

**GOVERNMENT OF THE DISTRICT OF COLUMBIA**  
Department of Energy and Environment

**TECHNICAL SUPPORT MEMORANDUM**

TO: File

THROUGH: Stephen S. Ours, P.E.  
Chief, Permitting Branch

FROM: John C. Nwoke  
Environmental Engineer

**SUBJECT: Office of the Chief Administrative Officer  
Permit No. 7338-A1 to Operate a Non-Automotive Paint Spray Booth and  
Construct and Operate an Associated Carbon Adsorption System at the  
Rayburn House Office Building, Washington, DC**

DATE: January 3, 2024

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**BACKGROUND INFORMATION**

On August 26, 2022, the Air Quality Division (AQD) received an application from the Office of the Chief Administrative Officer (CAO), a support agency serving the U.S. House of Representatives, to construct and operate a new non-automotive paint spray booth, SB-1, at the Rayburn House Office Building in Washington, DC.

Permit number 7338 was issued on March 24, 2023, in response to CAO's application. However, on June 23, 2023 CAO requested an amendment to Permit 7338 to reflect a proposed installation of a carbon adsorption system, CAS-1. This technical support memorandum addresses the additional permit conditions included in the draft Permit No. 7338-A1. It should be reviewed in the context of a previously issued technical support memorandum prepared to address Permit No. 7338. This earlier technical memorandum is available as an attachment to the prior public notice at: <https://doee.dc.gov/node/1645396>.

The application filing indicates that CAS-1 will be new equipment, and when the equipment is procured, it is expected to match the design specifications in the application.

It is also proposed that this permit action extend the permit duration to a full five years from the date of issuance of this amendment.

The proposed permit action will be published in the DC Register on January 12, 2024. Public comments for the permit action will be solicited through February 12, 2024.

CAO has not requested that any of the materials submitted with this application be held confidential.

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#### **TECHNICAL INFORMATION**

The equipment covered by this permitting action includes one modified cross draft paint booth, SB-1, that uses two high-volume low pressure (HVLP) Aircoat spray guns, Wagner model 4700AC/GM4700AC-H. The spray guns have a maximum design coating capacity of 3.3 gallons (gal) of coating per hour and are equipped with overspray filters for particulate matter (PM) control.

The operation involves surface coating equipment of furniture with paint and primer, and the application of lacquers, gloss and stains. There will be no use of methylene chloride (MeCl) at this facility.

The exhaust from the paint booth stack does not discharge vertically upward without obstruction. However, due to the location and the six-foot above grade level stack exhaust point, it appears that compliance with regulatory requirements will be achieved. Moreover, the exhaust appears to be located such that it does not impede pedestrian activities (see Figures C-3 and C-5 of Appendix C of the application package.)

However, despite no known compliance issues with existing regulatory or permit requirements, in an effort to further reduce exposure to organic compounds and odors, CAO has proposed to voluntarily install a carbon adsorption system, designated CAS-1. CAS-1 is a PureAir AC-X extruded activated carbon/filter compact module. The activated carbon is encased in a 4 mm diameter cylinder and is expected to be capable of controlling VOC emissions at an efficiency of at least 90%. However, no manufacturer's guarantee was provided to this effect.

Emission estimates at the maximum spray gun application rate of 3.3 gal/hr, but taking into account the 15 lb/day regulatory limit on uncontrolled VOC emissions in 20 DCMR 700.1, is 2.7 tons per year of VOC, based on the use of a potential to emit (PTE) estimation technique specified in Section 5 of EPA's "Technical Support Document for Potential to Emit Guidance Memo. Documentation of Emission Calculations" [Tim Smith, USEPA/OAQPS, April 1998]. This is expected to be a worst-case scenario and does not take into account any emission reductions from the use of CAS-1. When assuming a minimum 90% control efficiency from CAS-1 the potential to emit is reduced to 0.9 tons per year of VOCs. However, since no manufacturer's guaranteed emissions reduction rate was provided, compliance will be focused on meeting the 15 lb/day standard in addition to implementing standard best practices for minimizing emissions.

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#### **REGULATORY REVIEW**

##### 20 DCMR Chapter 2, Section 200: General Permit Requirements:

A non-automotive paint spray booth is an air pollution source because most materials used for this purpose, such as paints, coatings, adhesives, sealants, and solvents contain volatile organic compounds that are emitted during use and even when not in use. Thus, a Chapter 2 permit is required. Additionally, installation of CAS-1 is considered to be installation of an air pollution control device on a stationary source, so, pursuant to 20 DCMR 200.1, that activity requires a permit to construct under that section.

##### 20 DCMR Chapter 2, Section 204: Non-attainment New Source Review:

The requirements of 20 DCMR 204 apply to the construction of any new major stationary source or any major modification at an existing major stationary source in an area designated as nonattainment under § 107(d)(1)(A)(i) of the CAA. As indicated by the applicant's emissions estimates, the project does not constitute the construction of a new major source or a major modification to an existing major stationary source. Therefore, the Project is not subject to the requirements of 20 DCMR 204. Therefore, no related requirements were placed in the permit.

##### 20 DCMR Chapter 2, Section 209: Minor New Source Review

The requirements of 20 DCMR 209 apply to the construction of a new source or modification to an existing stationary source that increases the PTE of select pollutants by more than five (5) tons per year, on a unit-by-unit basis, and is not required to comply with the requirements of 20 DCMR 204. 20 DCMR 204 was not previously triggered when the paint booth was installed. In this permitting action, an additional control device is being installed, which would reduce the equipment's PTE from 2.7 tons per year of VOCs to 0.9 tons per year. As such, 20 DCMR 204 will not be triggered by this action.

##### 20 DCMR Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606 are applicable to this facility. Proper operation and maintenance of the equipment would preclude any visible emissions from being emitted into the outdoor atmosphere from the operation of the paint/spray booth. This more stringent requirement (required by 20 DCMR 201) is contained in Condition II(c).

It is noteworthy that 20 DCMR 606 was substantially updated August 11, 2023. Prior exceptions to the District's zero percent opacity standard were narrowed with this update. The exceptions to the standard would not apply to operation of a spray painting operation, and even if they did, the prior determination that any visible emissions would be a sign of improper operation or maintenance of the equipment would remain valid. As such, these exceptions have not been added to the permit, just as the broader exceptions in the prior version of the regulation were not included in the prior Permit No. 7338.

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#### **20 DCMR Chapter 7, Section 700: Miscellaneous Volatile Organic Compounds (VOCs)**

The requirements of 20 DCMR 700.2 limits aggregate VOC emissions to less than 3 lb/hr and 15 lb/day for any emission units not subject to any other specific regulation under 20 DCMR Chapter 7, unless an emissions control device is installed to capture and control VOC emissions by at least 90%. SB-1 has a VOC PTE greater than zero for emissions not subject to any other 20 DCMR Chapter 7 sections. The paint spray booth and the carbon adsorption system, as a result, are subject to the requirements of 20 DCMR 700.2.

It should be noted that CAS-1, while expected to meet at least 90% overall capture and control when operating, does not have such as a manufacturer's guarantee. So, the focus of the compliance determination will be on meeting the 15 lb/day VOC, uncontrolled, standard, as it was in the previous version of the permit and implementation of best practices to minimize emissions.

Appropriate monitoring, testing, and record keeping requirements have been included in the permit to ensure that compliance status of the paint spray booth and the carbon adsorption system with these requirements can be determined.

#### **20 DCMR Chapter 7, Section 708: Non-photochemically Reactive Solvents**

Section 708 requires that users of non-photochemically reactive solvents if not subject to other sections of Chapter 7 shall comply with 20 DCMR 708.2. The rule limits aggregate non-photochemically reactive solvent emissions to less than 8 lb/hr and 40 lb/day. This requirement was placed in Condition II(d) of the permit because CAO indicated possible use of non-photochemically reactive solvents in conjunction with the operation of the paint spray booth.

#### **20 DCMR Chapter 7, Sections 743 through 749: Adhesives and Sealants**

These sections apply to the use of adhesives, sealants, adhesive primers, and sealant primers. The CAO is likely to use these products, in small quantities, in conjunction with the paint spray booth operations and therefore is expected to comply with the applicable requirements of 20 DCMR 743 through 749 as included in Condition III(b) of this permit.

#### **20 DCMR Chapter 7, Sections 764: Solvent Cleaning-Cold Cleaning**

The requirements of 20 DCMR 764 apply to each cold cleaning machine that processes metal parts and contain more than one liter (1 L) of volatile organic compounds (VOC). The paint spray booth activity does not meet the definition of a "cold cleaning machine" pursuant to 20 DCMR 799. Therefore, paint spray booth, SB-1 is not subject to the requirements of 20 DCMR 764 and the permit does not include these requirements.

#### **20 DCMR Chapter 7, Section 770: Miscellaneous Industrial Solvent Cleaning Operations**

With some exceptions listed in 20 DCMR 770.9, this section applies to any person who:

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- (a) Uses any industrial cleaning solvent in a solvent cleaning operation in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process where the facility emits at least fifteen pounds (15 lb.) of VOC emissions in any one (1) day from all solvent cleaning operations shall be subject to this section through § 770.10(a);
- (b) Sells, supplies, offers for sale, or manufactures any industrial cleaning solvent for use in the District of Columbia shall be subject to this section through § 770.10(a); or
- (c) Uses any industrial cleaning solvent in a solvent cleaning operation in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process where the facility emits less than fifteen pounds (15 lb.) of VOC emissions in any one (1) day from all solvent cleaning operations shall be subject to § 770.10(b).

Potentially relevant exceptions in 20 DCMR 770.9 are as follows:

1. Cleaning and surface preparation operations subject to Condition III(b);
2. Products used to strip cured inks, coatings, and adhesives;
3. Cleaning products used for janitorial purposes, including graffiti remover products;
4. Products used to clean resin, coating, ink, and adhesive mixing, molding, and application equipment; and
5. Cleaning and surface preparation operations related to application of coatings subject to regulation under 20 DCMR 773 to 778 (AIM) to the extent the coatings are used as architectural and industrial maintenance coatings.

It is not expected that this applicant will use large amounts of solvents covered by this section, but it is possible that such solvents will be used. As such, Condition II(e) of the permit limits emissions from such use to below 15 pounds per day, facility-wide. See Condition II(e) of the permit. Monitoring and record keeping requirements are included in Conditions IV(j) and V(c), respectively.

#### **20 DCMR Chapter 7, Section 771: Miscellaneous Industrial Solvent Miscellaneous Cleaning and VOC Materials Handling Instructions**

The requirements of 20 DCMR 771 apply to any person subject to 20 DCMR 770 as well as any person that uses any process that applies coatings, inks, or adhesives to flexible packaging where the facility emits less than fifteen pounds (15 lb.) of VOC emissions in any one (1) day before consideration of controls from all processes involved in applying coatings, inks, or adhesives to flexible packaging, including related clean-up activities. These criteria apply. As a result, the

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housekeeping requirements of 20 DCMR 771.3 are found in Condition III(h). Record keeping requirements have been included sufficient to show compliance with the requirements of 20 DCMR 771.4(a) and (b) in permit Condition V(c).

#### **20 DCMR Chapter 7, Sections 773 through 778: Architectural and Maintenance Coatings**

The requirements of these rules apply to "any person who supplies, sells, offers for sale, manufactures, applies, blends, repackages, or solicits the application of any architectural coating on or after January 1, 2005, within the District of Columbia, except as specified in 20 DCMR 775. The applicant states that the coatings that will be applied by SB-1 do not meet the definition of an "architectural coating" pursuant to 20 DCMR 799. Based on this assertion, no requirements of these sections were included in the permit.

#### **20 DCMR Chapter 9, Section 903: Odorous or Other Nuisance Air Pollutants**

"An emission into the atmosphere of odorous or other air pollutants from any source in any quantity and of any characteristic, and duration which is, or is likely to be injurious to the public health or welfare, or which interferes with the reasonable enjoyment of life or property is prohibited [20 DCMR 903.1]" is applicable to all sources. This requirement is contained in Condition II(b) of the permit.

This regulation was updated substantially on August 4, 2023. The main updates related to adding requirements for certain facilities to prepare, submit to the Department for approval, and implement odor control plans (OCPs). However, non-automotive paint spray booths are not included in the categories of sources that are required to submit OCPs, unless ordered to do so by the Department under certain circumstances. The Department has not issued such an order in this case. As such, the new OCP requirements do not apply to this facility at this time.

However, one addition to the regulation, 20 DCMR 903.13(b), which adds an affirmative defense provision, does apply to the facility. As such, this provision has been added to the permit as a part of Condition II(b).

It is additionally noted in the permit that 20 DCMR 903 is District-enforceable only. This is because it has not been incorporated into the District's State Implementation Plan (SIP) found at 40 CFR 52, Subpart J.

#### **Federal Regulations:**

Federal Regulations will be discussed below, however, those regulations that are not applicable will be briefly mentioned and focus will only be on the applicable regulations.

#### **New Source Review**

New Source Review (NSR) consists of two pre-construction permitting programs that address new sources or modifications to existing sources:

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1. The Prevention of Significant Deterioration (PSD) program addresses projects in an attainment area (i.e., an area in which the air quality meets National Ambient Air Quality Standards (NAAQS) for a specific pollutant).
2. The non-attainment NSR (NNSR) program addresses projects in a non-attainment area (i.e., an area in which the air quality does not meet NAAQS for a specific pollutant).

Federal PSD regulations are established in the Code of Federal Regulations (CFR), Title 40, Section 52.21. District of Columbia NNSR regulations are established in the District of Columbia Municipal Regulations (DCMR), Title 20, Section 204. NSR applicability is based on the classification of the source under both the PSD and NNSR programs.

Previously, it was determined that the installation of the non-automotive paint spray booth did not trigger NNSR or PSD requirements. The current application proposes construction of an emissions control device, which is not expected to increase emissions of any pollutant, and is therefore an action that is not subject to NNSR or PSD.

#### **40 CFR Part 60: New Source Performance Standards**

The New Source Performance Standards (NSPS) are established by the Environmental Protection Agency (EPA) to limit emissions from new, modified, or reconstructed sources in applicable source categories. The requirements of these regulations are incorporated by reference in 20 DCMR 205.2. Specific subparts are discussed below.

#### **40 CFR Part 60, Subpart EE - Standards of Performance for Surface Coating of Metal Furniture**

The requirement of this regulation is codified in 40 CFR § 60.310 through 40 CFR § 60.316. Pursuant to 40 CFR § 60.310. This regulation applies to each "metal furniture surface coating operation in which organic coatings are applied" and construction, modification, or reconstruction occurs after November 28, 1980.

While the Project is primarily a wood-surface coating booth operation, and the SB-1 will apply organic coatings to wood furniture in the process, the applicant is required by the appropriate operational limitations, monitoring and testing, and record-keeping requirements of Condition III(j), Condition IV(h) and Condition V(b) of the permit to ensure that the requirements of Subpart EE are not triggered.

#### **40 CFR Part 60, Subpart MM - Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations.**

Pursuant to 40 CFR § 60.390, this regulation applies to affected facilities in automobile or light-duty truck assembly plant. The proposed equipment is a non-automotive paint spray booth operation and is not expected to apply coatings to vehicles. This regulation, codified in 40 CFR § 60.390 through 40 CFR § 60.398, applies to automotive paint spray booths and is not applicable to a non-automotive paint spray booth. Therefore, the project

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is not subject to the requirements of 40 CFR Part 60, Subpart MM, thus the requirements of this subpart are not included in the permit.

#### Other Non-Applicable NSPS Regulations:

40 CFR Part 60 includes several other performance standards that apply to coating operations- viz: Subpart RR -Pressure Sensitive Tape and Label Surface Coating; Subpart SS – Large Appliance Surface Coating, and Subpart TT- Metal Coil Surface Coating. The proposed project is not expected to include activities covered by these source categories. There are no compliance requirements in the permit covering Subparts RR, SS and TT.

#### 40 CFR Part 63: National Emission Standards for Hazardous Air Pollutants (NESHAPs)

Title 20, Chapter 14 of District of Columbia Municipal Regulations adopts the National Emission Standards for Hazardous Air Pollutants (NESHAPs) by reference. The District regulations codify this reference in 20 DCMR 1409.1. The proposed project is not expected to emit hazardous air pollutants at rates exceeding the major source thresholds (10 tons/year or less of any HAPs or 25 tons/year of a combination of HAPs). The calculations in Appendix A of the application filing indicates that the PTE for HAPs emission from the project is estimated at 2.7 tons/year. Additionally, CAS-1 would be expected to further reduce the PTE of HAPS, but the applicant is not relying on such emissions reductions for compliance purposes.

In addition to those discussed in more detail below, 40 CFR Part 63 includes several other performance standards that apply to coating operations, Subparts II, III through NNNN etc., but that would not apply to the proposed project because they do not apply to the types of operations proposed for this site. As a result, the requirements in the subparts do not apply to this project and the permit has no such requirements either.

#### 40 CFR Part 63, Subpart JJ -National Emission Standards for Wood Furniture Manufacturing Operations

This regulation, codified in 40 CFR § 63.800 through 40 CFR § 63.819, is applicable to a facility that is engaged in the manufacture of wood furniture or wood furniture components and that is located at a plant site that is a major source. The proposed paint spray booth operation is not located at a major source of HAPs. Therefore, this subpart does not apply, and no related requirements were placed in the permit.

#### 40 CFR Part 63, Subpart MMMM - National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products

This regulation, codified in 40 CFR § 63.3880 through 40 CFR § 63.3981, applies to activities located at a major source of HAPs. Additionally, pursuant to 40 CFR § 63.3881, the affected facilities described in 40 CFR § 63.3881(a) and (b) do not include the non-automotive paint booth operation covered by this project. Consequently, the project is not subject to the



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requirements of 40 CFR Part 63, Subpart MMMM and related requirements were not included in the permit.

**40 CFR Part 63, Subpart HHHHHH - National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources**

This regulation is codified in 40 CFR § 63.11169 through 40 CFR § 63.11180. Pursuant to 40 CFR § 63.11170, this regulation applies to a facility that is an area source of HAPs which performs one of the listed activities. The proposed project does not include any of the subject activities specified in 40 CFR § 63.11170(a) through(c). As such, the requirements of this regulation have not been included in the permit.

**RECOMMENDATIONS**

The application to construct and operate the carbon adsorption system (CAS-1) and operate the non-automotive paint spray booth, and the attached permit to construct and operate comply with all applicable federal and District air pollution control laws and regulations.

Public comments for the permit action will be solicited from January 12, 2024 through February 12, 2024. AQD will resolve any comments received before taking any final action on the permit. If no adverse comments are received, I recommend that Permit No. 7338-A1 be issued in accordance with 20 DCMR 200.2 promptly upon completion of the public comment period.

SSO/JCN