

AVX CORPORATION
A KYOCERA GROUP COMPANY

AVX Corporation
P.O. Box 867
Myrtle Beach, S.C. 29578
Tel: (803) 448-9411

Fatima

April 18, 2012

Ms. Fatima Ann Washburn Clark
Eng. Services Div., Bureau of Air Quality
SCDHEC
2600 Bull Street
Columbia, SC 29201

CERTIFIED MAIL # 7008 1300 0001 1491 6988

RECEIVED

APR 20 2012

BUREAU OF AIR QUALITY

USEPA, Region 4, APTMD
Operation Source Section
61 Forsyth Street, SW
Atlanta, GA 30303

CERTIFIED MAIL # 7008 1300 0001 1491 6995

Re: Insignificant Source Modification – Termination and Plating Relocation
AVX Corporation-Myrtle Beach (Permit # TV-1340-0002)

Dear Fatima:

Per your discussions with Gary Yoder of Resolute Environmental, LLC, AVX is planning to officially move the Termination and Plating Departments from their current location in the MB1 building to the newer MB2 building at their facility located in Myrtle Beach, South Carolina. Due to floor space limitations at MB2, the number of manufacturing tools in each department will be reduced from the number in the facility's Title V renewal application currently under review by your office. The South Carolina Department of Health and Environmental Control (DHEC) considers this change within the definition of Operation Flexibility per the facility's Title V Permit Item Part 3.0 U [502 (b)(10)]. As requested, the following are details on this relocation as well as an update to changes in Standard No. 8 compounds emitted.

Electroplating Department (Revised Unit ID 19)

Four of the seven SBE plating lines currently in MB1 will move to MB2. Specifically, SBE Lines, 1, 2, and 3 will be removed from the site. However, Line 3 will be replaced at MB2 by an identical line (same capacity and plating solutions). AVX will refer to this line as Line 8. In addition, SBE Line 4 will be modified slightly with this move to plate copper instead of tin.

The FCT (Fine Copper Termination) and Hulik plating system (copper) will also move from MB1 to MB2.

The following list summarizes the equipment to be relocated into the MB2 building:

- SBE Line 4 – Ni/Cu (formerly Ni/Sn)
- SBE Line 5 – Ni/Sn/Pb
- SBE Line 6 – Ni/Au
- SBE Line 7 – Ni/Pb
- Line 8 – Ni/Sn
- One FCT line
- One Hulik system

The Hulik plating system will eventually replace the FCT line. Until that time, both FCT and the Hulik systems will move to MB2. The FCT and Hulik copper plating systems have been approved as insignificant sources by the South Carolina Department of Health and Environmental Control (DHEC).

Attached Table 1 presents revised emission rates for the five SBE plating lines.

Termination (Revised Unit ID 19)

The current Title V renewal application includes 20 termination tools and 9 curing ovens in the Termination Department within Metallization Unit 19. Moving the Termination Department to the MB2 building will reduce this number of tools at AVX to 8 termination tools (TTOOL) and 5 termination ovens (TOVEN).

As a conservative modeling approach, emissions from termination for this move were assumed to remain the same as presented in the Title V renewal application currently under review by DHEC (See Table 2). Material throughput will actually be lower with the reduction in equipment.

Attached Tables 3 and 4 summarize the criteria and HAP/TAP emissions from this modification.

Air Dispersion Modeling Update

The termination process at MB2 will have two new emission points; one for the termination ovens (EF-8) and one for the termination kilns (KEF-1). However, since hazardous and toxic air pollutants from termination result from cleaning with denatured alcohol, the only modeled source from termination is a volume source simulating fugitive cleaning emissions. The volume source identification was revised from NEWMFG to TERMFUG in this modeling update. Also, the location of TERMFUG was relocated slightly in this update to the west northwest direction to more accurately represent the final location of the Termination Department.

The SBE plating exhaust will be combined with the exhaust from the termination ovens through emission point EF -8. Attached Figure 1 shows the location of the relocated departments and point source EF-8. EF-8 will be located on the back wall of MB2 approximately 190 feet from the back, north corner of the MB2 building.

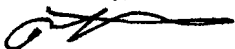
Attached Table 5 is the modeled source parameters and Table 6 presents the updated modeling results for nickel, methanol, and MIBK. As indicated, the three compounds are well below their respective Maximum Allowable Ambient Concentration.

A compact disc with the revised electronic AERMOD modeling files for emissions of nickel, methanol, and MIBK is enclosed for your review.

Also enclosed are the completed Forms A and OF for requested changes under Operation Flexibility.

If you have any question regarding the information provided, please call me at 843-946-0326 or email me at ralph.bryant@avx.com.

Sincerely,



Evan Slavitt
Vice President, Business & Legal Affairs

CC: Rayna King, SCDHEC Region 6
Ralph Bryant, AVX Corp.



**Title V Permit Application
Facility Profile – Form A
Bureau of Air Quality
Page 1 of 1**

RECEIVED

APR 20 2012



Please Refer to Instruction Pages Before Completing This Form
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

FACILITY INFORMATION					
1. Company Name for Permit:	AVX Corporation	2. Existing State Air Permit Number:	1340-002		
3. Business Mailing Address:	PO Box 867	4. City:	Myrtle Beach	5. State:	SC 6. Zip Code: 29578-
7. Plant Location (Street or Highway):	801 17 th Ave. S.	8. City:	Myrtle Beach	9. State:	SC 10. Zip Code: 29577-
11. County:	26	12. Primary SIC Code:	3675	13. NAICS Code:	334414
14. EPA (AIRS) Facility Identification No.:		15. Latitude:	33-40-42N	16. Longitude:	78-54-35W
17. Date Facility Was Built:	1949				

CONTACT INFORMATION					
RESPONSIBLE OFFICIAL AUTHORIZED REPRESENTATIVE:			ENVIRONMENTAL / TECHNICAL CONTACT:		
18. Last:	Slavitt	19. First:	Evan	29. Last:	Bryant 30. First: Ralph
20. Title:	VP-Bus. & Legal Affairs		31. Title:	EHS Manager	
21. Mailing Address Line 1:	PO Box 867		32. Mailing Address Line 1:	PO Box 867	
22. Mailing Address Line 2:			33. Mailing Address Line 2:		
23. City:	Myrtle Beach	24. State:	SC	25. Zip Code:	29578-0867
26. Phone No.:	(843) 946-0624 ext.	27. Fax No.:	(843) 448-1373	34. City:	Myrtle Beach 35. State: SC 36. Zip Code: 29578-0867
28. E-mail Address:	evan.slavitt@avx.com		37. Phone No.:	(843) 946-0326 ext.	38. Fax No.: (843) 444-2848
				39. E-mail Address:	ralph.bryant@avx.com

PURPOSE OF APPLICATION	
40. Facility Type:	<input type="checkbox"/> Conditional Major <input checked="" type="checkbox"/> Title V <input type="checkbox"/> Co-Located Facility (co-located facility if yes, name and permit # of co-located facility):
41. Permit Action:	<input type="checkbox"/> New <input type="checkbox"/> Renewal Modification: <input type="checkbox"/> Administrative Amendment (Submit Form AA) <input type="checkbox"/> Minor Modification (Submit Form MM) <input type="checkbox"/> Significant Modification (Submit Form SM) <input checked="" type="checkbox"/> Operational Flexibility (Submit Form OF)
42. Attainment Area Designation: Is the source located within a non-attainment area for any of the criteria air pollutants?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If "Yes", Indicate Non-attainment Pollutant(s): <input type="checkbox"/> PM _{2.5} <input type="checkbox"/> O ₃ (Precursor pollutants to Ozone are NO _x and VOC)

SIGNATURES

I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions which are found to be incorrect may result in the immediate revocation of any permit issued for this application.

43. Responsible Official Signature/Authorized Representative		Title/Position	VP-Bus. & Legal Affairs	Date	4/18/12
Note* For change or addition of responsible official(s) submit Responsible Official (RO) Notification Form (see attachment E)					

CONSULTING FIRM INFORMATION					
44. Consulting Firm:	Resolute Environmental, LLC				
Preparer Name:	45. Last	Yoder	46. First	Gary	
47. Mailing Address Line 1:	114 Oak Fern Lane				
48. Mailing Address Line 2:					
49. City:	Willow Springs	50. State:	NC	51. Zip Code:	27592-
52. Phone No.:	(919) 701-0009 ext.	53. Fax No.:	() -	54. E-mail Address:	gyoder@nc.rr.com

****INCOMPLETE APPLICATIONS WILL BE RETURNED****



**Title V Permit Application
Operational Flexibility- Form OF
Part I
Bureau of Air Quality
Page 1 of 2**

Please Refer to Instruction / Definitions Pages Before Completing This Form

The South Carolina Department of Health and Environmental Control may modify the permit as described on this form through the procedures described in SC Regulation 61-62.70.7(e). If the facility is requesting an operational flexibility (502(b)(10)), complete Part I. If this request is in response to the operational flexibility condition in your existing permit, submit Part II of this Form. You must apply for an operational flexibility modification in writing by submitting this form along with Form A to the Department, Environmental Protection Agency, and the local Environmental Quality Control District Office. If new or modified unit(s) are placed into operation, the form must be submitted at least fifteen days prior to operation to satisfy the requirements of SC Regulation 61-62.1, Section II(B)(1). If a new construction permit was not required, the form must be submitted at least seven days in advance.

OPERATIONAL FLEXIBILITY NOTIFICATION			
1. Modification Request Type: <input checked="" type="checkbox"/> 502(b)(10) (Submit Part I of this Operational Flexibility Form) <input type="checkbox"/> Permit Operational Flexibility Condition Request (Submit Part II portion of this Permit Operational Flexibility Form.)			
2. Anticipated Date of Change (MM/DD/YYYY):	05/01/12	3. Notification Date (MM/DD/YYYY):	04/19/12
4. Existing State Construction Air Permit Number:		TV-1340-0002	
5. Existing Actual Emissions:	Plating 0.003 TPY PM; Termination 3.02 TPY VOC	6. Change in Actual Emissions:	Neg.
7. Projected Actual Emissions:		No expected change	

POLLUTANT INFORMATION					
8. Permit ID	9. Equipment ID	10. List Pollutant(s) Affected by the Change	11. Allowable Emission Rate	12. Monitoring/Compliance Requirements:	13. Permit Term(s) or Condition(s) Affected by the Change
Plating and Termination	SBE and Termination Tools	PM, VOC, Nickel, Lead, MIBK, Methanol	N/A	SBE 40 CFR Part 63, Subpart WWWWWW	None

DESCRIPTION OF CHANGE
14. Describe why this operational flexibility change does not exceed any allowable emission rate. Describe why this change does not violate any applicable requirements or contravene any federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting or compliance certification requirements. The change is for the relocation of identified Equipment Ids. Record keeping required by the permit will not be affected by the relocation of this equipment.
15. Describe in detail why this change does not constitute a Title I modification and provide calculations (if applicable). N/A

Mail Completed Operational Flexibility Request Form and Supporting Documents to:

Engineering Services Division, Bureau of Air Quality
 South Carolina Department of Health and Environmental Control
 2600 Bull Street
 Columbia, South Carolina 29201

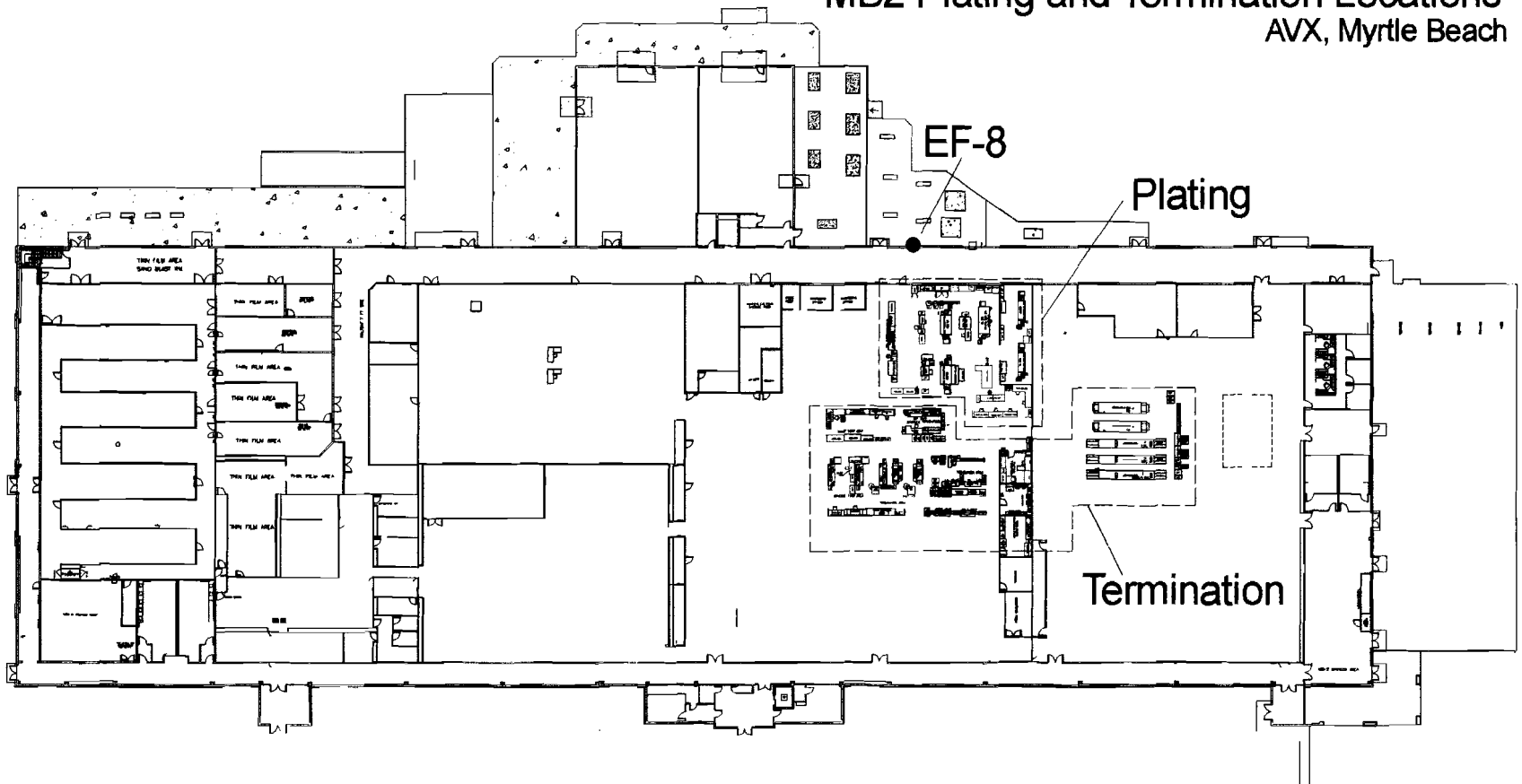
The Environmental Protection Agency
 Air Permits Section/ APTMD
 U.S. EPA Region 4
 61 Forsyth Street, SW
 Atlanta, GA 30303

Local District Environmental
 Quality Control Office

FORMS A and OF

FIGURE 1

FIGURE 1
MB2 Plating and Termination Locations
AVX, Myrtle Beach



TABLES

TABLE 1
UNIT 19
Revised Metallization Emissions - Electroplating
AVX, Myrtle Beach, SC

Unit 19 - Miscellaneous Emissions From Electroplating Operations at MB2

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

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
Copper Electroplating	17.83	1.0	30	60	1.06E-02

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-5	95	Ni/Sn/Pb
SBE-4	95	Ni/Cu
SBE-6	95	Ni/ Au
SBE-7	130	Ni/Pb
SBE-8	130	Ni/Sn

SBE Line Flow Rate Information:

Parameter	SBE Line 5	SBE Line 4	SBE Line 6	SBE Line 7	SBE Line 8
Pipe Diameter (ft)	0.50	0.50	0.67	0.50	0.50
Velocity (fps)	3.40	3.40	1.91	1.70	1.70
Temperature (F)	68	68	68	68	68
Flow Rate (acfm)	40	40	40	20	20
Flow Rate (scfm)	39.2	39.2	39.2	29.4	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 4, 5, and 6		SBE Lines 7 and 8		Total Process Emissions	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	2.81E+01	1.24E-02	5.43E-02	6.19E-03	2.71E-02	1.86E-02	8.14E-02
Nickel	3.46E+00	1.52E-03	6.67E-03	7.61E-04	3.33E-03	2.28E-03	1.00E-02
Lead	1.74E-02	2.55E-06	1.12E-05	3.81E-04	1.67E-03	3.83E-04	1.68E-03
Gold	9.76E-02	1.43E-05	6.28E-05	-	-	1.43E-05	6.28E-05
Tin	2.95E-01	4.33E-05	1.90E-04	3.25E-05	1.42E-04	7.57E-05	3.32E-04
Copper	2.43E+01	3.56E-03	1.56E-02	-	-	3.56E-03	1.56E-02

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) x 64.8/1 (mg/grain) x 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.

Table 2
UNIT 19
Revised Metallization Emissions - Termination
 AVX, Myrtle Beach, SC

Unit 19 - VOC Emissions from Termination Paste at MB2

Data	2006 Usage ¹ (lb/yr)	Potential Usage ² (lb/yr)
Termination Department Paste Delivered (lb/yr)	34,149	39,271
VOC Content Silver Paste (percent)	22%	22%
Termination Reclaim & Waste (lb/year) ³	18,444	18,444
VOC (Terpineol) Emissions (tpy)	1.73	2.29

Notes:

1. 2006 Production data provided by AVX
2. 2006 data plus 15%. For conservatism, assumed no change from Title V renewal application (i.e., throughput the same in MB2 as MB1)
3. The potential reclaim amount was not increased by 15% as a conservative approach.

Unit 19 - VOC Emissions From Termination Department Cleaning at MB2

Cleaning Solvents Used in Termination	2006 Department Use ¹ (gal)	Potential Department Use ² (gal)	% of Usage Emitted ³	lb/gal (VOC)	Total VOC Emissions (lb/yr)	Total VOC Emissions (tpy)
Propyl Propionate	3,685	4,238	20%	7.35	6,229	3.1
Denatured Alcohol	2,640	3,036	20%	6.76	4,105	2.1
Total					10,334	5.2

Notes:

1. Production data provided by AVX
2. 2006 data plus 15%
3. 20% loss factor is fugitive emissions based on conservative estimates from knowledge of material use. The balance is waste.
4. Propyl propionate recently replaced xylene as a Termination cleaning solvent. The amount of xylene used in 2006 was assumed equal to propyl propionate usage.

Unit 19 - HAP/TAP Emissions From Termination Department Cleaning at MB2

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	147.8	0.07
Methyl Isobutyl Ketone ¹	HAP/TAP	1.9	77.99	0.04

Notes:

1. Contained in Denatured Alcohol

TABLE 3
Summary Of Potential Metallization Criteria Emissions
 AVX Corporation, Myrtle Beach, SC

Emission Unit ID No.	Department	Uncontrolled Emissions							
		PM		PM-10		PM-25		VOC	
		(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)
19	Metallization	-	-	-	-	-	-	5.17	1.18
19	Metallization - Electroplating	8.14E-02	1.86E-02	8.14E-02	1.86E-02	8.14E-02	1.86E-02	-	-
TOTALS		0.08	0.02	0.08	0.02	0.08	0.02	5.17	1.18

Emission Unit ID No.	Department	Controlled Emissions							
		PM		PM-10		PM-25		VOC	
		(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)
19	Metallization	-	-	-	-	-	-	5.17	1.18
19	Metallization - Electroplating	8.14E-02	1.86E-02	8.14E-02	1.86E-02	8.14E-02	1.86E-02	-	-
TOTALS		0.08	0.02	0.08	0.02	0.08	0.02	5.17	1.18

TABLE 4
Potential Metallization HAP/TAP Emission Summary
AVX Corporation, Myrtle Beach, SC

HAP/TAP (Unit 19 - Metallization)	Controlled Emissions (ton/yr)
Lead	1.68E-03
Methyl Alcohol	0.07
Methyl Isobutyl Ketone	0.04
Nickel	1.00E-02

TABLE 5
Revised Modeled Emission Source Parameters - Plating and Termination
 AVX Corporation, Myrtle Beach, SC

POINT SOURCES													
Source Description	Emission Point I.D.	UTM Coordinates		Height		Temperature (°F)	Exhaust Point		Equivalent Circular Diameter		Flow Rate (acfm) ¹	Orientation	Modeled Emissions Nickel (g/s)
		Easting	Northing				L	W	2LW/(L+W)				
		(m)	(m)	(ft)	(m)		(in.)	(in.)	(ft)	(m)			
SBE Plating	EF-8	693331	3727939	22	6.71	120	56	48	4.31	1.31	500	Horizontal	2.88E-04

Note:

1. EF-8 is a combination of termination overs and SBE plating. The flow rate can vary from 500 to 750 acfm.

VOLUME SOURCE											
Source Description	Emission Point I.D.	UTM Coordinates		Release Height		Horizontal Dimension		Vertical Dimension		Modeled Emissions	
		Easting	Northing	(ft)	(m)	(ft)	(m)	(ft)	(m)	Methanol (g/s)	MIBK (g/s)
		(m)	(m)								
Termination Fugitive	TERMFUG	693358.7	3727933	3.7	1.13	16	4.97	3.44	1.05	2.13E-03	1.12E-03

Table 6
Summary of Revised AERMOD Modeling Results - Standard No. 8

AVX Corporation
 Myrtle Beach, South Carolina

<i>Contaminant</i>	<i>CAS Number</i>	<i>Predicted Maximum Ambient Concentration^a (µg/m³)</i>	<i>MAAC^a (µg/m³)</i>	<i>Percent of MAAC (%)</i>
Methanol	67-56-1	4.8	1,310	<1
Methyl Isobutyl Ketone	108-10-1	2.5	2,050	<1
Nickel	7440-02-0	0.056	0.500	11

Notes:

A. Based on a 24-hour averaging period.

COMPACT DISC

AVX Corporation
Myrtle Beach, South Carolina

Truth and Accuracy Statement

Based on the information and belief formed after reasonable inquiry, the statements and information contained in this document are true, accurate, and complete.



Evan Slavitt
Vice President, Business & Legal Affairs

4/18/12

Date