March 2, 2021

Elizabeth Musteen

Chief of Exhibit Production

Smithsonian Institution

National Museum of Natural History

10th Street and Constitution Avenue NW

Washington, DC 20013

**Subject: Permit No. 6903-R1 to Operate One (1) Non-Automotive Paint Spray Booth**

Dear Ms. Musteen:

Pursuant to sections 200.1 and 200.2 of Title 20 of the District of Columbia Municipal Regulations (20 DCMR), a permit from the Department of Energy and Environment (the Department) shall be obtained before any person may operate a new stationary source in the District of Columbia. The application of the Smithsonian Institution (“the Permittee”) for a permit to operate one (1) non-automotive paint spray booth at the National Museum of Natural History, located at 10th Street and Constitution Avenue NW, Washington, DC, per the submitted application received on July 10, 2020, has been reviewed.

Based on the plans and specifications as detailed in the aforementioned air permit application, the application is hereby approved, and operation of the paint booth is permitted, subject to the following conditions:

I. General Requirements:

a. The paint booth shall be maintained and operated in accordance with the air pollution control requirements of 20 DCMR.

b. This permit expires on March 1, 2025 [20 DCMR 200.4]. If continued operation after this date is desired, the owner or operator shall submit an application for renewal by December 1, 2024.

c. Operation of equipment under the authority of this permit shall be considered acceptance of its terms and conditions.

d. The Permittee shall allow authorized officials of the District, upon presentation of identification, to:

1. Enter upon the Permittee’s premises where a source or emission unit is located, an emissions related activity is conducted, or where records required by this permit are kept;

2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;

3. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor, at reasonable times, any substance or parameter for the purpose of assuring compliance with this permit or any applicable requirement.

e. This permit shall be kept on the premises and produced upon request.

f. Failure to comply with the provisions of this permit may be grounds for suspension or revocation. [20 DCMR 202.2]

II. Emission Limits:

a. No person shall discharge into the atmosphere more than fifteen (15) pounds of volatile organic compound (VOC) emissions in any one (1) day, nor more than three pounds (3 lb.) in any one (1) hour, from any combination of articles, machines, units, equipment, or other contrivances at a facility, unless the uncontrolled VOC emissions are reduced by at least ninety percent (90%) overall capture and control efficiency. [20 DCMR 700.2]

b. 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]

c. Visible emissions shall not be emitted into the outdoor atmosphere from the paint spray booth. [20 DCMR 102 and 606]

III. Operational Limits and Standards:

a. No chemical strippers containing methylene chloride (MeCl) shall be used at this facility. [20 DCMR 201]

b. Adhesives, sealants, adhesive primers, or sealant primers shall not be used in the equipment unless they meet the following requirements:

1. They are contact adhesives sold or supplied by the manufacturer in containers containing a net volume of one gallon or less;

2. They are plastic cement welding adhesives (any adhesive intended by the manufacturer for use to dissolve the surface of plastic to form a bond between mating surfaces) with volatile organic compound (VOC) content not exceeding 400 g/L for ABS welding, 490 g/L for CPVC welding, 510 g/L for PVC welding, or 510 g/L for other plastic cement welding;

3. They are other adhesives, sealants, adhesive primers, or sealant primers sold or supplied by the manufacturer or supplier in containers with a net volume of sixteen (16) fluid ounces or less, or a net weight of one pound or less; or

4. The adhesive, sealant, adhesive primer, or sealant primer has received written approval from the Department for use in the equipment and complies with the requirements of 20 DCMR 743-749, as applicable.

c. Mobile equipment, as defined in 20 DCMR 799, shall not be coated in this paint booth. [20 DCMR 201]

d. The exhaust stack shall be designed to ensure compliance with Condition II(b) of this of permit.

e. The coatings shall be applied by one or more of the following methods:

1. Powder coating;

2. Hand-held, non-refillable aerosol containers;

3. Non-atomizing application technology (paint brushes, rollers, hand wiping, flow coating, dip coating, touch-up markers, or marking pens);

4. Other non-atomizing application technology approved by the Department to not be covered by 40 CFR 63, Subpart HHHHHH or another regulation not addressed in this permit; or

5. High volume low pressure (HVLP) spray guns.

f. Whenever spray guns are used:

1. The coatings used shall not contain any compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd);

2. Cleaning of spray guns shall be performed by one of the following methods: [20 DCMR 201]

i. Use of an enclosed spray gun cleaning system that is kept closed when not in use;

ii. Use of an unatomized discharge of solvent into a paint waste container that is kept closed when not in use;

iii. Disassembly of the spray gun and cleaning in a vat that is kept closed when not in use; or

iv. Use of an atomized spray into a paint waste container that is fitted with a device designed to capture atomized solvent emissions.

g. The paint spray booth shall meet the following specifications [20 DCMR 201]:

1. The unit shall be fitted with a type of filter technology that is demonstrated to achieve at least 98-percent capture of paint overspray.

2. The exhaust filters shall be replaced as specified by manufacturers’ specifications and as necessary to ensure compliance with Condition II(c) of this permit.

3. The unit shall be constructed with a full roof and must be ventilated at negative pressure so that air is drawn into the front opening any openings in the booth walls.

4. The unit shall be maintained and operated at all times in accordance with manufacturer’s recommendations.

h. The Permittee shall comply with the following housekeeping and pollution prevention measures [20 DCMR 201]:

1. Perform all painting operations that utilize a spray gun in a paint spray booth;

2. Store fresh and used coatings, solvent, and cleaning solvents in non-absorbent, non-leaking containers;

3. Close all repairing and refinishing coating containers at all times except when filling, emptying, or in active use;

4. Store cloth and paper, or other absorbent applicators, moistened with coatings, solvents, or cleaning solvents in closed, non-absorbent, non-leaking containers; and

5. Minimize spills during the handling and transfer of coatings, solvents, and cleaning solvents.

i. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the spray painting equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

1. The exhaust stack shall have a minimum height of 90 feet above ground level.

IV. Monitoring and Testing Requirements:

a. The Permittee shall monitor the contents of any chemical strippers used at the facility to ensure that they do not contain methylene chloride (MeCl).

b. The Permittee shall track the quantity and volatile organic compound (VOC) content of all paints and coatings used at the facility, as applied, to ensure compliance with Condition II(a). If applied, unadulterated, as the coating is obtained from the manufacturer, documentation provided by the manufacturer may be used to determine the VOC content.

Whenever such information is not available from the manufacturer or whenever a paint or coating is not applied as obtained from the manufacturer, the following method shall be used to determine the VOC content:

The mass of VOC per combined volume of VOC and coating solids, less water and exempt compounds shall be calculated, in pounds per gallon, by the following equation. To convert from grams per liter to pounds per gallon (lb/gal), multiply the result (VOC content) by 8.345 x 10-3 (lb/gal/g/l):



where:

VOC = VOC content in grams per liter (g/l) of coating less water and non VOC solvents;

Wv = Mass of total volatiles, in grams;

Ww = Mass of water, in grams;

Wec = Mass of exempt compounds, in grams;

V = Volume of coating, in liters;

Vw = Volume of water, in liters; and

Vec = Volume of exempt compounds, in liters.

c. The Permittee shall maintain an awareness of the area to ensure that the odor and nuisance air pollutant requirements of Condition II(b) are met.

d. The Permittee shall monitor the emission point from the spray booth to ensure that the requirements of Condition II(c) are met.

e. The Permittee shall monitor the safety data sheets or other paint, coating, adhesive, sealant, adhesive primer, or sealant primer specification sheets to ensure compliance with Conditions III(b) and (f)(1).

f. The Permittee shall monitor the types of spray booth filters purchased and their replacement dates to ensure that all filters used meet the requirements of Conditions III(g)(1) and (2).

g. The Permittee shall monitor the maintenance and operational status of the spray booth and the activities performed in the spray booth and at the facility to ensure compliance with the requirements of Conditions III(c), (e), (f), (g), (h), and (i).

V. Record Keeping Requirements:

The Permittee shall maintain the following records for not less than three years from the date of each record. [20 DCMR 500.8]

a. The Permittee shall maintain records of the types of chemical paint strippers used at the facility as well as their chemical make-up to document compliance with Condition III(a).

b. The Permittee shall maintain records of the quantity, type, and VOC content of all paints and refinishing coatings used at the facility, as applied.

c. Based on the monitoring and calculations required under Condition IV(b) and the records kept under Condition V(b), the Permittee shall determine and keep records of the VOCs emitted from this equipment, in combination with similar VOC emitting equipment at the facility to ensure compliance with Condition II(a).

d. The Permittee shall maintain records of the type(s) and target hazardous air pollutant (HAP) contents of coatings used in any spray guns to document compliance with Condition III(f)(1).

e. The Permittee shall maintain records of the specifications and replacement dates of spray booth filters to document compliance with Condition III(g).

f. The Permittee shall maintain records of all maintenance performed on the spray booth.

g. The Permittee shall maintain records of any deviations from the requirements of Conditions II and III of this permit.

VI. Reporting Requirements:

a. The Permittee shall immediately contact the Air Quality Division’s Compliance and Enforcement Branch upon becoming aware of a sudden equipment failure or emergency or emissions in excess of any emission limit. The general phone number for the Department is (202) 535-2600.

b. In addition to complying with Condition VI(a) and any other reporting requirements mandated by the District of Columbia, the Permittee shall, within thirty (30) calendar days of becoming aware of any occurrence of excess emissions, supply the Department of the Environment in writing with the following information:

* + 1. The name and location of the facility;
    2. The subject source(s) that failed, experienced the emergency, or caused the excess emissions;
    3. The time and date of the first observation of the equipment failure, emergency, or excess emissions;
    4. The cause and estimate/expected duration of the excess emissions (if applicable); and
    5. The proposed corrective actions and schedule to correct the conditions causing the emergency or excess emissions.

If you have any questions, please call me at (202) 535-1747 or Thomas Olmstead at (202) 535-2273.

Sincerely,

Stephen S. Ours, P.E.

Chief, Permitting Branch

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