

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

TO: File

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**SUBJECT: Source Category Permit No. 7123-SC to Construct and Operate Temporary Portable Concrete Plants**

DATE: September 7, 2016

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**BACKGROUND INFORMATION**

The Air Quality Division (AQD) of the Department of Energy and Environment (“the Department”) has developed a source category permit for owners or operators to construct and operate temporary portable concrete plants. This source category permit will expedite the permitting process by simplifying permitting paper work, not requiring a notice and comment period for each portable concrete plant application, and reducing Department permit review time. The source category permit includes the requirements of all relevant District of Columbia (“District”) and federal air quality laws and regulations for this category of source.

All portable concrete plants constructed and operated in the District of Columbia are a potential source of air pollution and are required to obtain a source category permit from the Department pursuant to 20 DCMR 200.

**TECHNICAL INFORMATION**

This source category permit is applicable to owners and operators of portable concrete plants in the District of Columbia who submit an application to AQD and are approved for coverage under this permit, either actively or by passive approval which will occur 45 days after submission of a complete application to AQD unless AQD objects to the approval in writing in that timeframe.

This source category permit covers only the construction and operation of temporary portable concrete plants with a rated production capacity of up to 180 cubic yards of concrete product per hour. A number of limitations have been established to limit the applicability of this source category permit to ensure that potentially controversial or more complicated projects involving portable concrete plants are not covered by this source category permit, but are rather subject to standard case-by-case permitting. In addition to the production rate limitation, the following applicability limitations have been established:

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1. Only one portable concrete plant may be operated at the facility at a time;
2. Approval of operation of the portable concrete plant at the site shall be for no more than one (1) year, renewable no more than once such that total operation of the plant at the site shall not exceed two (2) years<sup>1</sup>. If continued operation after the first year is desired, the owner or operator must submit a new application for renewal at least 45 days prior to expiration of the initial approval;
3. The portable concrete plant will operate for no more than one 8-hour shift per day;
4. The total production of the plant will not exceed 400,000 cubic yards in any consecutive 12 month period.
5. The portable concrete plant's potential to emit (PTE) particulate matter with an aerodynamic diameter less than 10 microns (PM<sub>10</sub>) is less than 15 tons per year (TPY);
6. Any hot water boiler associated with the plant has a heat input rating not exceeding 5 million BTUs (MMBTU) per hour; and
7. The portable concrete plant must be constructed and operated in compliance with all conditions of source category permit 7123-SC.

For equipment not covered by this source category permit (or other source category permits), if any entity owns, operates, or plans to install any equipment of this sort, they should consult with AQD to determine the applicability of any other permitting requirements pursuant to 20 DCMR 200. The main phone number for AQD is (202) 535-2250.

### **EMISSIONS ESTIMATES**

AQD has placed several limitations on the size and production capacity of the equipment covered by this permit including:

1. A maximum production rate of 180 cubic yards per hour;
2. Only one portable concrete plant at a site at a time;
3. Operations are limited to one 8-hour shift per day; and
4. Total plant production is limited to 400,000 cubic yards in any consecutive 12-month period.

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<sup>1</sup> Note that this two year maximum limitation is for this type of operation at the facility. An applicant may not avoid this limitation by swapping out one portable plant for a different one.

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Based on calculations using AP-42 factors, these limits limit emissions below the New Source Review (NSR) threshold of 15 tons per year of particulate matter with an aerodynamic diameter less than 10 microns (PM<sub>10</sub>). They also limit emissions of total particulate matter below 40 pounds per hour to ensure compliance with 20 DCMR Chapter 6, Appendix 6-1.

Additionally, emissions of combustion products (NO<sub>x</sub>, CO, PM and VOC) would be emitted from any fuel-burning hot water heater or boiler employed by the process. However, this permit has limited the size of any such hot water heater or boiler to less than 5 MMBTU/hr and has limited possible fuels to natural gas and No. 2 fuel oil (distillate). 20 DCMR 200.12 exempts such equipment from Chapter 2 permitting requirements due to its insignificant emissions potential. As such, AQD has not fully assessed the potential emissions from this aspect of the allowable equipment, but they can reasonably be assumed to be minimal. If one used AP-42 emission factors and assumed that the fuel used were ultra-low sulfur (0.0015% sulfur by weight maximum) No. 2 fuel oil (generally the higher emitting of the fuels allowed), the potential to emit given the operating hour restrictions on the site, would be 0.17 tons per year (TPY) of total particulate matter, 1.04 TPY of NO<sub>x</sub>, 0.26 TPY of CO, 0.018 TPY of VOC, and 0.011 TPY of SO<sub>x</sub>.

### **REGULATORY REVIEW**

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

Any portable concrete plant is a potential air pollution source, especially for particulate matter. Thus a Chapter 2 permit is required for the installation and operation of such equipment. In this case, this source category permit is being proposed to allow applicants to obtain such a permit under 20 DCMR 200.6.

#### **20 DCMR Chapter 2, Section 204: Permit Requirements for Major Sources Located in Non-Attainment Areas (New Source Review):**

The trigger (significant) threshold for PM<sub>10</sub> for New Source Review (NSR) is 15 tons per year of emissions. Using AP-42 factors, AQD calculated (with a safety margin) that if the project were limited to production of 400,000 cubic yards of concrete per year as well as no more than 180 cubic yards per hour and no more than 8 hours of operation per day, there would be no danger of exceeding the 15 ton per year NSR trigger threshold. These limitations have been established in the permit.

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

Based on AP-42 factors, many of the sources subject to this source category permit would have the potential to emit greater than 5 tons per year of PM<sub>10</sub>, thus triggering the applicability of this regulation. However, AQD has determined that properly maintaining baghouses or other particulate filters, all with particulate matter control efficiencies of 99.9% or greater on the mixer or truck loading systems as well as any silo loading operations would meet the requirements of this regulation for this type of equipment.

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20 DCMR Chapter 6, Section 603 and Appendix 6-1: Particulate Process Emissions:

The discharge of particulate matter into the atmosphere from any process shall not exceed three hundredths (0.03) grains per dry standard cubic foot (gr/dscf) of the exhaust.

In addition to the aforementioned 0.03 gr/dscf limit, 20 DCMR 603.1 also references 20 DCMR Chapter 6, Appendix 6-1 as applicable to particulate processes. In AQD's experience, portable concrete mixing plants located in the District typically produce concrete at rates exceeding 60,000 pounds (30 tons) per hour. This means that the maximum particulate matter emission rate allowed under Appendix 6-1 is 40 lbs/hr. Using AP-42 factors

(<https://www3.epa.gov/ttnchie1/ap42/>) for Concrete Batching (see section 11.12) AQD has estimated that a facility would need to produce 369.58 tons of concrete (approximately 183.69 cubic yards) to produce 40 pounds of total particulate matter emissions. As such, AQD has established the 180 cubic yards per hour maximum size limitation for units to be covered by this source category permit.

To ensure that covered units meet the aforementioned particulate matter emissions standards, any applicant must use a baghouse with filters rated at or above 99.9% efficiency for control of particulate matter to control emissions from mixer or truck loading. Similarly, emissions from cement and cement supplement loading to silos via pneumatic conveying must be controlled by 99.9% efficient baghouses or other properly sized particulate filters. Differential pressure ranges must be specified in the application based on manufacturer's specifications or otherwise justified and approved by the Department. Subsequently, the owner or operator must monitor the differential pressure across the filters to ensure that the filters are properly maintained and operating.

The owner or operator must keep a set of replacement filters for each of the dust collectors on site to ensure that identified filter failures can be corrected promptly. Additionally, to ensure the equipment is maintained, differential pressure monitoring, visible emissions monitoring, and records of maintenance are required in the permit.

20 DCMR Chapter 6, Section 605: Particulates

The visible emissions limitations of 20 DCMR 605 are applicable to temporary portable concrete mix equipment and related facility operations. Reasonable precautions shall be taken to minimize the emissions of any fugitive dust into the outdoor atmosphere. These requirements are found in Conditions III(a) and (b) of this permit. The operational requirements are found in Condition IV(f). The facility must monitor the site for compliance per Condition V(j) and maintain records of deviations per Condition VI(i).

20 DCMR Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606.1 are applicable to this portable concrete mix plant. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of the portable concrete mix plant; provided that discharges not exceeding forty percent (40%) opacity (unaveraged) shall be permitted for two minutes in any sixty (60) minute period and for an aggregate of twelve (12) minutes in any twenty-four hour (24 hr.) period during start-up, or

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malfunction of equipment. This requirement is contained in Condition III(f). Monitoring for compliance is required pursuant to Condition V(c). Records of any deviation must be kept pursuant to Condition VI(g).

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 III(g) of the permit. Monitoring for compliance is required pursuant to Condition V(d). Records of deviations must be kept pursuant to Condition VI(h).

**RECOMMENDATIONS**

The public notice announcement will be submitted to D.C. Register for publication in the September 16, 2016 edition. The draft permit is available for public comment through October 17, 2016. Pursuant to 20 DCMR 210, the public notice will also be sent to EPA Region III and affected states (VA, MD, and WV).

The attached proposed permit complies with all applicable federal and District air pollution control laws and regulations. We recommend that the attached source category permit No. 7123-SC be issued upon completion of the public review period, assuming no adverse comments are received.

If adverse comments are received, such comments will be addressed prior to issuance of any final permit for this source category.

SSO/ATH

