Notice of Construction (NOC) Worksheet

pscleanair.org
Puget Sound Clean Air Agency

Applicant: Protective Coatings	**NOC Number**: 11488
Project Location: 1208 4th Avenue North, Kent, WA 98032	**Registration Number**: ~~29263~~ 16328
Applicant Name and Phone: Tufan Yasar, (253) 854-9330 ext. 327	**NAICS:** 336413
Engineer: Maggie Corbin	**Inspector**: Nina Birnbaum

A. DESCRIPTION

For the Order of Approval:

Two Global Finishing Solutions side-downdraft, fully enclosed spray booths, each with an exhaust flow rate of 40,800 cubic feet per minute from two exhaust stacks (20,400 cubic feet per minute from each stack) and an estimated enclosure volume of 8,160 cubic feet, to be used for the finishing of aerospace parts/components. The booths are equipped with a dry filtration system.

Two Spray Systems Inc. spray booths, each with an exhaust flow rate of 42,000 cfm, to be used for the finishing of aerospace parts/components. The booths are equipped with a dry filtration system. These are existing booth originally permitted under Order 9944 and are not being modified as part of this project.

Additional Information (if needed):

Facility:

Protective Coating is an existing metal finishing company (aerospace). The facility currently operates under two separate registration numbers under our jurisdiction:

- Registration #16328 is at 1215 2nd Avenue North Site in Kent. This facility conducts numerous air contaminant generating activities including abrasive blasting (self-contained or with baghouse), vapor degreasing, surface coating, cold solvent cleaning chromium anodizing (with high-efficiency mist eliminator), cadmium plating and nitric acid etch and machining. Facility emissions of HAP were reduced significantly in 2013 with the change from trichloroethylene to n-propyl bromide in the vapor degreaser operation. Emissions of VOCs are approximately 40 tpy. This facility operates under a synthetic minor emission cap (General Order 6946).

- Registration #29263 is at 1208 4th Avenue North in Kent. This facility currently has two spray booths permitted under Order of Approval 9944. Emissions are not reported for this source. A map showing the location of the two facilities is included below:

Image from NOC 9944 worksheet

A third facility was located at 7235 S 227th Pl (Reg 18601) but operations at this location were shut down in 2009. The facility had facility-wide emission limits in their NOC permit for two spray booths (synthetic minor permit).

Based on a review of the facility operations at 1215 2nd Ave and 1208 4th Ave, the two operations should be one registered source. All operations are located within a contiguous area and under common control. The facility is considered one source for the Department of Ecology and the City of Kent. Because they are one stationary source and the synthetic minor order is issued under Registration #16328, all equipment and activities will be included under this registration number.

The objective of the project is to re-design and upgrade the paint shop to better process flow, to increase production capacity and to upgrade filtration system to achieve greater capture efficiency.

Proposed Equipment/Activities:

The applicant is proposing to replace three existing spray booths with two new spray booths. The three existing booths are permitted under Order of Approval No. 3685 and are located at their 2nd Avenue North Site (Reg #16328). The two new booths will be installed at the 4th Avenue North Site (currently Reg #29263 but will be merged with Reg #16328 under this Order). In addition, two existing paint booths that are permitted under Order of Approval No. 9944 will be relocated within the same building. The relocation of the existing spray booths does not require additional action.

Technical specifications for permitted spray booths:

- GFS Model #SDG-2510PDT-32-RR-SF3-S
- Working Dimensions: 25”6” wide, 10” high, 32” deep
- 2 exhaust systems on each booth (20,400 cfm each for total of 40,800 cfm for each booth)

- Designed for 3-stage filter system (first stage is roll media, second stage is panel type, and third stage is bag type filter) – 99.97% control efficiency
- Magnehelic gauges monitor pressure across each filter stage
- Air make-up unit – natural gas at 3.14 MMBtu/hr

HVLP spray equipment will be used in the booths. Manual cleaning operations will be used to clean spray guns.

The estimated usage of primers, topcoats, catalyst/curing solution, reducer/thinner, enamels, lacquer and other VOC-containing material is 8,750 gallons per year.

The estimated hours of operation for the new spray booths is 24 hours/day, 5 days/week, 52 weeks/year. Equipment is estimated to be put into service in April 2018.

Summary of actions to be taken as specified in the permit application:

New equipment to be installed:

- Item A: Paint Kitchen (Paint Storage Room) – no emissions generated, so no NOC required
- Item B: Special, Non-Pressurized Paint-Mix Room – no NOC required per Reg I, Section 6.03(c)(88)
- Item C: Pressurized Dry Filter Cross-Draft Flash Tunnel, 8000 cfm and 0.32 MMBtu/hr natural gas – as verified in 12/13/17 e-mail, using to accelerate evaporation only. Exempt from NOC permitting requirements under Regulation I, Section 6.03(c)(62).
- Item D: Side-Downdraft, Pressurized Dry Filter Paint Spray Booths (2 each) – NOC required
- Item E: Batch Process (Drying/Curing) Ovens (2 each), 1,160 cfm each, maximum heating 0.5 MMBtu/hr; temperature range between 140 and 200 F – as verified in 12/13/17 e-mail, using to accelerate evaporation only. Exempt from NOC permitting requirements under Regulation I, Section 6.03(c)(62). Per the applicant, "*we utilize drying/curing ovens to accelerate evaporation only. We utilize air-dry catalyzed coatings and drying/curing ovens are used to expedite the drying process. Our customer specification has requirements to dry paint coatings at 150-175 degrees Fahrenheit and for about 60 minutes*."
- Item F: Clean Air Breathing System for Two New Spray Booths and Dust Collection Room– no emissions generated, so no NOC required
- Item G: AirNet Aluminum Compressed Air Piping – no emissions generated, so no NOC required
- Item H: Natural Gas Piping – no emissions generated, so no NOC required
- Item I: General Dump AMU (Air Make-up Unit) – To replace the discharged air from above listed equipment 17,500 cfm, Natural gas at 1.4 MMBtu/hr – no NOC required per Regulation I, Section 6.03(c)(1)(A).

Equipment to be relocated within the facility (moving from 2nd Avenue North building to 4th Avenue North building):

- Item J: Batch (Drying/Curing) Oven (NOC #3865)
- Item J: Gun Cleaning Booths (NOC #3865)

Equipment to be decommissioned:

- Paint Spray Booths #1, 2, and 3 (NOC #3865)

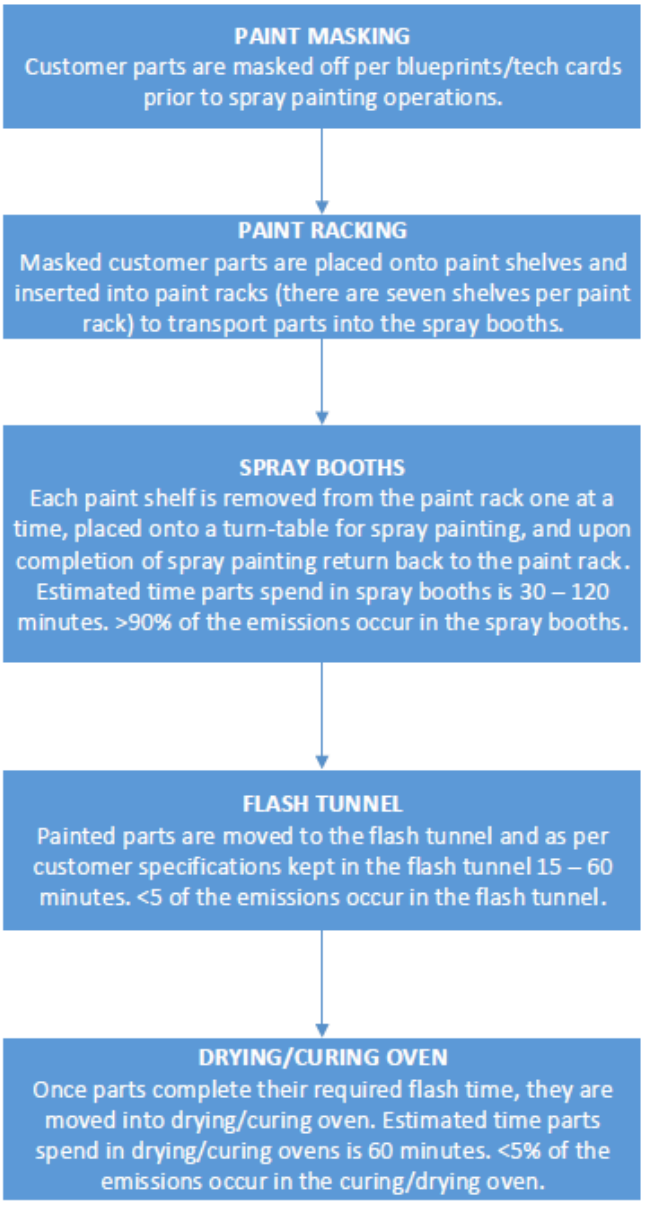
Existing Limits:

Order 9944 limits coatings containing chromium compounds to 2,500 gallons. The conditions in Order 9944 will be included with this Order, but the booths are not being modified. Since chromated coatings will only be used in these existing booths and the two new booths being reviewed under this Order, I have included a facility-wide limit for use of chromated coatings (2,500 in original permit plus 500 gallons for potential production increase associated with booth replacement). Since the 2 remaining booths that currently used chromated primers and the two booths permitted under this Order are used interchangeably, it does not make sense to limit usage in only the two new booths. Instead, I evaluated spray coating of chromated primers as one operation, looked at the potential increase, and included a facility-wide limit. This is consistent with the current tracking system, makes logical sense with the operation, and is more protective of the environment than looking at these spray booths as individual units.

Order 6938 limits hazardous air pollutants emissions to less than 9.5 tons of any single listed HAP, less than 24.5 tons of any combination of HAPs, and less than 49.5 tons per year of VOCs during any 12 consecutive months. With the combining of the two registered sources under one source, this limit will be applied to all operations conducted by Protective Coatings at their Kent facility. This limit supersedes Order 5908 and allowed for a higher cap to accommodate installation of two new booths.

Spray Paint Process Flow Diagram:

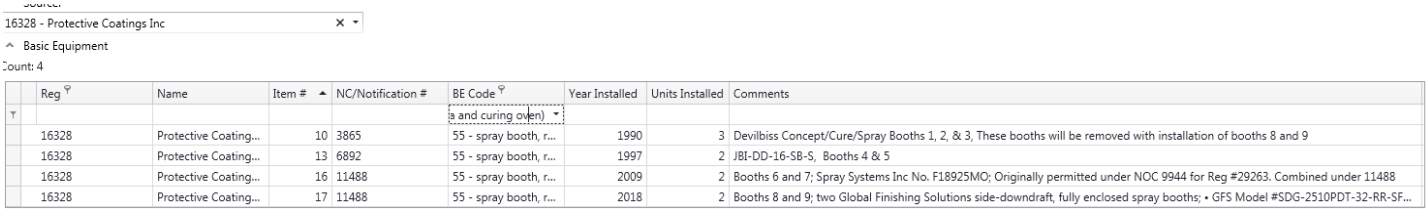
SPRAY PAINT PROCESS FLOW DIAGRAM



Emission Unit	Estimated time parts spend at the emission unit	Percentage of emission occurs at the emission unit
Spray Booth	30 – 120 minutes	> 90%
Flash Tunnel	15 – 60 minutes	< 5%
Drying/Curing Oven	60 minutes	< 5%

B. DATABASE INFORMATION

Moved two spray booths currently registered under 29263 to registration number 16328. Need to update source identification information to reflect main office address of 1208 4th Avenue N.



16328 - Protective Coatings Inc

Basic Equipment

Count: 4

Reg	Name	Item #	NC/Notification #	BE Code	Year Installed	Units Installed	Comments
				a and curing oven)			
16328	Protective Coating...	10	3865	55 - spray booth, r...	1990	3	Devilbiss Concept/Cure/Spray Booths 1, 2, & 3, These booths will be removed with installation of booths 8 and 9
16328	Protective Coating...	13	6892	55 - spray booth, r...	1997	2	JBI-DD-16-SB-S, Booths 4 & 5
16328	Protective Coating...	16	11488	55 - spray booth, r...	2009	2	Booths 6 and 7; Spray Systems Inc No. F18925MO; Originally permitted under NOC 9944 for Reg #29263. Combined under 11488
16328	Protective Coating...	17	11488	55 - spray booth, r...	2018	2	Booths 8 and 9; two Global Finishing Solutions side-downdraft, fully enclosed spray booths; • GFS Model #SDG-2510PDT-32-RR-SF...

New NSPS due to this NOCOA?	**No**	**Applicable NSPS:**	**Delegated?**
New NESHAP due to this NOCOA?	**Yes**	**Applicable NESHAP: HHHHHH**	**Delegated? N**
Modification to Synthetic Minor due to this NOCOA?	**Yes**		

C. NOC FEES AND ANNUAL REGISTRATION FEES

NOC Fees:

Fees have been assessed in accordance with the fee schedule in Regulation I, Section 6.04. All fees must be paid prior to issuance of the final Order of Approval.

Fee Description	Cost	Amount Received (Date)
Filing Fee	$ 1,150	
Equipment (2 new spray booths)	$1,200	
NESHAP HHHHHH Applicability	$1,000	
Update Voluntary Emission Limit under WAC 173-400-091	$2,000	
SEPA (DNS)	$800	
Public Notice Fees	$700 + publication fees	
Filing received		$ 1,150 (10/10/17)
Additional fee received		$5,700 +publication fees (DUE)
Total		

12/15/17: Request invoice be sent.

Registration Fees:
Registration fees are assessed to the facility on an annual basis. Fees are assessed in accordance with Regulation I, Section 5.07. Protective Coatings is currently being charged for two facilities. Registration #29263 is charged only the base fee of $1,150. This will be eliminated. The facility is also subject to 40

CFR 63, Subpart HHHHHH but this is not a delegated NESHAP so the Agency does not charge a NESHAP fee. The fee structure shown below for Registration #16328 will remain unchanged.

Invoice for Year 2018 Registration Fees

Bill to:
Protective Coatings Inc
1208 4th Ave N
Kent, WA 98032-2993
Attention: Accounts Payable

Invoice Date:	Invoice #
November 20, 2017	20180052
Due Date:	**Terms:**
January 04, 2018	Net 45 Days
Facility ID (Registration #):	
16328	

Site Address: ***Protective Coatings Inc***
1215 2nd Ave N, Bldg 1, Kent, WA, 98032-2993

The annual registration fee is required by Washington State law and Puget Sound Clean Air Agency's Regulation I.

Facility Fees and Applicable Regulations				Charges
Base Fee for Registered Sources. Reg I, 5.07(c)			$	1,150.00
Reg I, 5.03(a)(1) - Facilities subject to federal emission standards (Title 40 CFR) Reg I, 5.03(a)(3) - Facilities with annual emissions that meet or exceed thresholds Reg I, 5.03(a)(4)(D) - Facilities with spray coating operations Reg I, 5.03(a)(5) - Facilities with gas or odor control equipment (>= 200 cfm) Reg I, 5.03(a)(6) - Facilities with particulate control equipment (>= 2,000 cfm)				
Additional Fees:				
Reg I, 5.07(c)(1) - 40 CFR 63 Subpart N			$	2,100.00
Reg I, 5.07(c)(2) - Facilities with annual emissions that meet or exceed thresholds			$	2,300.00
			$	**5,550.00**
Emission Surcharges - Reg I,5.07(c)(3)	**Tons in 2016**	**Per Ton**		
HAP (Hazardous Air Pollutants)	3	$ 60	$	180.00
VOC (Volatile Organic Compounds)	40	$ 60	$	2,400.00
			$	**2,580.00**
Fee Totals				
TOTAL REGISTRATION FEE			**$**	**8,130.00**

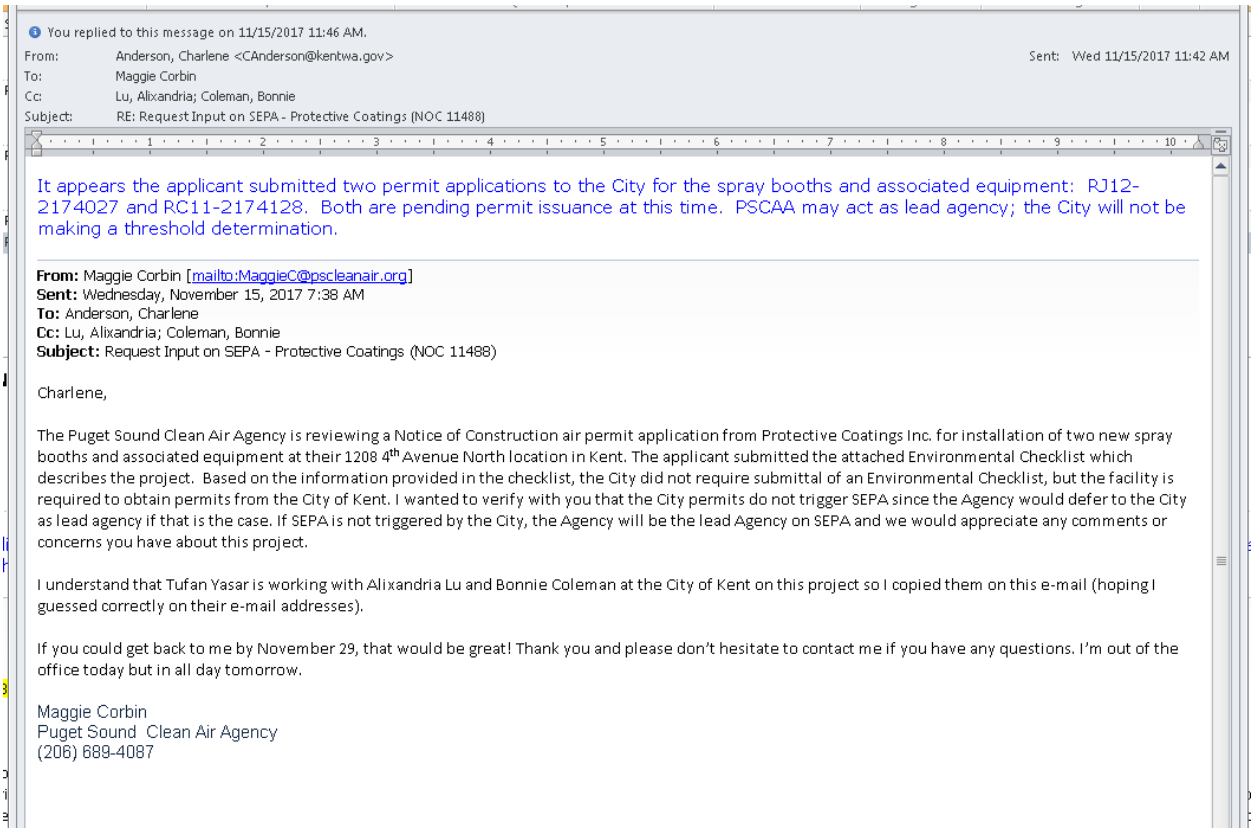
The Total Registration Fee is due by January 04, 2018. If unpaid after January 04, 2018, the facility may be subject to enforcement action with civil penalties (Reg I, 5.07(b)).

D. STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

State Environmental Policy Act (SEPA) review was conducted in accordance with Regulation I, Article 2. The SEPA review is undertaken to identify and help government decision-makers, applicants, and the public to understand how a project will affect the environment. A review under SEPA is required for projects that are not categorically exempt in WAC 197-11-800 through WAC 197-11-890. A new source review action which requires a NOC application submittal to the Agency is not categorically exempt.

PSCAA is the SEPA lead agency for this project. The applicant submitted a completed Environmental checklist that is included below.

Environmental Checklist.pdf



You replied to this message on 11/15/2017 11:46 AM.

From: Anderson, Charlene <CAnderson@kentwa.gov> Sent: Wed 11/15/2017 11:42 AM
To: Maggie Corbin
Cc: Lu, Alixandria; Coleman, Bonnie
Subject: RE: Request Input on SEPA - Protective Coatings (NOC 11488)

It appears the applicant submitted two permit applications to the City for the spray booths and associated equipment: RJ12-2174027 and RC11-2174128. Both are pending permit issuance at this time. PSCAA may act as lead agency; the City will not be making a threshold determination.

From: Maggie Corbin [mailto:MaggieC@pscleanair.org]
Sent: Wednesday, November 15, 2017 7:38 AM
To: Anderson, Charlene
Cc: Lu, Alixandria; Coleman, Bonnie
Subject: Request Input on SEPA - Protective Coatings (NOC 11488)

Charlene,

The Puget Sound Clean Air Agency is reviewing a Notice of Construction air permit application from Protective Coatings Inc. for installation of two new spray booths and associated equipment at their 1208 4th Avenue North location in Kent. The applicant submitted the attached Environmental Checklist which describes the project. Based on the information provided in the checklist, the City did not require submittal of an Environmental Checklist, but the facility is required to obtain permits from the City of Kent. I wanted to verify with you that the City permits do not trigger SEPA since the Agency would defer to the City as lead agency if that is the case. If SEPA is not triggered by the City, the Agency will be the lead Agency on SEPA and we would appreciate any comments or concerns you have about this project.

I understand that Tufan Yasar is working with Alixandria Lu and Bonnie Coleman at the City of Kent on this project so I copied them on this e-mail (hoping I guessed correctly on their e-mail addresses).

If you could get back to me by November 29, that would be great! Thank you and please don't hesitate to contact me if you have any questions. I'm out of the office today but in all day tomorrow.

Maggie Corbin
Puget Sound Clean Air Agency
(206) 689-4087

Current zoning: Industrial M-3 for City of Kent

Based on the information provided in the application and checklist and comment received from the City of Kent, I recommend the issuance of a Determination of Nonsignificance with no public comment.

E. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

Best Available Control Technology (BACT)

New stationary sources of air pollution are required to use BACT to control all pollutants not previously emitted, or those for which emissions would increase as a result of the new source or modification. BACT is defined in WAC 173-400-030 as, "an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under Chapter 70.94 RCW emitted from or which results from any new or modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available

methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant."

An emissions standard or emissions limitation means "a requirement established under the Federal Clean Air Act or Chapter 70.94 RCW which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction and any design, equipment, work practice, or operational standard adopted under the Federal Clean Air Act or Chapter 70.94 RCW."

Best Available Control Technology for Toxics (tBACT)

New or modified sources are required to use tBACT for emissions control for TAP. Best available control technology for toxics (tBACT) is defined in WAC 173-460-020 as, "the term defined in WAC 173-400-030, as applied to TAP."

Similar Permits:

Table 1: Summary of similar permits: spray booth, aerospace coating inorganic HAP in coating

NOC	Project Description	Issued	BACT/tBACT
11326	1 booth at 16,000 cfm - SuperSorb® SSIII filters; Low usage spray booth used for prepping and coating airplane parts due to rework, repair, rebuilt and production deficiencies requiring emergent support, and shims or other similar parts used in the airplane assembly process (no more than 400 gal/yr)	2017	• Chromium limit of 37.5 lb/12-month period (tBACT) • **Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 350 g/L (2.9 lb/gal) • **Topcoat Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 420 g/L (3.5 lb/gal) • **Specialty Coating:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents) based on Table 1 of NESHAP • PM: total PM emissions reduced by at least 99.97%. PM2.5 emissions reduced by at least 99.6%, Purolator SuperSorb® SSIII filters or equivalent • High efficiency spray application: HVLP or better • Best management practices
11268	1 booth at 32,200 cfm – SuperSorb® SSIII filters; New booth used primarily for painting models, parts and structures used for aerospace research testing and evaluation. Most, if not all of the coatings would be exempt from the primer, topcoat and specialty coating limits in the NESHAP. VOC sprayed in booth cannot exceed 1,900 lb/12 month period.	2017	• Ethylbenzene limit of 1,270 lb/12-month period (tBACT) • Benzene limit of 110.0 lb/12-month period (tBACT) • Chromium limit of 28.0 lb/12-month period (tBACT) • Compliance with 40 CFR Part 63, Subpart GG NESHAP for VOC and organic HAP – if applicable (new booth will be used primarily for painting of models, parts and structures used for research testing and evaluation so coatings primarily fall under NESHAP exemption) • PM: total PM emissions reduced by at least 99.97%. PM2.5 emissions reduced by at least 99.6%, Purolator SuperSorb® SSIII filters • High efficiency spray application: HVLP or electrostatic • Best management practices
11266	3 booths rated at 9332 cfm – SuperSorb® SSIII filters	2017	• Meet low VOC/HAP content limit or use of charcoal filters to reduce VOC and organic HAP emissions by 81%: o **Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 350 g/L (2.9 lb/gal) or the use of charcoal filters to

NOC	Project Description	Issued	BACT/tBACT
			reduce VOC and organic HAP emissions by 81% o **Topcoat Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 420 g/L (3.5 lb/gal) or the use of charcoal filters to reduce VOC and organic HAP emissions by 81% • Inorganic HAP primer: Shall be controlled by high efficiency filter system – Purolator SuperSorb® SSIII filters. • Chromium limit of 125 gal of chromium containing coatings/12-month period (tBACT) • High efficiency spray application: HVLP or better • Best management practices
11253 11050 10930 10821	Boeing 777X project – various equipment but includes spray coating	2016 2016 2015 2014	• Dependent on equipment; for spray coating operations in WCF-9a, WCF-9b, and WCF-9d wing panel spray booths and the WCF-9c and WCF-9e wing spar spray booths; required HEPA dry filters
11223	2 new and 2 modified booths – HEPA filters; Aerospace coating operation, including chromated coatings; Removal of 1 booth and replacing 2 booths.	2017	• **Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 350 g/L (2.9 lb/gal) for all other primers • **Topcoat Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 420 g/L (3.5 lb/gal) • **Specialty Coating:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents) based on Table 1 of NESHAP (in effect December 7, 2018) • Inorganic HAP primer: HEPA filters required (99.97% control at 0.3 um diameter) • High efficiency spray application: HVLP or better • Vertical, unobstructed stacks; butterfly dampers not coated with overspray • Best management practices
11044	2 booths rated at 20,000 cfm – HEPA filters; Relocation of facility; Coating of aerospace parts	2016	• **Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 350 g/L (2.9 lb/gal) for all other primers • Inorganic HAP primer: HEPA filters required (99.97% control at 0.3 um diameter): Dralle CPA (1st stage), MEPT Panel (2nd stage), HEPA-XFP (3rd stage) • High efficiency spray application: HVLP or better • Vertical, unobstructed stacks; butterfly dampers not coated with overspray • Best management practices
11012	2 booths at 10,000 cfm – HEPA filters; Coating of aerospace parts and components; Usage ~7000 gal/yr	2015	• **Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 350 g/L (2.9 lb/gal) for all other primers • **Topcoat Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 420 g/L (3.5 lb/gal) • **Specialty Coating:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents) based on Table 1 of NESHAP (in effect December 7, 2018 • Inorganic HAP primer: HEPA filters required (99.97% control at 0.3 um diameter) – Dralle CPA (1st stage), ME/PT (2nd stage) and Dralle HEPA-XFP (3rd stage) • Limit of 2,750 gallons of chromated coating material per 12-month period

NOC	Project Description	Issued	BACT/tBACT
			• High efficiency spray application: HVLP or electrostatic • Best management practices
10971	One spray booth with exhaust rate of 6,500 cfm for the finishing of aerospace parts/components	2015	• **Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 350 g/L (2.9 lb/gal) for all other primers • **Topcoat Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 420 g/L (3.5 lb/gal) • Inorganic HAP primer: Shall be controlled by high efficiency filter system – Dralle CPA (1st stage), ME/PT (2nd stage) and Dralle-XFP 6000 (3rd stage) • Limit of 200 gallons of chromated coating material per 12-month period; Potential usage of 400 gal coatings and 300 gal cleaning solvent (not limited in permit condition) • High efficiency spray application: HVLP or electrostatic • Best management practices

Other Regulatory Agencies BACT:

Table 2: Summary of Regulations by Other Agencies (Summary does not include all agencies but a subset of agencies known to regulate similar operations.)

Reference	BACT
EPA NESHAP Subpart GG (baseline)	**Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): • 650 g/L (5.4 lb/gal) to large commercial aircraft components, fully assembled or components (exterior primer) • 350 g/L (2.9 lb/gal) for all other primers **Topcoat Limit (Self-priming):** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): • 420 g/L (3.5 lb/gal) **Specialty Coating:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents) based on Table 1 of NESHAP (in effect December 7, 2018 **Inorganic HAP Limit:** Dry filter system meeting the efficiency in 40 CFR 63.745(g)(2)(ii) and certified by EPA Method 319. Primer, topcoats and specialty coatings shall be applied using high transfer efficiency methods: flow/curtain coat application; dip coat application; roll coating; brush coating; cotton-tipped swab application; coil coating; web coating; electrodeposition (dip) coating; High volume low pressure (HVLP) spraying; electrostatic spray application; airless spray applications; air assisted airless spray application; or other coating application methods that achieve emission reductions equivalent to or better than HVLP, electrostatic spray application method, airless spray, or air assisted airless spray methods as determined according to the requirements in 63.750(i). Best management practices
San Joaquin Valley APCD - general	Enclosed paint booth with dry filters, HVLP guns, enclosed gun cleaners, VOC content limit of 6.4 lb/gal for primers and 5.2 lb/gal for topcoat
Bay Area Air Quality Management District - BACT guideline Reg 8 Rule 29* (Uncontrolled VOC emissions **below** 25 lb/day)	**Coating Limitations:** A person shall not apply to aerospace components any coating with a VOC content in excess of the following limits, expressed as grams VOC per liter (lbs/gal) of coating as applied, excluding water, unless emissions to the atmosphere are controlled to an equivalent level by air pollution abatement equipment with an abatement device efficiency of at least 85 percent that meets the requirements of Regulation 2, Rule 1. 302.1 Primer 350 (2.9) 302.2 Adhesive bonding primer 850 (7.1) 302.3 Interior Topcoat 340 (2.8) 302.4 Electric or Radiation Effect Coating 800 (6.7) 302.5 Extreme Performance Interior Topcoat 420 (3.5) 302.6 Fire Insulation Coating 600 (5.0) 302.7 Fuel Tank Coating 720 (6.0) 302.8 High-Temperature Coating 720 (6.0) 302.9 Sealant 600 (5.0) 302.10 Self-priming Topcoat 420 (3.5) 302.11 Topcoat 420 (3.5) 302.12 Pretreatment Wash Primer 420 (3.5) 302.13 Sealant Bonding Primer 720 (6.0) 302.14 Temporary Protective Coating 250 (2.1) Typical technology: Low VOC coating or collection system vented to carbon adsorber or afterburner

	High efficiency spray application: **Spray Application Equipment Limitations:** Effective July 1, 1994, a person who uses spray application equipment to apply coatings to aerospace components within the District shall use one or more of the following high transfer efficiency application methods, unless emissions to the atmosphere are controlled by an approved emission control system with an overall abatement efficiency of at least 85%. 310.1 High-Volume, Low-Pressure (HVLP) Spray, operated in accordance with manufacturer's recommendations, or 310.2 Electrostatic Spray, operated in accordance with manufacturer's recommendations, or 310.3 Detailing Gun, or 310.4 Any other coating spray application which has been demonstrated to the satisfaction of the APCO to achieve an equivalent transfer efficiency compared to the spray application methods listed in Subsections 310.1 through 310.3. Prior written approval from the APCO shall be obtained for each alternative method used. (Adopted February 3, 1993)
Bay Area Air Quality Management District - BACT guideline Reg 8 Rule 29* (Uncontrolled VOC emissions **equal to or <u>above</u>** 25 lb/day)	**Coating Limitations:** A person shall not apply to aerospace components any coating with a VOC content in excess of the following limits, expressed as grams VOC per liter (lbs/gal) of coating as applied, excluding water, unless emissions to the atmosphere are controlled to an equivalent level by air pollution abatement equipment with an abatement device efficiency of at least 85 percent that meets the requirements of Regulation 2, Rule 1. 302.1 Primer 350 (2.9) 302.2 Adhesive bonding primer 850 (7.1) 302.3 Interior Topcoat 340 (2.8) 302.4 Electric or Radiation Effect Coating 800 (6.7) 302.5 Extreme Performance Interior Topcoat 420 (3.5) 302.6 Fire Insulation Coating 600 (5.0) 302.7 Fuel Tank Coating 720 (6.0) 302.8 High-Temperature Coating 720 (6.0) 302.9 Sealant 600 (5.0) 302.10 Self-priming Topcoat 420 (3.5) 302.11 Topcoat 420 (3.5) 302.12 Pretreatment Wash Primer 420 (3.5) 302.13 Sealant Bonding Primer 720 (6.0) 302.14 Temporary Protective Coating 250 (2.1) **These coating limits do not apply to facilities that use less than 20 gallons per year. Per Reg 8-29-112** **In addition to the above, VOC Emissions controlled to overall capture/destruction efficiency greater than or equal to 90% using a carbon filtration system** High efficiency spray equipment: **Spray Application Equipment Limitations:** Effective July 1, 1994, a person who uses spray application equipment to apply coatings to aerospace components within the District shall use one or more of the following high transfer efficiency application methods, unless emissions to the atmosphere are controlled by an approved emission control system with an overall abatement efficiency of at least 85%. 310.1 High-Volume, Low-Pressure (HVLP) Spray, operated in accordance with manufacturer's recommendations, or 310.2 Electrostatic Spray, operated in accordance with manufacturer's recommendations, or 310.3 Detailing Gun, or 310.4 Any other coating spray application which has been demonstrated to the satisfaction of the APCO to achieve an equivalent transfer efficiency compared to the spray application methods listed in Subsections 310.1 through 310.3. Prior written approval from the APCO shall be obtained for each alternative method used. (Adopted February 3, 1993)
California South Coast Air Quality Management District	**Primer Content Limit:** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents):

Rule 1124	• 350 g/L (2.9 lb/gal) for all other primers **Topcoat Limit (self-priming):** Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents): 420 g/L (3.5 lb/gal)

Analysis:

The two new booths are replacing older spray booths authorized under NOC #3865 (issued in 1991 with no specific conditions). The booths will be used to spray coat aerospace parts with primers, topcoats, enamel, lacquer, catalyst and reducer. Estimated hours of operation are 24 hours per day, 5 days per week.

Based on review of operations, the two facilities currently registered are considered one source. The synthetic minor permit that applied only to registered source 16328 will now cover all of Protective Coatings activities that occur at the Kent location. The BACT analysis is based on this being one source. The objective of the project is to re-design and upgrade the paint shop to better process flow, to increase production capacity and to upgrade filtration system to achieve greater capture efficiency.

For PM and inorganic TAPs, BACT/TBACT includes the following:

- Use of spray guns that meet a minimum of 65% efficiency. The applicant is proposing to use HVLP or electrostatic spray equipment which meets this requirement.
- Confining spray coating operations to a fully-enclosed booth that is designed with a filter exhaust plenum.
- Although there may be some increase in particulate matter and inorganic TAPs with increased production capacity, the applicant has proposed to use a three-stage filter system in the two new spray booths which will provide 99.97% control (first stage is Paint Pockets white roll media, second stage is ME/PT-202024 panel type, and third stage is XFP-6000 6 pocket bag type filter). Three older spray booths that are not designed to employ high efficiency filters will be removed. Therefore, there is an anticipated decrease in particulate emissions.
- During the past two years, the Agency issued 18 permits for spray coating of aerospace components. Of these, eight involved chromated coatings, 4 of which were controlled by HEPA filtration (NOC Nos. 11253, 11223, 11044, 11012) and 5 were not (NOC Nos. 11326, 11268, 11266, 10957 (reissued under 11360), 10971). Nine did not involve any chromium or inorganic HAP (O/A Nos. 11214, 11341, 11282, 11142, 11131, 11064, 11017, 11040, 10922). Based on review of these permits, use of HEPA filtration is tBACT for hexavalent chromium (99.97% control efficiency at 0.3 µm diameter). However, as noted in the bullet above, we would expect a decrease in hexavalent chromium emissions associated with this project since the facility is upgrading filter systems. If there was a significant increase in hexavalent chromium emissions, a full evaluation of the total cost of redesign would be required. Significant increase is determined on a case-by-case review, but can be because below SQER or well below Acceptable Source Impact Level (ASIL) in WAC 173-460-15 based on a screening dispersion analysis. In this case, the screening analysis showed impacts from the increase were 11% of the ASIL. Facility-wide usage of coatings containing chromium is limited to the 2500 gallons previously permitted under Order 9944 and the additional 500 gallons reviewed under this

analysis (20% increase over existing usage allowed under Order 9944, no allowance for other two permitted booths). This permit action requires removal of three older booths authorized under 3865 which would have much higher potential particulate matter/hexavalent chromium emissions with use of less efficient filters (voluntary limit on emissions in accordance with WAC 173-460-071 including public notice requirements). Therefore, HEPA filtration is not required for this upgrade. The minimum filter fractional efficiencies for the two new booths is shown below:

Particulate Size (um)	Filter Removal Efficiency (%)
< 0.5	98.00%
0.5 - 0.9	99.90%
0.9 - 2	99.90%
2 - 3.5	100.00%
3.5 - 6	100.00%
6-10.0	100.00%

BACT for VOC and VOHAP for spray coating and hand wipe cleaning of aerospace components is:

- Use of spray guns that meet a minimum of 65% efficiency. The applicant is proposing to use HVLP or electrostatic spray equipment which meets this requirement.
- Spray gun cleaning methods must minimize evaporation of VOC and keep all cleaning solvent in closed containers. This requirement is already included in Regulation II, Section 3.09 and applies to this facility. No additional permit language is included. This is similar to how we handle Boeing permits.
- VOC containing materials, including solvent rags or paper, must be stored and disposed of in closed containers. This requirement is already included in Regulation II, Section 3.09 and applies to this facility. No additional permit language is included. This is similar to how we handle Boeing permits.
- For primers, VOC and organic HAP content level for each primer of no more than 2.9 pounds of VOC or HAP per gallon [350 grams per liter (g/l)] of primer (less water) as applied. *Primer* means the first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance, and adhesion of subsequent coatings. Coatings that are defined as specialty coatings are not included under this definition. (Note: this definition is broader than the definition of primer in Regulation II, Section 3.09.)
- For topcoat, VOC and organic HAP content for each topcoat of not more than 3.5 pounds of organic HAP or VOC per gallon (420 g/l) of topcoat (less water) as applied. *Topcoat* means a coating that is applied over a primer on an aerospace vehicle or component for appearance, identification, camouflage, or protection. Coatings that are defined as specialty coatings are not included under

this definition. (Note: this definition is broader than the definition of topcoat in Regulation II, Section 3.09.)

- For specialty coating as defined in 40 CFR Part 63, Subpart GG, VOC and organic HAP content for each coating shall comply with the limit in Table 1 of the NESHAP. *Specialty coating* means a coating that, even though it meets the definition of a primer, topcoat, or self-priming topcoat, has additional performance criteria beyond those of primers, topcoats, and self-priming topcoats for specific applications. These performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates, or enhanced corrosion protection. Individual specialty coatings are defined in appendix A to 40 CFR Part 63, Subpart GG.

Recommendations:

Table 3: Summary BACT/tBACT Determination

Pollutant	Available Method That Meets BACT/tBACT	Implementation of Method
Hexavalent chromium	99.97% control efficiency	Confining spray-coating operations to a booth equipped with 3 stage filter system (first stage is Paint Pockets white roll media, second stage is ME/PT-202024 panel type, and third stage is XFP-6000 6 pocket bag type filter) or equivalent Use of spray guns with a transfer efficiency of at least 65%
VOC and organic TAPs	For primers, VOC and organic HAP content level for each primer of no more than 2.9 pounds of VOC or HAP per gallon [350 grams per liter (g/l)] of primer (as applied, less water and for VOC, less water and exempt solvents). For topcoat, VOC and organic HAP content for each topcoat of not more than 3.5 pounds of organic HAP or VOC per gallon (420 g/l) of topcoat (as applied, less water and for VOC, less water and exempt solvents). Specialty Coating: Organic HAP and VOC content limits (as applied, less water and for VOC, less water and exempt solvents) based on Table 1 of ANESHAP - 40 CFR Part 63 Subpart GG	Maintaining a list of all materials containing VOCs and HAPs. Maintaining up-to-date safety data sheets (SDS) with formulation data for all materials containing VOC and/or HAPs. Best management practices.(Refer to Regulation II, Section 3.09. No additional permit conditions included)
PM, Inorganic HAP	▪ Reducing total PM emissions by at least 99.97%	Confining spray-coating operations to a booth equipped with 3 stage filter system (first stage is Paint Pockets white roll media, second stage is ME/PT-202024 panel type, and third stage is XFP-6000 6 pocket bag type filter) or equivalent.

F. EMISSION ESTIMATES

Proposed Project Emissions

Potential Emissions

The applicant submitted an emission estimate based on surface coating facility-wide. It is difficult to review emissions from the two new booths in isolation since the two new booths are used in conjunction with existing booths. This includes:

- The two spray booths permitted under Order 9944 that will continue to operate with same high efficiency filter system (Purolator Pre-bond pad, Mark 80D, and Defiant Bag D95 filters)

- Two older booths permitted under Order 6892 will continue to operate without modification (Spray booths #4 and #5). Spray booth #4 is not permitted for spray coating of chromated coatings. Spray booth #5 is not used for spray painting, but for fill and drain operations where paint is manually applied. This is not in conflict with the existing Order and this Order will remain in place.

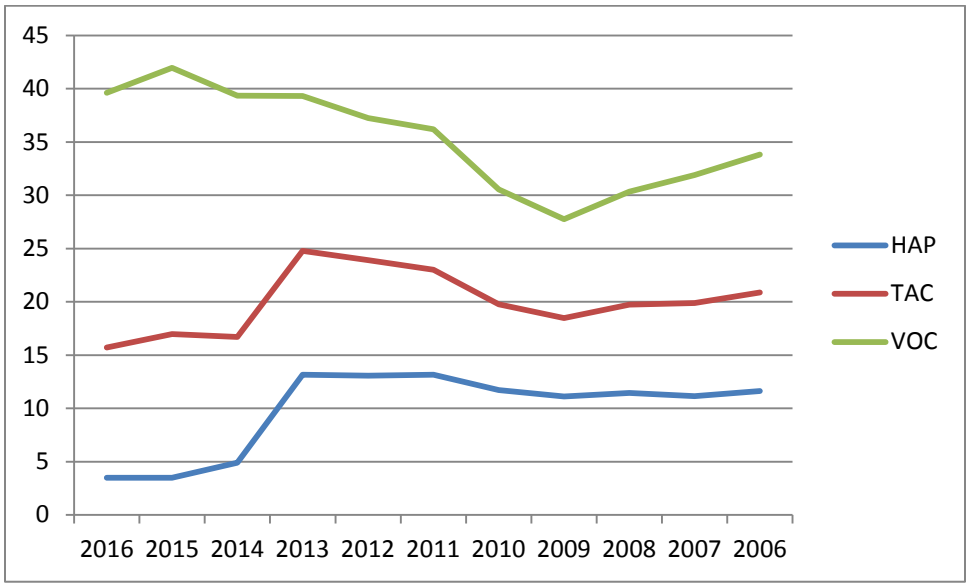
- The proposed new booths. There is no netting for VOCs, so I assumed half of the reported emissions were attributable to the new booths. This is likely an overestimate.

- For toxic air pollutant emissions, I have included an enforceable limit that the 3 older booths be removed from operation prior to production operations in new spray booths. I did assume there could be a potential increase of 20% production capacity. Facility-wide emissions are currently limited to 49.5 tons/year and includes surface coating and cleaning operations, including the vapor degreaser emissions. See additional discussion under "Toxic Air Pollutant Emissions" below.

Usage estimates provided in the application are included in the table below:

a. Primer Paints, Base Component (see attached Safety Data Sheets)	2,500	See Safety Data Sheets
b. Top Coat Paints,Base Component(see attached Safety Data Sheets)	2,500	See Safety Data Sheets
c. Catalyst/Curing Solution (see attached Safety Data Sheets)	2,000	See Safety Data Sheets
d. Reducer/Thinner (see attached Safety Data Sheets)	1,500	See Safety Data Sheets
e. Other (Lacquer, Enamel, etc.)	250	See Safety Data Sheets

The estimate above includes facility-wide surface coating operations only. The graph below shows facility-wide usage over the last 10 years and is based on annual emission reporting. The reported emissions include vapor degreasing operations also. The installation of two new booths and potential increases in emissions as a result of the installation of these two booths were reviewed under Order 9944 issued in 2009. In 2013, the facility changed from using trichloroethylene (HAP) in their vapor degreaser to n-propyl bromide (currently not listed as a HAP, but under consideration). The facility is not proposing a production increase with this change, but there is a possibility for increased efficiencies. I assumed a 20% increase since that would put the facility very near to their synthetic minor emission limit for VOCs..



VOC Emissions:

The original application included VOC emissions based on individual constituents, including individual toxic air pollutants. A summary is provided below:

ESTIMATED TOTAL VOCs FROM PRIMER AND TOP COAT PAINT COATINGS
PROTECTIVE COATINGS INC.

CONSTITUENT	CAS #	VOC	HAP	TAC	TOTAL VOCs
EPOXY RESIN	25068-38-6	YES	NO	NO	5573
BUTAN-2-OL	78-92-2	YES	NO	NO	4200
HEPTAN-2-ONE	110-43-0	YES	NO	NO	3954
HEXAMETHYLENE DIISOCYANATE, OLIGOMERS	28182-81-2	YES	NO	NO	3643
2-BUTANONE (MEK)	78-93-3	YES	NO	YES	3424
N-BUTYL ACETATE	123-86-4	YES	NO	NO	3045
CYCLOHEXANONE	108-94-1	YES	NO	NO	2942
TOLUENE	108-88-3	YES	YES	YES	2419
NITROETHANE	79-24-3	YES	NO	NO	1795
4-METHYLPENTAN-2-ONE (MIBK)	108-10-1	YES	YES	YES	1202
ISOPROPYL ALCOHOL	67-63-0	YES	NO	YES	837
XYLENE	1330-20-7	YES	YES	NO	832
PHENOL	28064-14-4	YES	NO	NO	809
PENTAN-2-ONE	107-87-9	YES	NO	NO	614
PROPYLENE GLYCOL MONO-METHYL ETHER	107-98-2	YES	NO	YES	564
VOLATILE PETROLEUM DISTILLATE	64742-95-6	YES	NO	NO	472
BENZYL ALCOHOL	100-51-6	YES	NO	NO	459
BUTAN-1-OL (N-BUTYL ALCOHOL)	71-36-3	YES	NO	NO	441
METHYLOXY-2-PROPANOL ACETATE	108-65-6	YES	NO	NO	426
AMINO PROPYL TRIMETHOXYSILANE	1760-24-3	YES	NO	NO	307
ETHYLBENZENE	100-41-4	YES	YES	YES	217
TRI (DIMETHYLAMINOMETHYL) PHENOL	90-72-2	YES	NO	NO	187
BIS-(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SECACATE	41556-26-7	YES	NO	NO	185
BENZENEDIMETHANAMINE	1477-55-0	YES	NO	NO	159
1,2,4-TRIMETHYLBENZENE	95-63-6	YES	NO	NO	145
EPOXY RESIN (1)	25036-25-3	YES	NO	NO	135
2-ETOXYETHYL ACETATE	111-15-9	YES	YES	YES	103
CASTOR OIL	8001-79-4	YES	NO	NO	75
ETHYL ACETATE	141-78-6	YES	NO	NO	66
PENTANE-2,4-DIONE	123-54-6	YES	NO	NO	57
3-ETHYL ETHOXYPROPIONATE	763-69-9	YES	NO	NO	54
DIGLYCERIDE ETHER OF BISPHENOL A, MIXED	25085-99-8	YES	NO	NO	54
FATTY ACIDS, C18-UNSATD, DIMERS, REACTION PRODUCT WITH POLYETHYLENEPOLYAMINES	68410-23-1	YES	NO	NO	52
FORMALDEHYDE	50-00-0	YES	YES	YES	40
HYDROQUINONE	123-31-9	YES	YES	YES	40
STODDARD SOLVENT	8052-41-3	YES	NO	NO	28
HEXAMETHYLENE-DI-ISOCYANATE	822-06-0	YES	YES	YES	20
CUMENE (ISOPROPYLBENZENE)	98-82-8	YES	YES	YES	13
AMIDE, CYCLIC	872-50-4	YES	NO	NO	9
BIS 1,2-ETHANEDIAMINE, N'N'	112-24-3	YES	NO	NO	6
ACETONE	67-64-1	NO	NO	NO	0
BARIUM CHROMATE	10294-40-3	NO	NO	YES	0
STRONTIUM CHROMATE	7789-06-2	NO	YES	NO	0

TOTAL VOCs (LBS): 39,603

The above estimate covers a majority of the coatings (primer and topcoat coatings), but the applicant submitted VOC calculations for remaining products on 11/22/17 with material safety data sheets:

ESTIMATED TOTAL VOCs FROM DRILUBE, ENAMEL, AND LACQUER PAINT COATINGS
PROTECTIVE COATINGS INC.

CONSTITUENT	CAS #	VOC	HAP	TAC	TOTAL VOCs
ETHYL ALCOHOL	64-17-5	YES	NO	NO	1,012
TOLUENE	108-88-3	YES	YES	YES	1,012
ISOPROPYL ALCOHOL	67-63-0	YES	NO	YES	101
4-METHYLPENTAN-2-ONE (MIBK)	108-10-1	YES	YES	YES	65
METHYL ALCOHOL	67-56-1	YES	YES	YES	48
METHYL ETHYL KETONE	78-93-3	YES	NO	YES	25
N-BUTYL ALCOHOL	71-36-3	YES	NO	NO	17
XYLENE	108-88-3	YES	YES	NO	15
PHENOL	108-95-2	YES	YES	YES	14
ISOBUTYL ACETATE	110-19-0	YES	NO	NO	4
MINERAL SPIRITS	64742-89-8	YES	NO	NO	3
ETHOXOLATE	763-69-9	YES	NO	NO	2
ANTIMONY TRIOXIDE	67-63-0	NO	YES	YES	0
DIOCTYL PHTHALATE	117-81-7	YES	YES	YES	0
ETHYL BENZENE	100-41-4	YES	YES	YES	0
PHOSPHORIC ACID	7664-38-2	NO	NO	YES	0
TALC	14807-96-6	NO	NO	NO	0
ZINC CHROMATE	13530-65-9	NO	YES	NO	0

TOTAL VOCs (LBS): 2,318

This resulted in approximately 1 ton/year more in VOC emissions and 0.5 tons/year of HAP emissions. An updated VOC emissions worksheet was provided by the applicant on 12/14/17 which provided an estimate of VOC emissions using the total VOC content information listed on the SDS for each paint coating (embedded below). This emission estimate is less that the constituent based estimate of 21 tpy. The applicant also looked at a worst-case VOC emissions using the highest VOC content and total volumes for primer, topcoat and other. This results in an emission estimate of 32 tons per year of VOCs but is very conservative. The different methodologies are discussed in Mr. Yasar's 12/14/17 e-mail below:

From: Yasar, Tufan <Tufan.Yasar@pccairframe.com> Sent: Thu 12/14/2017 9:42 AM
To: Maggie Corbin
Cc:
Subject: RE: NOC Number Request (NOC 11488)
Message VOC EMISSIONS WORKSHEET - PROTECTIVE COATINGS INC. - REVISED.XLSX (45 KB)

Good morning Ms. Corbin,

I originally calculated the estimated VOC emissions constituent-based thinking that you may want to see what specific VOCs are being emitted from our facility and at what levels. I've revised the original worksheet I submitted with the application and added the estimated VOC emissions using the total VOC content information listed on the SDS for each paint coating (please see attached). The total emissions are actually less than what I had submitted. However, when I extrapolated the total volumes using the numbers in the permit application for each type (primer-2500 gallons, topcoat-2500 gallons, other-250 gallons) and calculated the total VOCs based on the ratio, then the estimated total VOC emissions are comparable to what I submitted originally.

Additionally, as a worst case scenario calculations, I used the primer, top coat, and other paint coatings that has the highest VOC content and applied the total volumes (primer-2500 gallons, topcoat-2500 gallons, other-250 gallons) to calculate the worst-case scenario. Below are the numbers I came up with:

Primer: 2,500 gallons – BAC5710 Type 60 (515-346)

Base: 2500 gallons
VOC Content (LBS/GAL): 4.23

Total VOC Emissions= 2500 x 4.23 = 10,575 LBS

Catalyst: 625 gallons
VOC Content (LBS/GAL): 4.44

Total VOC Emissions= 625 x 4.44 = 2,275 LBS

Reducer: 2500 gallons
VOC Content (LBS/GAL): 6.94

Total VOC Emissions= 2500 x 6.94 = 17,350 LBS

TOTAL VOC EMISSONS FROM PRIMER COATINGS: 30,700 LBS

Base: 2500 gallons

Total VOC Emissions= 17,051 LBS (Constituent-based calculation, no total VOC listed on SDS)

Catalyst: 362 gallons

Total VOC Emissions= 3,200 LBS (Constituent-based calculation, no total VOC listed on SDS)

Reducer: 858 gallons

Total VOC Emissions= 5,937 LBS (Constituent-based calculation, no total VOC listed on SDS)

TOTAL VOC EMISSONS FROM TOP COAT COATINGS: 26,188 LBS

Other: 2,500 gallons – BMS 3-8 Type I (Everlube 620)

Base: 250 gallons
VOC Content (LBS/GAL): 5.80

Total VOC Emissions= 250 x 5.80 = 1,450 LBS

Reducer: 750 gallons
VOC Content (LBS/GAL): 7.01

Total VOC Emissions= 750 x 7.01 = 5,258 LBS

TOTAL VOC EMISSONS FROM PRIMER COATINGS: 6,708 LBS

The total facility-wide VOC emissions (worst-case scenario) from painting operations should be:

TOTAL FACILITY-WIDE VOC EMISSIONS = 30,700 + 26,188 + 6,708 = 63,596 LBS (or 31.80 tons)

The worksheet submitted by Mr. Yasar is embedded below:

Copy of VOC
EMISSIONS WORKSH

Based on the review of the different methodologies, VOC emissions would not exceed 32 tons per year. The facility-wide emission limit is 49.5 tons/year.

Toxic Air Pollutant Emissions:

To determine potential toxic air pollutant emissions, I reviewed the original NOC 9944 which evaluated toxic air pollutants from spray coating operations with the addition of the two new booths. Since the list of toxic air pollutants has changed since that review was completed, there were additional pollutants evaluated that are not evaluated under this review since the pollutants are no longer considered a toxic air pollutants. The applicant provided facility-wide toxic air pollutants associated with surface coating operations which I compared to the list of chemicals evaluated under NOC 9944. There were some new pollutants not previously reviewed. The facility does have an overall emission cap for VOCs and hazardous air pollutants (HAP). Since the facility is not increasing the number of spray booths (actually removing three and replacing with two), the estimated provided should be close to potential emissions. But the applicant did indicate there could be increased efficiencies which I estimated as 20% of current production.

The table below shows emissions evaluated under NOC 9944, emission estimates in this application (facility-wide surface coating), and potential emissions based on a 20% increase. Since this includes the previously permitted operation, I subtracted off the toxic air pollutant emissions reviewed under NOC 9944, and evaluated the increase specific to this project action. In some cases, there is a decrease from what was reviewed in NOC 9944.

	CAS	Emissions evaluated in 9944 (baseline) lb/yr	Emission Estimates in Application lb/yr	20% Increase	Increase from this Action (lb/yr)
MEK	78-93-3	6,894	3,449	4,139	-2,755
propylene glycol monomethyl ether	111-15-9		103	124	124
hexamethylene diisoyanate*	822-0609		0.000532	0.00064	0.00064
Ethyl benzene	100-41-4	481	217	260	-221
cumene	872-50-4		13	16	16
Isopropyl Alcohol	67-63-0	15,644	938	1,126	-14,518
MIBK	108-10-1	2,094	1,267	1,520	-574
formaldehyde	50-00-0		40	48	48
propylene glycol monomethyl ether	107-09-2		564	677	677
methanol	67-56-1		48	58	58
Toluene	108-88-3	6,103	2,419	2,903	-3,200
Xylene	1330-20-7	2,569	832	998	-1,571
phenol	108-95-2		14	17	
Cr VI**		0.344	0.0073996	N/A	0.0073996

*An emission factor of 0.076 is used to estimate emissions of hexamethylene diisocyanate (i.e., hexamethylene diisocyanate emissions are estimated by multiplying the total amount of hexamethylene diisocyanate in the coating by 0.076). This emission factor is taken from a report prepared by the Ontario Ministry of the Environment Emissions, dated April, 2006, titled "Determination of 1,6-Hexamethylene Diisocyanate (HDI) Emissions from Spray Booth Operations".

**See calculations for chromium on next tab, the increase in emissions is associated with the 500 gallon usage limit in the permit (in addition to existing 2500 gallons associated with NOC 9944)

Emission estimates shown above are based on the following assumptions:

- Volatile toxic air pollutants – material balance method assuming 100% volatile. Based on calculations provided by applicant. Percent of pollutant multiplied by volume used.
- HDI: An emission factor of 0.076 is used to estimate emissions of hexamethylene diisocyanate (i.e., hexamethylene diisocyanate emissions are estimated by multiplying the total amount of hexamethylene diisocyanate in the coating by 0.076). This emission factor is taken from a report prepared by the Ontario Ministry of the Environment Emissions, dated April, 2006, titled "Determination of 1,6-Hexamethylene Diisocyanate (HDI) Emissions from Spray Booth Operations". This is consistent with what we have done in other NOC reviews. HDI is captured by filters (particulate) so emissions take into account filter efficiency and spray gun transfer efficiency.

- For hexavalent chromium, the applicant requested a 20% increase over what was permitted under NOC 9944 (500 gallons). This will be applied facility-wide. To determine potential emissions, I used the same worst-case methodology used in NOC 9944:
  - Assume Grade E primer since this is the product that has highest chromium concentrations
  - 2 parts base, 1 part cure, 4.5 parts water

  Strontium Chromate:

$$\frac{0.5\,\text{lb}}{\text{lb base}} * \frac{12.6\,\text{lb}}{\text{gal base}} * \frac{2\,\text{gal base}}{7.5\,\text{gal mixed coating}} = \frac{1.68\,\text{lb strontium chromate}}{\text{gal mixed coating}}$$

  Barium Chromate:

$$\frac{0.01\,\text{lb}}{\text{lb base}} * \frac{12.6\,\text{lb}}{\text{gal base}} * \frac{2\,\text{gal base}}{7.5\,\text{gal mixed coating}} = \frac{0.034\,\text{lb barium chromate}}{\text{gal mixed coating}}$$

Cr VI being spray applied :

$$\frac{1.68\,\text{lb strontium Cr}}{\text{gal}} * \frac{500\,\text{gal}}{\text{yr}} * 25.5\% + \frac{0.034\,\text{lb barium Cr}}{\text{gal}} * \frac{500\,\text{gal}}{\text{yr}} * 20.5\% = 218\frac{\text{lb}}{\text{yr}};$$

CR VI going to filters :

HVLP guns are used; we will therefore assume 35% overspray : $\frac{218\,\text{lb}}{\text{yr}} * 0.35 = 76\frac{\text{lb}}{\text{yr}}$

Fall-out: In the past, the Agency has referred to the 1995 Fall Out Fraction Emission Estimation Technique (FOFEET) report which evaluated overspray using HVLP guns and found that 90.98% of the total mass of particulate matter falls out and does not get to the filters. In review of NOC 11308, the applicant provided additional information on the FOFEET study. What the FOFEET study reports as their "Average FOFEET Fallout Percentage" of 90.98% is actually a sum of the percent by weight of paint that is transferred to the part plus the percent by weight of paint that falls out on other surfaces in the booth before the remainder of the paint hits the exhaust filters. For the percent of the overspray that falls out before hitting the filters (where "overspray" means the portion of sprayed paint that does not transfer to the part), the applicant used the test results provided on pages 7 through 12 of the FOFEET study. For the three test runs, they calculated an average overspray fallout of 64% by weight. Therefore, assuming 50% of the overspray falls out before hitting the filters is a conservative, but reasonable, assumption.

Size Distribution of Hexavalent Chromium Particles: The Agency conducted a literature review of hexavalent chromium content per particle size distribution of aerospace paint overspray. Several studies were reviewed and a summary of the fractional concentrations is presented below:

Summary of hexavalent chromium contents per size distributions

Particle Size (µm)	Deft Paint[1]	DeSoto Paint[1]	MIL-P-23377G[2]	MIL-PRF-85582C[2]	TT-P-2760A[2]	Deft 44GN060[3]	Deft 44GN060[3]	Deft 44GN060[3]	Cytec BR127[3]	Average
< 0.5.0	N/A	N/A	N/A	N/A	N/A	1.3%	1.0%	0.9%	0.2%	0.9%
0.5 – 1.0	2.0%	0.3%	0.99%	0.67%	0.36%	0.2%	0.1%	0.2%	0.4%	0.6%
1.0 – 2.0	1.8%	0.6%	1.18%	0.72%	0.51%	0.3%	0.3%	0.5%	1.7%	0.8%
2.0 – 3.5	5.4%	5.1%	1.74%	1.15%	0.9%	1.0%	4.8%	1.8%	2.8%	2.7%
3.5 – 6.0	8.4%	10.7%	4.77%	4.95%	2.51%	7.3%	9.2%	10.5%	6.9%	7.2%
6.0 – 10.0	15.7%	21.2%	6.17%	6.5%	3.77%	19.4%	15.7%	22.0%	22.8%	14.8%

The size cutoff of analyzed contents for large particles ranged from 10 to 34 microns and 0.5 to 0.7 microns for small particles. For the calculation of hexavalent chromium emissions for this permitting action, 0.5 and 10.0 microns are the particle cutoffs. Particles greater than 10 microns will not have an impact in the emissions calculations since the filtration system that is being has a fractional control efficiency of 100%.

Filter Efficiency: The filter efficiency for the particle size distributions are based on filter manufacturer's documentation. For the proposed filter system, the following assumptions were made:

Particle Size (µm)	Hexavalent Chromium Size Distribution	Filtration Fractional Efficiencies	Spray Gun Transfer Efficiencies	Final Control Efficiency
< 0.5	0.9%	98.00%	65%	0.0063%
0.5 – 1.0	0.6%	99.90%	65%	0.0002%
1.0 – 2.0	0.8%	99.90%	65%	0.0003%
2.0 – 3.5	2.7%	100.00%	65%	0.000%
3.5 – 6.0	7.2%	100.00%	65%	0.000%
6.0 – 10.0	14.8%	100.00%	65%	0.000%

A spreadsheet showing the applicant's VOC calculations and the Agency's revised emission estimates for toxic air pollutants is embedded below:

Emissions PSCAA Revisions.xlsx

Facility-wide Emissions

[1] Novy, B. D. (2001). Chromate Content Basis as a Function of Particle Size in Aircraft Primer Paint Overspray (Published Thesis). Department of the Air Force University, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio
[2] Rhodes, S. B. (2002). Chromate Content Bias Versus Overspray Particle Size in Three Aircraft Primer Paints (Published Thesis). Department of the Air Force University, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio
[3] Sabtyl-Daily, R. A., Harris, P. A., & Hinds, W. C. (2005). Size Distribution and Speciation of Chromium in Paint Spray Aerosol at an Aerospace Facility. Annals of Occupational Hygiene, 49(1), 47-59.

Actual Emissions

Reporting Source? Yes, the source is required to report annual emissions.

Potential Emissions

Order 6938 limits hazardous air pollutants emissions to less than 9.5 tons of any single listed HAP, less than 24.5 tons of any combination of HAPs, and less than 49.5 tons per year of VOCs during any 12 consecutive months. These limits are being transferred into this Order of Approval.

G. OPERATING PERMIT or PSD

The Title V Air Operating Permit (AOP) program applicability for the entire source has been reviewed.

The facility is not a Title V air operating permit source because post project PTE remains below Title V applicability thresholds and criteria due to federally enforceable limits in this Order.

Emission increases associated with this project were reviewed for Prevention of Significant Deterioration (PSD) Program applicability. The facility is not an existing PSD major source and the increase in emissions from this permitting action is below PSD thresholds.

H. AMBIENT TOXICS IMPACT ANALYSIS

The estimated potential toxic air pollutant (TAP) emissions were shown in Section F "Emission Estimates" and are for the entire facility. The table below includes estimated potential emissions of all TAP and compares those to the Small Quantity Emission Rates (SQER) in WAC 173-460-150.

	CAS	Increase from this Action (lb/yr)	ASIL ug/m^3 (basis)	Averaging period	SQER lb/ave period	Emission Below SQERs?	Modeled Concentration	Emission Below ASIL?
MEK	78-93-3	-2,755	5000	24-hr	657	Yes		
propylene glycol monomethyl ether	111-15-9	124	300	24-hr	39.4	Yes		
hexamethylene diisoyanate*	822-0609	0.00064	0.07	24-hr	0.0092	Yes		
Ethyl benzene	100-41-4	-221	0.4	year	76.8	Yes		
cumene	872-50-4	16	400	24-hr	52.6			
Isopropyl Alcohol	67-63-0	-14,518	3200	1-hr	7.01	Yes		
MIBK	108-10-1	-574	394	24-hr	3,000	Yes		
formaldehyde	50-00-0	48	0.167	year	32	No	0.004918356	Yes
propylene glycol monomethyl ether	107-09-2	677	7000	24-hr	920	Yes		
methanol	67-56-1	58	4000	24-hr	526	Yes		
Toluene	108-88-3	-3,200	5000	24-hr	657	Yes		
Xylene	1330-20-7	-1,571	221	24-hr	29	Yes		
phenol	108-95-2		200	24-hr	26.3	Yes		
Cr VI**		0.0073996	6.67E-06	annual	0.00128	No	7.58203E-07	Yes

The increase in emissions associated with this project for all TAPs were below the SQER except for formaldehyde and hexavalent chromium. For formaldehyde and hexavalent chromium, I conducted a

screening analysis using AERSCREEN and evaluated the increase in emissions associated with this project. Since formaldehyde was not evaluated in previous reviews, the estimated facility-wide emissions plus a potential 20% increase was reviewed. For hexavalent chromium, I evaluated only the potential chromium emissions associated with the increased usage of chromated paints (500 gallons for this permit action). The results of the screening analysis are shown below:

	AERSCREEN PARAMETERS						
	Source Emission Rate	Source Emission Rate	Source Emission Rate	Scaled Annual Concentration	Scaled 24-hr Concentration	Scaled 8-hr Concentration	Scaled 1-hr Concentration
	(lbs/hr)	(lbs/24-hr)	(lbs/yr)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
Screening Value	1	24	8760	**0.90**	**4.49**	-	**11.22**
Chrome (VI)	8.447E-07		0.0074	7.58203E-07			
Formadehyde	0.005479452		48	0.004918356			

The screening analysis demonstrates the impacts are below the Acceptable Source Impact Levels (ASILs) in WAC 173-460-150 for these pollutants. For formaldehyde, facility-wide emissions were estimated to be 3% of the ASIL. For hexavalent chromium, the increased usage of chromated coatings results in an impact that was 11% of the ASIL.

The input parameters and results of the screening evaluation are shown in the worksheet embedded in Section F of this worksheet.

I. APPLICABLE RULES & REGULATIONS

1. PUGET SOUND CLEAN AIR AGENCY REGULATIONS

SECTION 5.05 (c): The owner or operator of a registered source shall develop and implement an operation and maintenance plan to ensure continuous compliance with Regulations I, II, and III. A copy of the plan shall be filed with the Control Officer upon request. The plan shall reflect good industrial practice and shall include, but not be limited to, the following:
(1) Periodic inspection of all equipment and control equipment;
(2) Monitoring and recording of equipment and control equipment performance;
(3) Prompt repair of any defective equipment or control equipment;
(4) Procedures for startup, shut down, and normal operation;
(5) The control measures to be employed to ensure compliance with Section 9.15 of this regulation; and
(6) A record of all actions required by the plan.
The plan shall be reviewed by the source owner or operator at least annually and updated to reflect any changes in good industrial practice.

SECTION 6.09: Within 30 days of completion of the installation or modification of a stationary source subject to the provisions of Article 6 of this regulation, the owner or operator or applicant shall file a Notice of Completion with the Agency. Each Notice of Completion shall be submitted on a form provided by the Agency, and shall specify the date upon which operation of the stationary source has commenced or will commence.

SECTION 9.03: (a) It shall be unlawful for any person to cause or allow the emission of any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour, which is:
(1) Darker in shade than that designated as No. 1 (20% density) on the Ringelmann Chart, as published by the United States Bureau of Mines; or
(2) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Section 9.03(a)(1).
(b) The density or opacity of an air contaminant shall be measured at the point of its emission, except when the point of emission cannot be readily observed, it may be measured at an observable point of the plume nearest the point of emission.
(c) This section shall not apply when the presence of uncombined water is the only reason for the failure of the emission to meet the requirements of this section.

SECTION 9.09: General Particulate Matter (PM) Standard. It shall be unlawful for any person to cause or allow the emission of particulate matter in excess of the following concentrations:
Equipment Used in a Manufacturing Process: 0.05 gr/dscf

SECTION 9.11: It shall be unlawful for any person to cause or allow the emission of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property.

SECTION 9.13: It shall be unlawful for any person to cause or allow the installation or use of any device or use of any means designed to mask the emission of an air contaminant which causes detriment to health, safety or welfare of any person.

SECTION 9.16(c): General Requirements for Indoor Spray-Coating Operations. It shall be unlawful for any person subject to the provisions of this section to cause or allow spray-coating inside a structure, or spray-coating of any motor vehicles or motor vehicle components, unless all of the following requirements are met:
(1) Spray-coating is conducted inside an enclosed spray area;
(2) The enclosed spray area employs either properly seated paint arresters, or water-wash curtains with a continuous water curtain to control the overspray; and
(3) All emissions from the spray-coating operation are vented to the atmosphere through an unobstructed vertical exhaust vent.

REGULATION I, SECTION 9.20(a): It shall be unlawful for any person to cause or allow the operation of any features, machines or devices constituting parts of or called for by plans, specifications, or other information submitted pursuant to Article 6 of Regulation I unless such features, machines or devices are maintained in good working order.

REGULATION II

SECTION 1.05: SPECIAL DEFINITIONS THAT PERTAIN TO SECTION 3.09:

(a) **AEROSPACE COMPONENT** means the fabricated part, assembly of parts, or completed unit of any aircraft, helicopter, missile or space vehicle.

(c) **COMMERCIAL AEROSPACE PRIMER** means BMS 10-11 Type I.

(d) **COMMERCIAL AEROSPACE TOPCOAT** means BMS 10-11, Type II.

(i) **MILITARY AEROSPACE PRIMER** means the current version of MIL-P-85582.

(j) **MILITARY AEROSPACE TOPCOAT** means the current version of MIL-P-85285.

(t) **TEMPORARY PROTECTIVE COATING** means a coating applied to an aerospace component to protect it from mechanical and environmental damage during manufacturing.

SECTION 3.09(a): This section shall apply to any operation in which coatings are applied to aerospace components.

SECTION 3.09(b): It shall be unlawful for any person to cause or allow the application of any coating specified below that contains in excess of the following limits:

Type of Coating	VOC Content (excluding water) Grams/Liter	(Lbs/Gal)
Military Aerospace Topcoat	420	(3.5)
Commercial Aerospace Topcoat	420	(3.5)
Military Aerospace Primer	350	(2.9)
Commercial Aerospace Primer	350	(2.9)
Temporary Protective Coating	250	(2.1)

SECTION 3.09(c): It shall be unlawful for any person to cause or allow the application of any coating listed in Section 3.09(b) unless the coating is applied by the use of one of the following methods:

(1) High volume, low pressure (0.1 to 10 psig air pressure for atomization) spray equipment,

(2) Electrostatic spray equipment,

(3) Flow coat,

(4) Dip coat,

(5) Brush coat,

(6) Trowel coat,

(7) Hand-held aerosol cans,

(8) Roll coat,

(9) Electrodeposition,

(10) Curtain coat, or

(11) Air brush.

SECTION 3.09(d): It shall be unlawful for any person to use any VOC-containing material for the cleanup of spray equipment, including paint lines, unless equipment for collecting the VOC-containing material and minimizing the evaporation to the atmosphere is employed. All VOC-containing materials that are flushed through the spray equipment or lines during cleanup shall be collected in a closed container.

SECTION 3.09(e): It shall be unlawful for any person to use open containers for the storage or disposal of VOC-containing materials. Such containers shall be kept closed except when being cleaned or when materials are being added, mixed, or removed. Closed containers for solvent rag or paper disposal are required. Empty containers as defined in WAC 173-303-160 are exempt.

2. WASHINGTON STATE ADMINISTRATIVE CODE

WAC 173-400-040(3): Fallout. No person shall cause or allow the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner or operator of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

WAC 173-400-040(4): Fugitive emissions. The owner or operator of any emissions unit engaging in materials handling, construction, demolition or other operation which is a source of fugitive emission:

(a) If located in an attainment area and not impacting any nonattainment area, shall take reasonable precautions to prevent the release of air contaminants from the operation.

WAC173-400-111(7): Construction limitations.
(a) Approval to construct or modify a stationary source becomes invalid if construction is not commenced within eighteen months after receipt of the approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The permitting authority may extend the eighteen-month period upon a satisfactory showing by the permittee that an extension is justified.

3. FEDERAL

NESHAP, Subpart GG--National Emission Standards for Aerospace Manufacturing and Rework Facilities does not apply. The facility is not a major source as defined in 40 CFR 63.2.

NESHAP, Subpart MMMM— National Emission Standards for Surface Coating of Miscellaneous Metal Parts and Products does not apply. The facility is not a major source as defined in 40 CFR 63.2.

NESHAP, Subpart HHHHHH--National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources. This NESHAP applies because the coating contains chromium which is a target HAP in this NESHAP as defined by 40

CFR 63.11180. This NESHAP requires that filters with an overall removal efficiency of 98% (tested using Method 52.1).

J. PUBLIC NOTICE

A notice of application was initially posted on the Agency's website for 15 days. No comments were received as a result of the above website posting. A copy of the website posting is below:

Protective Coatings, Inc	1208 4th Ave N Bldg 2, Kent, WA 98032	New application for two spray coating booths and associated equipment at an existing aerospace metal finishing company.	10/12/17	Maggie Corbin

However, this project meets the criteria for mandatory public notice since it includes a modification to the WAC 173-400-091 synthetic minor limit (WAC 173-400-171(3)(k)). Excerpts from this regulation which specify advertising requirements, components of the public notice and required notice to EPA Region 10 are provided below:

(4) **Advertising the mandatory public comment period.** Public notice of all applications, orders, or actions listed in subsection (3) of this section must be given by prominent advertisement in the area affected by the proposal. Prominent advertisement may be by publication in a newspaper of general circulation in the area of the proposed action or other means of prominent advertisement in the area affected by the proposal. This public notice can be published or given only after all of the information required by the permitting authority has been submitted and after the applicable preliminary determinations, if any, have been made. The notice must be published or given before any of the applications or other actions listed in subsection (3) of this section are approved or denied. The applicant or other initiator of the action must pay the publishing cost of providing public notice.

(6) **Public notice components.**

(a) The notice must include:

(i) The name and address of the owner or operator and the facility;

(ii) A brief description of the proposal and the type of facility, including a description of the facility's processes subject to the permit;

(iii) A description of the air contaminant emissions including the type of pollutants and quantity of emissions that would increase under the proposal;

(iv) The location where those documents made available for public inspection may be reviewed;

(v) A thirty-day period for submitting written comment to the permitting authority;

(vi) A statement that a public hearing will be held if the permitting authority determines that there is significant public interest;

(vii) The name, address, and telephone number and email address of a person at the permitting authority from whom interested persons may obtain additional information, including copies of the permit draft, the application, all relevant supporting materials, including any compliance plan, permit, and monitoring and compliance certification report, and all other materials available to the permitting authority that are relevant to the permit decision, unless the information is exempt from disclosure;

(c) In the case of a permit action, the applicant must pay all publishing costs associated with meeting the requirements of this subsection.

(11) **Notifying the EPA.** The permitting authority must send a copy of the notice for all actions subject to a mandatory public comment period to the EPA Region 10 regional administrator.

(12) **Special requirements for ecology only actions.**

K. RECOMMENDED APPROVAL CONDITIONS

Standard Conditions:

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the installation address in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.

2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.

Specific Conditions:

NESHAP Requirements:

3. Spray booth operations shall comply with all applicable requirements established in 40 CFR Part 63, Subparts A and HHHHHH.

Facility-wide Emission Limits:

4. The owner or operator shall limit facility-wide emissions of hazardous air pollutants in Section 112(b) of the federal Clean Air Act (HAPs) to less than 9.5 tons of any single listed HAP, 24.5 tons of all HAPs combined, and 49.5 tons of volatile organic compounds (VOCs) during any 12 consecutive months after the date of this Order.
5. The owner or operator shall monitor the VOC and HAP content of all VOC-containing materials used at the facility that contribute to HAP and VOC emissions. Monthly purchase records can be used as a surrogate for monthly usage.
6. Within 30 days of the end of each month, the owner or operator will calculate and record the monthly and 12-month rolling total emissions of each HAP, total HAPs, and total VOCs to demonstrate compliance with Condition No. 4.

Facility-wide Usage Limits:

7. The owner or operator shall limit the use of coatings containing chromium compounds (i.e. strontium chromate) to less than 3,000 gallons during any consecutive 12-month period. Protective Coatings shall maintain records of the gallons of coating used each month that contain chromium compounds.

8. Within 30 days of the end of each month, the owner or operator will calculate and record the monthly and 12-month rolling total of coatings used in spray coating operations at the facility that contain chromium compounds. Monthly purchase records can be used as a surrogate for monthly usage.

Coating Content Limits:

9. Coatings spray applied in the Global Finishing Solutions spray booths shall comply with the following limits:
    a. Organic hazardous air pollutant (HAP) emissions from primers as defined in 40 CFR 63.742 shall be limited to an organic HAP content level of no more than 2.9 pounds per gallon [350 g/l] of primer (less water) as applied. This does not include specialty coatings and non-HAP materials as defined in 40 CFR 63.742 or low-volume coatings as defined in 40 CFR 63.741(g).
    b. VOC emissions from primers as defined in 40 CFR 63.742 shall be limited to a VOC content level of no more than 2.9 pounds of VOC per gallon [350 g/l] of primer (less water and exempt

solvents) as applied. This does not include specialty coatings as defined in 40 CFR 63.742 or low-volume coatings as defined in 40 CFR 63.741(g).

c. Organic HAP emissions from topcoats as defined in 40 CFR 63.742 shall be limited to an organic HAP content level of no more than 3.5 pounds of organic HAPs per gallon (420 grams per liter (g/l)) of topcoat (less water) as applied. This does not include specialty coatings and non-HAP materials as defined in 40 CFR 63.742 or low-volume coatings as defined in 40 CFR 63.741(g).

d. Volatile organic compound (VOC) emissions from topcoats as defined in 40 CFR 63.742 shall be limited to a VOC content level of no more than 3.5 pounds of VOC per gallon (420 g/l) of topcoat (less water and exempt solvents) as applied. This does not include specialty coatings as defined in 40 CFR 63.742 or low-volume coatings as defined in 40 CFR 63.741(g).

e. Organic HAP emissions from specialty coatings as defined in Appendix A to 40 CFR Part 63, Subpart GG shall comply with the applicable HAP content level in 40 CFR 63.745(c)(5). This does not include non-HAP materials as defined in 40 CFR 63.742 or low volume coatings as defined in 40 CFR 63.741(g).

f. VOC emissions from specialty coatings as defined in Appendix A to 40 CFR Part 63, Subpart GG shall comply with the applicable VOC content level in 40 CFR 63.745(c)(6). This does not apply to low volume coatings as defined in 40 CFR 63.741(g).

Dry Filter System Requirements:

10. Spray-coating of materials shall be confined to an agency approved booth equipped with a filtration system that completely covers the entire exhaust plenum opening including the edges of the filter bank(s). Compliance demonstration with this requirement must at a minimum include weekly filter bank inspections of the filters, where visible from either the front or back, when spray operations are conducted within that week.

11. The Spray Systems Inc. booths will be equipped with exhaust filters having a removal efficiency that is equivalent to or greater than the combination of the Purolator Pre-bond pad, Mark 80D, and Defiant Bag D95 filters. Protective Coatings shall notify the Agency 30 days prior to installing any filters other than the current approved filters, and shall provide MACT certifications for the new filters.

12. The Global Finishing Solutions spray booths shall be equipped with exhaust filters having a removal efficiency that is equivalent to or greater than the combination of the Dralle CPA (1st stage), ME/PT (2nd stage), and Dralle XFP 6000 (3rd stage) filtration system. To be equivalent, alternative filters must achieve the following overspray efficiencies at the specified particle size ranges (µm): 98% at 0.2, 99.1% at 0.3, 99.6% at 0.4, 99.9% at 0.6, 99.9% at 0.8, 100.0% at 1 and 100.0% at 1.5 as demonstrated with filter manufacturer's test data.

13. Spray coating operations shall be conducted using electrostatic spray equipment, high volume low pressure (HVLP) spray equipment, or other equipment with a minimum transfer efficiency of 65.0 percent. The procedure used to demonstrate a spray technology's transfer efficiency must be equivalent to South Coast Air Quality Management District's "Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989" and "Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray Guns, September 26, 2002." A plan describing the test procedure must be developed and submitted to the Agency 30 days prior to conducting any

spray technology transfer efficiency test that is at least equivalent to HVLP. Documentation of equivalency for non-HVLP spray equipment shall be maintained or electonically accessible on site and available for inspection.

Monitoring:

14. Each booth must be equipped with an operable gauge to indicate the pressure drop across the exhaust filtration system. The acceptable pressure drop range shall be established using the manufacturer's recommendations, specifications, or instruction; or shall be established based on operator experience to maintain filter integrity and compliance with Condition No. 11. The established pressure drop minimum and maximum values must be clearly marked on or nearby the gauge.
15. Each booth shall always be operated within the acceptable pressure drop range across the exhaust filter bank while spray-coating. Compliance demonstration with this requirement must at a minimum include daily pressure drop inspections on days when the spray booth is used. Spray-coating in the booth must cease when the pressure drop across the filter bank deviates from the established range and corrective action must be taken prior to spraying in the booth.

Recordkeeping Requirements:

16. The following records shall always be kept onsite, updated within 30 days of the end of each month, and be made readily available to Agency personnel upon request:
    a. A list of all materials containing VOCs and or HAPs used at the facility. Safety Data Sheets (SDS), Environmental Data Sheets (EDS), Product Data Sheets (PDS) or manufacturer specific formulation data may be used to determine whether a material contains VOCs (minus water and exempt compounds).
    b. To demonstrate compliance with Condition No. 9, the VOC content and total organic HAP content of each material (less water for organic HAP and less water and exempt solvents for VOC), as applied, used in surface coating operations at the facility. SDS, EDS, PDS or manufacturer specific formulation data may be used to document the VOC content and total organic HAP. The total VOC content may be used as a surrogate for total organic HAP content for coatings that contain no exempt solvents that are also HAPs.
    c. Records documenting whether each type of coating used these booths is a primer, topcoat or type of specialty coating as defined in Appendix A to 40 CFR Part 63, Subpart GG.
    d. Documentation to demonstrate compliance with filter requirements in Condition Nos. 11 and 12.
    e. Documentation to demonstrate compliance with spray gun requirements in Condition No. 13.
    f. The Operation and Maintenance (O&M) plan. The O&M plan shall be developed and implemented per Agency's Regulation I. The following shall be included in the O&M plan:
        i. Filter maintenance.
        ii. Filter inspection procedures.

iii. Procedures to correct operation of the booth when the pressure drop across the filter bank deviates from the established range.

17. The following records shall be kept onsite and up-to-date for at least two years from the date of generation, and be made readily available to Agency personnel upon request:
    a. Written log to demonstrate compliance with filter inspection requirements in Condition No. 10.
    b. Written log to demonstrate compliance with pressure drop inspection requirements in Condition No. 15.
    c. Documentation verifying any corrective action taken to maintain compliance with this Order of Approval.
18. The owner or operator shall maintain records required by this Order of Approval for two years from the date of generation and make available to Puget Sound Clean Air Agency personnel upon request.

Reporting Requirements:

19. The owner or operator shall notify the Puget Sound Clean Air Agency, in writing, within 30 days after the end of each 12-month period if, during that period, the usage of coatings containing chromium compounds exceeded 2400 gallons. The report shall include emissions data for the time period for which these thresholds were exceeded.
20. The owner or operator shall notify PSAPCA within 30 days after the end of each 12-month period if, during that period, emissions of any single HAP exceed 9 tons, emissions of all HAPs combined exceed 22.5 tons, or emissions of VOCs exceed 45 tons.

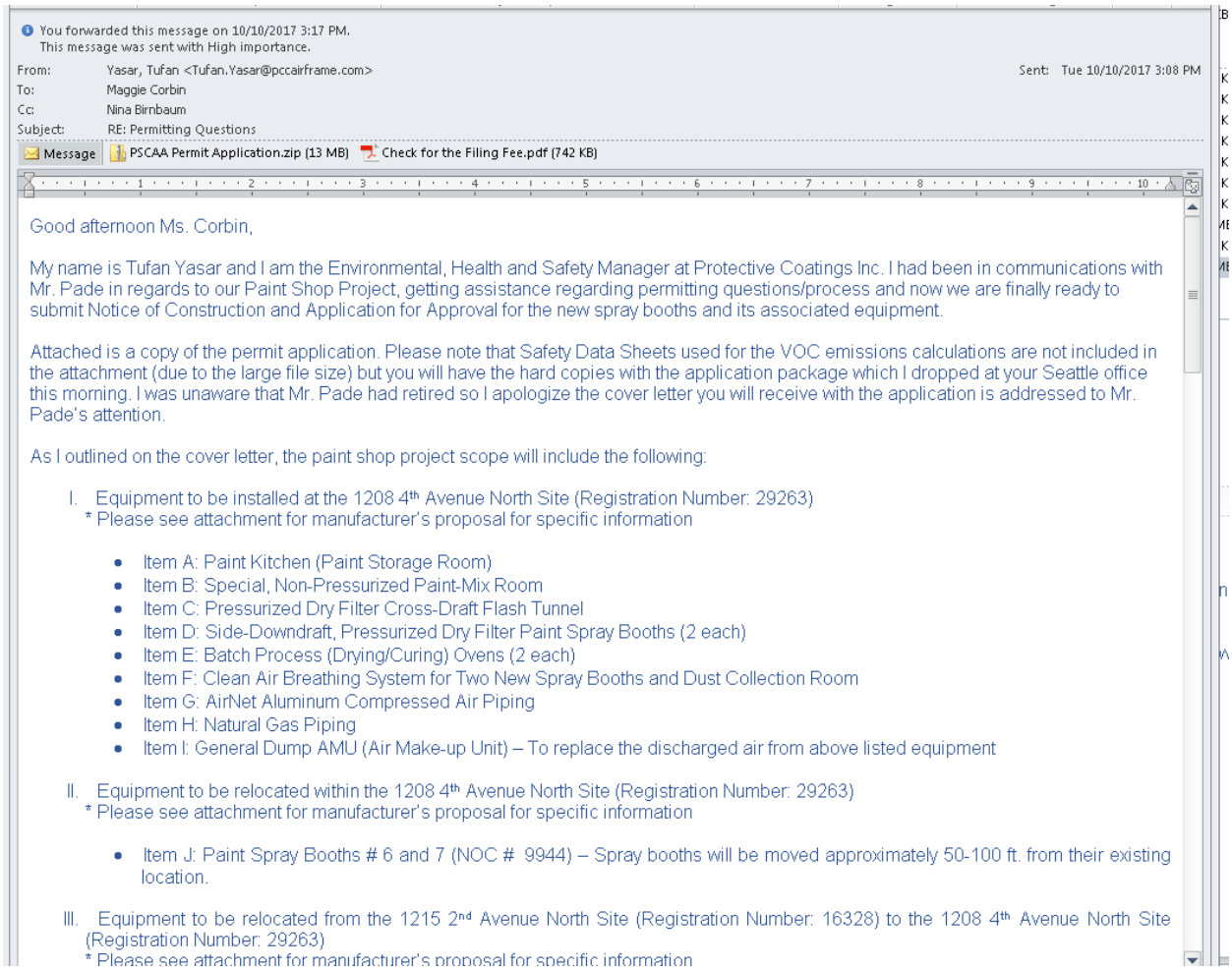
Discontinuance of Existing Booths

21. The three spray booths authorized under Order of Approval 3865 will discontinue operations prior to production painting in two new booths. Startup testing in the new booths is allowed prior to discontinuing operations in these booths.

This Order of Approval 11488 will cancel and supersede Order of Approval No. 9944, dated February 25, 2009 and General Regulatory Order No. 6946, dated July 10, 1997.

L. CORRESPONDENCE AND SUPPORTING DOCUMENTS

10/10/17: Initial application



You forwarded this message on 10/10/2017 3:17 PM.
This message was sent with High importance.

From: Yasar, Tufan <Tufan.Yasar@pccairframe.com>
Sent: Tue 10/10/2017 3:08 PM
To: Maggie Corbin
Cc: Nina Birnbaum
Subject: RE: Permitting Questions

Message | PSCAA Permit Application.zip (13 MB) | Check for the Filing Fee.pdf (742 KB)

Good afternoon Ms. Corbin,

My name is Tufan Yasar and I am the Environmental, Health and Safety Manager at Protective Coatings Inc. I had been in communications with Mr. Pade in regards to our Paint Shop Project, getting assistance regarding permitting questions/process and now we are finally ready to submit Notice of Construction and Application for Approval for the new spray booths and its associated equipment.

Attached is a copy of the permit application. Please note that Safety Data Sheets used for the VOC emissions calculations are not included in the attachment (due to the large file size) but you will have the hard copies with the application package which I dropped at your Seattle office this morning. I was unaware that Mr. Pade had retired so I apologize the cover letter you will receive with the application is addressed to Mr. Pade's attention.

As I outlined on the cover letter, the paint shop project scope will include the following:

I. Equipment to be installed at the 1208 4th Avenue North Site (Registration Number: 29263)
* Please see attachment for manufacturer's proposal for specific information

- Item A: Paint Kitchen (Paint Storage Room)
- Item B: Special, Non-Pressurized Paint-Mix Room
- Item C: Pressurized Dry Filter Cross-Draft Flash Tunnel
- Item D: Side-Downdraft, Pressurized Dry Filter Paint Spray Booths (2 each)
- Item E: Batch Process (Drying/Curing) Ovens (2 each)
- Item F: Clean Air Breathing System for Two New Spray Booths and Dust Collection Room
- Item G: AirNet Aluminum Compressed Air Piping
- Item H: Natural Gas Piping
- Item I: General Dump AMU (Air Make-up Unit) – To replace the discharged air from above listed equipment

II. Equipment to be relocated within the 1208 4th Avenue North Site (Registration Number: 29263)
* Please see attachment for manufacturer's proposal for specific information

- Item J: Paint Spray Booths # 6 and 7 (NOC # 9944) – Spray booths will be moved approximately 50-100 ft. from their existing location.

III. Equipment to be relocated from the 1215 2nd Avenue North Site (Registration Number: 16328) to the 1208 4th Avenue North Site (Registration Number: 29263)
* Please see attachment for manufacturer's proposal for specific information

11/17/17: Providing additional information requested:

You replied to this message on 11/20/2017 8:19 AM.

From: Yasar, Tufan <Tufan.Yasar@pccairframe.com>
Sent: Fri 11/17/2017 12:47 PM
To: Maggie Corbin
Cc:
Subject: RE: NOC Number Request (NOC 11488)

Good afternoon Ms. Corbin,

Thank you for your feedback. Please see below for my preliminary answers:

1. Please provide a flow diagram showing the process steps (i.e. spray booth, to flash tunnel, to drying/curing oven). If possible, provide an estimate of the time parts spend in each emission unit and a rough estimate of the percent of emissions that would be emitted through the booths, the flash tunnel or the drying/curing ovens (if known).

   I will create a flow diagram showing the process steps with estimated times parts spend in each emission unit. This will be a best guess estimate/averages due to many different customer specifications we process to and variables (such as part configurations, coating systems and required paint thickness, part quantities processed per paint rack, etc.) associated with the processes.

2. Is all mixing done in the paint-mix room with batch mixers with a rated working capacity less than 55 gallons?

   Yes, all paint mixing will be done in the paint-mix room or in-line paint mixers with a rated working capacity of less than 55 gallons.

3. Please provide an excel spreadsheet for your emission calculations (if available). Did you only include the topcoat and primers or all types of coatings? When we get a final emissions estimate in place, I can run a rough air modeling analysis using AERSCREEN, but you may have to conduct additional modeling depending on the results of the screening analysis.

   Yes, the worksheet I provided with the application includes primer and topcoat paints (with their associated catalysts and reducers as applicable) which represent 90+% of our paint product usage. The rest of the products we use (such as enamels, lacquers, etc.) make a very small percentage of what we use. If necessary for the rough air modeling study, I can prepare a worksheet for the remaining paint products (something similar to the worksheet I submitted for the primer/topcoat paints). This may require a little time to get it done.

4. The filters you are proposing do not meet the requirements for HEPA filters (required for spray coating of chromated primers). The Dralle company does have an upgraded HEPA-XFP bag available. The testing I've seen is with this system: **CPA-G+ ME/SFR + HEPA-XFP Bag** Can you look into this and verify these upgraded HEPA filters will work with your proposed booth. Or there are other HEPA filters available. You need to be able to demonstrate 99.97% control at 0.3 um diameter.

   I remember several options were discussed for the 3-Stage filtration system. I will reach out to the spray booth manufacturer/consulting firm and make sure that the 3-stage filtration system we will be using for the spray booths meet the requirements. Once confirmed, I will send you the information on the filters. Are we required to meet NESHAP requirements for the filters or does PSCAA/WA State have different, more stringent requirements? If so, what is the governing regulation so I can reference it in my communications with the spray booth manufacturer?

5. Based on my review, the spray booth are subject to 40 CFR Part 63, Subpart HHHHHH, National Emission Standards For Hazardous Air Pollutants (NESHAP): Paint Stripping And Miscellaneous Surface Coating Operations At Area Sources. I believe our best available control technology requirements will be more stringent, but there are some training requirements you should review. Let me know if you believe this NESHAP is inapplicable since that does impact your fees.

   You are correct. These spray booths are subject to 40 CFR Part 63, Subpart HHHHHH NESHAP: Paint Stripping And Miscellaneous Surface Coating Operations. We had already implemented training to meet the NESHAP training requirements for our painters which includes spray techniques, spray patterns, equipment maintenance, etc. We also provide annual refreshers.
   provide annual refreshers.

6. Did you consider any VOC controls on the booths, flash tunnel or drying/curing ovens? We have required afterburners on similar sized operation.

   No, we have not considered VOC controls on the spray booths, flash tunnel or drying/curing ovens. Since we are not increasing our overall usage, I didn't think we would need to consider VOC controls as a synthetic minor permit holder. Would you please send me the applicable regulation on this requirement so I can discuss it with the spray booth manufacturer to see what options we may have?

I have one broader question about your two facilities. It looks like they are on adjacent properties. Is there a reason we have them registered as two facilities. Typically, if both facilities are under common control of the same person, located on contiguous or adjacent properties, and in a single major industrial grouping, we would consider you a single source for major source permitting. I know you have the synthetic minor permit on the other facility, but it seems like emission sources will be increasing at this facility and decreasing at the other. Do you know the history on this? I looked briefly in our e-mail management system and in some of the original NOCs but I couldn't find anything on this.

Protective Coatings had a composite division located at 7235 S 227th PL Ste 101, Kent, WA 98032 which was about a mile away from the 1215 2nd Avenue North facility (Reg #16328). There were two spray booths (spray booths 6 and 7, NOC #7523) located at the composite division. The composite division was closed down in 2009 when 1208 4th Avenue North facility was purchased. The two spray booths that were at the composite division were relocated to 1208 4th Avenue North facility and at that time a separate registration number was issued (Reg # 29263) by PSCAA. We have two different site addresses for the two facilities. Although these properties are adjacent, there is a property line separating them, perhaps this was the reason for two separate registrations? Although I was working at Protective Coatings at the time, I was not the one who handled the permitting process at the time so I apologize if I am not providing adequate information but this is all I can remember/find on my end.

I just want to clarify that the new spray booths are not a new or added source for ProCoat but rather the same source or process that will be moved from old spray booths to the new spray booths. The old spray booths will be demolished once the new spray booths are in operation. I am not sure if this has any bearing on the type of review that is required for our application?

I have already let the spray booth manufacturer know that I will be requesting additional information. I look forward to hearing back from you soon. Thank you so much for your assistance and have a wonderful weekend!

King regards,

Tufan Yasar
Environmental, Health & Safety Manager
PCC Aerostructures
Protective Coatings, Inc.
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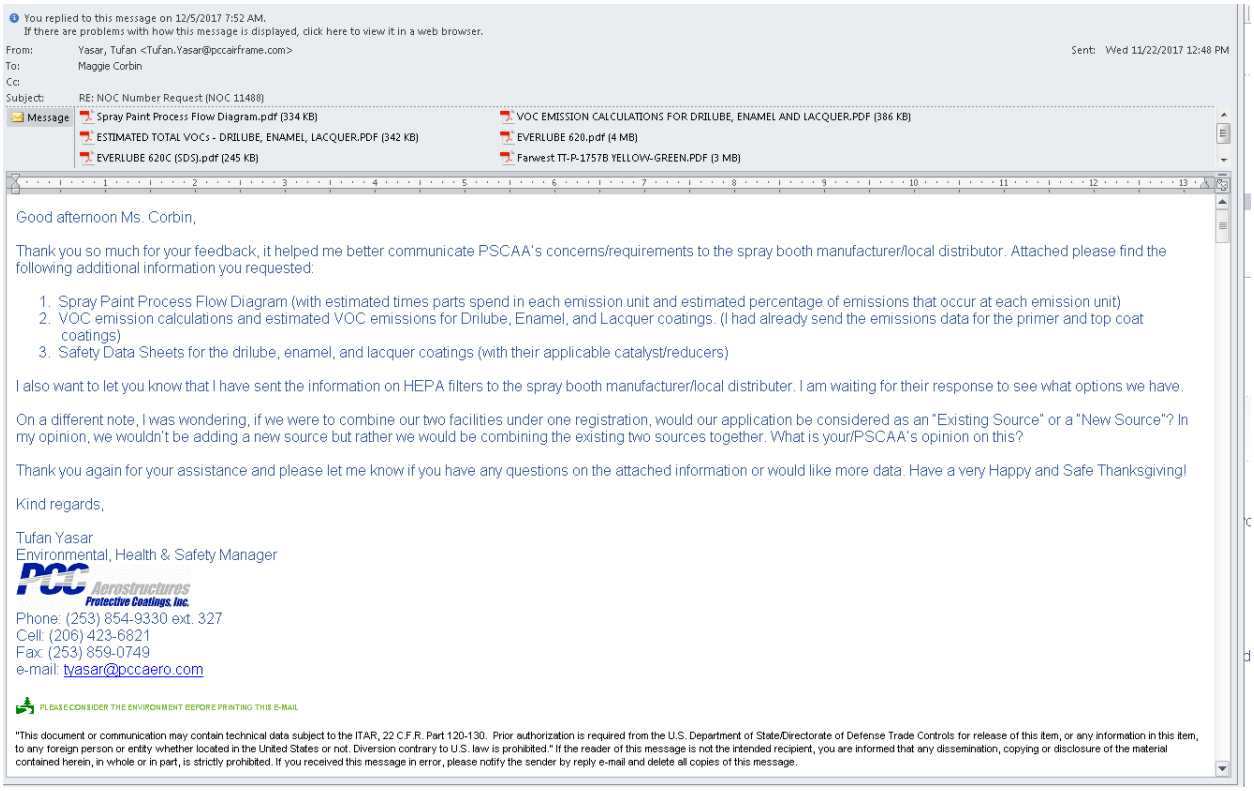
Cell: (206) 423-6821



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From: Yasar, Tufan <Tufan.Yasar@pccairframe.com>
Sent: Wed 11/22/2017 12:48 PM
To: Maggie Corbin
Cc:
Subject: RE: NOC Number Request (NOC 11488)

Message
Spray Paint Process Flow Diagram.pdf (334 KB)
VOC EMISSION CALCULATIONS FOR DRILUBE, ENAMEL AND LACQUER.PDF (386 KB)
ESTIMATED TOTAL VOCs - DRILUBE, ENAMEL, LACQUER.PDF (342 KB)
EVERLUBE 620.pdf (4 MB)
EVERLUBE 620C (SDS).pdf (245 KB)
Farwest TT-P-1757B YELLOW-GREEN.PDF (3 MB)

Good afternoon Ms. Corbin,

Thank you so much for your feedback, it helped me better communicate PSCAA's concerns/requirements to the spray booth manufacturer/local distributor. Attached please find the following additional information you requested:

1. Spray Paint Process Flow Diagram (with estimated times parts spend in each emission unit and estimated percentage of emissions that occur at each emission unit)
2. VOC emission calculations and estimated VOC emissions for Drilube, Enamel, and Lacquer coatings. (I had already send the emissions data for the primer and top coat coatings)
3. Safety Data Sheets for the drilube, enamel, and lacquer coatings (with their applicable catalyst/reducers)

I also want to let you know that I have sent the information on HEPA filters to the spray booth manufacturer/local distributer. I am waiting for their response to see what options we have.

On a different note, I was wondering, if we were to combine our two facilities under one registration, would our application be considered as an "Existing Source" or a "New Source"? In my opinion, we wouldn't be adding a new source but rather we would be combining the existing two sources together. What is your/PSCAA's opinion on this?

Thank you again for your assistance and please let me know if you have any questions on the attached information or would like more data. Have a very Happy and Safe Thanksgiving!

Kind regards,

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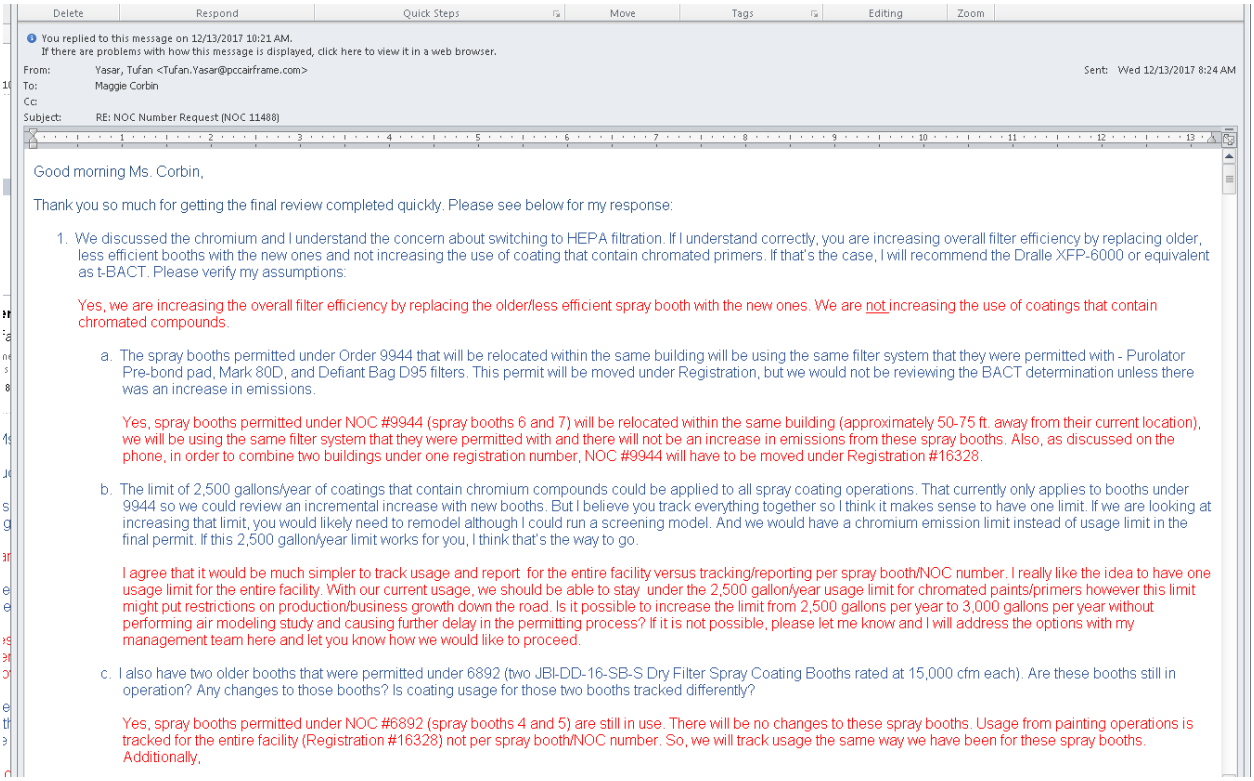
12/13/17: Additional information:



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From: Yasar, Tufan <Tufan.Yasar@pccairframe.com>
Sent: Wed 12/13/2017 8:24 AM
To: Maggie Corbin
Cc:
Subject: RE: NOC Number Request (NOC 11488)

Good morning Ms. Corbin,

Thank you so much for getting the final review completed quickly. Please see below for my response:

1. We discussed the chromium and I understand the concern about switching to HEPA filtration. If I understand correctly, you are increasing overall filter efficiency by replacing older, less efficient booths with the new ones and not increasing the use of coating that contain chromated primers. If that's the case, I will recommend the Dralle XFP-6000 or equivalent as t-BACT. Please verify my assumptions:

   Yes, we are increasing the overall filter efficiency by replacing the older/less efficient spray booth with the new ones. We are not increasing the use of coatings that contain chromated compounds.

   a. The spray booths permitted under Order 9944 that will be relocated within the same building will be using the same filter system that they were permitted with - Purolator Pre-bond pad, Mark 80D, and Defiant Bag D95 filters. This permit will be moved under Registration, but we would not be reviewing the BACT determination unless there was an increase in emissions.

      Yes, spray booths permitted under NOC #9944 (spray booths 6 and 7) will be relocated within the same building (approximately 50-75 ft. away from their current location), we will be using the same filter system that they were permitted with and there will not be an increase in emissions from these spray booths. Also, as discussed on the phone, in order to combine two buildings under one registration number, NOC #9944 will have to be moved under Registration #16328.

   b. The limit of 2,500 gallons/year of coatings that contain chromium compounds could be applied to all spray coating operations. That currently only applies to booths under 9944 so we could review an incremental increase with new booths. But I believe you track everything together so I think it makes sense to have one limit. If we are looking at increasing that limit, you would likely need to remodel although I could run a screening model. And we would have a chromium emission limit instead of usage limit in the final permit. If this 2,500 gallon/year limit works for you, I think that's the way to go.

      I agree that it would be much simpler to track usage and report for the entire facility versus tracking/reporting per spray booth/NOC number. I really like the idea to have one usage limit for the entire facility. With our current usage, we should be able to stay under the 2,500 gallon/year usage limit for chromated paints/primers however this limit might put restrictions on production/business growth down the road. Is it possible to increase the limit from 2,500 gallons per year to 3,000 gallons per year without performing air modeling study and causing further delay in the permitting process? If it is not possible, please let me know and I will address the options with my management team here and let you know how we would like to proceed.

   c. I also have two older booths that were permitted under 6892 (two JBI-DD-16-SB-S Dry Filter Spray Coating Booths rated at 15,000 cfm each). Are these booths still in operation? Any changes to those booths? Is coating usage for those two booths tracked differently?

      Yes, spray booths permitted under NOC #6892 (spray booths 4 and 5) are still in use. There will be no changes to these spray booths. Usage from painting operations is tracked for the entire facility (Registration #16328) not per spray booth/NOC number. So, we will track usage the same way we have been for these spray booths. Additionally,

- Spray booth #4: We do not spray any chromated paints/primers in this spray booth (only top coat and drilube).
- Spray booth #5: There is no spray painting operations performed in this booth. We only use the spray booth for fill and drain operations where paint is manually applied (poured) on to the part not sprayed.

2. For volatile toxic air pollutants, I need to evaluate the increase associated with this project. Is the 8750 gallons of coating you include in your application and the estimated emissions facility-wide? Can you provide an estimate of the potential increase of usage you might expect with the improved design. Based on the review of toxic air pollutant emissions in your annual reports, in your application and in the review that was done under Order 9944, it looks like you have not significantly increased emissions. But we either need to reflect that by having a usage limit in the permit or evaluate the potential increase in emissions.

   Yes, the estimated emissions I submitted would be for facility-wide after combining two registration numbers (from painting operations only). I just want to mention that we also perform Vapor Degreasing operations where n-Propyl Bromide is used as the cleaning solvent. The n-propyl bromide usage for vapor degreasing process should remain the same and it should be factored in the overall facility-wide emissions.

   Would you please confirm that after combining the two facilities under Registration #16328, Protective Coatings will still remain as a synthetic minor source (NOC #6938) and have the following emission limits for the entire facility?

   - Less than 9.5 tons of any single listed HAP, 24.5 tons of all HAPs combined, and
   - 49.5 tons of volatile organic compounds (VOCs) during any 12 consecutive months.

3. Finally, for the new drying/curing ovens, do they fit under either of these exemptions?

   Yes (62), we utilize drying/curing ovens to accelerate evaporation only. We utilize air-dry catalyzed coatings and drying/curing ovens are used to expedite the drying process. Our customer specification has requirements to dry paint coatings at 150-175 degrees Fahrenheit and for about 60 minutes.

(62) Ovens associated with a coating operation that are used exclusively to accelerate evaporation, if any combustion equipment is also exempt. (Note: The coating operation is not necessarily exempt.)

(63) Radiation-curing equipment using ultraviolet or electron beam energy to initiate a chemical reaction forming a polymer network in a coating.

12/14/17: Received additional VOC calculations. Included with emission estimates above.

Other e-mails in Agency EMS.

M. REVIEWS

Reviews	Name	Date
Engineer	Maggie Corbin	12/14/17
Inspector	Nina Birnbaum	12/18/17
Second Review:	Carole Cenci	12/15/17
Applicant Name:	Tufan Yasar	12/22/17