

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

TO: File

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

FROM: Olivia Achuko
Environmental Engineer

SUBJECT: **Smithsonian Institution, National Museum of American History
Permit No. 6904-R2 to Operate One (1) Non-Auto Body Paint Spray Booth**

DATE: November 22, 2025

BACKGROUND INFORMATION

A permit application to operate one non-automotive paint spray booth at the National Museum of American History, 12th Street and Constitution Avenue NW, was received by the Air Quality Division (“AQD”) of the Department of Energy and Environment (“DOEE” or “the Department”) on November 27, 2024. The associated fee payment was received on January 27, 2025. This application is a request to renew permit No. 6904-R1, issued March 2, 2021, with an expiration date of March 1, 2025.

The applicant has not requested that any of the information submitted to the Department be held confidential pursuant to 20 DCMR 101.

TECHNICAL INFORMATION

The paint booth to be permitted is a DeVilbiss water wash booth model XNO-46037, identified as PB-1 and located in Room AB073.

Based on the emission calculations provided by the facility, this paint booth has the potential to emit 1.41 tons per year (TPY) of VOC and 0.02 TPY of particulate matter.

REGULATORY REVIEW

In developing this permit, the following regulations were evaluated for applicability.

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smithsonian Institution, National Museum of American History

Permit No. 6904-R2 to Operate a Non-Automotive Paint Spray Booth (PB-1)

November 22, 2025

Page 2

20 DCMR Chapter 2, Section 200: General Permit Requirements

Pursuant to 20 DCMR 200.1 and 200.2, because the equipment is a stationary source that has the potential to emit air pollutants, a permit from the Department must be obtained to install and operate the equipment.

20 DCMR Chapter 2, Section 204: Permit Requirements for Sources Affecting Non-Attainment Areas

Because the facility did not significantly increasing emissions as a result of installation of the paint booth (the potential to emit VOCs of 1.41 TPY is well below the 25 TPY value meeting the definition of “significant” for VOC and 0.02 TPY of particulate matter is similarly well below the “significant” threshold of 10 TPY of PM_{2.5} or 15 TPY of PM₁₀), the requirements of this section were never applicable. For this renewal, no modifications are occurring, so again, this regulation is not triggered.

20 DCMR Chapter 2, Section 205: New Source Performance Standards

There are no NSPS subparts applicable to the paint booth.

20 DCMR Chapter 2, Section 209: Permit Requirements for Non-Major Stationary Sources (Minor New Source Review)

The potential emissions VOCs (1.41 TPY) is well below the 5 TPY threshold for applicability of this regulation (plus the equipment is already installed). Similarly, the negligible potential emissions of all HAPs, combined (<0.01 TPY) and particulate matter (0.02 TPY) are well below the threshold for applicability of this regulation. As such, the requirements of this regulation were never applicable previously, nor are they applicable at this time.

20 DCMR Chapter 6, Section 606: Visible Emissions

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

Additionally, this regulation establishes certain operational, maintenance, and training requirements which have been incorporated into Conditions III(i), (j), and (k). Record keeping requirements are incorporated into Conditions V(j) and (k).

20 DCMR 700 – Miscellaneous Volatile Organic Compounds (VOCs):

The requirements of 20 DCMR 700 were included in the permit. Because the facility will not be performing activities regulated by other sections of Chapter 7, such as mobile equipment repair and refinishing, most activities occurring in this unit will be regulated under this section. Many of the monitoring and record keeping requirements in the permit are designed to document compliance with this section.

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smithsonian Institution, National Museum of American History

Permit No. 6904-R2 to Operate a Non-Automotive Paint Spray Booth (PB-1)

November 22, 2025

Page 3

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 nonphotochemically reactive solvent emissions to less than 8 lb/hr and 40 lb/day. This requirement was placed in Condition II(d) of the permit. Subsequent requirements establish monitoring and record keeping requirements to ensure compliance.

20 DCMR 714 – Control Techniques Guidelines (CTGs):

20 DCMR 714 is not applicable to the paint booth since the source does not operate any of the source categories (Miscellaneous Metal Product and Plastic Parts Surface Coatings, Large Appliance Coatings, and Metal Furniture Coatings) specified in 20 DCMR 714.

20 DCMR 715 – Major Source and Case-By-Case Reasonably Available Control Technology (RACT):

20 DCMR 715 is not applicable to the paint booth since the source does not have theoretical potential plant-wide emissions greater than or equal to twenty-five tons per year (25 tpy).

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 applicant has not indicated an intention to use these products. However, to provide flexibility for them to use them, in conjunction with the paint spray booth operations, the applicable requirements of 20 DCMR 743 through 749 have been included in Condition III(b) of this permit, with subsequent sections requiring associated monitoring and record keeping.

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:

- (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. Products used to strip cured inks, coatings, and adhesives;

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smithsonian Institution, National Museum of American History

Permit No. 6904-R2 to Operate a Non-Automotive Paint Spray Booth (PB-1)

November 22, 2025

Page 4

2. Cleaning products used for janitorial purposes, including graffiti remover products;
3. Products used to clean resin, coating, ink, and adhesive mixing, molding, and application equipment; and
4. 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 significant amounts of solvents covered by this section, but in the event that they are used, Condition II(e) of the permit was added to limit emissions from such use to below 15 pounds per day, facility wide. Monitoring and record keeping requirements were added to Conditions IV(h) 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. The first of these criteria has the potential to apply, as discussed above in the section discussing 20 DCMR 770. As a result, the 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 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. It can be found 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.

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smithsonian Institution, National Museum of American History

Permit No. 6904-R2 to Operate a Non-Automotive Paint Spray Booth (PB-1)

November 22, 2025

Page 5

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.

40 CFR 60, Subpart EE – New Source Performance Standard for Surface Coating of Metal Furniture:

This subpart does not apply to this unit because the source performs application of latex paints to exhibit display items in the paint booth. This facility is not a “metal furniture surface coating operation”. The application notes that there is no metal furniture coated in the booth. As a result, Condition III(l) has been added to the permit to prohibit metal furniture coating in the booth.

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

This subpart does not apply to this facility because the paint booth does not perform: 1) paint stripping operations that involve the use of chemical strippers that contain methylene chloride (MeCl), Chemical Abstract Service number 75092, in paint removal processes; 2) Autobody refinishing operations that encompass motor vehicle and mobile equipment spray-applied surface coating operations; or 3) Spray application of coatings containing compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd), collectively referred to as the target HAP to any part or product made of metal or plastic, or combinations of metal and plastic that are not motor vehicles or mobile equipment. Therefore, 40 CFR 63, Subpart HHHHHH is not applicable to this unit. Conditions have been added to the permit to ensure that these activities do not occur in the unit in the future. See Conditions III(a), III(c), and III(f)(1) and associated monitoring and record keeping requirements.

RECOMMENDATIONS

The application to operate the paint booth and the attached operating permit comply with all applicable federal and District air pollution control laws and regulations.

The draft permit action for this paint booth be posted for public review in the D.C. Register and on the DOEE website December 5, 2025 and will be available for public comment through January 5, 2026. If no public comments are received, it is recommended that permit No. 6904-R2 be issued. If adverse comments are submitted or a hearing is requested, AQD will consider all comments before taking any final action on the permit application.

SSO:NOA