PA DEP SOUTHWEST REGIONAL OFFICE **MEMO**

TO Air Quality Permit File: OP-04-00043
Centria / Centria Coil Coating Services

FROM Thomas J. Joseph, P.E.
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THROUGH Mark R. Gorog, P.E.
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DATE October 20, 2016

RE Review of Application for Renewed State Only Operating Permit
Centria / Centria Coil Coating Services
Ambridge Borough, Beaver County
APS #716556; AUTH #828761; PF #517091

Background:

On November 27, 1995, Centria applied for an initial facility-wide Operating Permit for their facility in Ambridge Borough, known as Centria Coil Coating Services. The application was for a Title V Operating Permit (TVOP). On May 17, 1999, a Permit for Reasonably Available Control Technology (RACT, #04-000-043) was issued for the paint mixing and solvent cleaning operations at the facility. The initial Operating Permit, TVOP-04-00043 was issued for the facility on March 30, 2000, with an expiration date of March 30, 2005. On December 30, 2004, the Department approved a Request for Determination submitted by Centria that requested replacement of the existing emission control system at the facility with a recuperative thermal oxidizer that controlled more sources, and to consequentially take emission restrictions at the facility that made Centria Coil Coating a synthetic minor source of VOC and an area source (A source that is minor for HAPs.). These changes were completed prior to June 10, 2005. The Operating Permit (OP) was renewed, with the facility considered a Synthetic Minor source, on September 28, 2005, with a new expiration date of September 28, 2010. On July 17, 2006, a natural gas burner was replaced at the facility, which caused no change in emissions.

On March 23, 2010, Centria submitted an application to again renew the OP for this facility, as a Synthetic Minor source. A solvent recovery system was installed on February 7, 2012. This deminimis increase raised potential emissions from the facility by 0.45 tons VOC per year. An updated version of this application was received on August 23, 2012. Review of the application to renew is the subject of this document.

Sources, Control Devices, and Emissions:

Centria Coil Coating Services is a metal coil coating facility. It receives metal coils and coats and ships them for further processing. Emission processes at the Centria Coil Coating Services and their control are listed in Table 1:

Table 1: Emission Sources and Control
Centria
Centria Coil Coating Services (SOOP-04-00043)

ID	Source Name	Emission Control	Installation or Startup
101	Prime Coater	Thermal Oxidizer (15 MMBtu/hr, Installed 1/2005)	1979
102	Finish Coater	Thermal Oxidizer(15 MMBtu/hr, Installed 1/2005)	1979
103	Paint Mix Station		1979
104	Primer Oven (11.25 MMBtu/hr)	Thermal Oxidizer(15 MMBtu/hr, Installed 1/2005)	1979
105	Finish (Coating Line) Oven (11.25 MMBtu/hr)	Thermal Oxidizer(15 MMBtu/hr, Installed 1/2005)	1979
106	Thermal Oxidizer Burner (15.0 MMBtu/hr)	Thermal Oxidizer(15 MMBtu/hr, Installed 1/2005)	1/2005

All sources at the facility, with the exception of the Paint Mix Station (Source ID 103), are located in the main room in the facility and all emissions from the sources in these rooms are captured by the Thermal Oxidizer System. The ovens and burners in the plant draw their combustion air from these rooms. This capture has been confirmed twice by testing, as part of programs conducted on April 10 & 11, 2008 and May 13, 2011. During these test programs, all openings from these rooms were tested for air flow. It was determined that the direction of air flow from anywhere on the building surface was always into the rooms and that no air exited, except through the Thermal Oxidizer Burner System.

Total projected annual emissions from the facility, as estimated by the applicant, are listed in Tables 2 and 3:

Table 2: Facility Criteria Emissions
Centria
Centria Coil Coating Services (SOOP-04-00043)

Emission Source Type	$PM_{2.5}$		PM_{10}		SO_2		CO		NO_x		VOC	
	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr
101 - Prime Coater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	See Note [2]	See Note [3]
102 - Finish Coater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
103 - Paint Mix Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	9.00[1]
104 - Primer Oven (11.25 MMBtu/hr)	0.08	0.36	0.08	0.36	0.01	0.03	0.91	3.98	1.08	4.74	See Note [2]	See Note [3]
105 - Finish (Coating Line) Oven (11.25 MMBtu/hr)	0.08	0.36	0.08	0.36	0.01	0.03	0.91	3.98	1.08	4.74		
106 - Thermal Oxidizer Burner (15.0 MMBtu/hr)	0.11	0.48	0.11	0.48	0.01	0.04	1.21	5.31	1.44	6.32		
Facility Total	**0.27**	**1.20**	**0.27**	**1.20**	**0.02**	**0.09**	**3.03**	**13.27**	**3.61**	**15.79**	**7.99**	**35.00**

[1]Permit Limit

[2]Emissions from the sum of Source IDs 101, 102, 104, 105, and 106 are limited to an annual average of 7.99 pounds/hour - (VOC Emissions from Source ID 103)

[3]Emissions from the sum of Source IDs 101, 102, 104, 105, and 106 are limited to a total of 35 tons/year - (VOC Emissions from Source ID 103)

Annual emissions are based on Annual Permit and 8,760 hours per year operation.

Emission factors from EPA's AP-42 were used for all other emissions listed.

Pre-control VOC emissions from the facility based on the 2011 stack tests were 2,939 tons per year, based on stack testing and 3,225 tons per year, based on process data.

All values shown were rounded from those calculated.

The facility is physically capable of operating with mixed paint containing about 100 gallons of solvent per hour. If all of this solvent is composed of hazardous air pollutants (HAPs) and its specific density is 6 pounds per gallon, annual pre-control HAP emissions from the facility would be about 2,600 tons per year. However, emissions from the facility are controlled by solvent recovery and the thermal oxidizer, which destroys organic HAPs prior to emission. Also, the existing permit requires that HAP emissions be limited to less than 10 tons of a single HAP and 25 of all HAPs combined, per year. Compliance with these limits is assured by monitoring, which consists of recording all paints and solvents used at the facility, including their HAP and VOC content, along with a monthly determination of air emissions.

Table 3: Facility Hazardous Air Pollutant (HAP) Emissions
Centria
Centria Coil Coating Services (SOOP-04-00043)

Emission Source Type	Any Single HAP	Total HAPs
	Ton/yr	Ton/yr
101 - Prime Coater		
102 - Finish Coater		
103 - Paint Mix Station		6.00[1]
104 - Primer Oven (11.25 MMBtu/hr)		
105 - Finish (Coating Line) Oven (11.25 MMBtu/hr)		
106 - Thermal Oxidizer Burner (15.0 MMBtu/hr)		
Facility Total	**10.00**[1]	**25.00**[1]

[1]Permit Limit

Table 4: Annual Projected Emissions of GHGs
Centria
Centria Coil Coating Services (SOOP-04-00043)

Source	Greenhouse Gas							
	CO_2		CH_4		N_2O		**Total CO_2e**	
	Lb/Hr	Ton/Yr	Lb/ Hr	Ton/ Yr	Lb/ Hr	Ton/ Yr	**Lb/ Hr**	**Ton/ Yr**
101 - Prime Coater	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
102 - Finish Coater	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
103 - Paint Mix Station	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
104 - Primer Oven (11.25 MMBtu/hr)	1,298	5,686	0.025	0.109	0.024	0.104	1,306	5,719
105 - Finish (Coating Line) Oven(11.25 MMBtu/hr)	1,298	5,686	0.025	0.109	0.024	0.104	1,306	5,719
106 - Thermal Oxidizer Burner (15.0 MMBtu/hr)	1,731	7,581	0.033	0.145	0.032	0.139	1,741	7,626
Facility Total	**4,327**	**18,952**	**0.083**	**0.36**	**0.079**	**0.35**	**4,353**	**19,065**

Emission estimates for sources are based on AP-42.

Emission of CO_2e is based on these GHG equivalents. (1 Ton CO_2 = 1 Ton CO_2e, 1 Ton CH_4 = 25 Tons CO_2e and 1 Ton N_2O = 298 Tons CO_2e, based on Table A-1 of Section A to 40 CFR Part 98.)

Values shown in this table were rounded after calculating.

Actual emissions from the facility over a five-year period are shown in Tables 5 and 6:

Table 5: Actual, Annual Facility-wide Emissions of Criteria Pollutants
Centria
Centria Coil Coating Services (SOOP-04-00043)

	CO	Pb	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
	TPY	TPY	TPY	TPY	TPY	TPY	TPY
2010	2.30	0.00	9.18	0.20	0.20	0.04	5.15
2011	2.32	0.00	9.28	0.20	0.20	0.04	4.72
2012	2.28	0.00	9.14	0.20	0.20	0.04	4.17
2013	2.46	0.00	9.82	0.13	0.13	0.04	4.21
2014	2.58	0.00	10.33	0.14	0.14	0.04	4.50
Average	**2.39**	**0.00**	**9.55**	**0.17**	**0.17**	**0.04**	**4.55**

Table 6: Actual, Annual Facility-wide Emissions of HAPs
Centria
Centria Coil Coating Services (SOOP-04-00043)

	2010	2011	2012	2013	2014
	TPY	TPY	TPY	TPY	TPY
Glycol Ethers	1.07	0.74	-	0.57	0.50
Isophorone	0.59	0.65	-	0.51	0.50
Total	**1.66**	**1.39**	**-**	**1.08**	**1.00**

Regulatory Analysis:

Centria Coil Coating Services is a synthetic minor source because its potential emissions of PM_{10}, NO_x, SO_2, and CO from the facility with restrictions, are less than the major source threshold of 100 tons per year and, with permit limits on emissions of VOC and HAPs, potential emissions of VOC are less than 50 tons per year and HAP emissions have an emission potential

less than 10 TPY of any single HAP and 25 TPY of the sum of all emitted HAPs. A facility that does not emit HAPs of this amount is called an Area Source.

The facility was evaluated for applicability of New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), other Federal Standards, and applicable requirements of 25 Pa. Code Chapters 121 - 145, of the Commonwealth of Pennsylvania. The following standards were considered:

Table 6: Regulatory Analysis
Centria
Centria Coil Coating Services (SOOP-04-00043)

Federal Regulations	
NSPS	
No source at the facility is affected by any NSPS.	
NESHAPs	
40 CFR Part 63, Subpart SSSS - National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil	The primary activity at Centria Coil Coating Services is the activity described in Subpart SSSS. However. 40 CFR §63.5090(a) states that the subpart only regulates coil coating at major sources of HAPs. The required date of compliance with this subpart was June 10, 2005. Centria took restrictions at the facility that made Centria Coil Coating a minor source of VOC and an area source (A source that is minor for HAPs.) on December 30, 2004, and stated this in a Request for Determination on that date. Since Centria Coil Coating Services was an area source of HAPs on the effective date of the MACT, the facility has no requirements under Subpart SSSS.
40 CFR Part 63, Subpart HHHHH - National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing	40 CFR §63.7985(a)(1) states that the subpart only regulates miscellaneous coating at major sources of HAPs. Nor does it regulate processes that are affected sources under another subpart of Part 63. Therefore, Centria Coil Coating Services has no requirements under Subpart HHHHH.
Other Air Programs	
No source at the facility is affected by any other Air Program.	

Pennsylvania Air Pollution Control Regulations	
25 Pa Code § 123.1 (Prohibition of Certain Fugitive Emissions)	Section is applicable.
25 Pa Code § 123.2 (Fugitive Particulate Matter)	Section is applicable.
25 Pa Code § 123.11 (Combustion Units)	Section is not applicable.
25 Pa Code § 123.13 (Processes)	Section is applicable to processes that generate particulate that can be measured and do not burn fuel for indirect heat transfer. All emission sources the facility are limited by this section. Each unit is limited to maximum particulate emission of 0.04 grain/SDCF.
25 Pa Code § 123.21 (General)	Section is not applicable.
25 Pa Code § 123.22 (Combustion Units)	Section is not applicable.
25 Pa Code § 123.25 (Monitoring Requirements)	Section is not applicable.
25 Pa Code § 123.31 (Odor Emissions)	Section is applicable.
25 Pa Code § 123.41 (Limitations - Visible Emissions)	Section is applicable.
25 Pa Code § 123.42 (Exceptions - Visible Emissions)	Section is applicable.
25 Pa Code § 123.43 (Measuring Techniques)	Section is applicable.
25 Pa Code Chapter § 127.441 (Operating permit terms and conditions)	Section is applicable. Emission, workpractice, recordkeeping, and reporting restrictions for the facility were created under the authority of this section. The basis for VOC and HAP emission limits in the proposed Operating Permit is discussed below.
25 Pa Code Chapter § 129.14 (Open Burning Operations)	Section is applicable. The facility is in the Lower Beaver Valley air basin, and open burning is not allowed, with certain exceptions.
25 Pa Code Chapter § 129.51 (General)	The Centria facility has sources of VOCs and these sources have applicable requirements under the subchapter Sources of VOCs. Section is applicable.
25 Pa Code Chapter § 129.52 (Surface coating processes)	The facility has a coil coating line that is a surface coating process that has requirements under this section.

Basis for VOC and Hazardous Air Pollutant Emission Limits in Proposed Permit

Review of EPA guidance indicates that emission limitations must be practically enforceable and contain a rolling average of no less than once a month. The Department review indicates that actual emissions of VOC from the facility have not exceeded 6.0 tons of VOCs or 2.0 tons of sum of all HAPs in in any of the last 5 years. Additionally, 25 Pa. Code § 129.52 requires daily records of all VOC (Including HAP.) containing material.

The Department has required on-site monthly records of emissions and annual emission reporting. As such, actual emission rates will be monitored by the Department's operation's staff and compared to allowable emission limitations.

VOC emissions in the existing permit are limited to less than or equal to 35 tons per year and were not changed in the proposed Operating Permit. The proposed permit, with monthly verification of synthetic minor status, with reporting, will fulfill the purpose of the EPA guidance.

The proposed Operating Permit contains requirements to determine emissions of VOC, individual HAPs, and the sum of all HAPs for the previous 12-months, each month, to determine compliance. These results must also be submitted to the Department, monthly. Since VOC and organic HAPs emitted by the thermal oxidizer are directly proportional to the fraction not destroyed, efficiency of the oxidizer must be monitored. The proposed Operating Permit requires that its destruction efficiency be measured through stack testing, every five years. This has been changed from the previous requirement to stack test once during the term of the permit. Temperature of the thermal oxidizer must be continuously monitored and recorded every 15 minutes. During stack testing, the outlet temperature of the Thermal Oxidizer has been controlled to a temperature of 1300^{o}F. A requirement for the thermal oxidizer to operate at least as high as the average temperature of the most recent stack test has been added in the proposed Operating Permit.

Conclusions and Recommendations:

An inspection of Centria Coil Coating Services for a Full Compliance Evaluation was last conducted on November 5, 2014. Scott Beaudway, Air Compliance Specialist of DEP determined that the plant met all requirements in the current SOOP. Rich Kupiec, Environmental Safety Services Engineer for Centria and Scott Beaudway, the Department's Air Quality inspector for the facility, have reviewed a copy of the draft permit.

25 Pa. Code § 121.7 and § 123.13 were added to permit. Also, current standard permit language was updated in the proposed permit.

Centria has proposed, in this application, to operate a metal coil coating plant in Ambridge Borough, Beaver County. I recommend the issuance of a five-year Operating Permit for this facility, subject to the conditions in the proposed State Only Operating Permit.

Permit Authorized by this Authorization					
Quantity	Facility Name			PF ID:	517091
1	Centria / Centria Coil Coating Services (OP-04-00043)				
		APS ID:	716556	Auth. ID:	828761
Short Descr.	Operating Permit for a metal coil coating plant.				
Permits Inactivated by this Authorization					
Permit #					
		APS ID		Auth. ID	

Attachment 1 - Calculations

Centria
MLH
PA DEP
4/12/2016

1. May 10, 2011 Test Program

Process Data During Testing

	Run 1			Run 2			Run 3			Average				
	Primer Coater	Finish Coater	Exhaust	Primer Coater	Finish Coater	Exhaust	Primer Coater	Finish Coater	Exhaust	Primer Coater	Finish Coater	Exhaust		
Coatings														
	Flurothane G			Flurothane G			Flurothane G			Flurothane G				
Top	Primer	Green Backer		Primer	Green Backer		Primer	Green Backer		Primer	Green Backer			
Volatiles	0.52	0.58		0.52	0.58		0.52	0.58		0.520	0.580			(In specification, Shown test in report)
dft	0.69	0.76		0.92	0.89		0.89	0.88		0.833	0.843		mils	(measured, Shown test in report)
wft	1.4375	1.80952381		1.916666667	2.119047619		1.854166667	2.095238095		1.736111111	2.007936508		mils	(Calculated from Volatiles & dft. Shown test in report)
Coil Width	44	44		44	44		44	44		44.000	44.000		in	(measured, Shown in test in report)
Line Speed	195	195		195	195		190	190		193.333	193.333		ft/min	(measured, Shown in test in report)
Wet Volume	148.005	186.3085714		197.34	218.1771429		186.01	210.1942857		177.2222222	204.9701587		in^3/min	(Calculated from wft, Coil Width, & Line Speed)
" "	38.44285714	48.39183673		51.25714286	56.66938776		48.31428571	54.59591837		46.03174603	53.23900227		gal/hr	(Calculated from Wet Volume)
Dried Volume	71.0424	78.2496		94.7232	91.6344		89.2848	88.2816		85.06666667	86.08746667		in^3/min	(Calculated from dft, Coil Width, & Line Speed)
Volume Loss	76.9626	108.0589714		102.6168	126.5427429		96.7252	121.9126857		92.15555556	118.8826921		in^3/min	(Calculated from Wet Volume & Dried Volume)
" "	**19.99028571**	**28.06726531**		**26.65371429**	**32.8682449**		**25.12342857**	**31.66563265**		**23.93650794**	**30.87862132**		**gal/hr**	**(Calculated from Volume Loss) [Matches values in report]**
Solvent Load	20	28.1		26.7	32.9		25.1	31.7		23.933	30.900		gal/hr	(Calculated from Volatiles & dft, Shown in test report)
	Flurothane G			Flurothane G			Flurothane G			Flurothane G				
Bottom	Primer	White Backer		Primer	White Backer		Primer	White Backer		Primer	White Backer			
Volatiles	0.52	0.38		0.52	0.38		0.52	0.38		0.520	0.380			(In specification, Shown test in report)
dft	0.71	0.93		0.83	0.87		0.82	0.92		0.787	0.907		mils	(Measured, Shown in test report)
wft	1.479166667	1.5		1.729166667	1.403225806		1.708333333	1.483870968		1.638888889	1.462365591		in	(Calculated from Volatiles & dft. Shown test in report)
Coil Width	44	44		44	44		44	44		44.000	44.000		in	(Measured, Shown in test report)
Line Speed	195	195		195	195		190	190		193.333	193.333		ft/min	(Measured, Shown in test report)
Wet Volume	152.295	154.44		178.035	144.476129		171.38	148.8619355		167.2977778	149.2782796		in^3/min	(Calculated from wft, Coil Width, & Line Speed)
" "	39.55714286	40.11428571		46.24285714	37.52626728		44.51428571	38.66543779		43.45396825	38.77357911		gal/hr	(Calculated from Wet Volume)
Dried Volume	73.1016	95.7528		85.4568	89.5752		82.2624	92.2944		80.30293333	92.55253333		in^3/min	(Calculated from dft, Coil Width, & Line Speed)
Volume Loss	79.1934	58.6872		92.5782	54.90092903		89.1176	56.56753548		86.99484444	56.72574624		in^3/min	(Calculated from Wet Volume & Dried Volume)
" "	**20.56971429**	**15.24342857**		**24.04628571**	**14.25998157**		**23.14742857**	**14.69286636**		**22.59606349**	**14.73396006**		**gal/hr**	**(Calculated from Volume Loss) [Matches values in report]**
Solvent Load	20.6	15.2		24	14.3		23.1	14.7		22.567	14.733		gal/hr	(Calculated from Volatiles & dft, Shown in test report)

Flurothane G Primer	11.5	lb/gal	4.26	lb VOC/gal
Green Backer	11.2	lb/gal	4.6	lb VOC/gal
White Backer	11	lb/gal	2.84	lb VOC/gal

VOC Generated										
Top	163.7665714	222.602449	218.3554286	260.6791837	205.8188571	251.1412245	196.0952381	244.8994104	lb/hr	(Calculated from Wet Volume & VOC/gal)
Bottom	168.5134286	113.9245714	196.9945714	106.5745991	189.6308571	109.8098433	185.1139048	110.1169647	lb/hr	(Calculated from Wet Volume & VOC/gal)
Total	332.28	336.5270204	415.35	367.2537828	395.4497143	360.9510678	381.2091429	355.0163751	lb/hr	
"		**668.8070204**		**782.6037828**		**756.4007821**		**736**	**lb/hr**	
								3,225	**tons/year**	

Test Results

	Primer Coater	Finish Coater	Exhaust	Primer Coater	Finish Coater	Exhaust	Primer Coater	Finish Coater	Exhaust	Primer Coater	Finish Coater	Exhaust		
Gas Flow	5,153	10,368	14,744	7,118	8,761	16,052	6,386	8,825	16,565	6,219	9,318	15,787	SDCFM	(Measured, Shown in test report)
VOC as C3H8	2,796	3,825	2.9	6,348	11,024	0.9	3,936	8,247	1.31	4,360	7,699	1.70	PPM C_3H_8	(Measured, Shown in test report)
" " "	98.68347945	271.6273973	0.2928603	309.4867397	661.5155068	0.0989507	172.1595616	498.4916096	0.1486312	185.7180822	491.3436712	0.1841817	lb C_3H_8/hr	(Calculated from SDCFM & lb C3H8/hr)
VOC as C3H8	98.7	271.7	0.3	309.6	661.8	0.1	172.2	498.7	0.15	194	477	0.183	lb C_3H_8/hr	(Shown in test report)
										Total	**671**	**lb/hr**		
											2,939	**tons/year**		
Ratio Inlet/Outlet														
Gas Flow			1.053			0.989			0.918			0.987		

The Primer Coater (Source ID 101) and the Finish Coater (Source ID 102) have heating ovens (Source ID 104 Primer Oven & Source ID 105 Finish Oven). The coating line is located in a building. Air used by the heating ovens and all air captured by the thermal oxidizer system ductwork is drawn from the building. This causes it to have a slight negative pressure relative to ambient. As part of the test program, each of the openings in the building that could discharge emissions to ambient were sampled to determine the direction of air flow. These openings are called natural draft openings (NDO). No NDO was found to discharge to ambient. This confirmed the result of similar sampling conducted during testing in 2008. The 2011 testing measured uncontrolled VOC emissions 11% greater than determined by using the process data to determine uncontrolled emissions of VOC. All of this indicates that all uncontrolled VOC is captured by the ductwork system and controlled by the thermal oxidizer. Therefore in this case, using the mass balance method, based on process data is a more accurate method for estimation of uncontrolled emissions.

Determine Uncontrolled & Controlled Emissions

Uncontrolled Emissions						
VOC as C_3H_8	370.3108767	971.0022466	670.6511712	670.6548	lb/hr	(Based on Test Data)
" " "	668.8070204	782.6037828	756.4007821	735.9372	lb/hr	(Based on Process Data)
Controlled Emissions						
	0.292860274	0.098950685	0.148631164	0.1801	lb/hr	(Based on Test Data)
VOC Destruction Efficiency						
	99.921%	99.990%	99.978%	99.963%		(Calculated from Inlet & Stack Test Results) [Matches Values in Report]
	99.956%	99.987%	99.980%	99.975%		(Calculated from process data for uncontrolled & Stack Test Results)
	99.92%	99.99%	99.98%	99.96%		(Shown in test report)

Conclusions regarding test program:

1. Calculations for uncontrolled emissions in the test report used gas flow rates measured in the inlet ducts to the thermal oxidizer. Since the flow direction testing of the NTOs showed each to be into the plant, all VOCs vaporized by drying of the coatings, using a mass balance technique to determine uncontrolled emissions would be more accurate. The uncontrolled VOC emission rate determined by pitot measurement was 9% less than that determined by mass balance. Therefore, future testing should determine uncontrolled emissions using the plant process data.

2. The direction of air flow across the NDOs of the building have been measured during two test programs. In both of these studies, the direction of air flow through each NDO was been found to be into the building. Unless the flow rate into the air ducts venting the primer and finishing operations in significantly changed by adjustments to dampers, fans or other factors, it should not be necessary to repeat the verification that each NDO does not exhaust from the building.

Emission Source Type	$PM_{2.5}$		PM_{10}		SO_2		CO		NO_x		VOC	
	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr	Lb/ hr	Ton/ yr
101 - Prime Coater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Source IDs 101, 102, 104, 105,	Source IDs 101, 102, 104, 105,
102 - Finish Coater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
103 - Paint Mix Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	9.00

104 - Primer Oven (11.25 MMBtu/hr)[3]	0.08	0.36	0.08	0.36	0.01	0.03	0.91	3.98	1.08	4.74	106, and 107 are limited to an annual average of 7.99 - (VOC Emissions from Source ID 103)	106, and 107 are limited to a total of 35 - (VOC Emissions from Source ID 103)
105 - Finish (Coating Line) Oven (11.25 MMBtu/hr)[3]	0.08	0.36	0.08	0.36	0.01	0.03	0.91	3.98	1.08	4.74		
106 - Solvent Recovery System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
107 - Thermal Oxidizer Burner (15.0 MMBtu/hr)	0.11	0.48	0.11	0.48	0.01	0.04	1.21	5.31	1.44	6.32		
Facility Total	**0.27**	**1.20**	**0.27**	**1.20**	**0.02**	**0.09**	**3.03**	**13.27**	**3.61**	**15.79**	**7.99**	**35.00**

Criteria - EF 7.6 7.6 0.6 84 100 5.5

Convert burner heat input to NG throughput

0.010817308 MMCF/hr (11.25 MMBtu/hr)
0.014423077 MMCF/hr (15.0 MMBtu/hr)

Source	Greenhouse Gas							
	CO_2		CH_4[1]		N_2O		**Total CO_2e**	
	Lb/Hr	Ton/Yr	Lb/ Hr	Ton/ Yr	Lb/ Hr	Ton/ Yr	**Lb/ Hr**	**Ton/ Yr**
101 - Prime Coate	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
102 - Finish Coat	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
103 - Paint Mix S	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
104 - Primer Ove	1,298	5,686	0.025	0.109	0.024	0.104	1,306	5,719
105 - Finish (Coa	1,298	5,686	0.025	0.109	0.024	0.104	1,306	5,719
106 - Solvent Rec	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00
107 - Thermal Ox	1,731	7,581	0.033	0.145	0.032	0.139	1,741	7,626
Facility Total	**4,327**	**18,952**	**0.083**	**0.36**	**0.079**	**0.35**	**4,353**	**19,065**

GHG - EF CO2 CH4 N2O
120000 2.3 2.2