.48E-06
Ethylidene dichloride (HAP, TAP)	75-34-3	0.59	0.48
Formaldehyde (HAP, TAP)	50-0-0	0.005	0.005
Hexane (HAP, TAP)	110-54-3	0.13	0.13
Hydrochloric acid (HAP, TAP)	7647-01-0	0.40	0.004
Manganese (HAP, TAP)	N/A	4.86E-04	4.86E-04
Methyl alcohol (HAP, TAP)	67-56-1	4.26 (Rev 09/05/11)	0.31 (Rev 09/05/11)
Methyl isobutyl ketone (HAP, TAP)	108-10-1	2.25 (Rev 09/05/11)	0.17 (Rev 09/05/11)
Nickel compounds (HAP, TAP)	N/A	1.39E-02 (Rev 09/05/11)	1.39E-02 (Rev 09/05/11)
Lead compounds (HAP)	N/A	3.46E-02 (Rev 09/05/11)	4.87E-03 (Rev 09/05/11)
Vinyl chloride (HAP, TAP)	75-01-4	4.33	0.40
Xylene (HAP, TAP)	1330-20-7	0.65	0.09
Ethyl benzene (HAP, TAP)	100-41-4	0.58 (Rev 09/05/11)	0.02
Toluene (HAP, TAP)	108-88-3	0.58	0.02
Sulfuric acid (TAP)	7664-93-9	0.32	3.16E-03
Nitric acid (TAP)	7697-37-2	1.70	1.70E-02
Phosphoric acid (TAP)	7664-38-2	0.70	6.98E-03
2-ethanolamine (TAP)	141-43-5	0.45	0.23
Polycyclic Organic Matter (HAP, TAP)	POM	6.34E-06	6.34E-06
Trichloroethylene (HAP, TAP)	79-01-6	1.32	1.32
Hydrofluoric acid (HAP, TAP)	7664-39-3	0.09	7.67E-04
1-Methoxy-2-propanol	107-98-2	(Rev 09/05/11)	(Rev 09/05/11)
Dipropylene glycol dimethyl ether	11109-77-4	(Rev 09/05/11)	(Rev 09/05/11)
Benzene (HAP, TAP)	71-43-2	1.51E-04	1.51E-04



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Facility Wide Total Emissions – Form F
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Naphthalene (HAP, TAP)	91-20-3	4.38E-05	4.38E-05
Total HAP	N/A	18.48 (Rev 09/05/11)	3.36 (Rev 09/05/11)



**Title V Permit Application
Insignificant Activity Equipment- Form G
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1. Insignificant Activity (IA) Unit ID:	2. Insignificant Activity Unit ID Description	3. Construction Permit ID or Approval Date (if applicable):	4. On SC Insignificant Activity List (Yes or No)	5. Pollutant(s)	6. Emission Rate (Uncontrolled)	7. Demimis Rate
BO	33 Ovens for chip binder burnout		No	VOC	Less than 5 tpy	< 5 tpy criteria pollutants
CSO	16 Low temperature ovens for moisture removal (Unit 18)		No	PM/VOC	Less than 5 tpy	< 5 tpy criteria pollutants
CSTR	1 Thermal release oven for paper removal (Unit 18)		No	PM/VOC	Less than 5 tpy	< 5 tpy criteria pollutants
CSPA	2 Paper applicator machines (Unit 18)		No	VOC	Less than 5 tpy	< 5 tpy criteria pollutants
CSCD	2 Low temperature chip dryers (Unit 18)		No	PM/VOC	Less than 5 tpy	< 5 tpy criteria pollutants
CSCS	Blade cleaning station (Unit 18)		No	VOC	Less than 5 tpy	< 5 tpy criteria pollutants
FK	Firing Kilns (Unit 18)		No	VOC	Less than 5 tpy	< 5 tpy criteria pollutants
TL	5 Labeling lasers (Unit 19)		No	PM/VOC	Less than 5 tpy	< 5 tpy criteria pollutants
TSW	1 Solvent wash station (Unit 19)		No	VOC	Less than 5 tpy	< 5 tpy criteria pollutants
SBE	3 Non-lead SBE plating lines (Unit 19)	October 2007	No	PM/VOC	Less than 5 lpy	< 5 tpy criteria pollutants
BCB	BCB coating process (Unit 19)	September 2007	No	PM/VOC	Less than 5 lpy	< 5 tpy criteria pollutants
CPS	Copper Plating System (Unit 19) (Rev 9/5/11)		No	PM/VOC	Less than 5 lpy	< 5 tpy criteria pollutants
GPL	1 Manual gold plating line (Unit 19)		No	PM	Less than 5 lpy	< 5 tpy criteria pollutants
PDD	11 Plating dryers for moisture removal (Unit 19)		No	PM/VOC	Less than 5 lpy	< 5 tpy criteria pollutants
PDO	1 Plate drying oven for moisture removal (Unit 19)		No	PM	Less than 5 lpy	< 5 tpy criteria pollutants
CO	1 Copper coupon oven (Unit 19)		No	PM/VOC	Less than 5 lpy	< 5 tpy criteria pollutants
DFP	87 BHp Diesel Fire Pump (Unit 21)		Yes	N/A	N/A	Sec. B, 4
E1	100 kW emergency generator		Yes	N/A	N/A	Sec. B, 2a
E5	260 kW emergency generator		Yes	N/A	N/A	Sec. B, 2b

TABLE 7
Equipment Cross Reference - Metallization
AVX Corporation, Myrtle Beach, SC

CURRENT TITLE V PERMIT						
Unit No.	Unit Desc.	ID	Equip. Desc.	Additional Info.	No. Units	Notes
5	Termination	CS1 - CS5	Chipstar CS-325 Ovens #1 - #5	Ink drying 313 Btu/min ea.	5	In operation
		CS6 - CS15	Chipstar CS-325 Ovens #6 - #15	Ink drying 313 Btu/min ea.	10	In operation
		CS16	Chipstar CS-325 Oven #16	Ink drying 313 Btu/min	1	In operation
		CS17 - CS24	Chipstar CS-325 Oven #17 - #24	Ink drying 313 Btu/min ea.	8	Remove
		CS30	Chipstar CS-325 (Modified) Oven #30	Ink drying 313 Btu/min ea.	1	Remove
		MGB	Gruenberg Oven L3-1H506	Moisture/organic removal 260	1	Remove
		LK-1 - KL-4	Koyo-Lindburg Ovens #1 - #4	Copper term. 51.6 KVA ea.	4	Remove
		KL-5	Koyo-Lindburg Ovens #5	Copper term. 51.6 KVA	1	Remove
		KL-6	Koyo-Lindburg Ovens #6	Copper term. 51.6 KVA	1	In operation
		KL-7 - KL-12	Koyo-Lindburg Ovens #7 - #12	Copper term. 51.6 KVA ea.	5	In operation
		P20 - P24	Palomar 2007 Ovens	Ink drying 313 Btu/min ea.	5	Remove
		P25 - P31	Palomar 2009 Ovens	Ink drying 313 Btu/min ea.	7	Remove
		ST-8 - ST-10	Sierra Therm Ovens	silver term 56 KVA	3	Remove
		ST-11	Sierra Therm Oven	silver term 56 KVA	1	Remove
		ST-12 - ST-16	Sierra Therm Ovens	silver term 56 KVA	5	In operation
		WJO	WJ Oven	Moisture/organic removal 260	1	In operation
		WJ-7	WJ Oven 24CA-87	silver term 45 KVA	1	In operation
		PO1	Palomar 2001 Modified Oven	Ink drying 313 Btu/min	1	In operation
		PO2	Palomar 2009 Modified Oven	Ink drying 313 Btu/min	1	In operation
		P1	Palomar 246 System	Ink drying 313 Btu/min	1	In operation
		P2	Palomar 246 System	Ink drying 313 Btu/min	1	In operation
		P3 & P4	Palomar 246 System	Ink drying 313 Btu/min	2	In operation
		P5 & P6	Palomar 246 System	Ink drying 313 Btu/min	2	In operation
		P7 - P9	Palomar 246 System	Ink drying 313 Btu/min	3	In operation
		P10 - P16	Palomar 246 System	Ink drying 313 Btu/min	7	Remove
		P17	Palomar 246 System	Ink drying 313 Btu/min	1	In operation
		P18	Palomar 246 System	Ink drying 313 Btu/min	1	Remove
		L1 - L5	Lasers	260 kg/day	5	In operation
		SW6 & SW7	Solvent wash stations		2	1 in operation
2	Plating	A1	Autoline Barrel #1	Ni, Sn/Pb 276 barrel/day	1	Temporarily in operation
		A2	Autoline Barrel #2	Ni, Sn/Pb 276 barrel/day	1	Remove
		A3	Autoline Barrel #3	Ni, Sn/Pb 276 barrel/day	1	Remove
		A4	Autoline Barrel #4	Ni, Sn/Pb 276 barrel/day	1	Remove
		A5	Autoline Barrel #5	Ni, Sn/Pb 276 barrel/day	1	Remove
		GP-1	Gold Plating	200 barrel/mo	1	Changing to SBE process
		RF-1	RFT Plater #1	15 KVA	1	Remove
		RF-2 RF-3	RFT Platers #2 & #3	15 KVA	2	Remove
		RF-4	RFT Plater #4	15 KVA	1	Remove
		PL-1 - PL-6	Blue M ovens for moisture removal	Various btu/min	6	4 In operation
		SS1 & SS2	Solder stations	260 kg/day	2	In operation

REVISED TITLE V PERMIT						
Unit No.	Unit Desc.	Equip. ID	No. Units	Equip. Desc.	Includes/Notes	
19	Metallization	TTOOL	20	20 Systems that apply termination paste to chips	(6) Palomar, (8) Chipstar, (6) Quicksilver	
		TOVEN	9	9 Ovens to cure terminated chips	(6) Koyo-Lindburg, (3) Sierra Therm	
		PBSBE	3	3 Ni/Sn/Pb SBE plating lines	(2) 95 L lines and (1) 130 L line	
		SBE	4	4 SBE Plating lines	3 SBE Plating (Ni/Sn and Au)	
		BCB	2	2 BCB plating lines	BCB Plating	
		CPS	1	1 Copper Plating System	Hulik Plating System	
		GPL	1	1 Manual gold plating line	Gold plating	
		PDD	11	11 Plating dyers for moisture removal	Drying ovens	
		PDO	1	1 plate drying oven for moisture removal	Oven for drying cleaned build up plates	
		CO	1	1 Copper coupon oven	Oven for drying quality control coupon paste	
		TL	5	5 Labeling lasers	Labeling lasers	
		TSW	2	1 Solvent wash stations	1 Solvent wash stations	

REVISED 09/05/11: Corrected number of SBE plating lines. Fine Copper Termination now Copper Plating System (Hulik replacing FCI)

TABLE 10
Summary Of Potential Criteria and Greenhouse Gas Emissions
 AVX Corporation, Myrtle Beach, SC

Emission Unit ID No.	Department	Uncontrolled Emissions																			
		PM (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO ₂ (tpy)	NOx (tpy)	CO (tpy)	VOC (tpy)	CO ₂ (tpy)	N ₂ O (tpy)	Methane (tpy)										
14	RMM	0.58	0.37	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Slip Mfg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Metals	1.19	0.77	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	CMAAP Buildup	0.03	0.03	0.01	0.003	0.001	0.003	0.001	0.44	0.10	0.37	0.09	528.00	0.01	2.24E-03	0.01	2.35E-03	-	-	-	-
18	CMAAP Support	38.23	38.23	8.73	-	-	38.23	8.73	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Metallization	1.55E-02	1.55E-02	3.55E-03	-	-	1.55E-02	3.55E-03	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Metallization - Electroplating	3.26	3.26	0.75	-	-	3.26	0.75	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Thin Film	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Misc Support - APTC (Insig)	0.55	0.55	0.12	0.04	0.01	0.55	0.12	7.19	2.00	6.04	1.38	8624.99	0.16	0.04	0.17	0.05	-	-	-	-
21	Misc Support - Boiler	0.43	0.43	1.70	0.40	1.59	0.43	1.70	6.05	24.19	1.30	5.21	224.89	81.88	-	-	-	-	-	-	-
21	Misc Support - Soldering	0.01	0.01	0.00	-	-	0.01	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Misc Support - Shipping Tower (Insig)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS		44.28	43.65	11.58	0.44	1.60	43.65	11.58	13.67	26.29	7.71	6.68	9377.89	0.17	0.05	0.18	0.05	0.18	0.05	0.18	0.05

Emission Unit ID No.	Department	Controlled Emissions																			
		PM (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO ₂ (tpy)	NOx (tpy)	CO (tpy)	VOC (tpy)	CO ₂ (tpy)	N ₂ O (tpy)	Methane (tpy)										
14	RMM	3.96E-05	1.12E-04	2.55E-05	-	-	1.12E-04	2.55E-05	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Slip Mfg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Metals	1.19	0.77	0.17	-	-	0.77	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-
17	CMAAP Buildup	0.03	0.03	0.01	0.003	0.001	0.03	0.01	0.44	0.10	0.37	0.09	528.00	0.01	2.24E-03	0.01	2.35E-03	-	-	-	-
18	CMAAP Support	0.19	0.19	0.04	-	-	0.19	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Metallization	1.55E-02	1.55E-02	3.55E-03	-	-	1.55E-02	3.55E-03	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Metallization - Electroplating	0.03	0.03	0.01	-	-	0.03	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Thin Film	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Misc Support - APTC (Insig)	0.55	0.55	0.12	0.04	0.01	0.55	0.12	7.19	2.00	6.04	1.38	8624.99	0.16	0.04	0.17	0.05	-	-	-	-
21	Misc Support - Boiler	0.43	0.43	1.70	0.40	1.59	0.43	1.70	6.05	24.19	1.30	5.21	224.89	81.88	-	-	-	-	-	-	-
21	Misc Support - Soldering	0.01	0.01	0.00	-	-	0.01	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Misc Support - Shipping Tower (Insig)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS		2.44	2.02	3.76	0.44	1.60	2.02	3.76	13.67	26.29	7.71	6.68	9377.89	0.17	0.05	0.18	0.05	0.18	0.05	0.18	0.05

TABLE 11
 Potential HAP/TAP Emission Summary - Non-Exempt Sources Manufacturing Emissions
 AVX Corporation, Myrtle Beach, SC

HAP/TAP	Emission Unit							Individual Totals	Aggregate Total
	15	16	17	19	20	21	21		
	Slip Mfg	Metals	CMAF Buildup	Metallization	Thin Film	Strip. Twr/Solder	Boiler		
	Controlled Emissions (ton/yr)								
2-Ethanolamine	-	-	-	-	2.27E-01	-	-	2.27E-01	
Bis (2-ethylehexyl) Phthalate	1.30E-01	4.88E-03	0.02	-	-	-	-	1.52E-01	
Benzene	-	-	-	-	-	-	1.51E-04	1.51E-04	
Chrome (assumed +6)	-	-	-	-	-	7.48E-06	-	7.48E-06	
Ethyl Benzene	-	2.88E-04	0.02	-	-	-	-	1.76E-02	
Ethylidene Dichloride	-	-	-	-	-	0.48	-	4.82E-01	
Formaldehyde	-	-	-	-	-	-	5.39E-03	5.39E-03	
Hexane	-	-	-	-	-	-	1.29E-01	1.29E-01	
Hydrochloric Acid	-	-	-	-	4.02E-03	-	-	4.02E-03	
Hydrofluoric Acid	-	-	-	-	7.67E-04	-	-	7.67E-04	
Lead	-	-	-	4.45E-03	2.92E-04	9.32E-05	3.59E-05	4.87E-03	
Manganese	-	-	-	-	-	4.86E-04	-	4.86E-04	
Methyl Alcohol	7.70E-03	1.42E-03	0.23	0.07	-	-	-	3.13E-01	
Methyl Isobutyl Ketone	4.06E-03	7.49E-04	0.12	0.04	-	-	-	1.65E-01	
Naphthalene	-	-	-	-	-	-	4.38E-05	4.38E-05	
Nickel	-	-	-	1.39E-02	-	-	-	1.39E-02	
Nitric Acid	-	-	-	-	1.70E-02	-	-	1.70E-02	
Phosphoric Acid	-	-	-	-	6.98E-03	-	-	6.98E-03	
Polycyclic Organic Matter	-	-	-	-	-	-	6.34E-06	6.34E-06	
Sulfuric Acid	-	-	-	-	3.16E-03	-	-	3.16E-03	
Toluene	-	5.76E-04	0.02	-	-	-	2.44E-04	1.81E-02	
Trichloroethylene (TCE)	-	-	-	-	-	1.32	-	1.32E+00	
Vinyl Chloride (Chloroethylene)	-	-	-	-	-	0.39	-	3.95E-01	
Xylene	2.31E-02	0.05	0.02	-	-	-	-	8.70E-02	

3.36

Note: The highest emitted single HAP is xylene.

REVISED 09/05/11

TABLE 12
Emission Unit 14
Raw Materials Manufacturing Emissions
 AVX Corporation, Myrtle Beach, SC

UNIT 14 - Particulate Matter Emissions from RMM Processing
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Process	Amount Processed 2006 (tpy)	Potential Usage (tpy)	Pollutant	Emission Factor (lb/ton) ¹	Uncontrolled Emissions		Controlled Emissions ²		Std. 4 Process Weight Rule (lb/hr) ⁴
					(lb/yr)	(tpy)	(lb/hr)	(tpy)	
Grinders, Mills, and Prillers	277	318	PM	0.73	232.4	0.12	7.96E-06	3.49E-05	
Mixers	1,100	1,265	PM	0.73	923.5	0.46	3.16E-05	1.39E-04	
<i>TOTAL</i>					1155.8	0.58	3.96E-05	1.73E-04	1.52
Grinders, Mills, and Prillers	277	318	PM10/PM2.5	0.47	149.6	0.07	5.12E-06	2.24E-05	
Mixers	1,100	1,265	PM10/PM2.5	0.47	594.6	0.30	2.04E-05	8.92E-05	
<i>TOTAL</i>					744.2	0.37	2.55E-05	1.12E-04	

Notes:

1. Use AP-42 Emission Factor from cement bin loading Section 11.12
2. Three baghouses control emissions from RMM, the lowest efficiency is 99.97%.
3. All PM emissions from the Vat loading are accounted for in the Grinders, Mills and Mixers.
4. Based on a 4,000,000 lb/yr front-end throuput design limit in the RMM department.

REVISED 09/05/11: Corrected PM loss rate emission factor.

TABLE 15
Unit 16
Metals Manufacturing Emissions - PM
 AVX Corporation, Myrtle Beach, SC

UNIT 16 - PM Emissions from Metals Department (Metal Mills and Metal Mixers)
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Process	Material Processed (tpy)	Loss Rate ¹ (lb/ton)	Pollutant	Uncontrolled Emissions ² (lb/hr)	Emissions (tpy)	Weight Rule (lb/hr) ³
Mills/Mixers	3,257.00	0.73	PM	0.27	1.2	2.80
Mills/Mixers	3,257.00	0.47	PM10/PM2.5	0.17	0.8	

Notes:

1. Loss rate for mixers is based on AP-42 5th edition 11.12-1 for loading of cement into bins of 0.72 lb/ton. PM emissions only occur during loading. Solvent is added during mixing so no PM is produced.
2. There is no PM control in Metals
3. Based on a department design throughput of 12,300 kg/day

REVISED 09/05/11: Corrected PM loss rate emission factor.

TABLE 16
UNIT 17
CMAP Emissions
AVX, Myrtle Beach, SC

UNIT 17 - VOC Emissions from CMAP Manufacturing

Mass balance and control information:

- 0.85 Fraction slip actually applied to chip (the remaining 15% is collected for reclaim)
- 0.3032 Fraction of VOC in slip (from the MSDS sheets)
- 0.01 Fraction of VOC emitted as room fugitives (engineering estimate)
- 0.005 Fraction of VOC emitted as fugitive post chip manufacturing (engineering estimate)
- 0.985 Adsorber/Desorber/Thermal oxidizer System destruction efficiency (February 26, 2009 Source Test)¹
- 70 Slip usage rate (kg slip/machine/day)
- 24 Number of CMAP machines²
- 0.67 Potential operating hours factor³

Total VOC prior to thermal oxidizer in the CMAP process:	116.15 TPY	39.78 lb/hr
Manufacturing fugitive VOC emissions:	1.16 TPY	0.40 lb/hr
Post manufacturing fugitive VOC emissions ⁴ :	0.58 TPY	0.20 lb/hr
Total VOC evolved during the CMAP process (after Thermal Oxidizer, less fugitives):	1.72 TPY	0.59 lb/hr
Total Process VOC Emissions from CMAP process	3.46 TPY	1.18 lb/hr

Notes:

1. The February 2006 source test resulted in an overall 99.5% control efficiency. AVX will use 98.5% in emission rate calculations for conservatism.
2. 24 machines includes two medical machines that will remain in the original MB1 location through the majority of 2010 for qualification product purposes (See Table 16).
3. AVX/DHEC communications. CMAP equipment cannot operate 24/7. A worse case 32/48 hours factor used (5,840 hr/yr)
4. An estimate of residual VOC emissions after chip manufacturing emitted in green chip step prior to the kiln room.

UNIT 17 - HAP/TAP Emissions from CMAP Manufacturing

HAP/TAP	Max % HAP by wt. in Slip/Ink	Uncontrolled		Controlled		Uncontrolled CMAP Total Emissions (lb/hr)
		CMAP Fugitive Emissions (TPY)	CMAP Point Source Emissions (TPY)	CMAP Point Source Emissions (lb/hr)	Point Source Emissions (lb/hr)	
Toluene	0.5	8.71E-03	0.57	0.20	8.58E-03	0.20
Ethyl Benzene	0.5	8.71E-03	0.57	0.20	8.58E-03	0.20
Bis (2-ethylehexyl) Phthalate	0.5	8.71E-03	0.57	0.20	8.58E-03	0.20
Xylene	0.5	8.71E-03	0.57	0.20	8.58E-03	0.20
Methyl Alcohol	3.60	6.27E-02	4.12	1.41	6.18E-02	1.43
Methyl Isobutyl Ketone	1.90	3.31E-02	2.17	0.74	3.26E-02	0.76
Total		0.13	8.58	2.94	0.13	2.98

UNIT 17 - Fugitive VOC Emissions from CMAP Manufacturing Cleaning

Cleaning Materials Used	Actual 2006 Department Use (gal)	Potential Department Use (gal) ²	% of Usage Emitted	lb/gal (VOC)	Total VOC Emissions (lb/yr)	Total VOC Emissions (tpy)
Iso Spirits	11,220	12,903	20%	6.23	16,077	8.0
n-Butyl Acetate ¹	165	190	20%	7.34	279	0.1
BC/PM	2,695	3,099	20%	7.57	4,692	2.3
Denatured Ethyl Alcohol	770	886	20%	6.59	1,167	0.6
Total	14,850.00	17,078		27.73	22,215	11.1

Notes:

1. N-butyl acetate recently replaced xylene as a CMAP cleaning solvent. Since xylene was not used in 2006, an average of previous year usages was assumed.

UNIT 17 - HAP/TAP Emissions from CMAP Manufacturing Cleaning

Constituent	HAP/TAP	Maximum % wt in Solvents Used (Worst Case)	lbs of HAP (Worst Case)	tpy of HAP (Worst Case)
Methyl Alcohol ¹	HAP/TAP	3.6	210.08	1.05E-01
Methyl Isobutyl Ketone ¹	HAP/TAP	1.9	110.87	5.54E-02
Total				0.16

Notes:

1. Contained in Denatured Alcohol

TABLE 21
UNIT 19
Termination Emissions - Electroplating
AVX, Myrtle Beach, SC

Unit 19 - Miscellaneous Emissions From Electroplating Operations

$$EF_m = 3.3 \times 10^{-7} \times (EE_m/em) \times C_m \times D_m^1$$

where:

EF_m = emission factor for metal "m", grains/dscf;

EE_m = electrochemical equivalent for metal "m", A-hr/mil-ft²;

em = cathode efficiency for metal "m", percent;

C_m = bath concentration for metal "m", oz/gal; and

D_m = current density for metal "m", A/ft².

Target Metal	EE _m ² (A-hr/mil-ft ²)	em ³ (%)	C _m ³ (oz/gal)	D _m ³ (A/ft ²)	EF _m (gr/dscf)
Nickel Electroplating	19	0.95	12.7	18	1.51E-03
Lead Electroplating	6.9	0.96	0.16	20	7.59E-06
Gold Electroplating	6.2	0.96	1	20	4.26E-05
Tin Electroplating	7.8	0.96	2.4	20	1.29E-04

Notes:

1. Uncontrolled, non-chromium plating emission factor equation per AP-42, Section 12.20 (7/96).
2. Electrochemical equivalents per Table 3.1 of AP-42 Section 12.20 background document.
3. Electrode efficiencies, target bath concentrations, and current densities provided by AVX.

SBE Line Information:

Lines	Size (liter)	Metals
SBE-1 and 5	95	Ni/Sn/Pb
SBE-4	95	Ni/Sn
SBE-6	95	Ni/Au
SBE-2 and 3	130	Ni/Sn
SBE-7	130	Ni/Pb

SBE Line Flow Rate Information:

Parameter	SBE Line 1	SBE Line 2	SBE Line 3	SBE Line 4	SBE Line 5	SBE Line 6	SBE Line 7
Pipe Diameter (ft)	0.50	0.50	0.50	0.50	0.50	0.67	0.50
Velocity (fps)	3.40	1.70	1.70	3.40	3.40	1.91	1.70
Temperature (F)	68	68	68	68	68	68	68
Flow Rate (acfm)	40	20	20	40	40	40	20
Flow Rate (scfm)	39.2	29.4	29.4	39.2	39.2	39.2	29.4

Note:

1. The SBE flow rates based on June 6, 2011 measurements by AVX.

Electroplating Emissions

Pollutant	Emission Factor ¹ (mg/dscm)	SBE Lines 2, 3, and 7		SBE Lines 1, 4, 5, and 6		Total Process Emissions		Std. 4 Process Weight Rule (lb/hr) ³
		(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
PM	3.86E+00	1.28E-03	5.59E-03	2.27E-03	9.94E-03	3.55E-03	1.55E-02	
Nickel	3.46E+00	1.14E-03	5.00E-03	2.03E-03	8.89E-03	3.17E-03	1.39E-02	
Lead	1.74E-02	1.91E-06	8.38E-06	1.01E-03	4.44E-03	1.02E-03	4.45E-03	2.97
Gold	9.76E-02	1.08E-05	4.71E-05	-	-	1.08E-05	4.71E-05	
Tin	2.95E-01	6.49E-05	2.84E-04	1.30E-04	5.69E-04	1.95E-04	8.53E-04	

Notes:

1. Emission factor conversion from grains/dscf to mg/dscm from AP-42, Section 12.20. PM E.F. is the sum of all target metal E.F.s.
 Calc: Target metal E.F. (gr/dscf) × 64.8/1 (mg/grain) × 1/0.02832 (ft³/m³) = mg/dscm
2. Emission calculated from emission factor times air flow rate multiplied by the number of respective line sizes.
3. Based on a 1,237 lb/hr mass throughput (chips, media, solutions).

REVISED: 09/05/11: Used AP-42 uncontrolled emission factor equation. Added Std. 4 process weight calc.

TABLE 22
UNIT 20
Thin Film Emissions
AVX, Myrtle Beach, SC

Unit 20 - VOC Emissions from Thin Film Process

Chemical	Uncontrolled Emissions ¹		Controlled Emissions ²	
	lb/hr	tpy	lb/hr	tpy
Acetic Acid	4.17E-02	1.83E-01	2.08E-02	9.13E-02
Tetramethylammonium hydroxide	5.21E-03	2.28E-02	2.60E-03	1.14E-02
2-ethanolamine	1.04E-01	4.54E-01	5.19E-02	2.27E-01
N-methylpyrrolidone	2.03E-01	8.91E-01	1.02E-01	4.45E-01
1,2-Propenediol	6.71E-02	2.94E-01	3.35E-02	1.47E-01
2,4 Pentandione	1.00E-03	4.38E-03	5.00E-04	2.19E-03
Hexamethyldisilazane	1.67E-03	7.30E-03	8.33E-04	3.65E-03
Isopropyl alcohol	2.00E-02	8.76E-02	1.00E-02	4.38E-02
Mesitylene	2.83E-03	1.24E-02	2.83E-03	1.24E-02
Dipropylene glycol dimethyl ether	2.17E-03	9.49E-03	1.08E-03	4.75E-03
Naphtha	4.42E-03	1.93E-02	4.42E-03	1.93E-02
1-Methoxy-2-propanol acetate	1.60E-02	7.01E-02	8.00E-03	3.50E-02
1-Methoxy-2-propanol	2.38E-03	1.04E-02	1.19E-03	5.29E-03
Total VOCs	0.47	2.07	0.24	1.05

Notes:

1. Uncontrolled emissions are assumed to be a 10% loss from the daily material usage.
2. Controlled emission for VOC are based on a control efficiency of 50% based on conservative industry standards for soluble compounds. No control is assumed for mesitylene and naphtha since they are insoluble.

Unit 20 - HAP/TAP Emissions from Thin Film Process

Chemical	Uncontrolled Emissions ¹		Controlled Emissions ²		
	lb/hr	tpy	lb/hr	tpy	lb/day
Sulfuric Acid	0.07	0.32	7.21E-04	3.16E-03	0.02
Nitric Acid	0.39	1.70	3.88E-03	1.70E-02	0.09
2-ethanolamine	0.10	0.45	5.19E-02	2.27E-01	1.25
Hydrochloric Acid	0.09	0.40	9.18E-04	4.02E-03	0.02
Phosphoric Acid	0.16	0.70	1.59E-03	6.98E-03	0.04
Total HAP/TAPs	0.81	3.57	0.06	0.26	1.42

Notes:

1. Uncontrolled emissions are assumed to be a 10% loss from the daily material usage.
2. Conservative control efficiency of 99% based on system design for acids. 50% for soluble VOC 2-ethanolamine.

Unit 20 - Fluorine and Lead Emissions from Thin Film Process

Chemical	Uncontrolled Emissions ¹		Controlled Emissions ²		Std. 4 Process Weight Rule (lb/hr) ³
	lb/hr	tpy	lb/hr	tpy	
Hydrofluoric Acid	0.02	0.08	1.75E-04	7.67E-04	
Lead	0.01	0.03	6.67E-05	2.92E-04	0.079
Lead zirconate titanate	0.01	0.03	6.04E-05	2.65E-04	

Notes:

1. Uncontrolled emissions are assumed to be a 10% loss from the daily material usage.
2. Conservative control efficiency of 99% based on system design for hydrofluoric acids. Industry standard, conservative 99% efficiency for particulate matter.
3. Based on a 43.2 lb/hr mass throughput (wafers and solutions).

REVSIED 09/05/11: Removed DGDE and 1-methoxy-2-propanol from HAP group. Added Std. 4 process weight calc.

TABLE 26
UNIT 21
 Miscellaneous Support Emissions - Soldering
 AVX, Myrtle Beach, SC

Unit 21 - Soldering Emissions (Miscellaneous Support)

Assumptions:

Number of machines (1 wave solder, 3 solder pots with hoods)
 Potential soldering usage

4
 1,000 lbs/yr

HAPs	Manufacturers Product ID Number	Emission Factor (lb)	Potential Quantity Used (lb/yr) ¹	Potential Emissions		
				(lb/yr)	(ton/yr)	(lb/hr)
Lead (Pb) ³	SN/60 Electrolytic Grade Solder	0.000162	1150	0.19	9.32E-05	2.13E-05
Cr (HAP)	SN/60 Electrolytic Grade Solder	0.000013	1150	0.01	7.48E-06	1.71E-06
Mn (HAP)	SN/60 Electrolytic Grade Solder	0.000846	1150	0.97	4.86E-04	1.11E-04

Criteria Pollutants	Manufacturers Product ID Number	Emission Factor (lb)	Potential Quantity Used (lb/yr) ¹	Potential Emissions			Std. 4 Process Weight Rule (lb/hr) ⁴
				(lb/yr)	(ton/yr)	(lb/hr)	
PM	SN/60 Electrolytic Grade Solder	0.018	1150	20.70	0.010	0.002	
PM-10	SN/60 Electrolytic Grade Solder	0.018	1150	20.70	0.010	0.002	1.83
PM-2.5	SN/60 Electrolytic Grade Solder	0.018	1150	20.70	0.010	0.002	

1. Potential is estimated using the 2006 data plus 15%. 2006 was the most recent, maximum year data was available.
2. Per the MSDS, the emissions using the MSDS were more conservative for Pb there that number was used in the facility summary.
3. Using AP-42 12.19 Emission Factors for SMAW Welding Process
4. Based on a wave solder 600.8 lb/hr mass throuput (solder and circuit board panels).

REVSIED 09/05/11: Added Std. 4 process weight calc.