

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: Wyatt Bohmann
Environmental Engineer

SUBJECT: **Schuster Concrete Ready Mix LLC**
Chapter 2 Permit Nos. 7328, 7339, 7343 to Construct and Operate a Ready-Mix Concrete Batch Plant with Onboard Engine and an Associated Emergency Generator Set at 632 Howard Rd SW, Washington DC

DATE: January 30, 2022

This Technical Support Memorandum has been prepared to document the basis for multiple Chapter 2 permits needed for equipment to be operated at a temporary concrete production facility to support construction of buildings for the following:

Applicant and Permittee:

Schuster Concrete Ready Mix LLC
3713 Crondall Lane
Owings Mills MD 21117

Facility Location:

632 Howard Rd SE
Washington DC 20011

Application Signatory per 20 DCMR 200.13:

Mr. Jay Harmon, Manager

FACILITY DESCRIPTION AND BACKGROUND INFORMATION:

On June 21, 2022, the Air Quality Division (AQD) of the Department of Energy and Environment (the Department) received an application for two separate Chapter 2 permits to construct and operate a concrete batch plant at 632 Howard Rd SW, Washington DC 20020. Schuster Concrete Ready Mix LLC, located at 3713 Crondall Lane NW, Owings Mills, DC 20020, is the applicant who has proposed to construct and operate the temporary concrete batch

TECHNICAL SUPPORT MEMORANDUM

Schuster Concrete Ready Mix LLC – 632 Howard Rd SE

Chapter Permits Nos. 7328, 7339, and 7343

January 30, 2022

Page 2

plant. The application proposed installation and operation of primary emission units consisting of one (1) Model 150 CEMCO Concrete Batch Plant (a truck mix plant), one (1) factory mounted 99 hp (74 kWm) John Deere diesel-fired engine attached to and powering the CEMCO Batch Plant, one (1) 70 kWe Multiquip WhisperWatt™ emergency generator set powered by a John Deere model 4045TF diesel engine with an advertised power output of 90 hp.

AQD had reached out to Schuster Concrete Ready Mix LLC on June 29, 2022 to inform them that they would also need to submit another Chapter 2 permit application for the diesel engine onboard the CEMCO 150 planned for the site. This application was subsequently received by AQD via the online permit application system on November 22, 2022 (dated November 18, 2022).

AQD had also informed the applicant that due to the emergency engine planned for the site being a new installation and not pre-existing, it cannot be covered under source category permit 7115-SC-R1 as they had requested, but that a standard Chapter 2 would be required instead. Since AQD had made an error in advising Schuster Concrete Ready Mix LLC to resubmit their initial 7116-SC-R1 emergency generator application into a 7115-SC-R1 permit due to the engine running on diesel instead of natural gas, AQD allowed the applicant to request in writing that they wished for the application to be converted into a Chapter 2 application as opposed to resubmitting. This request was received on September 14, 2022.

The following are the three Chapter 2 applications submitted by Schuster Concrete Ready Mix LLC:

Emission Unit ID	Unit Description	Location	Assigned Chapter 2 Permit Number
Plant #1	CEMCO 150 Truck Mix Concrete Plant	632 Howard Road SE	7328
Plant Gen # 1	One factory mounted (CEMCO) generator set powered by a 99 hp John Deere diesel engine, Engine Family BJDXL04.5144 (Model year 2011)	632 Howard Road SE	7343
#154 – emergency generator	One MQ Power WhisperWatt™, Model DCA70SSJU, 40 kWe standby generator set powered by a John Deere 4045TF 90 hp Diesel Engine (Model year 2003)	632 Howard Road SE	7339

The equipment at the site will also include a small Infern-O-Therm HW-Series No. 2 fuel oil-fired hot water boiler with a rated heat input of 2.78 MMBTU/hr. Information on this unit was received by email on July 18, 2022.

TECHNICAL INFORMATION

While the permits being requested are not synthetic minor, the applicant is requesting that the CEMCO 150 plant be limited to 3,120 hours of operation per 12-consecutive-month rolling period and a production limit of 100,000 cubic yards in any consecutive 12-month period.

TECHNICAL SUPPORT MEMORANDUM

Schuster Concrete Ready Mix LLC – 632 Howard Rd SE

Chapter Permits Nos. 7328, 7339, and 7343

January 30, 2022

Page 3

As demonstrated in the emissions summary below, although these limitations are not necessary to ensure that emissions are maintained below the District’s major source threshold of 25 tons per year of NO_x or any other pollutant major source threshold, they will provide additional assurance of lower emissions from this site.

These operational limits have been established in Conditions III(a) and III(b) in permit 7328 and Condition III(b) in permit 7343.

EMISSIONS SUMMARY:

The following is an estimate of overall potential emissions from the facility:

FACILITY-WIDE EMISSIONS SUMMARY [TONS PER YEAR]		
Pollutants	Potential Emissions Without Limits[†]	Potential Emissions With Limits[‡]
Sulfur Dioxide (SO ₂)	0.94	0.36
Oxides of Nitrogen (NO _x)	2.53	1.04
Total Particulate Matter	6.66	0.51
Coarse Particulate Matter (PM10)	2.06	0.24
Fine Particulate Matter (PM2.5)	0.35	0.04
Volatile Organic Compounds (VOCs)	0.13	0.05
Carbon Monoxide (CO)	0.61	0.24

[†] Assumes 8760 hours per year of operation for plant operation and 500 hours per year for emergency generator operation.

[‡] Assumes 3,120 hours per year of operation for plant operation and 500 hours per year for emergency generator operation.

REGULATORY REVIEW:

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

All stationary engines regardless of size as well as concrete mixing equipment are subject to the Chapter 2 permitting requirements of this section. As such, all the significant units at the facility are subject to Chapter 2 permitting requirements. The 2.78 MMBTU/hr boiler would not separately be considered a significant unit requiring a permit, however, it is equipment used as part of the concrete plant operation and has applicable requirements. As such, it has been included in the concrete plant permit as part of the equipment covered by that permit.

As discussed above, the applicant has requested an operating hour limit of 3,120 hours per 12-consecutive-month rolling period for all operations at the site (except the emergency generator set, which is subject to a 500 hours per 12-consecutive-month rolling period limit). A limit on the CEMCO 150 concrete production rate of 100,000 cubic yards in any consecutive 12-month has also been requested. As shown above, these limits are not required to achieve minor source status

TECHNICAL SUPPORT MEMORANDUM

Schuster Concrete Ready Mix LLC – 632 Howard Rd SE

Chapter Permits Nos. 7328, 7339, and 7343

January 30, 2022

Page 4

but are being established pursuant to authority under 20 DCMR 201.

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

This section does not apply to the facility because the potential emissions of NO_x and all other pollutants from the equipment do not exceed the definition of “significant”.

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

Neither the proposed Multiquip WhisperWatt™ emergency generator set nor the CEMCO 150 onboard John Deere Engine have the potential to emit greater than 5 tons per year of NO_x. As such, they do not trigger applicability of 20 DCMR 209. Also, the plant does not have the potential to emit greater than 5 tons per year of PM₁₀ or PM_{2.5}. Thus, this section is not applicable to the facility as proposed.

20 DCMR Chapter 5 – Source Monitoring and Testing:

Throughout the permit, appropriate monitoring, testing, and record keeping requirements have been established to ensure that all emission and operational limits in the permit are enforceable as a practical matter. These requirements are established under the authority of Chapter 5.

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

The discharge of particulate matter¹ into the atmosphere from any process shall not exceed three hundredths (0.03) grains per dry standard cubic foot of the exhaust. Additionally, pursuant to 20 DCMR 603.1 and Appendix 6-1, based on the high process weight throughput of the equipment, the equipment is limited to emitting 40 pounds per hour of particulate matter. These limits are contained in Conditions II(c) and II(d) of draft permit 7328.

To meet the particulate matter emissions standards, the applicant has proposed the use of dust collectors controlling emissions from the mixer and truck loading operations and elevated storage silo loading. All dust collector filters are required to maintain a control efficiency of 99.9%. Proper operation of the dust collectors will be monitored regularly through the use of differential pressure monitoring (to monitor filter element status) and regular (at least weekly) visible emissions monitoring. To ensure continuous proper operation, the permit requires the Permittee to keep replacement filter elements for the dust collectors on site.

Additionally, to ensure the equipment is maintained, records of maintenance are required in the permit.

¹ 20 DCMR 603 refers to “particulate matter”, however, at the time that this regulation was promulgated, that term referred to what is now termed “total suspended particulate matter” (TSP), or total filterable particulate matter. As such, in order to avoid confusion with other classifications of particulate matter, the permit refers to TSP in lieu of the regulatory language.

TECHNICAL SUPPORT MEMORANDUM

Schuster Concrete Ready Mix LLC – 632 Howard Rd SE

Chapter Permits Nos. 7328, 7339, and 7343

January 30, 2022

Page 5

20 DCMR Chapter 6, Section 605: Control of Fugitive Dust

The visible emissions limitations of 20 DCMR 605 are applicable to this concrete mix equipment. Reasonable precautions shall be taken to minimize the emissions of any fugitive dust into the outdoor atmosphere. The reasonable precautions shall include, but not be limited to, in the case of demolition of building or structures, use, to the extent possible, of water; in the case of removal of demolition debris, which is dusty or likely to become dusty, use of water to thoroughly wet the material before moving or removing the material and keeping it wet or otherwise in a dust-free condition until eventual disposal. These requirements are found in Condition III(g) of permit 7328. Additional reasonable precautions not identified in the regulation, but identified as appropriate for this facility have been included in Condition III(h) of the permit. The facility must monitor the site for compliance per Condition IV(f) and maintain records of deviations per Condition V(i) of permit 7328.

20 DCMR Chapter 6 – Section 606: Visible Emissions:

The visible emissions limitations of 20 DCMR 606 apply to these concrete mix plant operations. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of the 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 malfunction of equipment.

This requirement is contained in Condition II(f) of permit 7328 as well as Condition II(a) of permit 7339 and Condition II(b) of permit 7343. Monitoring for compliance is required pursuant to Condition IV(c) of permit 7328, Condition IV(e) of permit 7339, and Condition IV(d) 7343. Records of any deviation must be kept pursuant to Condition V(f) of permit 7328, Condition V(a)(7) of permit 7339, and Condition V(a)(3) of permit 7343.

Note that language has been included in the permits notifying the facility that there is an outstanding call for a State Implementation Plan (SIP) revision from EPA that may result in revisions to the applicable regulation. As such, if the regulation is changed, the new regulatory requirements will supersede those expressed in the permit specifically.

20 DCMR 801: Sulfur Content of Fuel Oils:

This regulation limits fuel oil sulfur content to 1% by weight in all circumstances. There are more stringent requirements for commercial fuel oil, but the only portion of 20 DCMR 801 applicable to the engines is the 1% sulfur content limit. This requirement is streamlined with the more stringent requirements found in 40 CFR 63.6604(b) for the facility's non-NSPS engine and 40 CFR 60.4207(b) for the NSPS engine. Additionally, it applies to the commercial fuel oil used in the small boiler where the sulfur content of the distillate fuel oil used in the unit must not exceed 15 parts per million by weight (ppmw) pursuant to 20 DCMR 801.3. These requirements are specified in Condition III(j) of permit 7328, Condition III(d) of permit 7339, and Condition III(a) of Permit 7343.

TECHNICAL SUPPORT MEMORANDUM

Schuster Concrete Ready Mix LLC – 632 Howard Rd SE

Chapter Permits Nos. 7328, 7339, and 7343

January 30, 2022

Page 6

40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:

This regulation applies to the CEMCO 150 onboard John Deere engine to be installed and operated at the site. It applies to stationary compression ignition internal combustion engines (CI-ICE) that: 1) are model year of 2007 or later, 2) commenced construction after July 11, 2005 and were manufactured after April 1, 2006, or 3) were modified or reconstructed after July 11, 2005.

The requirements of this regulation applicable to this unit are incorporated throughout permit 7343.

40 CFR 63, Subpart JJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources:

As part of the equipment at the site, the permit applicant has proposed to install an Infern-O-Therm hot water boiler, rated at 2.78 MMBTU/hr heat input and fueled by No. 2 fuel oil. This equipment is covered by this regulation. The tune-up requirements are contained in Condition III(k) of permit 7328. Reporting requirements are contained in Condition V(m) of permit 7328. Record keeping related to this regulation is specified in Condition V(n) of permit 7328.

40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (NESHAP for RICE):

Subpart ZZZZ of 40 CFR 63 regulates HAPs such as acetaldehyde, acrolein, benzene, toluene, xylene, cadmium, chromium, lead, etc., through surrogate compounds such as formaldehyde, CO and/or VOC.

A facility that emits or has the PTE 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs is considered a major source of HAPs. Any source that is not a major source is an area source of HAPs. Because this facility does not have a PTE of more than 10 tons/year of a single HAP or an aggregate of more than 25 tons of total HAPs, it is not a major source; it is an area source.

Subpart ZZZZ is applicable to new or reconstructed compression ignition (CI) engines at this facility, where “new” is defined as those engines that are manufactured or reconstructed after June 12, 2006. The John Deere diesel-fired engine onboard the CEMCO 150 plant is an engine model year 2011, therefore it is considered “new” rather than “existing” with respect to this regulation. Pursuant to 40 CFR 63.6590(c)(1), because this unit is subject to 40 CFR 60, Subpart IIII, the only requirement under 40 CFR 63, Subpart ZZZZ is to comply with the requirements of 40 CFR 60, Subpart IIII, thus, while the 40 CFR 60, Subpart IIII requirements are specified in permit 7343, references to 40 CFR 63, Subpart ZZZZ have been omitted.

Subpart ZZZZ is also applicable to existing CI engines (those that are not “new” as described above). In this case, the regulation applies to the diesel-fired emergency engine powering the generator set addressed by permit 7339. All relevant requirements are found in permit 7339.

TECHNICAL SUPPORT MEMORANDUM

Schuster Concrete Ready Mix LLC – 632 Howard Rd SE

Chapter Permits Nos. 7328, 7339, and 7343

January 30, 2022

Page 7

Among these are the allowances for limited non-emergency operation found in Condition III(c) and the maintenance requirements specified in Condition III(g).

PROCEDURE FOR SUBMITTING COMMENTS OR REQUESTING PUBLIC HEARING:

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The District shall grant such a request if it is deemed appropriate. The venue, date, and time for any public hearing will be announced in the D.C. Register and on the Department's website.

COMMENT PERIOD:

Beginning Date: February 10, 2023

Ending Date: March 13, 2023

All written comments should be addressed to the following individual and office:

Stephen S. Ours, P.E.
Chief, Permitting Branch
Department of Energy and Environment
Air Quality Division
1200 First Street, NE, 5th Floor
Washington DC 20002
stephen.ours@dc.gov

POINT OF CONTACT FOR INQUIRIES:

Wyatt Bohmann
Environmental Engineer
Department of Energy and Environment
Air Quality Division
1200 First Street, NE, 5th Floor
Washington DC 20002
wyatt.bohmann@dc.gov

WEB